Definitive Interconnection System Impact Study for Generation Interconnection Requests

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Generator Interconnection

SPP Southwest Power Pool

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Executive Summary

Pursuant to the Generator Interconnection Procedures (GIP) of the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), SPP has conducted this Definitive Interconnection System Impact Study (DISIS). The Interconnection Customers' requests have been clustered together for the following System Impact Cluster Study window which closed September 30, 2014. The customers will be referred to in this study as the DISIS-2014-002 Interconnection Customers. This System Impact Study analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling approximately 7,241.1 MW of new generation which would be located within the transmission systems of American Electric Power – Western (AEPW), Empire District Electric Company (EMDE), Kansas City Power and Light Company – Greater Missouri Operations Company (KCPL-GMO), Grand River Dam Authority (GRDA), ITC Great Plains (ITCGP), Midwest Energy, Inc. (MIDW), Nebraska Public Power District (NPPD), Oklahoma Gas and Electric (OKGE), Southwestern Public Service (SPS), Sunflower Electric Power Corporation\Mid-Kansas Electric Company, LLC (SUNC\MKEC), and Westar Energy, Inc. (WERE). The various generation interconnection requests have differing proposed in-service dates[1]. The generation interconnection requests included in this System Impact Cluster Study are listed in Appendix A by their queue number, amount, requested interconnection service, area, requested interconnection point, proposed interconnection point, and the requested in-service date. A separate analysis for each Interconnection Request for "Stand-Alone" operation has also been performed. The "Stand-Alone" analysis shows results for each Interconnection Request if no other Interconnection Requests in the cluster study move forward. The "Stand-Alone" analysis also includes an analysis of Limited Operation that determines available Interconnection Service if constraints are identified in the "Stand-Alone" scenario.

Power flow analysis has indicated that for the power flow cases studied, 7,241.1 MW of nameplate generation may be interconnected with transmission system reinforcements within the SPP transmission system. Dynamic stability and power factor analysis has determined the need for reactive compensation in accordance with SPP stability and voltage recovery requirements and FERC Order #661A for wind farm interconnection requests and those requirements are listed for each interconnection request within the contents of this report. Dynamic stability analysis has determined that the transmission system will remain stable with the assigned Network Upgrades and necessary reactive compensation requirements. Certain measures for mitigation of the Gentleman Stability interface have yet to be determined as of the posting of this DISIS. These measures will be further analyzed in the Facility Study phase. A short circuit analysis has been performed with available short circuit values given in the stability study for each group in the appendices of this report.

[1] The generation interconnection requests in-service dates may need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customers that proceed to the Facility Study will be provided a new in-service date based on the Facility Study's time for completion of the Network Upgrades necessary or as otherwise provided for in the GIP.

In no way does this study guarantee operation for all periods of time. This interconnection study identifies and assigns transmission reinforcements for Energy Resource (ER) interconnection injection constraints (defined as a 20% distribution factor impact for outage based constraints and 3% distribution factor for system intact constraints) and Network Resource (NR) constraints (defined as 3% distribution factor impact), if requested by the Customer. These constraints are listed in Appendix G. This interconnection study does not assign transmission reinforcements for all potential transmission constraints. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

The total estimated minimum cost for interconnecting the DISIS-2014-002 Interconnection Customers is estimated at $1,255,482,858, plus the costs associated with mitigating certain other constraints including the stability flowgate of the Gerald Gentleman Station which are yet to be determined. These costs are shown in Appendix E and F. The cost to interconnect each Interconnection Request in "Stand-Alone" operation is estimated at $583,056,992. These costs are shown in Appendix E1[2]. Interconnection Service to DISIS-2014-002 Interconnection Customers is also contingent upon higher queued customers paying for certain required network upgrades. **The in-service date for the DISIS customers will be deferred until the construction of these network upgrades can be completed.**

These costs do not include the Interconnection Customer Interconnection Facilities as defined by the SPP Open Access Transmission Tariff (OATT). This cost does not include additional network constraints in the SPP transmission system identified and shown in Appendix H.

Additional network constraints listed in Appendix H are in the local area of the new generation when this generation is injected throughout the SPP footprint for Energy Resource Interconnection Service (ERIS) requests. Certain Interconnection Requests were also studied for Network Resource Interconnection Service (NRIS). Those constraints are also listed in Appendix H. Constraints listed in Appendix H do not require transmission reinforcement for Interconnection Service. Additional network constraints will have to be verified with a Transmission Service Request (TSR) and associated studies. With a defined source and sink in a TSR, this list of Network Constraints will be refined and expanded to account for all Network Upgrade requirements.

The required interconnection costs listed in Appendix E and F do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate

[2] The given total of the stand-alone interconnection costs is not a clear indication of system costs as many Interconnection Requests have been assigned the same upgrade costs.

studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT.

Table of Contents

Introduction **1**

Model Development **2**

Development of Base Cases 2

Identification of Network Constraints **6**

Determination of Cost Allocated Network Upgrades **7**

Required Interconnection Facilities **8**

Power Flow Analysis **9**

Curtailment and System Reliability 22

Stability & Short Circuit Analysis **23**

Conclusion **31**

Appendices **32**

A: Generation Interconnection Requests Considered for Impact Study A-0
B: Prior Queued Interconnection Requests B-0
C: Study Groupings C-0
D: Proposed Point of Interconnection One Line Diagrams D-0
E: Cost Allocation per Interconnection Request (Including Prior Queued Upgrades) E-0
E1: Stand Alone Cost Allocation per Interconnection Request (Including Prior Queued Upgrades) E1-0
F: Cost Allocation per Proposed Study Network Upgrade F-0
G: Power Flow Analysis (Constraints Used For Mitigation) G-0
G1: Stand Alone Power Flow Analysis (Constraints Used For Mitigation) G1-0
H: Power Flow Analysis (Other Constraints Not Requiring Mitigation) H-0
H1: Power Flow Analysis (Other Constraints Not Requiring Mitigation) H1-0
I: Power Flow Analysis (Constraints from Multi-Contingency) I-0
I1: Stand Alone Power Flow Analysis (Constraints from Multi-Contingency) I1-0
J: Group 1 Dynamic Stability Analysis Report J-0
K: Group 2 Dynamic Stability Analysis Report K-0
L: Group 3 Dynamic Stability Analysis Report L-0
M: Group 4 Dynamic Stability Analysis Report M-0
N: Group 5 Dynamic Stability Analysis Report N-0
O: Group 6 Dynamic Stability Analysis Report O-0
P: Group 7 Dynamic Stability Analysis Report P-0
Q: Group 8 Dynamic Stability Analysis Report Q-0
R: Group 9 Dynamic Stability Analysis Report R-0
S: Group 10 Dynamic Stability Analysis Report S-0
T: Group 13 Dynamic Stability Analysis Report T-0
U: Group 14 Dynamic Stability Analysis Report U-0

Introduction

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), SPP has conducted this Definitive Interconnection System Impact Study (DISIS) for certain generation interconnection requests in the SPP Generation Interconnection Queue. These interconnection requests have been clustered together for the following System Impact Study window which closed September 30, 2014. The customers will be referred to in this study as the DISIS-2014-002 Interconnection Customers. This DISIS analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling 7,241.1 MW of new generation which would be located within the transmission systems of American Electric Power –Western (AEPW), Empire District Electric Company (EMDE), Kansas City Power and Light Company – Greater Missouri Operations Company (KCPL-GMO), Grand River Dam Authority (GRDA), ITC Great Plains (ITCGP), Midwest Energy, Inc. (MIDW), Nebraska Public Power District (NPPD), Oklahoma Gas and Electric (OKGE), Southwestern Public Service (SPS), Sunflower Electric Power Corporation\Mid-Kansas Electric Company, LLC (SUNC\MKEC), and Westar Energy, Inc. (WERE). The various generation interconnection requests have differing proposed in-service dates[3]. The generation interconnection requests included in this System Impact Study are listed in Appendix A by their queue number, amount, requested interconnection service, area, requested interconnection point, proposed interconnection point, and the requested in-service date. A separate analysis for each Interconnection Request for "Stand-Alone" operation has also been performed. The "Stand-Alone" analysis shows results for each Interconnection Request if no other Interconnection Requests in the cluster study move forward. The "Stand-Alone" analysis also includes an analysis of Limited Operation that determines available Interconnection Service if constraints are identified in the "Stand-Alone" scenario.

The primary objective of this DISIS is to identify the system constraints associated with connecting the generation to the area transmission system. The Impact Study and other subsequent Interconnection Studies are designed to identify required interconnection facilities, Network Upgrades and other Direct Assignment Facilities needed to accept power into the grid at each specific interconnection receipt point.

[3] The generation interconnection requests in-service dates may need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customers that proceed to the Facility Study will be provided a new in-service date based on the completion of the Facility Study or as otherwise provided for in the GIP.

Model Development

Interconnection Requests Included in the Cluster

SPP included all interconnection requests that submitted a Definitive Interconnection System Impact Study Agreement no later than September 30, 2014 and were subsequently accepted by Southwest Power Pool under the terms of the Generator Interconnection Procedures (GIP) that were in effect at the time this study commenced on October 1, 2014. The interconnection requests that are included in this study are listed in Appendix A. The interconnection requests were studied both in a "cluster" scenario, studying all interconnection requests together, and in a "stand-alone" scenario, studying each interconnection request one at a time.

Affected System Interconnection Request

Also included in this Definitive Interconnection System Impact Study is twelve (12) Affected System Studies. The Affected System Interconnection Requests have been given the designations with the "ASGI" prefix. These requests are listed in Appendix A. Affected System Interconnection Requests were studied only in a "cluster" scenario.

Previously Queued Interconnection Requests

The previous queued requests included in this study are listed in Appendix B. In addition to the Base Case Upgrades, the previous queued requests and associated upgrades were assumed to be in-service and added to the Base Case models. These projects were dispatched as Energy Resources with equal distribution across the SPP footprint. Prior queued projects that requested Network Resource Interconnection Service (NRIS) were dispatched in an additional analysis into the balancing authority of the interconnecting transmission owner.

Development of Base Cases

Power Flow

The 2014 series Integrated Transmission Planning models (used in the 2015ITPNT) including the 2015 (spring and summer peak seasons), the 2020 (summer and winter peak seasons), and the 2025 (summer peak season) scenario 0 cases were used for this study. After the cases were developed, each of the control areas' resources were then re-dispatched to account for the new generation requests using current dispatch orders. Planned High Priority Incremental Loads (HPILs) are accounted for in these models.

Dynamic Stability

The 2014 series SPP Model Development Working Group (MDWG) Models 2014 winter, 2015 summer, and 2025 summer peak cases were used as starting points for this study.

Short Circuit

The 2025 summer peak stability case was used for this analysis.

Base Case Upgrades

The following facilities are part of the SPP Transmission Expansion Plan, the Balanced Portfolio or recently approved Priority Projects. These facilities have an approved Notification to Construct (NTC) or are in construction stages and were assumed to be in-service at the time of dispatch and added to the base case models. The DISIS-2014-002 Interconnection Customers have not been assigned advancement costs for the below listed projects. The DISIS-2014-002 Interconnection Customers Generation Facilities in service dates may need to be delayed until the completion of the following upgrades. In some cases, the in-service date is beyond the allowable time a customer can delay. In this case, the Interconnection Customer may move forward with Limited Operation or remain in the DISIS Queue for additional study cycles. If for some reason, construction on these projects is discontinued, additional restudies will be needed to determine the interconnection needs of the DISIS Interconnection Customers.

- 2012 Integrated Transmission Plan (2012 ITP10) Projects
  - Woodward-Tatonga-Mathewson-Cimarron 345kV transmission line, scheduled for 2021 in-service[4]
  - Chisholm – Gracemont 345kV transmission line, and Chisholm 345/230kV transformer circuit #1, scheduled for 3/1/2018 in-service[5]
- 2015 Integrated Transmission Plan Near Term (2015 ITPNT) Projects
  - China Draw 115kV Reactive Power Support
    - 200Mvar Capacitive and 50Mvar Inductive Static Var Compensator (SVC)
  - Road Runner 115kV Reactive Power Support
    - 200Mvar Capacitive and 50Mvar Inductive Static Var Compensator (SVC)
  - Agave Hill 115kV reactive Power Support
    - 28.8Mvar Capacitor Bank(s)
  - Potash Junction – Intrepid – IMC #1 – Livingston Ridge 115kV rebuild
- Balanced Portfolio Projects[6]:
  - Iatan – Nashua 345/161 kV Project, scheduled for 6/1/2015 in-service
    - Iatan – Nashua 345 kV circuit #1 and associated terminal equipment
    - Nashua 345/161/13 kV autotransformer circuit #1
- Nebraska City – Mullin Creek – Sibley 345kV circuit #1 build, scheduled for 6/1/2017 in-service[7]
- Northwest 345/138/13.8 kV circuit #3 autotransformer, scheduled for 6/1/2015 in-service[8]
- Hoskins – Neligh East 345/115 kV Project[9]
  - Neligh East 345/115 kV substation and transformer

[4] SPP Notification to Construct (NTC) 200223
[5] SPP Notification to Construct (NTC) 200240 and 200255
[6] SPP Notification to Construct (NTC) issued June 2009
[7] SPP Notification to Construct (NTC) 20097 and 20098
[8] SPP Transmission Service Project identified in SPP 2009-AG2-AFS6. Per SPP NTC 20137 & 200194
[9] SPP Regional Reliability 2012 ITP 10 Project Per SPP-NTC-200220

- Neligh East Area 115 kV upgrades to support new station
- Hoskins – Neligh East 345 kV circuit #1

- High Priority Incremental Loads (HPILs) Projects[10]:
  - TUCO Interchange – Yoakum – Hobbs Interchange 345/230 kV Project
    - TUCO Interchange – Yoakum – Hobbs Interchange 345 kV circuit #1 and associated terminal equipment upgrades
    - Hobbs 345/230/13 kV transformer circuit #1
    - Yoakum 345/230/13 kV transformer circuit #1
  - Battle Axe – Road Runner 115 kV circuit #1
  - Chaves County – Price – CV Pines – Capitan 115 kV circuit #1
  - China Draw – Yeso Hills 115 kV circuit #1
  - Dollarhide – Toboso Flats 115 kV circuit #1
  - Hobbs Interchange – Kiowa 345 kV circuit #1
  - Kiowa – North Loving – China Draw 345/115 kV Projects
    - Kiowa – North Loving – China Draw circuit #1 and associated terminal equipment upgrades
    - China Draw 345/115/13 kV transformer circuit #1
    - North Loving 345/115/13 kV transformer circuit #1
  - Kiowa – Road Runner 345/230/115 kV Projects
    - Kiowa 345/230 kV transformer circuit #1
    - Road Runner 345/115/13 kV transformer circuit #1
  - Livingston Ridge – Sage Brush – Lagarto – Cardinal 115 kV circuit #1
  - North Loving – South Loving 115 kV circuit #1
  - Ponderosa – Ponderosa Tap 115 kV circuit #1
  - Potash 230/115/13kV Transformer circuit #1 replacement

Contingent Upgrades

The following facilities do not yet have approval. These facilities have been assigned to higher queued interconnection customers. These facilities have been included in the models for the DISIS-2014-002 study and are assumed to be in service. This list may not be all inclusive. The DISIS-2014-002 Interconnection Customers, at this time, do not have responsibility for these facilities but may later be assigned the cost of these facilities if higher queued customers terminate their Generation Interconnection Agreement or withdraw from the interconnection queue. The DISIS-2014-002 Interconnection Customer Generation Facilities in-service dates may need to be delayed until the completion of the following upgrades.

- Upgrades assigned to DISIS-2009-001 Interconnection Customers:
  - Spearville Project
    - Spearville 345/115 kV transformer circuit #1 addition
    - Spearville – North Ft. Dodge 115 kV addition

[10] Per Network Upgrades assigned in High Priority Incremental Loads (HPILs) study, Including Direct Assigned Upgrades, Projects in SPP-NTC-200256 and SPP-NTC-200283.

        - Ft Dodge – North Ft. Dodge circuit #2 addition
        - Move Fort Dodge terminal of Shooting Star 115 kV at North Ft Dodge
    - Fort Randall – Meadow Grove – Kelly 230 kV circuit #1 rerate (320 MVA)
- Upgrades assigned to DISIS-2010-001 Interconnection Customers:
    - Switch 2749 – Wildorado 69 kV circuit # 1 rebuild
- Upgrades assigned to DISIS-2010-002 Interconnection Customers:
    - Twin Church – Dixon County 230 kV circuit #1 rerate (320 MVA)
    - Buckner – Spearville 345 kV terminal equipment
- Upgrades assigned to DISIS-2011-001 Interconnection Customers:
    - Hoskins – Dixon County – Twin Church 230 kV circuit #1 conductor clearance increase
    - (NRIS only) New Deal – TUCO 345 kV/115 kV Project
    - (NRIS only) Wolfforth Interchange 230/115/13 kV transformer circuit #1
    - (NRIS only) Woodward – FPL Switch – Mooreland – Glass Mountain 138 kV circuit #1 rebuild
- Upgrades assigned to DISIS-2011-002 Interconnection Customers:
    - None at this time
- Upgrades assigned to DISIS-2012-001 Interconnection Customers:
    - None at this time
- Upgrades assigned to DISIS-2012-002 Interconnection Customers:
    - Amoco Wasson – Oxy Tap 230 kV circuit #1 replace line traps
    - Associated Electric Cooperatives Inc. (AECI) Fairfax 138/69 kV transformer replacement
    - Lake Creek – Lone Wolf 69 kV circuit #1 reset CT
    - Remington – Fairfax 138 kV circuit #1 conductor clearance increase
    - (NRIS only) Arkansas City – Paris –Creswell – Oak – Rainbow – City of Winfield 69kV circuit #1 rebuild
    - (NRIS only) Creswell 138/69/13kV Transformer circuit #1 and #2, replacements
- Upgrades assigned to DISIS-2013-001 Interconnection Customers:
    - None at this time
- Upgrades assigned to DISIS-2013-002 Interconnection Customers:
    - Battle Creek – County Line – Neligh East 115kV circuit #1 rebuild
- Upgrades assigned to DISIS-2014-001 Interconnection Customers:
    - National Enrichment Plant – Targa – Cardinal 115kV circuit #1 rebuild

Potential Upgrades Not in the Base Case

Any potential upgrades that do not have a Notification to Construct (NTC) and not explicitly listed within this report have not been included in the base case. These upgrades include any identified in the SPP Extra-High Voltage (EHV) overlay plan, or any other SPP planning study other than the upgrades listed above in the previous section.

Regional Groupings

The interconnection requests listed in Appendix A were grouped together into twelve (12) active regional groups based on geographical and electrical impacts. These groupings are shown in Appendix C.

To determine interconnection impacts, twelve (12) different generation dispatch scenarios of the spring, summer, and winter base case models were developed to accommodate the regional groupings.

Power Flow

For Energy Resource Interconnection Service (ERIS), the generating plants were modeled at 100% nameplate of maximum generation. The generating plants in the remote areas were modeled at 20% nameplate of maximum generation. These projects were dispatched as Energy Resources with a load factor by area distribution across the SPP footprint. All generators that requested Network Resource Interconnection Service (NRIS) were dispatched in an additional analysis into the balancing authority of the interconnecting transmission owner at 100% nameplate with Energy Resource Interconnection Service (ERIS) only requests at 80% nameplate. This method allowed for the identification of network constraints that were common to the regional groupings that could then in turn have the mitigating upgrade cost allocated throughout the entire cluster.

Peaking units were not dispatched in the 2015 spring model. To study peaking units' impacts, the 2015 summer, 2020 summer and winter, and 2025 summer seasonal models were chosen and peaking units were modeled at 100% of the nameplate rating and non-dispatchable generating facilities were modeled at 10% of the nameplate rating. Each interconnection request was also modeled separately at 100% nameplate for certain analyses.

Dynamic Stability

For each group, all interconnection requests were studied at 100% nameplate output while the other groups were dispatched at 20% output for wind requests and 100% output for thermal requests.

Short Circuit

The dynamic stability models (2025 SP) were used for this analysis.

Identification of Network Constraints

The initial set of network constraints were found by using PSS®MUST First Contingency Incremental Transfer Capability (FCITC) analysis on the entire cluster grouping dispatched at the various levels mentioned above. The Energy Resource Interconnection Service (ERIS) constraints were then screened to determine which of the generation interconnection requests had at least a 20% Distribution Factor (DF) upon outage based constraints (n-1) and 3% DF upon system intact constraints (n-0). In addition, stability issues are also considered for transmission reinforcement under ERIS. Interconnection Requests that have requested Network Resource Interconnection Service (NRIS) were also studied in the NRIS analysis to determine if any constraint measured at least a 3% DF. If so, these constraints were also considered for mitigation under NRIS.

Constraints that were identified and require transmission reinforcement are listed in Appendix G for the "cluster scenario" and Appendix G-1 for the "stand-alone" scenario. These constraints met the criteria for analysis for Energy Resource Interconnection Service and Network Resource Interconnection Service (if requested).

Other network constraints which do not require transmission reinforcements are shown in Appendix H for the "cluster scenario" and Appendix H-1 for the "stand-alone" scenario. With a defined source and sink in a Transmission Service Request, this list of network constraints can be refined and expanded to account for all Network Upgrade requirements for firm transmission service. Additional constraints identified by multi-element contingencies are listed in Appendix I.

In no way does the list of constraints in Appendix G identify all potential constraints that guarantee operation for all periods of time. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Determination of Cost Allocated Network Upgrades

Cost Allocated Network Upgrades of wind generation interconnection requests were determined using the 2015 spring model. Cost Allocated Network Upgrades of peaking units was determined using the 2020 summer peak model. A PSS®MUST sensitivity analysis was performed to determine the Distribution Factors (DF), a distribution factor with no contingency that each generation interconnection request had on each new upgrade. The impact each generation interconnection request had on each upgrade project was weighted by the size of each request. Finally the costs due by each request for a particular project were then determined by allocating the portion of each request's impact over the impact of all affecting requests.

For example, assume that there are three Generation Interconnection requests, X, Y, and Z that are responsible for the costs of Upgrade Project '1'. Given that their respective PTDF for the project have been determined, the cost allocation for Generation Interconnection request 'X' for Upgrade Project 1 is found by the following set of steps and formulas:

- Determine an Impact Factor on a given project for all responsible GI requests:

  Request X Impact Factor on Upgrade Project 1 = PTDF(%)(X) * MW(X) = X1

  Request Y Impact Factor on Upgrade Project 1 = PTDF(%)(Y) * MW(Y) = Y1

  Request Z Impact Factor on Upgrade Project 1 = PTDF(%)(Z) * MW(Z) = Z1

- Determine each request's Allocation of Cost for that particular project:

$$\text{Request X's Project 1 Cost Allocation (\$)} = \frac{\text{Network Upgrade Project 1 Cost(\$)} * X1}{X1 + Y1 + Z1}$$

- Repeat previous for each responsible GI request for each Project

The cost allocation of each needed Network Upgrade is determined by the size of each request and its impact on the given project. This allows for the most efficient and reasonable mechanism for sharing the costs of upgrades.

Credits/Compensation for Amounts Advanced for Network Upgrades

Interconnection Customer shall be entitled to either credits or potentially Long Term Congestion Rights (LTCR)[11] in accordance with Attachment Z2 of the SPP Tariff for any Network Upgrades including any tax gross-up or any other tax-related payments associated with the Network Upgrades, and not refunded to the Interconnection Customer.

Required Interconnection Facilities

The requirement to interconnect the 7,241.1 MW of generation into the existing and proposed transmission systems in the affected areas of the SPP transmission footprint consist of the necessary cost allocated shared facilities listed in Appendix F by upgrade. The interconnection requirements for the cluster total an estimated $1,255,482,858 plus the costs associated with mitigating additional constraints including the stability flowgate limit of Gerald Gentleman Station which are yet to be determined. The interconnection requirements for the interconnection request studied for the "stand-alone" scenario total an estimated $583,056,992[12]. Interconnection Facilities specific to each generation interconnection request are listed in Appendix E. A preliminary one-line drawing for each generation interconnection request are listed in Appendix D.

For an explanation of how required Network Upgrades and Interconnection Facilities were determined, refer to the section on "Identification of Network Constraints" above.

Facilities Analysis

The Transmission Owner for each Interconnection Request has provided its analysis of Interconnection Facilities and Network Upgrades at the Point of Interconnection, shown in Appendix D. This analysis was limited only to the facilities at the substation at the Point of Interconnection. These costs as provided by the Transmission Owners are given with the one-line diagrams in Appendix D and are also listed in Appendix E and F as "Interconnection Costs". These costs will be refined by the Transmission Owner as part of the Interconnection Facilities Study. Any additional Network Upgrades identified by this DISIS beyond the Point of Interconnection were either analyzed by the Transmission Owner or by SPP. These additional Network Upgrade costs will be more closely estimated by the Transmission Owner in the Interconnection Facilities Study.

[11] FERC compliance filing pending

[12] The given total of the stand-alone interconnection costs is not a clear indication of system costs as many Interconnection Requests have been assigned the same upgrade costs.

Power Flow Analysis

Power Flow Analysis Methodology

The ACCC function of PSS®E was used to simulate single element and special (i.e., breaker-to-breaker, multi-element, etc) contingencies in portions or all of the modeled control areas of SPP, as well as, other control areas external to SPP and the resulting scenarios analyzed. Single element and multi-element contingencies were evaluated.

Power Flow Analysis

A power flow analysis was conducted for each Interconnection Customer's facility using modified versions of the 2015 spring and summer peak, , the 2020 summer and winter peak, and the 2025 summer peak models. The output of the Interconnection Customer's facility was offset in each model by a reduction in output of existing online SPP generation. This method allows the request to be studied as an Energy Resource Interconnection Service request (ERIS). Certain requests that are pursuing Network Resource Interconnection Service (NRIS) had an additional analysis conducted for displacing resources in the interconnecting Transmission Owner's balancing authority.

Cluster Group 1 (Woodward Area)

In addition to the 4,222.2MW of previously queued generation in the area, 1,011.0MW of new interconnection service was studied. Due to the addition of the new Interconnection Requests, potential voltage collapse was observed for an outage of the Northwest-Tatonga 345kV line and the proposed tap substation for GEN-2014-058 – Mathewson. To mitigate this voltage collapse, the second 345kV circuit from Woodward-Tatonga-Mathewson-Cimarron must be placed in service. This line, which was approved in the 2012 ITP10, has an in-service date of 2021, well beyond the in-service dates of the Interconnection Request that require this upgrade. As GEN-2014-058 and GEN-2014-061 are allowed a delay of no more than three years of their in-service date, these Interconnection Requests will not be able to move forward into the Interconnection Facilities Study Queue unless they both executed a Limited Operation Interconnection Facilities Study Agreement. Under this agreement, the Interconnection Customers agree to construct their assigned Interconnection Facilities and Network Upgrades immediately after finalizing the Generator Interconnection Agreement. Additionally, the Woodward-FPL Switch-Mooreland 138kV transmission line is found to be overloaded which also limits Interconnection Service for these Interconnection Requests. The upgrades, which are currently cost assigned to DISIS-2011-001 Interconnection Requests will need to be advanced by DISIS-2014-002 Interconnection Requests to make their in-service dates. Interconnection Customers may also advance the construction of the Woodward-Tatonga-Mathewson-Cimarron 345kV circuit #2 line and Mathewson 345kV substation to meet their in-service date.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Non-converged contingency	N/A	N/A	G14-058T 345.00 - NORTHWEST 345KV CKT 1
Non-converged contingency	N/A	N/A	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FPL SWITCH - MOORELAND 138KV CKT 1	268	112.3	System Intact
FPL SWITCH - WOODWARD 138KV CKT 1	153	161.8	System Intact

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
CIMARRON - DRAPER LAKE 345KV CKT 1	717	102.8	GRACEMONT - MINCO 345KV CKT 1 GRACEMONT - MINCO 345KV CKT 1'
G14-057T 345.00 - SUNNYSIDE 345KV CKT 1	789	115.8	CIMARRON - MINCO 345KV CKT 1
G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1	789	109.8	CIMARRON - MINCO 345KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently, no NRIS service type violations for mitigation for requests in this group			

Group 1 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. The Woodward-FPL Switch-Mooreland 138kV line is a constraint for GEN-2014-058 and GEN-2014-061. An analysis for limited operation indicates that Limited Operation for Group 1 Interconnection Requests will be limited to 0MW prior to the in-service date of the upgrade to alleviate this constraint. Additionally, the Northwest-Tatonga 345kV line shows as a constraint for GEN-2014-058 and GEN-2014-061. This constraint is not scheduled to be mitigated until 2021 by the addition of the Mathewson-Cimarron 345kV line. As such, these Interconnection Requests can only proceed forward into the Interconnection Facilities Study by executing the Limited Operation Interconnection Facilities Study.

Group 1 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that most limits LOIS
GEN-2012-031	200.0	None
GEN-2014-020	100.0	None
GEN-2014-056	250.0	None
GEN-2014-058[13]	0	Woodward-FPL Switch 138kV Northwest – Tatonga 345kV
GEN-2014-061[14]	0	Woodward- FPL Switch 138kV Northwest – Tatonga 345kV

Cluster Group 2 (Hitchland Area)

In addition to the 2,962.7MW of previously queued generation in the area, 765.0 MW of new interconnection service was studied. Due to the addition of the new Interconnection Requests,

[13] Requires execution of a Limited Operation Interconnection Facilities Study Agreement to move out of the DISIS Queue.

[14] See previous footnote.

potential voltage collapse was observed for an outage of the Northwest-Tatonga 345kV line and the proposed tap substation for GEN-2014-058 – Mathewson. To mitigate this voltage collapse, the second 345kV circuit from Woodward-Tatonga-Mathewson-Cimarron must be placed in service. This line approved in the 2012 ITP10 has an in-service date of 2021, well beyond the in-service date of the Interconnection Requests in Group 2. As the Interconnection Requests in Group 2 can delay their in-service dates no more than three years, these Interconnection Requests will not be able to move forward into the Interconnection Facilities Study Queue unless they execute a Limited Operation Interconnection Facilities Study Agreement. Under this agreement, the Interconnection Customers agree to construct their assigned Interconnection Facilities and Network Upgrades immediately after finalizing the Generator Interconnection Agreement. Another constraint that was identified was voltage collapse for the loss of the line segment from Beaver County – Woodward 345kV. The mitigation of this constraint was determined to construct a new 345kV transmission line from the Beaver County substation south near Grapevine substation in Gray County, Texas. At this point the line will interconnect with a 345kV line initially proposed for Group 6 that connects the Potter 345kV substation to the Chisolm 345kV substation. The Potter-Grapevine 345kV line is cost allocated to Group 6 requests, Beaver County-Grapevine is cost allocated to Group 2 requests, while the Grapevine-Chisolm 345kV line is cost allocated to Group 2 and Group 6 requests. Additionally, the FPL Switch-Woodward 138kV transmission line is found to be overloaded which also limits Interconnection Service for these Interconnection Requests. The upgrades, which are currently cost assigned to DISIS-2011-001 Interconnection Requests will need to be advanced by DISIS-2014-002 Interconnection Requests to realize their requested in-service dates. Interconnection Customers may also advance the construction of the Woodward-Tatonga-Mathewson-Cimarron 345kV line to meet their in-service date. Finally, GEN-2014-038, on the Potter-Hitchland 345kV line, was found to cause overloads on the Potter 345/230kV transformer, which will require either an additional transformer at Potter or a replacement of the existing unit.

Cluster ERIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
Non-converged contingency	N/A	N/A	G14-058T 345.00 - NORTHWEST 345KV CKT 1
Non-converged contingency	N/A	N/A	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
Non-converged contingency	N/A	N/A	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
Non-converged contingency	N/A	N/A	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
Non-converged contingency	N/A	N/A	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
Non-converged contingency	N/A	N/A	ELK CITY 230KV - SWEETWATER 230KV CKT 1
Non-converged contingency	N/A	N/A	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
Non-converged contingency	N/A	N/A	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
Non-converged contingency	N/A	N/A	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
Non-converged contingency	N/A	N/A	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
Non-converged contingency	N/A	N/A	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
Non-converged contingency	N/A	N/A	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
Non-converged contingency	N/A	N/A	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
Non-converged contingency	N/A	N/A	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
Non-converged contingency	N/A	N/A	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
Non-converged contingency	N/A	N/A	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1

Non-converged contingency	N/A	N/A	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FPL SWITCH - WOODWARD 138KV CKT 1	153	225.3	System Intact
FPL SWITCH - MOORELAND 138KV CKT 1	268	115.6	System Intact
POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	134.1	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	316	110.0	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FPL SWITCH - MOORELAND 138KV CKT 1	287	138.5	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FPL SWITCH - WOODWARD 138KV CKT 1	153	252.5	G14-058T 345.00 - NORTHWEST 345KV CKT 1
GLASS MOUNTAIN - MOORELAND 138KV CKT 1	124	106.4	G14-058T 345.00 - NORTHWEST 345KV CKT 1
GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	361	100.5	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	106.0	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
WOODWARD - WOODWARD 69KV CKT 1	110	119.5	FPL SWITCH - MOORELAND 138KV CKT 1
WOODWARD - WOODWARD EHV 138KV CKT 1	287	121.5	WOODWARD - WOODWARD EHV 138KV CKT 2
WOODWARD - WOODWARD EHV 138KV CKT 2	287	110.5	WOODWARD - WOODWARD EHV 138KV CKT 1
WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	134	126.8	FPL SWITCH - MOORELAND 138KV CKT 1

Group 2 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. The Woodward-Wind Farm-Mooreland 138kV line is a constraint for all Group 2 Interconnection Requests. An analysis for limited operation indicates that Limited Operation for Group 2 Interconnection Requests will be limited to 0MW prior to the in-service date of the upgrade to alleviate this constraint. GEN-2014-038 is also limited by the Potter County 345/230kV transformer. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 2 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	**MW**	**Constraint that limits LOIS**
GEN-2014-019	0	Woodward-FPL Switch-Mooreland 138kV
GEN-2014-026	0	Woodward- FPL Switch-Mooreland 138kV
GEN-2014-037	0	Woodward- FPL Switch-Mooreland 138kV Finney-Hitchland 345kV
GEN-2014-038	0	Woodward- FPL Switch-Mooreland 138kV Potter County 345/138kV Finney-Hitchland 345kV
GEN-2014-052	0	Woodward- FPL Switch-Mooreland 138kV

Cluster Group 3 (Spearville Area)

In addition to the 3,640.3 MW of previously queued generation in the area, 299.0 MW of new interconnection service was studied. The addition of all of the Group 3 Interconnection Requests caused voltage collapse for multiple transmission outlets for the Group 3 area. It was found that

adding a static var compensator (SVC) at Clark County 345kV would be adequate for mitigating these constraints. Additionally, 138kV line overloads from Harper-Milan-Clearwater will limit Interconnection Service to GEN-2014-049. These lines will need to be rebuilt.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Non-converged contingency	N/A	N/A	G13-010T 345.00 - POST ROCK 345KV CKT 1
Non-converged contingency	N/A	N/A	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 1
Non-converged contingency	N/A	N/A	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 2
Non-converged contingency	N/A	N/A	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
Non-converged contingency	N/A	N/A	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
Non-converged contingency	N/A	N/A	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
Non-converged contingency	N/A	N/A	SPP-SWPS-05
CLEARWATER - MILAN TAP 138KV CKT 1	110	122.3	System Intact
FPL SWITCH - WOODWARD 138KV CKT 1	133	173.6	System Intact
HARPER - MILAN TAP 138KV CKT 1	143	106.2	System Intact
KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	398	106.7	AXTELL - POST ROCK 345KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
No Current Study Requests in this group with NRIS Service Type			

Group 3 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. Stand-Alone analysis results in the need for static var compensator (SVC) at the Point of Interconnection (POI) for each group 3 request. For GEN-2013-010 stand alone it was determined an approximately 50Mvar SVC at GEN-2013-010 Tap 345kV would mitigate the voltage issues during contingency. For GEN-2014-049 stand alone it was determined an approximately 75Mvar SVC at Thistle 345kV would mitigate the voltage issues during contingency. The Woodward-FPL Switch -Mooreland 138kV line is a constraint for Group 3 Interconnection Requests. An analysis for limited operation indicates that Limited Operation for Group 3 Interconnection Requests will be limited to 0MW prior to the in-service date of the upgrade to alleviate this constraint. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 3 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2013-010	0	Woodward- FPL Switch 138kV Knoll-Post Rock 230kV Buckner-Holcomb 345kV Finney-Holcomb 345kV

GEN-2014-049	0	Woodward- FPL Switch 138kV Clearwater-Milan 138kV Harper-Milan 138kV Buckner-Holcomb 345kV

Cluster Group 4 (Northwest Kansas Area)

In addition to the 1,882.7 MW of previously queued generation in the area, 193.2 MW of new interconnection service was studied. The Arnold-Ransom 115kV line will need to be rebuilt to accommodate the output primarily from GEN-2014-041. Recent maintenance work has increased the Heizer - LaCrosse Tap 115kV rating from 88MVA to 96MVA. 96MVA is sufficient enough for the current study analysis results alleviate the Heizer – LaCrosse Tap overload for the outage of Buckner – Spearville 345kV. Smokey Hills – Summit 230kV will require some upgrades to mitigate the thermal overload during contingency.

Cluster ERIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
ARNOLD - RANSOM 115KV CKT 1	79.7	148.0	ARNOLD - GOVE 115KV CKT 1
SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	109.5	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
HEIZER - LACROSSE TAP 115KV CKT 1	88	100.9	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
No Current Study Requests in this group with NRIS Service Type			

Group 4 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. GEN-2010-048 stand alone analysis determined the need for Smokey Hills – Summit 230kV circuit #1 upgrade for replacing structures to increase the thermal rating, as identified in the cluster impact analysis. GEN-2014-041 stand alone analysis determined the need for Arnold – Ransom 115kV circuit #1 thermal rating increase during contingency, which was also identified in the cluster analysis. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 4 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	**MW**	**Constraint that limits LOIS**
GEN-2010-048	20	Smoky Hills- Summit 230kV
GEN-2014-025	2.4	None
GEN-2014-041	70	Arnold – Ransom 115kV

Cluster Group 5 (Amarillo Area)

In addition to the 704.1 MW of previously queued generation in the area, 913.0 MW of new interconnection service was studied. Constraints for group 5 included overloads around Bushland and several NRIS constraints. For GEN-2014-067 and GEN-2014-068, it will be necessary to add a connection between the Potter - Newhart 230kV line and the Deaf Smith - Bushland 230kV line to alleviate these constraints as well as mitigate flows from generation to the south in Group 6.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	160	100.2	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	160	100.2	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1'
BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	100	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	160	105.8	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	105.6	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
CANYON WEST SUB - DAWN SUB 115KV CKT 1	96	108.9	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	160	117.0	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	96	113.2	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
DEAF SMITH COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	160	107.64	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1

Group 5 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. GEN-2014-040 ERIS analysis was found to be limited by the Bailey County – Earth 115kV line. In addition to the ERIS analysis, GEN-2014-040 NRIS was also limited by Bushland 115kV facilities as shown in Appendix E1. GEN-2014-067 was found to be constrained by the 230kV line from the generator to Newhart. The mitigation is to add a connection between the Potter-Newhart 230kV line and the Deaf Smith - Bushland 230kV line to alleviate these constraints as well as mitigate flows from generation to the south in Group 6. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 5 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2014-040	320	Bailey County – Earth 115kV
GEN-2014-067	325	GEN-2014-067T – Newhart 230kV

Limited Operation Analysis		
Interconnection Request	**MW**	**Constraint that limits LOIS**
GEN-2014-068	203.0	None

Cluster Group 6 (South Texas Panhandle/New Mexico)

In addition to the 3,481.8 MW of previously queued generation in the area, 2,124.7 MW of new interconnection service was studied. With the large amount of generation that was requested in this area, several lines that connect this area to other areas were found to be overloaded or at risk of voltage collapse. A second 345kV line from TUCO Interchange GEN-2014-007 Tap-Border-Chisolm was found to be required in addition to the Chisolm - Gracemont 345kV line just to have a starting point for the analysis. Additional upgrades needed for this group included reactive compensation at Border 345kV, reactive compensation at Oklaunion 345kV, Tolk – TUCO Interchange 345kV, Potter County - Grapevine - Chisolm - Gracemont 345kV, and Tolk–Potter County 345kV. Interconnecting additional resources into the transmission system north of Pleasant Hill, NM, was also difficult due to a weak transmission system and voltage collapse. To mitigate these issues the transmission line from Norton-Pleasant Hill 115 kV was converted to 230kV and reactive equipment was added, either at specific Customer locations or on the transmission system, to support the voltage in the area under constraints. Other upgrades more specific to the individual requests were also required. ERIS service type Network Upgrades identified in this impact cluster analysis could potentially be mitigating NRIS service type violations. If any Interconnection Customers withdrawn from the DISIS-2014-002 in this regional area, the need for ERIS and/or NRIS service type Network Upgrades will have be reevaluated.

Cluster ERIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
Non-Converged Contingency	N/A	N/A	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
Non-Converged Contingency	N/A	N/A	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
Non-Converged Contingency	N/A	N/A	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
Non-Converged Contingency	N/A	N/A	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
Non-Converged Contingency	N/A	N/A	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
Non-Converged Contingency	N/A	N/A	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
Non-Converged Contingency	N/A	N/A	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
Non-Converged Contingency	N/A	N/A	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
Non-Converged Contingency	N/A	N/A	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
Non-Converged Contingency	N/A	N/A	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
Non-Converged Contingency	N/A	N/A	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
Non-Converged Contingency	N/A	N/A	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
Non-Converged Contingency	N/A	N/A	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
Non-Converged Contingency	N/A	N/A	G14-067T 230.00 - NEWHART 230 230KV CKT 1
Non-Converged Contingency	N/A	N/A	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
Non-Converged Contingency	N/A	N/A	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
Non-Converged Contingency	N/A	N/A	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Non-Converged Contingency	N/A	N/A	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
Non-Converged Contingency	N/A	N/A	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
Non-Converged Contingency	N/A	N/A	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	101.4	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
CIMARRON - MINCO 345KV CKT 1	956	116.1	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	125.3	BASE CASE
CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	117.5	BASE CASE
CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	108.2	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	118.0	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	117.8	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	129.1	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	154	101.6	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	351	101.8	'HOBBS - KIOWA 7345.00 345KV CKT 1'

Group 6 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. For each Interconnection Customer, GEN-2013-027, GEN-2014-046, GEN-2014-062, and GEN-2014-063 stand alone analysis has determined the need for a 3rd circuit between Tolk – Plant X 230kV. GEN-2014-063 stand alone additional shows the need for the prior assigned SPP High Priority Incremental load (HPILs) Network upgrade Hobbs Interchange – Yoakum – TUCO Interchange 345/230kV Project along with some of the same NRIS service type network upgrades identified in the cluster impact study. GEN-2014-063 has some new network upgrades identified in the stand alone analysis that could have possibly be mitigated for by the 345kV network upgrades assigned in the cluster impact analysis. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 6 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2013-027	85	Plant X – Tolk 230kV
GEN-2014-007	0	Woodward-Wind Farm 138kV Swisher – Tuco 230kV Grapevine-Nichols 230kV

Limited Operation Analysis		
Interconnection Request	**MW**	**Constraint that limits LOIS**
GEN-2014-033	70.0	None
GEN-2014-034	70.0	None
GEN-2014-035	30.0	None
GEN-2014-046	85 0(NRIS)	Plant X – Tolk 230kV various
GEN-2014-047	40.0	None
GEN-2014-048	110.0	None
GEN-2014-053	80.0	None
GEN-2014-054	85	Carlisle 230/115kV transformer
GEN-2014-062	85	Plant X – Tolk 230kV
GEN-2014-063	250 253 140 0(NRIS)	Hobb 230/115kV Grapevine-Nichols 230kV Plant X – Tolk 230kV Various
GEN-2014-066	0 0(NRIS)	Stability Issues Various
GEN-2014-069	90 0(NRIS)	Various
GEN-2014-070	110 50(NRIS)	Yoakum Xfmr

Cluster Group 7 (Southwestern Oklahoma)

In addition to the 1,900.0 MW of previously queued generation in the area, 50.0 MW of new interconnection service was studied. No new power flow constraints were found in this area. Certain reactive power requirements may be necessary as discussed in the stability section.

Cluster ERIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
Currently, No ERIS Group 7 constraints			

Cluster NRIS Constraints			
MONITORED ELEMENT	**Limiting Rate A/B (MVA)**	**TC%LOADING (% MVA)**	**CONTINGENCY**
No Current Study Requests in this group with NRIS Service Type			

Group 7 (Stand Alone)

No constraints for stand-alone operation with proper reactive compensation.

Group 7 (Limited Operation)

Limited Operation Analysis		
Interconnection Request	**MW**	**Constraint that limits LOIS**
GEN-2014-036	50	Reactive Compensation Required

Cluster Group 8 (North Oklahoma/South Central Kansas)

In addition to the 3,849.4 MW of previously queued generation in the area, 354.8 MW of new interconnection service was studied. No new ERIS constraints for mitigation were found in this area.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently, No ERIS Group 8 constraints			

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
No Current Study Requests in Group 8 with NRIS Service Type			

Group 8 (Stand Alone)

No constraints for stand-alone operation.

Group 8 (Limited Operation)

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2014-022	15.0	None
GEN-2014-028	35.0	None
GEN-2014-064	248.4	None

Cluster Group 9 (Nebraska Area)

In addition to the 1,963.1 MW of previously queued generation in the area, 646.4 MW of new interconnection service was studied. ERIS constraints occurred on the Kelly – Fort Randall 230kV line. The mitigation for these constraints is to add a 230kV line from Meadow Grove to South Norfork and add a 230/345kV step-up transformer at South Norfork. In an event where Meadow Grove – South Norfolk 230kV transmission circuit cannot achieve a higher emergency rating than 320MVA, then a secondary outlet from Meadow Grove would be built to North Petersburg 115kV, including a step down 230/115kV transformer at Meadow Grove. The 115kV build would also require replacement of the strain bus from North Petersburg – Petersburg 115kV.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
GGS	1627	105.8	System Intact Flowgate
GENTLMREDWIL	349.7	112.0	System Intact Flowgate
PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	100.3	System Intact
FT RANDAL - G14_023T 230.00 230KV CKT 1	320	123.1	KELLY - MEADOWGROVE4230.00 230KV CKT 1
G14-059T 230.00 - OGALLALA 230KV CKT 1	320	135.9	KEYSTONE - SIDNEY 345KV CKT 1
GAVINS POINT - YANKON JCT 115KV CKT 1	120	153.9	MANNING - SPIRIT MOUND 115KV CKT 1
GERALD GENTLEMAN STATION - OGALLALA 230KV CKT 1	320	107.7	GERALD GENTLEMAN STATION - KEYSTONE 345KV CKT 1
KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	108.9	FT RANDAL - G14_023T 230.00 230KV CKT 1
MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	102.5	'KELLY - MEADOWGROVE4230.00 230KV CKT 1'

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY

Cluster NRIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
FT RANDAL - G14_023T 230.00 230KV CKT 1	320	109.0	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FT RANDAL - SPENCER 115KV CKT 1	120	103.7	AINSWORTH - AINSWORTH 115KV CKT 1
G14-059T 230.00 - OGALLALA 230KV CKT 1	320	125.9	KEYSTONE - SIDNEY 345KV CKT 1

Group 9 (Stand Alone)

The Interconnection Requests were studied as a Stand Alone Interconnection Request in addition to the cluster analysis. GEN-2014-023 stand alone analysis determined the need for Meadow Grove – South Norfolk 230kV, however the incremental need to this upgrade to achieve 368MVA thermal rating is not needed in the stand alone analysis. GEN-2014-023 stand alone NRIS service type has determined in addition to the ERIS service type network upgrade Meadow Grove – South Norfolk 230kV, Albion – Petersburg – North Petersburg 115kV is limited by a strain bus replacement. For Stand Alone Cost Allocation please refer to Appendix E1.

Group 9 (Limited Operation)

Limited Operation results are listed below. While these results are based on the criteria listed in GIP 8.4.3, the Interconnection Customer may request additional scenarios for Limited Operation based on higher queued Interconnection Requests not being placed in service.

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2014-023	52	Fort Randall-GEN-2014-023 230kV
GEN-2014-031	35.0	None
GEN-2014-032	10.2	None
GEN-2014-039	73.6	None
GEN-2014-055	0	Gavins Point – Yankton (WAPA)
GEN-2014-059	0	GEN-2014-059 – Ogallala GGS Stability Limit Gentleman - RedWillow flowgate
GEN-2014-060	125.8	None

Cluster Group 10 (Southeast Oklahoma/Northeast Texas)

In addition to the 0.0 MW of previously queued generation in the area, 60.0 MW of new interconnection service was studied. No ERIS constraints were found for this area.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently, No ERIS Group 10 constraints			

Group 10 (Stand Alone)

No constraints for stand-alone operation.

Group 10 (Limited Operation)

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS

GEN-2014-027	60.0	None

Cluster Group 12 (Northwest Arkansas)

In addition to the 30.0 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

Cluster Group 13 (Northwest Missouri)

In addition to the 314.6 MW of previously queued generation in the area, 574.0 MW of new interconnection service was studied. Interconnection Customer, GEN-2014-051, Interconnecting into Jeffrey Energy Center 345kV should be aware of the existing thermal operating guide. For prior outages of the 345kV lines out of Jeffrey Energy Center, the GEN-2014-051 generator will have an operating limit of 0MW.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently, No ERIS Group 13 constraints			

Group 13 (Stand Alone)

No constraints for stand-alone operation.

Group 13 (Limited Operation)

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2014-021	300.0	Pending Nebraska City – Sibley 345kV in-service
GEN-2014-050	100.0	None
GEN-2014-051	174.0	None

Cluster Group 14 (South Central Oklahoma)

In addition to the 362.5 MW of previously queued generation in the area, 250.0 MW of new interconnection service was studied. The following constraints were found in this area.

Cluster ERIS Constraints			
MONITORED ELEMENT	Limiting Rate A/B (MVA)	TC%LOADING (% MVA)	CONTINGENCY
Currently, No ERIS Group 14 constraints			

Group 14 (Stand Alone)

No constraints for stand-alone operation

Group 14 (Limited Operation)

Limited Operation Analysis		
Interconnection Request	MW	Constraint that limits LOIS
GEN-2014-057	250	

Curtailment and System Reliability

In no way does this study guarantee operation for all periods of time. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Stability & Short Circuit Analysis

A stability and short circuit analysis was conducted for each Interconnection Customer using modified versions of the 2014 series SPP Model Development Working Group (MDWG) Models 2015 winter, 2015 summer, and 2025 summer peak dynamic cases[15]. The stability analysis was conducted with all upgrades in service that were identified in the power flow analysis unless otherwise noted in the individual group stability study. For each group, the interconnection requests were studied at 100% nameplate output while the other groups were dispatched at 20% output for non-dispatchable requests and 100% output for other requests. The output of the Interconnection Customer's facility was offset in each model by a reduction in output of existing online SPP generation. Each Interconnection Request was studied in a Stand Alone scenario in addition to the cluster scenario. The following synopsis is included for each group. The entire stability study for each group can be found in the Appendices.

Cluster Group 1 (Woodward Area)

The Group 1 stability analysis for this area was performed by S&C Electric (S&C). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the contingencies studied. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the S&C Group 1 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2012-031**	200.1	Siemens 2.3MW	Cimarron 345kV	0.95	0.95
GEN-2014-020	100	Vestas V110 2.0MW	Tuttle 138kV	0.95	0.95
GEN-2014-056**	250	G.E. 2.0MW	Minco 345kV	0.95	0.95
GEN-2014-058**	300	G.E. 2.0MW	Tap Tatonga – Mathewson 345kV	0.95	0.95
GEN-2014-061**	161	G.E. 2.3MW	Tatonga 345kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 2 (Hitchland Area)

The Group 2 stability analysis for this area was performed by POWER-tek Global (POWER-tek). Stability analysis has determined that with all previously assigned and currently assigned Network

[15] Short Circuit analysis performed only on the 2025 Summer Peak seasonal model.

Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain instabilities were encountered for extreme events that will be mitigated through generation curtailment. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the POWER-tek Group 2 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-019**	15.04[16]	G.E. 1.79MW	Beaver County 345kV	0.95	0.95
GEN-2014-026**	150	Acciona 3MW	Beaver County 345kV	0.95	0.95
GEN-2014-037**	200	Vestas V110 2MW	Tap on Hitchland-Beaver County 345kV	0.95	0.95
GEN-2014-038**	200	Vestas V110 2MW	Tap on Hitchland-Potter County 345kV	0.95	0.95
GEN-2014-052**	200	G.E. 2MW	Tap on Beaver County – Woodward 345kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 3 (Spearville Area)

The Group 3 stability analysis for this area was performed by MAPPCOR. Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain instabilities were encountered for extreme events that will be mitigated through generation curtailment. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the MAPPCOR Group 3 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2013-010**	99	Siemens 3MW	Tap on Spearville-Post Rock 345kV	0.95	0.95
GEN-2014-049**	200	G.E. 2MW	Thistle 345kV	0.95	0.95

[16] Uprate to GEN-2008-047 (315MW total)

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 4 (Northwest Kansas)

The Group 4 stability analysis for this area was performed by Burns & McDonnell (B&M). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain instabilities were encountered for extreme events that will be mitigated through generation curtailment. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the B&M Group 4 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2010-048	70	Nordex 2.5MW	Tap on Ross Beach – Redline 69kV	0.95	0.95
GEN-2014-025	2.415[17]	Siemens 2.415MW	Tap on Nekoma-Bazine 69kV	0.95	0.95
GEN-2014-041	120.75	Siemens 2.415MW	Arnold 115kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 5 (Amarillo Area)

The Group 5 stability analysis for this area was performed by Quanta Technology LLC (Quanta). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain trips of the out-of-step relays were encountered in the analysis. These out-of-step trips will be further evaluated in the Interconnection Facilities Study. Certain instabilities were encountered for extreme events that will be mitigated through generation curtailment. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the SPP Addendum to the Quanta report.

[17] Uprate to GEN-2009-020 – 50.715MW total

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-040**	349	G.E. 1.79MW	Castro County 115kV	0.95	0.95
GEN-2014-067	339/356	GENROU	Tap on Potter County-Newhart 230kV	0.95	0.95
GEN-2014-068	196/203	GENROU	Tap on Deaf Smith-Plant X 230kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 6 (South Texas Panhandle/New Mexico)

The Group 6 Cluster stability analysis for this area was performed by Mitsubishi Electric Power Products, Inc. (MEPPI). SPP Staff performed the Stand-Alone analysis and a sensitivity analysis to determine the impacts of interconnection requests near the Quay County generation when the unit is off-line. Stability analysis has determined that with all reactive power compensation equipment identified in the stability analysis, all currently assigned Network Upgrades from the power flow analysis, and all previously assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the contingencies studied. However, for certain Interconnection Requests using solar inverters, voltage recovery requirements were only achieved by installing dynamic reactive devices at several of the Interconnection Requests. These requirements were found in both Cluster Analysis and Stand-Alone analysis. It could be possible that with further discussions with the solar inverter manufacturer, the inverter dynamic model may be modified to meet the voltage recovery requirements. This possibility can be evaluated during the Interconnection Facilities Study process if requested and required. It was also found that many Interconnection Requests with solar inverters required static capacitor banks (in addition to the dynamic reactive capability) to bring the initial system intact voltage to 1.0 per unit. These inverters would not initialize at voltages less than 1.0 per unit. Additionally, some out-of-step relay tripping was observed in the analysis. This will be further investigated during the Interconnection Facilities Study and/or DISIS restudy. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the MEPPI report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2013-027**	150	Alstom ECO122 3.0MW WTG	Tap Tolk to Yoakum 230kV (562480)	0.95	0.95
GEN-2014-007**	399.6	GE 87m 1.85MW WTG	Tap Tuco to Border 345kV (562487)	0.95	0.95
GEN-2014-033	70	SMA SC 500HE/CP 0.5MW inverter	Chaves County 115kV	0.95	0.95

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-034	70	SMA SC 500HE/CP 0.5MW inverter	Chaves County 115kV	0.95	0.95
GEN-2014-035	30	SMA SC 500HE/CP 0.5MW inverter	Chaves County 115kV	0.95	0.95
GEN-2014-046	125.4	SMA SC 825CP 0.825MW PV inverter	Chaves County 115kV	0.95	0.95
GEN-2014-047**	40	AE 500NX 0.5MW PV inverters	Tap Tolk - Eddy County (Crossroads) 345kV	0.95	0.95
GEN-2014-053**	80	GE 2.0MW WTG	Carlisle 230kV	0.95	0.95
GEN-2014-054**	120	GE 2.0MW WTG	Carlisle 230kV	0.95	0.95
GEN-2014-062**	200.1	GE 107m 2.3MW WTG	Tap Tolk - Eddy County (Crossroads) 345kV	0.95	0.95
GEN-2014-063**	381.27	GE 1.79 MW WTG	Hobbs 230kV	0.95	0.95
GEN-2014-066	30	AE 1000NX 1.0MW PV inverter	Norton 115kV	0.95	0.95
GEN-2014-069	96	GE 4.0MW PV inverter	Tap Postash Junction - Livingston Ridge 115kV	0.95	0.95
GEN-2014-070**	116	GE 4.0MW PV inverter	Tap Hobbs - Yoakum 230kV	0.95	0.95
ASGI-2014-002	49.6	SMA 630CP-US 0.8MW PV inverter	Santa Rosa tap - Tucumcari 69kV line	0.95	0.95
ASGI-2014-004	10	Solar PV inverter	Livingston Ridge 69 kV - bus 52752	0.95	0.95
ASGI-2014-005	10	Solar PV inverter	Strata 69 kV - bus 528046	0.95	0.95
ASGI-2014-008	10	Solar PV inverter	South Loving 69 kV - bus 528218	0.95	0.95
ASGI-2014-009	10	Solar PV inverter	Wood Draw 115 kV - bus 528228	0.95	0.95
ASGI-2014-010	10	Solar PV inverter	Ochoa 115 kV - bus 528232	0.95	0.95
ASGI-2014-011	10	Solar PV inverter	Zia 115 kV - bus 528420	0.95	0.95
ASGI-2014-012	10	Solar PV inverter	Cooper Ranch 115 kV - bus 528554	0.95	0.95
ASGI-2014-013	2	GE 2.0MW WTG	Erksine-Wolfforth-Reese 115kV sub in Lubbock TX (South Plains Elec Coop)	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 7 (Southwest Oklahoma)

The Group 7 stability analysis for this area was performed by PSC. Stability analysis has determined certain voltage recovery issues were observed with the GEN-2014-036 solar farm request. Faults at the Point of Interconnection resulted in violations to SPP's voltage recovery requirements. In order to meet the voltage recover requirements, a 0/-50Mvar dynamic reactive device was required at the Interconnection Customer substation. It could be possible that with further discussions with the solar inverter manufacturer, the inverter dynamic model may be modified to meet the voltage recovery requirements. With the 0/-50 dynamic device and with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable

and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain instabilities were encountered for extreme events that will be mitigated through generation curtailment. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the PSC Group 7 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-036	50	SMASC 500CP	Hollis 138kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.

Cluster Group 8 (South Central Kansas/North Oklahoma)

The Group 8 stability analysis for this area was performed by POWER-tek Global (POWER-tek). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the Group 8 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-022**	13.95[18]	Siemens 2.415	Open Sky 345kV	0.95	0.95
GEN-2014-028	35 [19]	GENROU	Riverton 161kV	0.95	0.95
GEN-2014-064**	248.4	G.E. 2.3MW	Otter 138kV	0.95	0.95
ASGI-2014-014	54.3/56.4	GENROU	Ferguson 69kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 9 (Nebraska)

The Group 9 stability analysis for this area was performed by S&C Electric (S&C). Stability analysis has determined, with the exception of faults around Gerald Gentleman Station (GGS), that with all

[18] Uprate to GEN-2012-032 – 313.95MW total
[19] Uprate to GEN-2004-017 - 256/259MW total

previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the contingencies studied. **Additional analysis is required to further evaluate the effects of GEN-2014-059 on the Gerald Gentleman stability interface. This analysis will take place during the Facility Study.** Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the Group 9 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-023**	79.9	G.E. 1.7MW	Tap Fort Randall-Meadow Grove 230kV	0.95	0.95
GEN-2014-031**	35.8	G.E. 1.79MW	Meadow Grove 230kV	0.95	0.95
GEN-2014-032**	10.22[20]	G.E. 1.79 MW	Meadow Grove 230kV	0.95	0.95
GEN-2014-039	73.39	G.E. 1.79MW	Friend 115kV	0.95	0.95
GEN-2014-055	160	G.E. 2.0MW	Belden 115kV	0.95	0.95
GEN-2014-059**	161.1	G.E. 1.79MW	Tap Sidney-Ogallala 230kV	0.95	0.95
GEN-2014-060	125.8	G.E. 1.70MW	Tap Pauline-Hildreth 115kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 10 (Southeast Oklahoma/Northeast Texas Area)

The Group 10 stability analysis for this area was performed by ABB (ABB). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the Group 10 report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-027	60	GENSAL	Weleetka 138kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.

[20] Uprate to GEN-2008-086N2 – 211.22MW total

Cluster Group 12 (Northwest Arkansas Area)

There were no customers requesting interconnection service in the Northwest Arkansas area.

Cluster Group 13 (Northwest Missouri Area)

The Group 13 stability analysis for this area was performed by Mitsubishi Electric (MEPPI). Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Certain instabilities at Jeffrey Energy Center were encountered prior outage events that will be mitigated through curtailment of the GEN-2014-051 generator to 0MW. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the MEPPI report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-021**	300	Vestas V110 2.0MW	Tap Nebraska City – Mullens Creek 345kV	0.95	0.95
GEN-2014-050**	100	G.E. 2.0MW	Swissvale 345kV	0.95	0.95
GEN-2014-051**	174	G.E. 2.0MW	JEC 345kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Cluster Group 14 (South Central Oklahoma)

The Group 14 stability analysis for this area was performed by SPP Staff. Stability analysis has determined that with all previously assigned and currently assigned Network Upgrades placed in service the transmission system will remain stable and low voltage ride through requirements are satisfied for the probable contingencies studied. Power Factor requirements are listed in the table below. In addition, some Interconnection Requests may have requirements for reactors under low wind conditions as identified in the Staff report.

Power Factor Requirements:

Request	Size (MW)	Generator Model	Point of Interconnection	Power Factor Requirement at POI*	
				Lagging (supplying)	Leading (absorbing)
GEN-2014-057**	250	G.E. 2.0MW	Tap on Lawton Eastside – Sunnyside 345kV	0.95	0.95

*As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.
** Requirement for reactors for low wind conditions

Conclusion

The minimum cost of interconnecting 7,241.1 MW of new interconnection requests included in this Definitive Interconnection System Impact Study is estimated at $1,255,482,858 for the Allocated Network Upgrades and Transmission Owner Interconnection Facilities are listed in Appendix E and F. These costs do not include the cost of upgrades of other transmission facilities listed in Appendix H which are Network Constraints. These costs do not include the mitigations of constraints in the Meadow Grove area and Gentleman area of NPPD that will be further analyzed in the Interconnection Facilities Study.

These interconnection costs do not include any cost of Network Upgrades determined to be required by the short circuit analysis. Potential circuit breakers overdutied by short circuit capability will be identified by the Transmission Owner in the Interconnection Facilities Study. These studies will be performed if the Interconnection Customer executes the appropriate Interconnection Facilities Study Agreement and provides the required data along with demonstration of Site Control and the appropriate deposit. At the time of the Interconnection Facilities Study, a better determination of the interconnection facilities may be available.

The required interconnection costs listed in Appendices E, and F, and other upgrades associated with Network Constraints do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request (TSR) through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP Open Access Transmission Tariff (OATT).

Appendices

A: Generation Interconnection Requests Considered for Impact Study

See next page.

A: Generation Interconnection Requests Considered for Study

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date	In Service Date Delayed Until no earlier than*
ASGI-2014-002	49.60	ER	SPS	Tap Tucumcari - Santa Rosa 115kV	Tap Tucumcari - Santa Rosa 115kV		TBD
ASGI-2014-004	10.00	ER	SPS	Livingstone Ridge 115kV	Livingstone Ridge 115kV		TBD
ASGI-2014-005	10.00	ER	SPS	Strata 69kV	Strata 69kV		TBD
ASGI-2014-008	10.00	ER	SPS	South Loving 69kV	South Loving 69kV		TBD
ASGI-2014-009	10.00	ER	SPS	Wood Draw 115kV	Wood Draw 115kV		TBD
ASGI-2014-010	10.00	ER	SPS	Ochoa 115kV	Ochoa 115kV		TBD
ASGI-2014-011	10.00	ER	SPS	Zia 115kV	Zia 115kV		TBD
ASGI-2014-012	10.00	ER	SPS	Cooper Ranch 115kV	Cooper Ranch 115kV		TBD
ASGI-2014-013	10.00	ER	SPS	SP-Erskine 115kV	SP-Erskine 115kV		TBD
ASGI-2014-014	56.40	ER	GRDA	Ferguson 69kV	Ferguson 69kV		TBD
GEN-2010-048	70.00	ER	MIDW	Tap Beach Station - Redline 115kV	Tap Beach Station - Redline 115kV	12/30/2017	TBD
GEN-2012-031	200.00	ER	OKGE	Cimarron 345kV (GEN-2010-040 Sub)	Cimarron 345kV (GEN-2010-040 Sub)	12/30/2018	TBD
GEN-2013-010	99.00	ER	SUNCMKEC	Tap Spearville - Post Rock 345kV	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV	12/31/2017	TBD
GEN-2013-027	150.00	ER/NR	SPS	Tap Tolk - Yoakum 230kV	Tap Tolk - Yoakum 230kV	3/31/2016	TBD
GEN-2014-007	400.00	ER	SPS	Tap TUCO Interchange - Border 345kV	Tap TUCO Interchange - Border 345kV	12/15/2016	TBD
GEN-2014-019	15.00	ER/NR	OKGE	Beaver County 345kV	Beaver County 345kV	12/31/2014	TBD
GEN-2014-020	100.00	ER/NR	AEPW	Tuttle 138kV	Tuttle 138kV	12/31/2014	TBD
GEN-2014-021	300.00	ER/NR	GMO	Tap Nebraska City - Mullens Creek 345kV	Tap Nebraska City - Mullens Creek 345kV	12/1/2016	TBD
GEN-2014-022	15.00	ER	OKGE	Open Sky 345kV	Open Sky 345kV	12/31/2015	TBD
GEN-2014-023	79.90	ER/NR	NPPD	Tap Fort Randall - Meadow Grove 230kV	Tap Fort Randall - Meadow Grove 230kV	12/31/2015	TBD
GEN-2014-025	2.40	ER	MIDW	Tap Nekoma - Bazine (Walnut Creek) 69kV	Tap Nekoma - Bazine (Walnut Creek) 69kV	10/15/2015	TBD
GEN-2014-026	150.00	ER	OKGE	Beaver County 345kV	Beaver County 345kV	12/31/2016	TBD
GEN-2014-027	60.00	ER/NR	AEPW	Weleetka 138kV	Weleetka 138kV	6/1/2016	TBD
GEN-2014-028	35.00	ER	EMDE	Riverton 161kV	Riverton 161kV	1/1/2016	TBD
GEN-2014-031	35.80	ER/NR	NPPD	Meadow Grove 230kV	Meadow Grove 230kV	10/1/2015	TBD
GEN-2014-032	10.20	ER/NR	NPPD	Meadow Grove 230kV	Meadow Grove 230kV	10/1/2015	TBD
GEN-2014-033	70.00	ER	SPS	Chaves County 115kV	Chaves County 115kV	12/31/2016	TBD
GEN-2014-034	70.00	ER	SPS	Chaves County 115kV	Chaves County 115kV	12/31/2016	TBD
GEN-2014-035	30.00	ER	SPS	Chaves County 115kV	Chaves County 115kV	12/31/2016	TBD
GEN-2014-036	50.00	ER	AEPW	Hollis 138kV	Hollis 138kV	12/31/2016	TBD
GEN-2014-037	200.00	ER	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV	9/30/2017	TBD
GEN-2014-038	200.00	ER	SPS	Tap Hitchland - Potter County 345kV	Tap Hitchland - Potter County 345kV	9/30/2017	TBD
GEN-2014-039	73.60	ER/NR	NPPD	Friend 115kV	Friend 115kV	12/1/2016	TBD
GEN-2014-040	349.00	ER/NR	SPS	Castro 115kV	Castro 115kV	9/1/2016	TBD
GEN-2014-041	120.80	ER	SUNCMKEC	Arnold 115kV	Arnold 115kV	3/31/2016	TBD
GEN-2014-046	114.00	ER/NR	SPS	Chaves County 115kV	Chaves County 115kV	5/1/2016	TBD
GEN-2014-047	40.00	ER	SPS	Tap Tolk - Eddy County (Crossroads) 345kV	Tap Tolk - Eddy County (Crossroads) 345kV	12/1/2016	TBD
GEN-2014-048	110.00	ER/NR	SPS	Tap Eddy County - Tweedy 115kV	Tap Eddy County - Tweedy 115kV	10/1/2016	TBD
GEN-2014-049	200.00	ER	SUNCMKEC	Thistle 345kV	Thistle 345kV	12/31/2016	TBD
GEN-2014-050	100.00	ER	WERE	Swissvale 345kV	Swissvale 345kV	12/31/2016	TBD

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date	In Service Date Delayed Until no earlier than*
GEN-2014-051	174.00	ER	WERE	Jeffrey Energy Center 345kV	Jeffrey Energy Center 345kV	12/31/2016	TBD
GEN-2014-052	200.00	ER	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	12/31/2016	TBD
GEN-2014-053	80.00	ER	SPS	Carlisle 230kV	Carlisle 230kV	12/31/2016	TBD
GEN-2014-054	120.00	ER	SPS	Carlisle 230kV	Carlisle 230kV	12/31/2016	TBD
GEN-2014-055	160.00	ER	NPPD	Belden 115kV	Belden 115kV	12/31/2016	TBD
GEN-2014-056	250.00	ER	OKGE	Minco 345kV	Minco 345kV	12/31/2016	TBD
GEN-2014-057	250.00	ER	AEPW	Tap Lawton - Sunnyside 345kV	Tap Lawton - Sunnyside 345kV	12/31/2016	TBD
GEN-2014-058	300.00	ER	OKGE	Tap Tatonga - Mathewson 345kV	Tap Tatonga - Mathewson 345kV	12/31/2016	TBD
GEN-2014-059	161.10	ER/NR	NPPD	Tap Sidney - Ogallala 230kV	Tap Sidney - Ogallala 230kV	9/1/2016	TBD
GEN-2014-060	125.80	ER/NR	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV	Tap Pauline - Hildreth (Rosemont) 115kV	12/31/2015	TBD
GEN-2014-061	161.00	ER	OKGE	Tatonga 345kV	Tatonga 345kV	12/1/2016	TBD
GEN-2014-062	200.10	ER	SPS	Tap Tolk - Eddy County (Crossroads) 345kV	Tap Tolk - Eddy County (Crossroads) 345kV	12/1/2016	TBD
GEN-2014-063	381.00	ER/NR	SPS	Hobbs 230kV	Hobbs 230kV	9/1/2016	TBD
GEN-2014-064	248.40	ER	OKGE	Otter 138kV	Otter 138kV	12/1/2016	TBD
GEN-2014-066	30.00	ER/NR	SPS	Norton 115kV	Norton 115kV	12/1/2016	TBD
GEN-2014-067	361.00	ER	SPS	Tap Potter County - New Hart 230kV	Tap Potter County - New Hart 230kV	3/1/2019	TBD
GEN-2014-068	203.00	ER	SPS	Tap Deaf Smith - Plant X 230kV	Tap Deaf Smith - Plant X 230kV	3/1/2019	TBD
GEN-2014-069	90.00	ER/NR	SPS	Tap Postash Junction - Livingston Ridge 115kV	Tap Postash Junction - Livingston Ridge 115kV	10/1/2016	TBD
GEN-2014-070	110.00	ER/NR	SPS	Tap Hobbs - Yoakum 230kV	Tap Hobbs - Yoakum 230kV	10/1/2016	TBD
Total:	**7,241.10**						

*In-Service Date for each request is to be determined after the Interconnection Facility Study is completed.

B: Prior Queued Interconnection Requests

See next page.

B: Prior Queued Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
ASGI-2010-006	150.00	AECI	Tap Fairfax (AECI) - Shilder (AEPW) 138kV	AECI queue Affected Study
ASGI-2010-010	42.20	SPS	Lovington 115kV	Lea County Affected Study
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV	Lea County Affected Study
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV	Lea County Affected Study
ASGI-2011-001	27.30	SPS	Lovington 115kV	On-Line
ASGI-2011-002	20.00	SPS	Herring 115kV	On-Line
ASGI-2011-003	10.00	SPS	Hendricks 115kV	On-Line
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV	Under Study (DISIS-2011-002)
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV	Under Study (DISIS-2012-002)
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV	Under Study (DISIS-2012-001)
ASGI-2013-001	11.50	SPS	PanTex South 115kV	Under Study (DISIS-2013-001)
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV	Under Study (DISIS-2013-001)
ASGI-2013-003	18.40	SPS	FE Clovis 115kV	Under Study (DISIS-2013-001)
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV	Under Study (DISIS-2013-002)
ASGI-2013-005	1.65	SPS	FE Clovis 115kV	Under Study (DISIS-2013-002)
ASGI-2013-006	2.00	SPS	SP-Erskine 115kV	
ASGI-2013-007	90.00	AECI	Tap Hickory Creek - Locust Creek 161kV	AECI System Impact Study
ASGI-2014-001	2.50	SPS	SP-Erskine 115kV	TRANSITIONED TO IFS QUEUE
GEN-2001-014	96.00	WFEC	Ft Supply 138kV	On-Line
GEN-2001-026	74.25	WFEC	Washita 138kV	On-Line
GEN-2001-033	180.00	SPS	San Juan Tap 230kV	On-Line at 120MW
GEN-2001-036	80.00	SPS	Norton 115kV	On-Line
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV	On-Line
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV	On-Line
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV	On-Line
GEN-2002-004	200.00	WERE	Latham 345kV	On-Line at 150MW
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV	On-Line
GEN-2002-008	240.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2002-009	80.00	SPS	Hansford 115kV	On-Line
GEN-2002-022	240.00	SPS	Bushland 230kV	On-Line
GEN-2002-023N	0.80	NPPD	Harmony 115kV	On-Line
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV	On-Line
GEN-2003-004	100.00	WFEC	Washita 138kV	On-Line
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV	On-Line
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV	On-Line
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV	On-Line
GEN-2003-020	160.00	SPS	Martin 115kV	On-Line
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV	On-Line
GEN-2003-022	120.00	AEPW	Washita 138kV	On-Line
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV	On-Line at 100MW
GEN-2004-020	27.00	AEPW	Washita 138kV	On-Line
GEN-2004-023	20.60	WFEC	Washita 138kV	On-Line
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV	On-Line
GEN-2005-003	30.60	WFEC	Washita 138kV	On-Line
GEN-2005-008	120.00	OKGE	Woodward 138kV	On-Line
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV	On-Line at 160MW
GEN-2005-013	201.00	WERE	Caney River 345kV	On-Line

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2006-002	101.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-006	205.50	SUNCMKEC	Spearville 345kV	On Suspension
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV	On-Line
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV	On-Line
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV	On-Line
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV	On-Line
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV	On-Line
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV	On-Line
GEN-2006-031	75.00	MIDW	Knoll 115kV	On-Line
GEN-2006-035	225.00	AEPW	Sweetwater 230kV	On-Line at 132MW
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV	On-Line
GEN-2006-040	108.00	SUNCMKEC	Mingo 115kV	On Suspension
GEN-2006-043	99.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-044	370.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV	On-Line
GEN-2006-046	131.00	OKGE	Dewey 138kV	On-Line
GEN-2007-011	135.00	SUNCMKEC	Syracuse 115kV	On Suspension
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV	On-Line
GEN-2007-021	201.00	OKGE	Tatonga 345kV	On-Line
GEN-2007-025	300.00	WERE	Viola 345kV	On-Line
GEN-2007-032	150.00	WFEC	Tap Clinton Junction - Clinton 138kV	On Suspension
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV	On-Line at 132MW
GEN-2007-043	200.00	OKGE	Minco 345kV	On-Line
GEN-2007-044	300.00	OKGE	Tatonga 345kV	On-Line at 199MW
GEN-2007-046	200.00	SPS	Hitchland 115kV	On Schedule for 2015
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV	On-Line at 150MW
GEN-2007-052	150.00	WFEC	Anadarko 138kV	On-Line
GEN-2007-062	765.00	OKGE	Woodward EHV 345kV	On Schedule for 2014
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV	On-Line
GEN-2008-013	300.00	OKGE	Hunter 345kV	On-Line at 235MW
GEN-2008-017	300.00	SUNCMKEC	Setab 345kV	On Schedule for 2015
GEN-2008-018	250.00	SPS	Finney 345kV	On-Line
GEN-2008-021	42.00	WERE	Wolf Creek 345kV	On-Line
GEN-2008-022	300.00	SPS	Tap Tolk - Eddy County (Crossroads) 345kV	On Schedule for 2015
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV	On-Line
GEN-2008-037	101.00	WFEC	Tap Washita - Blue Canyon Wind 138kV	On-Line
GEN-2008-044	197.80	OKGE	Tatonga 345kV	On-Line
GEN-2008-047	300.00	OKGE	Beaver County 345kV	On Schedule for 2014
GEN-2008-051	322.00	SPS	Potter County 345kV	On-Line at 161MW
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV	On-Line
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV	On-Line
GEN-2008-088	50.60	SPS	Vega 69kV	On Suspension
GEN-2008-092	201.00	MIDW	Post Rock 230kV	On Schedule for 2014
GEN-2008-098	100.80	WERE	Waverly 345kV	On Schedule for 2015
GEN-2008-119O	60.00	OPPD	S1399 161kV	On-Line
GEN-2008-123N	89.70	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV	On Schedule for 2014
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV	On Schedule for 2016
GEN-2008-129	80.00	GMO	Pleasant Hill 161kV	On-Line

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2009-008	199.50	MIDW	South Hays 230kV	On Schedule for 2015
GEN-2009-020	48.60	MIDW	Tap Nekoma - Bazine (Walnut Creek) 69kV	On Schedule for 2015
GEN-2009-025	60.00	OKGE	Nardins 69kV	On-Line
GEN-2009-040	73.80	WERE	Marshall 115kV	On Schedule for 2015
GEN-2010-001	300.00	OKGE	Beaver County 345kV	On Schedule for 2014 (204 MW) and 2015 (96 MW)
GEN-2010-003	100.80	WERE	Waverly 345kV	On Schedule for 2015
GEN-2010-005	300.00	WERE	Viola 345kV	On-Line at 170MW
GEN-2010-006	205.00	SPS	Jones 230kV	On-Line
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV	On-Line
GEN-2010-011	29.70	OKGE	Tatonga 345kV	On-Line
GEN-2010-014	358.80	SPS	Hitchland 345kV	On Suspension
GEN-2010-036	4.60	WERE	6th Street 115kV	On-Line
GEN-2010-040	300.00	OKGE	Cimarron 345kV	On-Line
GEN-2010-041	10.50	OPPD	S1399 161kV	On Schedule for 2015
GEN-2010-045	197.80	SUNCMKEC	Buckner 345kV	On Schedule for 2017
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV	On Schedule for 2016
GEN-2010-051	200.00	NPPD	Tap Twin Church - Hoskins 230kV	On Suspension
GEN-2010-055	4.50	AEPW	Wekiwa 138kV	On-Line
GEN-2010-057	201.00	MIDW	Rice County 230kV	On-Line
GEN-2011-007	250.10	OKGE	Tap Cimarron - Woodring (Mathewson) 345kV	On Suspension
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV	On Schedule 2019
GEN-2011-010	100.80	OKGE	Minco 345kV	On-Line
GEN-2011-011	50.00	KACP	Iatan 345kV	On-Line
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	On Schedule 2016
GEN-2011-016	200.10	SUNCMKEC	Spearville 345kV	TRANSITIONED TO IFS QUEUE
GEN-2011-017	299.00	SUNCMKEC	Tap Spearville - Post Rock (GEN-2011-017T) 345kV	On Schedule 2018
GEN-2011-018	73.60	NPPD	Steele City 115kV	On-Line
GEN-2011-019	299.00	OKGE	Woodward 345kV	On Suspension
GEN-2011-020	299.00	OKGE	Woodward 345kV	On Suspension
GEN-2011-022	299.00	SPS	Hitchland 345kV	On Suspension
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV	On Schedule for 2015
GEN-2011-027	120.00	NPPD	Hoskins 230kV	On Schedule for 2015
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV	On-Line
GEN-2011-040	111.00	OKGE	Carter County 138kV	On-Line
GEN-2011-045	205.00	SPS	Jones 230kV	On-Line
GEN-2011-046	27.00	SPS	Lopez 115kV	On-Line
GEN-2011-048	175.00	SPS	Mustang 230kV	On-Line
GEN-2011-049	250.00	OKGE	Border 345kV	On Suspension
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV	On Suspension
GEN-2011-051	104.40	OKGE	Tap Woodward - Tatonga 345kV (GEN-2011-051 Tap)	On Suspension
GEN-2011-054	300.00	OKGE	Cimarron 345kV	On Schedule for 2013 (200 MW) and 2014 (99 MW)
GEN-2011-056	3.60	NPPD	Jeffrey 115kV	On-Line
GEN-2011-056A	3.60	NPPD	John 1 115kV	On-Line
GEN-2011-056B	4.50	NPPD	John 2 115kV	On-Line
GEN-2011-057	150.40	WERE	Creswell 138kV	On Schedule for 2014
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV	On-Line
GEN-2012-004	41.40	OKGE	Carter County 138kV	On Schedule for 2014
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV	On-Line

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2012-009	15.00	SPS	Mustang 230kV	On Schedule for 2015
GEN-2012-010	15.00	SPS	Mustang 230kV	On Schedule for 2015
GEN-2012-020	478.00	SPS	TUCO 230kV	On Schedule for 2016
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV	On-Line
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV	TRANSITIONED TO IFS QUEUE
GEN-2012-027	136.00	AEPW	Shidler 138kV	On Suspension
GEN-2012-028	74.80	WFEC	Gotebo 69kV	On Schedule for 2015
GEN-2012-032	300.00	OKGE	Open Sky 345kV	On Schedule for 2015
GEN-2012-033	98.80	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV	On Schedule for 2015
GEN-2012-034	7.00	SPS	Mustang 230kV	On Schedule for 2015
GEN-2012-035	7.00	SPS	Mustang 230kV	On Schedule for 2015
GEN-2012-036	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-037	203.00	SPS	TUCO 345kV	On Schedule for 2015
GEN-2012-040	76.50	WFEC	Chilocco 138kV	On Suspension
GEN-2012-041	121.50	OKGE	Ranch Road 345kV	On Schedule for 2015
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	TRANSITIONED TO IFS QUEUE
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV	On Schedule for 2015
GEN-2013-008	1.20	NPPD	Steele City 115kV	On-Line
GEN-2013-011	30.00	AEPW	Turk 138kV	TRANSITIONED TO IFS QUEUE
GEN-2013-012	147.00	OKGE	Redbud 345kV	On-Line
GEN-2013-014	25.50	NPPD	Tap Guide Rock - Pauline (Rosemont) 115kV	On Suspension
GEN-2013-016	203.00	SPS	TUCO 345kV	TRANSITIONED TO IFS QUEUE
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	TRANSITIONED TO IFS QUEUE
GEN-2013-022	25.00	SPS	Norton 115kV	TRANSITIONED TO IFS QUEUE
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV	TRANSITIONED TO IFS QUEUE
GEN-2013-029	300.00	OKGE	Renfrow 345kV	TRANSITIONED TO IFS QUEUE
GEN-2013-030	300.00	OKGE	Beaver County 345kV	TRANSITIONED TO IFS QUEUE
GEN-2013-032	204.00	NPPD	Neligh 115kV	TRANSITIONED TO IFS QUEUE
GEN-2013-033	28.00	MIDW	Goodman Energy Center 115kV	TRANSITIONED TO IFS QUEUE
GEN-2013-035	105.60	OKGE	Tap Woodward - Tatonga 345kV (GEN-2011-051 Tap)	TRANSITIONED TO IFS QUEUE
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center 345kV	TRANSITIONED TO IFS QUEUE
GEN-2014-002	10.53	OKGE	Tatonga 345kV (GEN-2007-021 POI)	TRANSITIONED TO IFS QUEUE
GEN-2014-003	15.84	OKGE	Tatonga 345kV (GEN-2007-044 POI)	TRANSITIONED TO IFS QUEUE
GEN-2014-004	3.96	NPPD	Steele City 115kV (GEN-2011-018 POI)	TRANSITIONED TO IFS QUEUE
GEN-2014-005	5.67	OKGE	Minco 345kV (GEN-2011-010 POI)	TRANSITIONED TO IFS QUEUE
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV	TRANSITIONED TO IFS QUEUE
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV	TRANSITIONED TO IFS QUEUE
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV	On-Line
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV	On-Line
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV	On-Line
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV	On-Line
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV	On-Line
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV	On-Line
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV	On-Line
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV	On-Line
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV	On-Line
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV	On-Line

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
SPS Distributed (Etter)	20.00	SPS	Etter 115kV	On-Line
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV	On-Line
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV	On-Line
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV	On-Line
SPS Distributed (Monument)	10.00	SPS	Monument 115kV	On-Line
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV	On-Line
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV	On-Line
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV	On-Line
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV	On-Line
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV	On-Line
Total:	**25,193.7**			

C: Study Groupings

See next page

C. Study Groups

GROUP 1: WOODWARD AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
GEN-2001-014	96.00	WFEC	Ft Supply 138kV
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV
GEN-2005-008	120.00	OKGE	Woodward 138kV
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV
GEN-2006-046	131.00	OKGE	Dewey 138kV
GEN-2007-021	201.00	OKGE	Tatonga 345kV
GEN-2007-043	200.00	OKGE	Minco 345kV
GEN-2007-044	300.00	OKGE	Tatonga 345kV
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV
GEN-2007-062	765.00	OKGE	Woodward EHV 345kV
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV
GEN-2008-044	197.80	OKGE	Tatonga 345kV
GEN-2010-011	29.70	OKGE	Tatonga 345kV
GEN-2010-040	300.00	OKGE	Cimarron 345kV
GEN-2011-007	250.10	OKGE	Tap Cimarron - Woodring (Mathewson) 345kV
GEN-2011-010	100.80	OKGE	Minco 345kV
GEN-2011-019	299.00	OKGE	Woodward 345kV
GEN-2011-020	299.00	OKGE	Woodward 345kV
GEN-2011-051	104.40	OKGE	Tap Woodward - Tatonga 345kV (GEN-2011-051 Tap)
GEN-2011-054	300.00	OKGE	Cimarron 345kV
GEN-2013-035	105.60	OKGE	Tap Woodward - Tatonga 345kV (GEN-2011-051 Tap)
GEN-2014-002	10.53	OKGE	Tatonga 345kV (GEN-2007-021 POI)
GEN-2014-003	15.84	OKGE	Tatonga 345kV (GEN-2007-044 POI)
GEN-2014-005	5.67	OKGE	Minco 345kV (GEN-2011-010 POI)
PRIOR QUEUED SUBTOTAL	**4,222.24**		
GEN-2012-031	200.00	OKGE	Cimarron 345kV (GEN-2010-040 Sub)
GEN-2014-020	100.00	AEPW	Tuttle 138kV
GEN-2014-056	250.00	OKGE	Minco 345kV
GEN-2014-058	300.00	OKGE	Tap Tatonga - Mathewson 345kV
GEN-2014-061	161.00	OKGE	Tatonga 345kV
CURRENT CLUSTER SUBTOTAL	**1,011.00**		
AREA TOTAL	**5,233.24**		

GROUP 2: HITCHLAND AREA Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2011-002	20.00	SPS	Herring 115kV
GEN-2002-008	240.00	SPS	Hitchland 345kV
GEN-2002-009	80.00	SPS	Hansford 115kV
GEN-2003-020	160.00	SPS	Martin 115kV
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV
GEN-2006-044	370.00	SPS	Hitchland 345kV
GEN-2007-046	200.00	SPS	Hitchland 115kV
GEN-2008-047	300.00	OKGE	Beaver County 345kV
GEN-2010-001	300.00	OKGE	Beaver County 345kV
GEN-2010-014	358.80	SPS	Hitchland 345kV
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV
GEN-2011-022	299.00	SPS	Hitchland 345kV
GEN-2013-030	300.00	OKGE	Beaver County 345kV
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV
SPS Distributed (Etter)	20.00	SPS	Etter 115kV
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV
PRIOR QUEUED SUBTOTAL	**2,962.70**		
GEN-2014-019	15.00	OKGE	Beaver County 345kV
GEN-2014-026	150.00	OKGE	Beaver County 345kV
GEN-2014-037	200.00	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV
GEN-2014-038	200.00	SPS	Tap Hitchland - Potter County 345kV
GEN-2014-052	200.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV
CURRENT CLUSTER SUBTOTAL	**765.00**		
AREA TOTAL	**3,727.70**		

GROUP 3: SPEARVILLE AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV
GEN-2006-006	205.50	SUNCMKEC	Spearville 345kV
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV
GEN-2008-018	250.00	SPS	Finney 345kV
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV
GEN-2010-045	197.80	SUNCMKEC	Buckner 345kV
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV
GEN-2011-016	200.10	SUNCMKEC	Spearville 345kV
GEN-2011-017	299.00	SUNCMKEC	Tap Spearville - Post Rock (GEN-2011-017T) 345kV
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV
PRIOR QUEUED SUBTOTAL	**3,610.30**		
GEN-2013-010	99.00	SUNCMKEC	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV
GEN-2014-049	200.00	SUNCMKEC	Thistle 345kV
CURRENT CLUSTER SUBTOTAL	**299.00**		
AREA TOTAL	**3,909.30**		

GROUP 4: NORTHWEST KANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV
GEN-2006-031	75.00	MIDW	Knoll 115kV
GEN-2006-040	108.00	SUNCMKEC	Mingo 115kV
GEN-2007-011	135.00	SUNCMKEC	Syracuse 115kV
GEN-2008-017	300.00	SUNCMKEC	Setab 345kV
GEN-2008-092	201.00	MIDW	Post Rock 230kV
GEN-2009-008	199.50	MIDW	South Hays 230kV
GEN-2009-020	48.60	MIDW	Tap Nekoma - Bazine (Walnut Creek) 69kV
GEN-2010-057	201.00	MIDW	Rice County 230kV
GEN-2013-033	28.00	MIDW	Goodman Energy Center 115kV
PRIOR QUEUED SUBTOTAL	**1,882.70**		
GEN-2010-048	70.00	MIDW	Tap Beach Station - Redline 115kV
GEN-2014-025	2.40	MIDW	Tap Nekoma - Bazine (Walnut Creek) 69kV
GEN-2014-041	120.80	SUNCMKEC	Arnold 115kV
CURRENT CLUSTER SUBTOTAL	**193.20**		
AREA TOTAL	**2,075.90**		

GROUP 5: AMARILLO AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2013-001	11.50	SPS	PanTex South 115kV
GEN-2002-022	240.00	SPS	Bushland 230kV
GEN-2008-051	322.00	SPS	Potter County 345kV
GEN-2008-088	50.60	SPS	Vega 69kV
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV
PRIOR QUEUED SUBTOTAL	**704.10**		
GEN-2014-040	349.00	SPS	Castro 115kV
GEN-2014-067	361.00	SPS	Tap Potter County - New Hart 230kV
GEN-2014-068	203.00	SPS	Tap Deaf Smith - Plant X 230kV
CURRENT CLUSTER SUBTOTAL	**913.00**		
AREA TOTAL	**1,617.10**		

GROUP 6: SOUTH TEXAS PANHANDLE/NEW MEXICO AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
ASGI-2010-010	42.20	SPS	Lovington 115kV
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV
ASGI-2011-001	27.30	SPS	Lovington 115kV
ASGI-2011-003	10.00	SPS	Hendricks 115kV
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV
ASGI-2013-003	18.40	SPS	FE Clovis 115kV
ASGI-2013-005	1.65	SPS	FE Clovis 115kV
ASGI-2013-006	2.00	SPS	SP-Erskine 115kV
ASGI-2014-001	2.50	SPS	SP-Erskine 115kV
GEN-2001-033	180.00	SPS	San Juan Tap 230kV
GEN-2001-036	80.00	SPS	Norton 115kV
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV
GEN-2008-022	300.00	SPS	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2010-006	205.00	SPS	Jones 230kV
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV
GEN-2011-045	205.00	SPS	Jones 230kV
GEN-2011-046	27.00	SPS	Lopez 115kV
GEN-2011-048	175.00	SPS	Mustang 230kV
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV
GEN-2012-009	15.00	SPS	Mustang 230kV
GEN-2012-010	15.00	SPS	Mustang 230kV
GEN-2012-020	478.00	SPS	TUCO 230kV
GEN-2012-034	7.00	SPS	Mustang 230kV
GEN-2012-035	7.00	SPS	Mustang 230kV
GEN-2012-036	7.00	SPS	Mustang 230kV
GEN-2012-037	203.00	SPS	TUCO 345kV
GEN-2013-016	203.00	SPS	TUCO 345kV
GEN-2013-022	25.00	SPS	Norton 115kV
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV
SPS Distributed (Monument)	10.00	SPS	Monument 115kV
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV
PRIOR QUEUED SUBTOTAL	**3,481.80**		
ASGI-2014-002	49.60	SPS	Tap Tucumcari - Santa Rosa 115kV
ASGI-2014-004	10.00	SPS	Livingstone Ridge 115kV
ASGI-2014-005	10.00	SPS	Strata 69kV
ASGI-2014-008	10.00	SPS	South Loving 69kV
ASGI-2014-009	10.00	SPS	Wood Draw 115kV
ASGI-2014-010	10.00	SPS	Ochoa 115kV
ASGI-2014-011	10.00	SPS	Zia 115kV
ASGI-2014-012	10.00	SPS	Cooper Ranch 115kV
ASGI-2014-013	10.00	SPS	SP-Erskine 115kV
GEN-2013-027	150.00	SPS	Tap Tolk - Yoakum 230kV

GEN-2014-007	400.00	SPS	Tap TUCO Interchange - Border 345kV
GEN-2014-033	70.00	SPS	Chaves County 115kV
GEN-2014-034	70.00	SPS	Chaves County 115kV
GEN-2014-035	30.00	SPS	Chaves County 115kV
GEN-2014-046	114.00	SPS	Chaves County 115kV
GEN-2014-047	40.00	SPS	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-048	110.00	SPS	Tap Eddy County - Tweedy 115kV
GEN-2014-053	80.00	SPS	Carlisle 230kV
GEN-2014-054	120.00	SPS	Carlisle 230kV
GEN-2014-062	200.10	SPS	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-063	381.00	SPS	Hobbs 230kV
GEN-2014-066	30.00	SPS	Norton 115kV
GEN-2014-069	90.00	SPS	Tap Postash Junction - Livingston Ridge 115kV
GEN-2014-070	110.00	SPS	Tap Hobbs - Yoakum 230kV
CURRENT CLUSTER SUBTOTAL	**2,124.70**		
AREA TOTAL	**5,606.50**		

GROUP 7: SOUTHWEST OKLAHOMA AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
GEN-2001-026	74.25	WFEC	Washita 138kV
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV
GEN-2003-004	100.00	WFEC	Washita 138kV
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV
GEN-2003-022	120.00	AEPW	Washita 138kV
GEN-2004-020	27.00	AEPW	Washita 138kV
GEN-2004-023	20.60	WFEC	Washita 138kV
GEN-2005-003	30.60	WFEC	Washita 138kV
GEN-2006-002	101.00	AEPW	Sweetwater 230kV
GEN-2006-035	225.00	AEPW	Sweetwater 230kV
GEN-2006-043	99.00	AEPW	Sweetwater 230kV
GEN-2007-032	150.00	WFEC	Tap Clinton Junction - Clinton 138kV
GEN-2007-052	150.00	WFEC	Anadarko 138kV
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV
GEN-2008-037	101.00	WFEC	Tap Washita - Blue Canyon Wind 138kV
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV
GEN-2011-049	250.00	OKGE	Border 345kV
GEN-2012-028	74.80	WFEC	Gotebo 69kV
PRIOR QUEUED SUBTOTAL	**1,900.25**		
GEN-2014-036	50.00	AEPW	Hollis 138kV
CURRENT CLUSTER SUBTOTAL	**50.00**		
AREA TOTAL	**1,950.25**		

GROUP 8: NORTH OKLAHOMA/SOUTH CENTRAL KANSAS AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
ASGI-2010-006	150.00	AECI	Tap Fairfax (AECI) - Shilder (AEPW) 138kV
GEN-2002-004	200.00	WERE	Latham 345kV
GEN-2005-013	201.00	WERE	Caney River 345kV
GEN-2007-025	300.00	WERE	Viola 345kV
GEN-2008-013	300.00	OKGE	Hunter 345kV
GEN-2008-021	42.00	WERE	Wolf Creek 345kV
GEN-2008-098	100.80	WERE	Waverly 345kV
GEN-2009-025	60.00	OKGE	Nardins 69kV
GEN-2010-003	100.80	WERE	Waverly 345kV
GEN-2010-005	300.00	WERE	Viola 345kV
GEN-2010-055	4.50	AEPW	Wekiwa 138kV
GEN-2011-057	150.40	WERE	Creswell 138kV
GEN-2012-027	136.00	AEPW	Shidler 138kV
GEN-2012-032	300.00	OKGE	Open Sky 345kV
GEN-2012-033	98.80	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV
GEN-2012-040	76.50	WFEC	Chilocco 138kV
GEN-2012-041	121.50	OKGE	Ranch Road 345kV
GEN-2013-012	147.00	OKGE	Redbud 345kV
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV
GEN-2013-029	300.00	OKGE	Renfrow 345kV
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center 345kV
PRIOR QUEUED SUBTOTAL	**3,849.40**		
ASGI-2014-014	56.40	GRDA	Ferguson 69kV
GEN-2014-022	15.00	OKGE	Open Sky 345kV
GEN-2014-028	35.00	EMDE	Riverton 161kV

GEN-2014-064	248.40	OKGE	Otter 138kV
CURRENT CLUSTER SUBTOTAL	**354.80**		
AREA TOTAL	**4,204.20**		

GROUP 9: NEBRASKA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-023N	0.80	NPPD	Harmony 115kV
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV
GEN-2008-119O	60.00	OPPD	S1399 161kV
GEN-2008-123N	89.70	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV
GEN-2009-040	73.80	WERE	Marshall 115kV
GEN-2010-041	10.50	OPPD	S1399 161kV
GEN-2010-051	200.00	NPPD	Tap Twin Church - Hoskins 230kV
GEN-2011-018	73.60	NPPD	Steele City 115kV
GEN-2011-027	120.00	NPPD	Hoskins 230kV
GEN-2011-056	3.60	NPPD	Jeffrey 115kV
GEN-2011-056A	3.60	NPPD	John 1 115kV
GEN-2011-056B	4.50	NPPD	John 2 115kV
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-008	1.20	NPPD	Steele City 115kV
GEN-2013-014	25.50	NPPD	Tap Guide Rock - Pauline (Rosemont) 115kV
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-032	204.00	NPPD	Neligh 115kV
GEN-2014-004	3.96	NPPD	Steele City 115kV (GEN-2011-018 POI)
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV
PRIOR QUEUED SUBTOTAL	**1,963.06**		
GEN-2014-023	79.90	NPPD	Tap Fort Randall - Meadow Grove 230kV
GEN-2014-031	35.80	NPPD	Meadow Grove 230kV
GEN-2014-032	10.20	NPPD	Meadow Grove 230kV
GEN-2014-039	73.60	NPPD	Friend 115kV
GEN-2014-055	160.00	NPPD	Belden 115kV
GEN-2014-059	161.10	NPPD	Tap Sidney - Ogallala 230kV
GEN-2014-060	125.80	NPPD	Tap Pauline - Hildreth (Rosemont) 115kV
CURRENT CLUSTER SUBTOTAL	**646.40**		
AREA TOTAL	**2,609.46**		

GROUP 10: SOUTHEAST OKLAHOMA/NORTHEAST TEXAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2014-027	60.00	AEPW	Weleetka 138kV
CURRENT CLUSTER SUBTOTAL	**60.00**		
AREA TOTAL	**60.00**		

GROUP 12: NORTHWEST ARKANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2013-011	30.00	AEPW	Turk 138kV
PRIOR QUEUED SUBTOTAL	**30.00**		
AREA TOTAL	**30.00**		

GROUP 13: NORTHWEST MISSOURI AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2013-007	90.00	AECI	Tap Hickory Creek - Locust Creek 161kV
GEN-2008-129	80.00	GMO	Pleasant Hill 161kV
GEN-2010-036	4.60	WERE	6th Street 115kV
GEN-2011-011	50.00	KACP	Iatan 345kV
PRIOR QUEUED SUBTOTAL	**224.60**		
GEN-2014-021	300.00	GMO	Tap Nebraska City - Mullens Creek 345kV
GEN-2014-050	100.00	WERE	Swissvale 345kV
GEN-2014-051	174.00	WERE	Jeffrey Energy Center 345kV
CURRENT CLUSTER SUBTOTAL	**574.00**		
AREA TOTAL	**798.60**		

GROUP 14: SOUTH CENTRAL OKLAHOMA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2011-040	111.00	OKGE	Carter County 138kV
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV
GEN-2012-004	41.40	OKGE	Carter County 138kV
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV
PRIOR QUEUED SUBTOTAL	**362.50**		
GEN-2014-057	250.00	AEPW	Tap Lawton - Sunnyside 345kV
CURRENT CLUSTER SUBTOTAL	**250.00**		
AREA TOTAL	**612.50**		

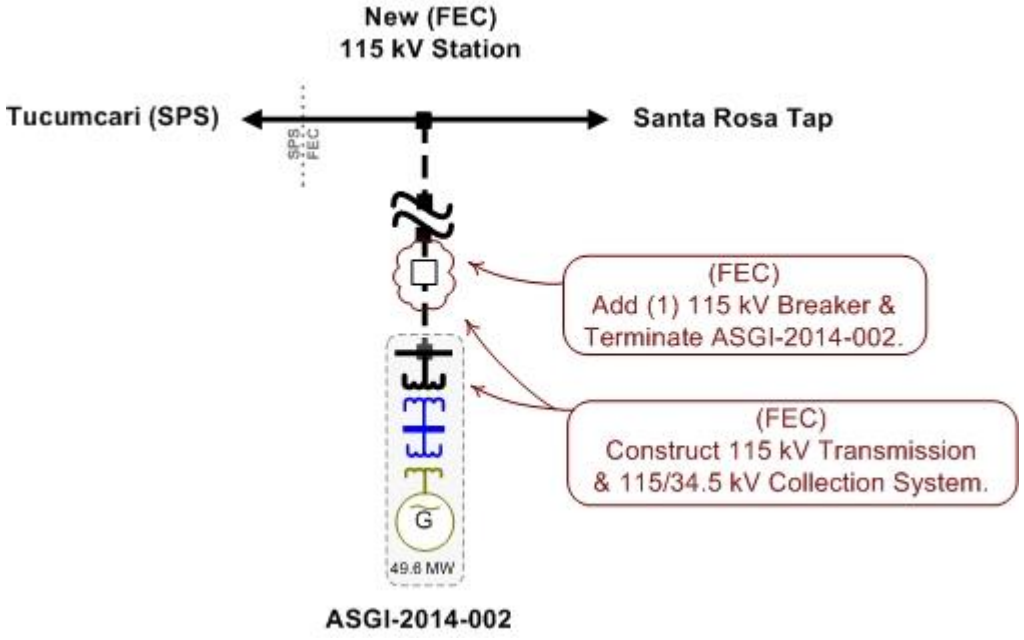
CLUSTER TOTAL (CURRENT STUDY)	**7,241.1**	**MW**
PQ TOTAL (PRIOR QUEUED)	**25,193.7**	**MW**
CLUSTER TOTAL (INCLUDING PRIOR QUEUED)	**32,434.8**	**MW**

D: Proposed Point of Interconnection One Line Diagrams

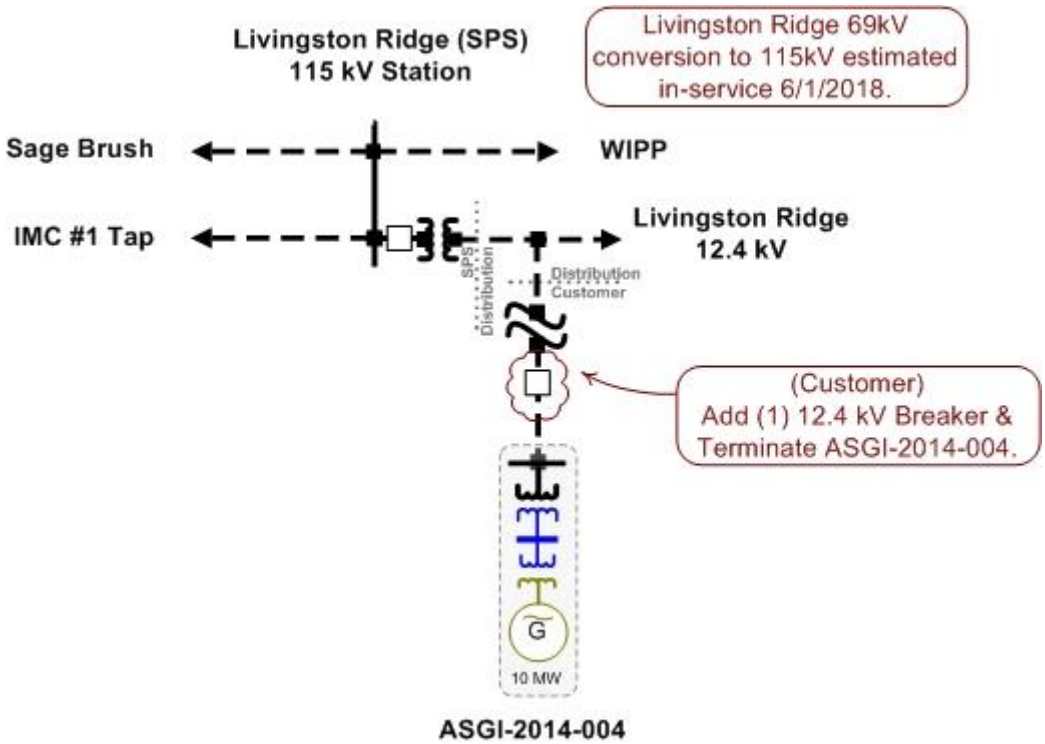
See next page

*Please note for Affected System Generation Interconnection Requests (ASGI) interconnection cost estimate could include distribution system or third party system network upgrades and costs estimates.

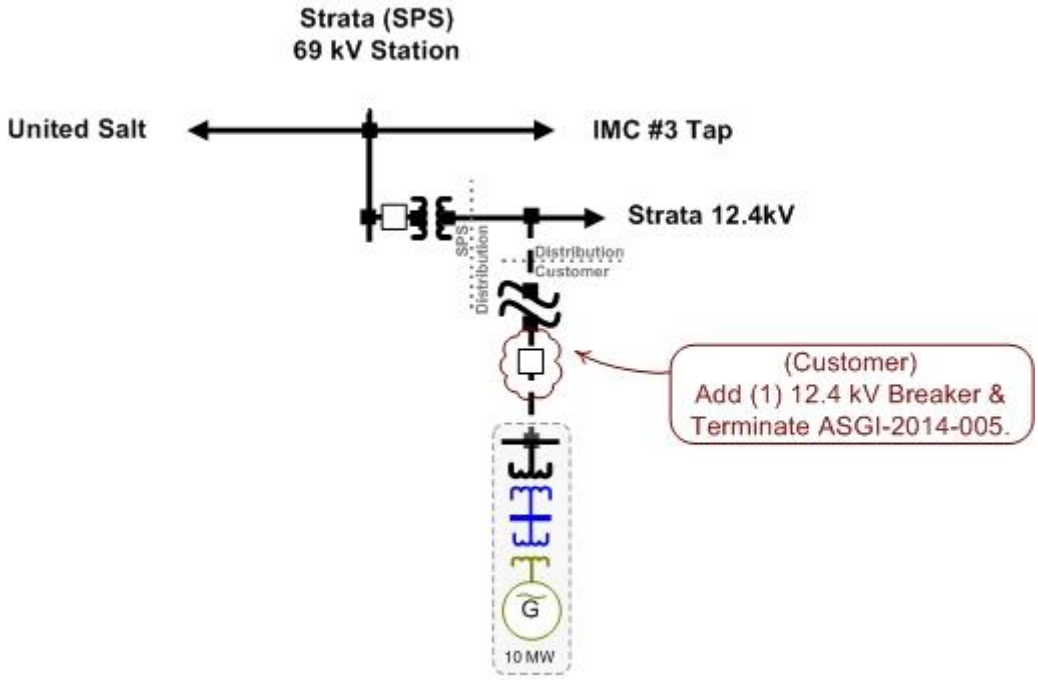
ASGI-2014-002
Estimated Interconnection Cost: $6,403,000*



ASGI-2014-004
Estimated Interconnection Cost: $411,000*

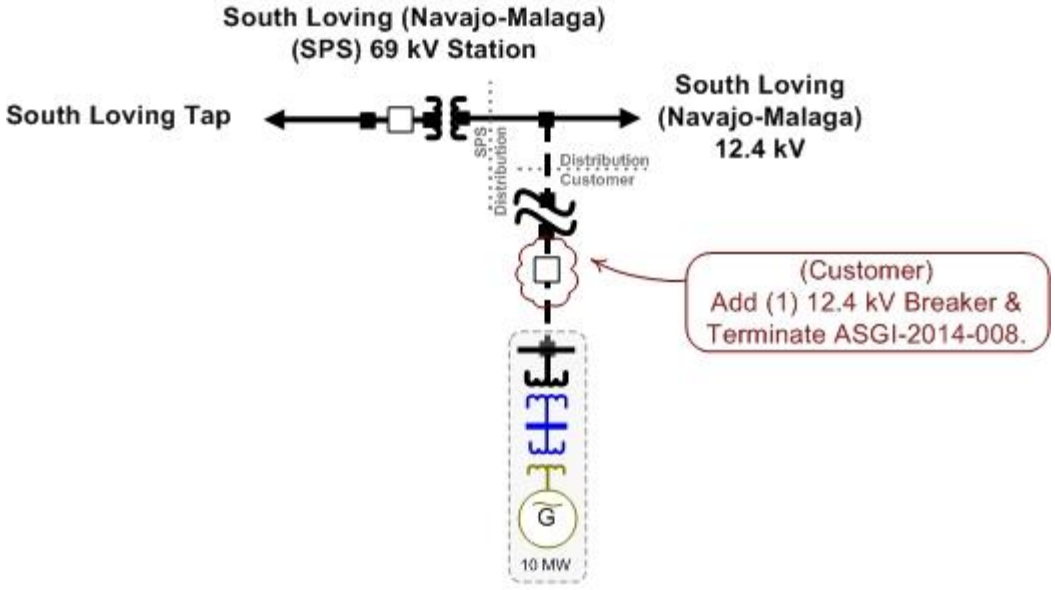


ASGI-2014-005
Estimated Interconnection Cost: $533,000*



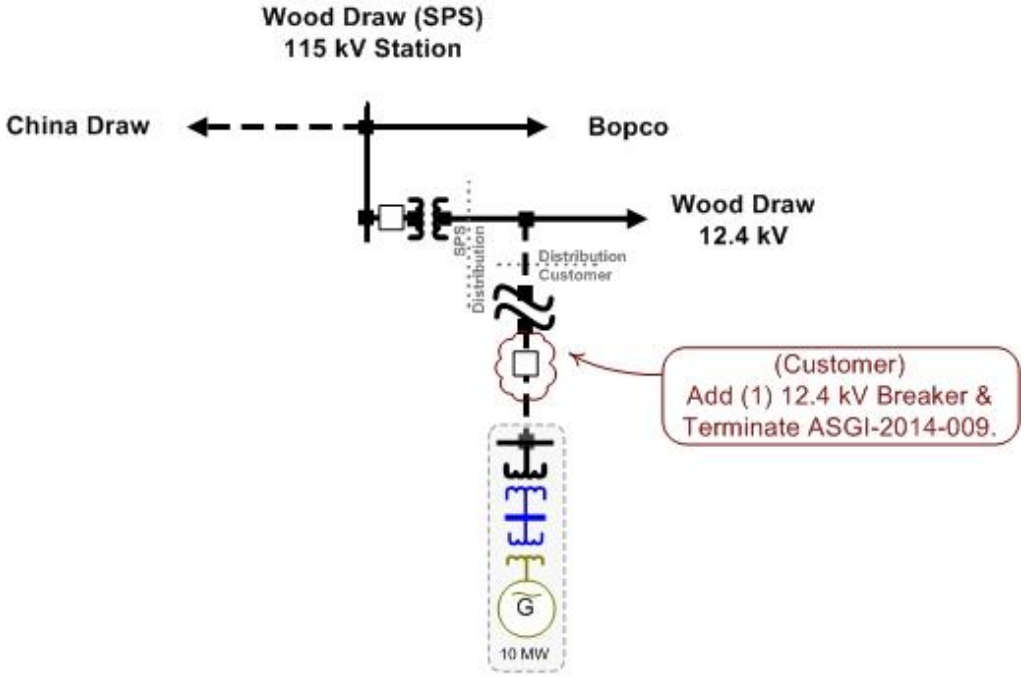
ASGI-2014-005

ASGI-2014-008
Estimated Interconnection Cost: $844,000*



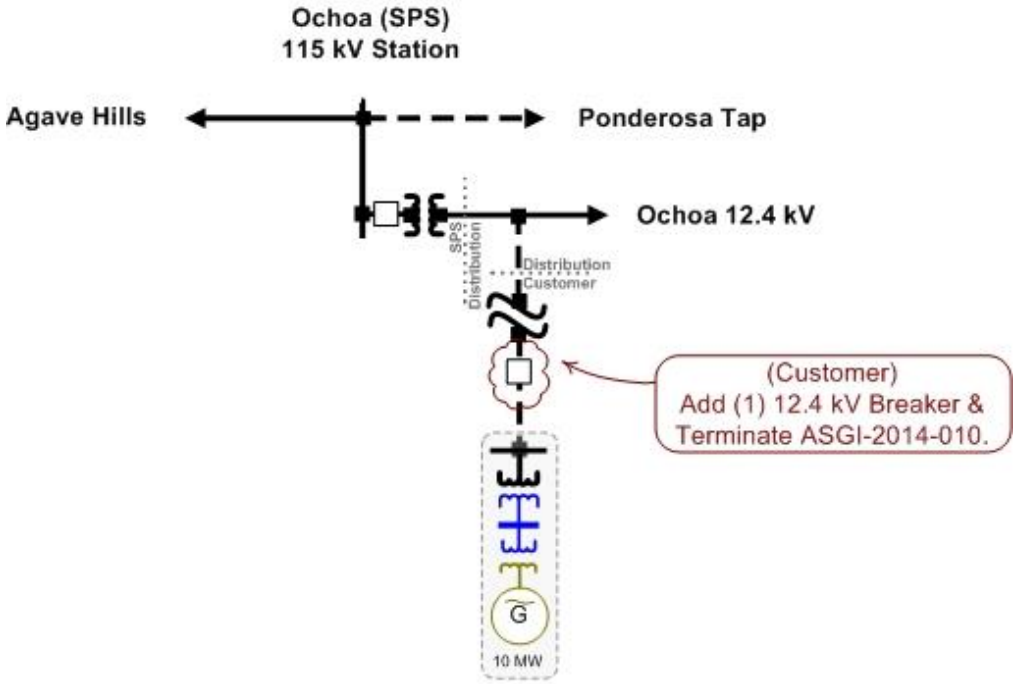
ASGI-2014-008

ASGI-2014-009
Estimated Interconnection Cost: $470,000*



ASGI-2014-009

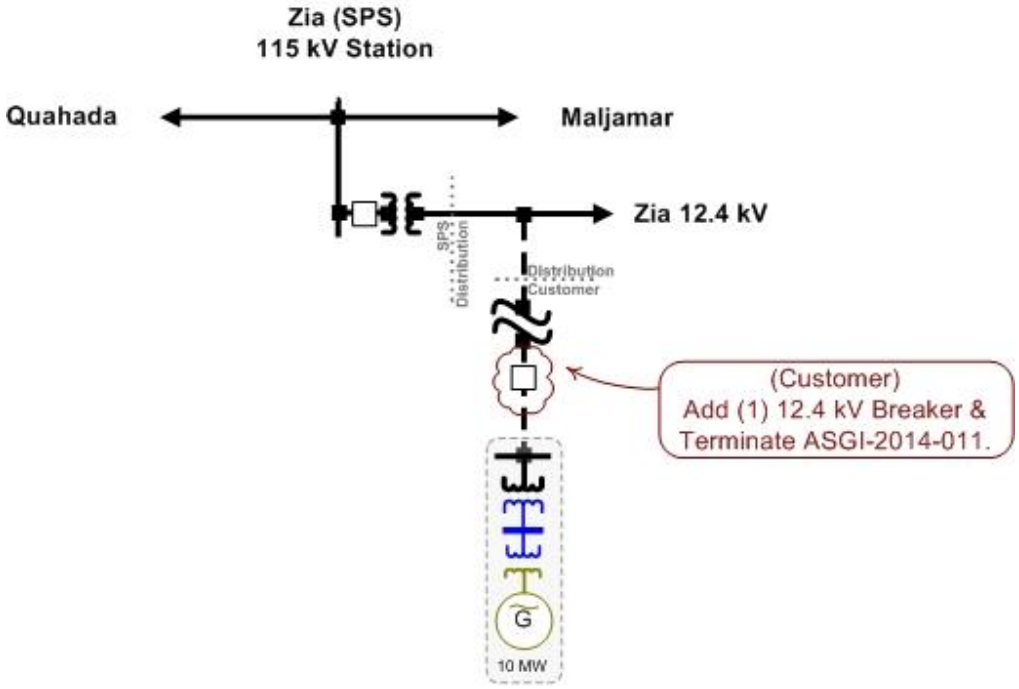
ASGI-2014-010
Estimated Interconnection Cost: $1,130,000*



ASGI-2014-010

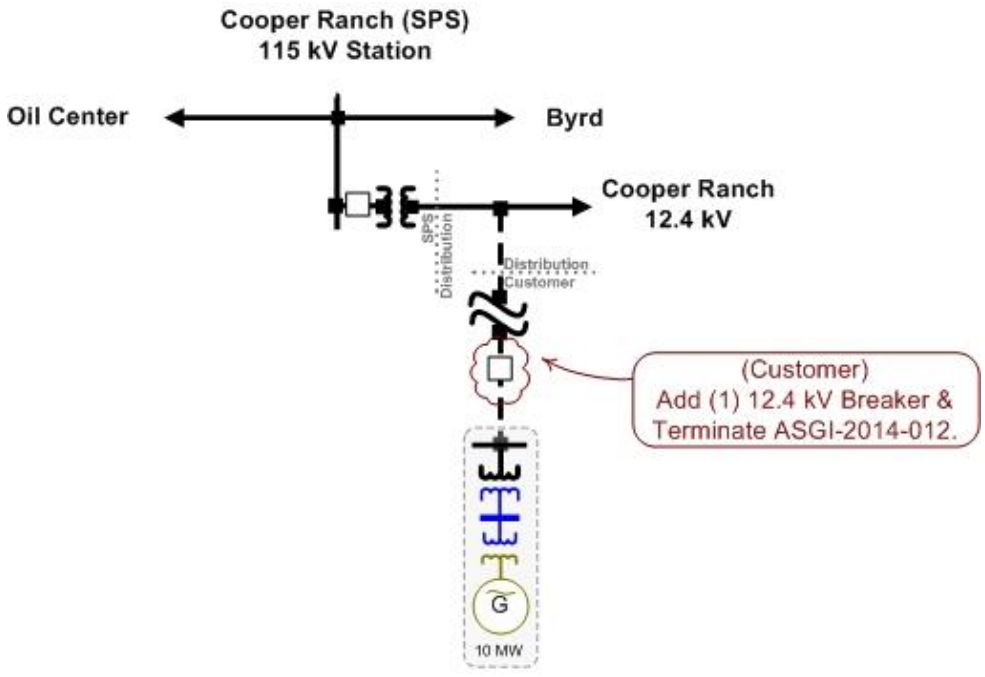
ASGI-2014-011

Estimated Interconnection Cost: $1,117,000*



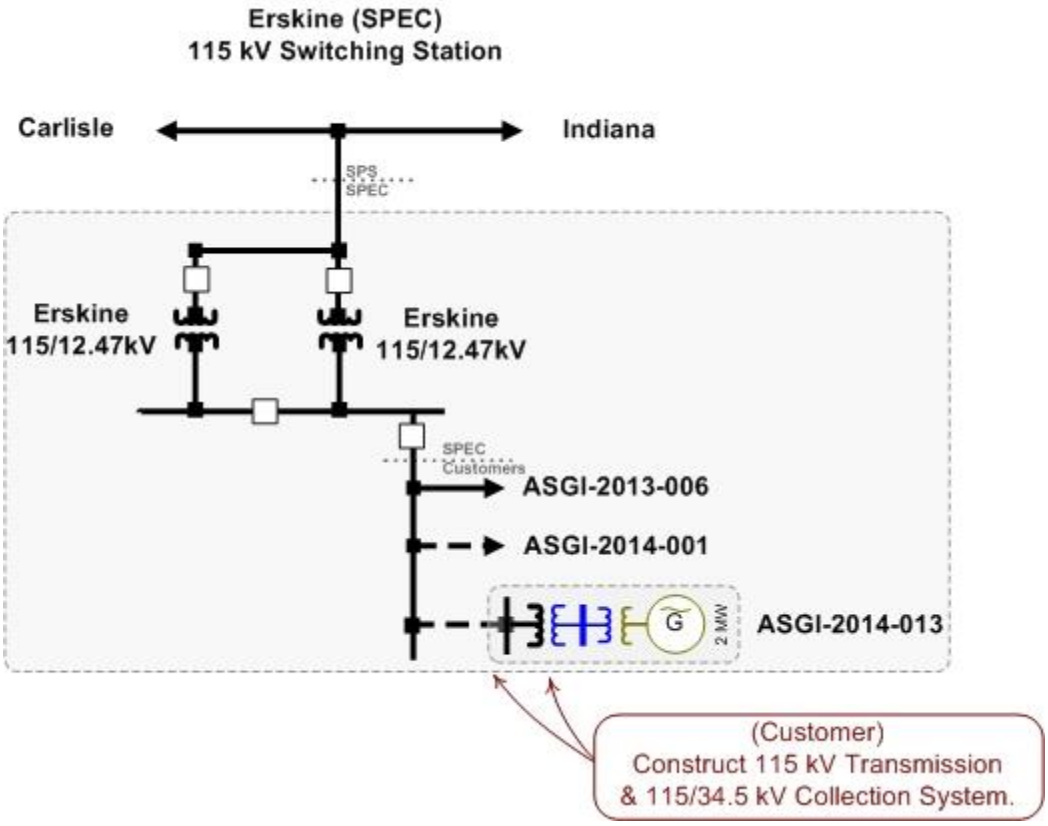
ASGI-2014-011

ASGI-2014-012
Estimated Interconnection Cost: $886,000*

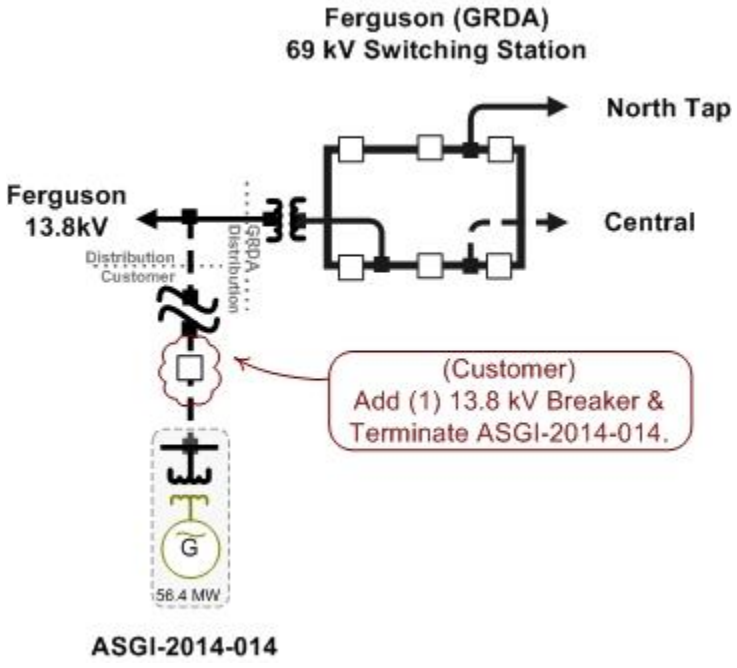


ASGI-2014-012

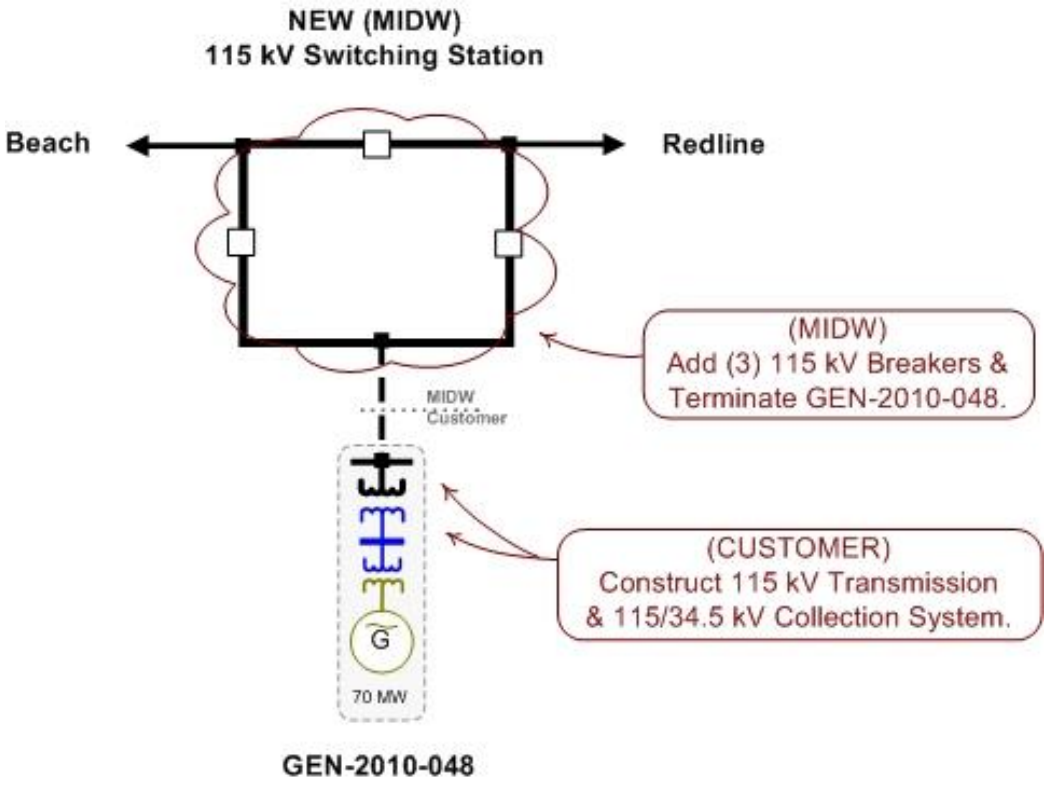
ASGI-2014-013
Estimated Interconnection Cost: $0*



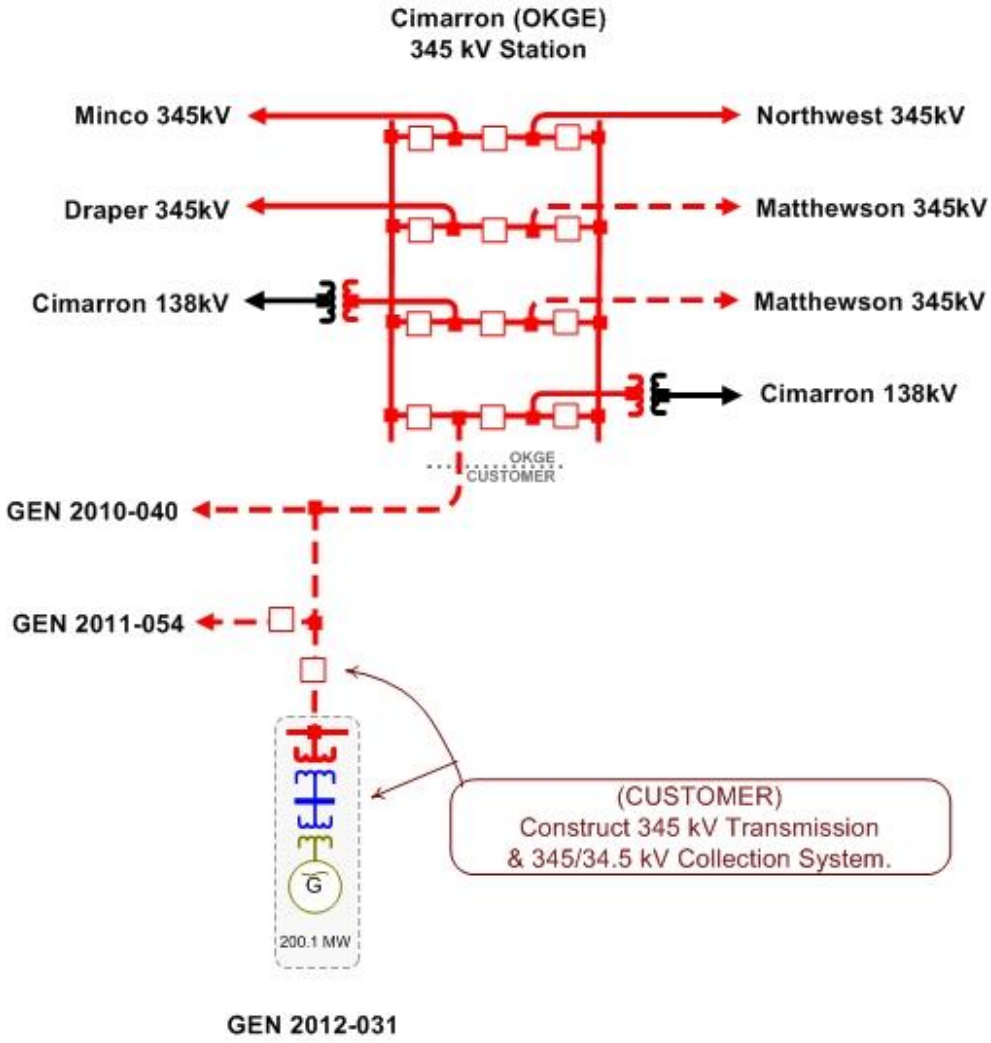
ASGI-2014-014
Estimated Interconnection Cost: $134,163*



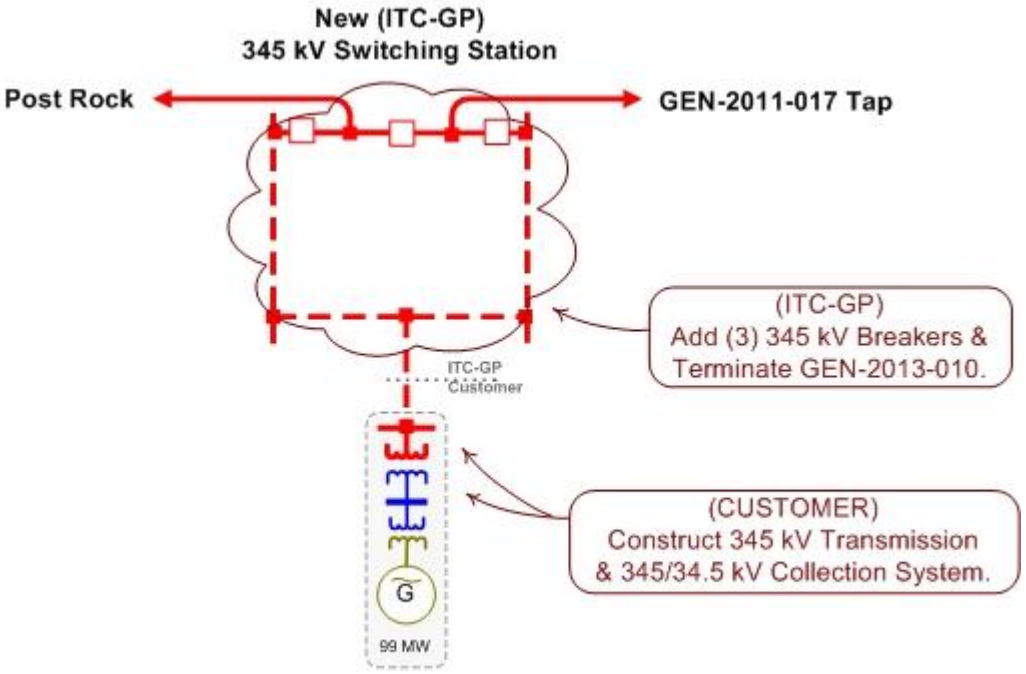
GEN-2010-048
Estimated Interconnection Cost: $4,000,000



GEN-2012-031
Estimated Interconnection Cost: $20,000

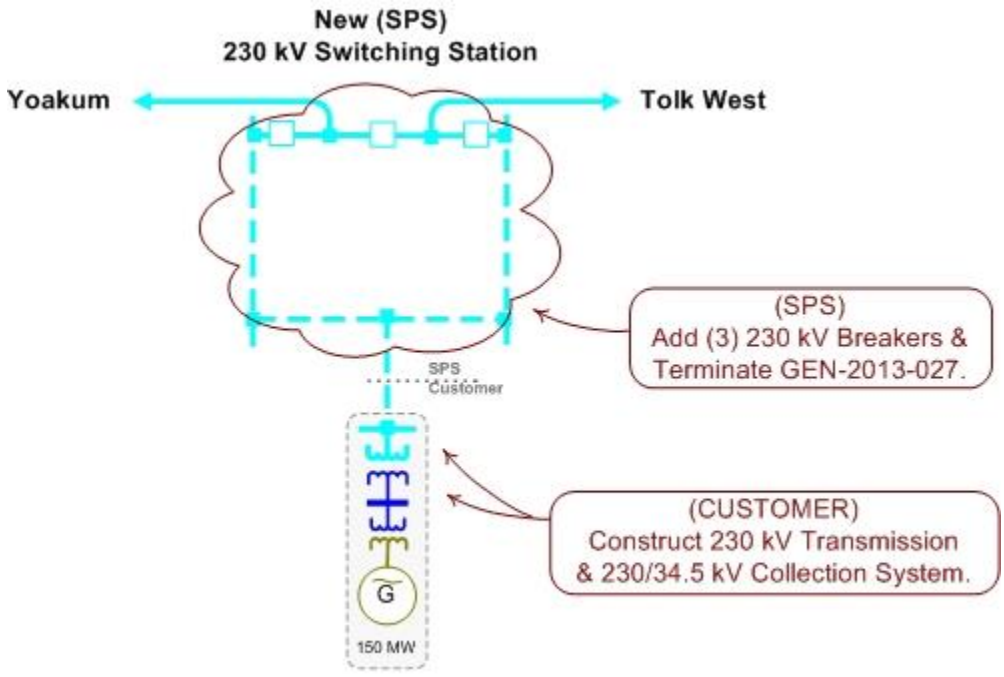


GEN-2013-010
Estimated Interconnection Cost: $11,216,355



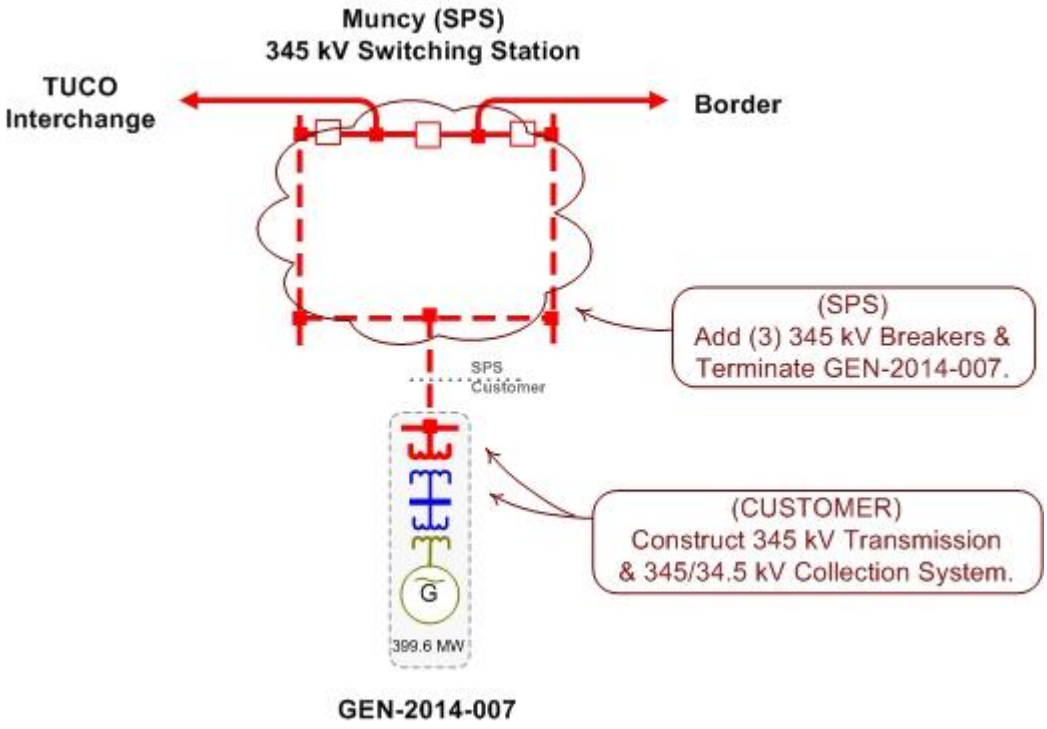
GEN-2013-010

GEN-2013-027
Estimated Interconnection Cost: $5,647,985

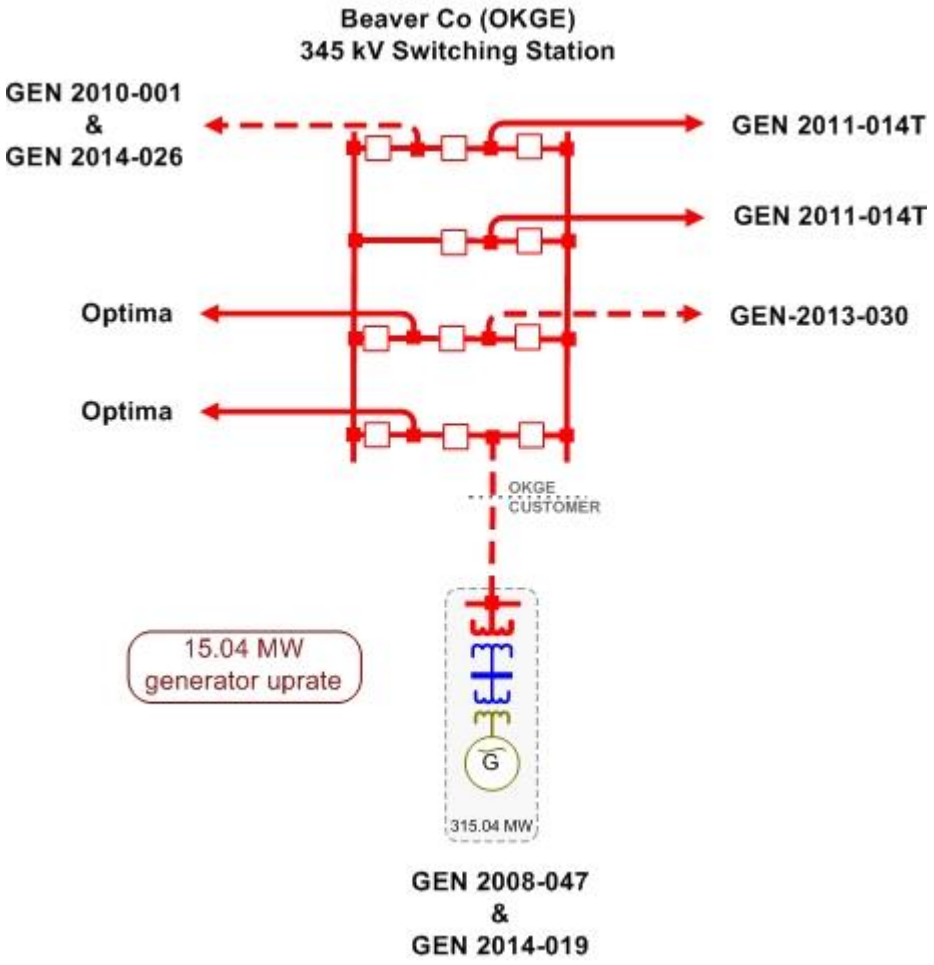


GEN-2013-027

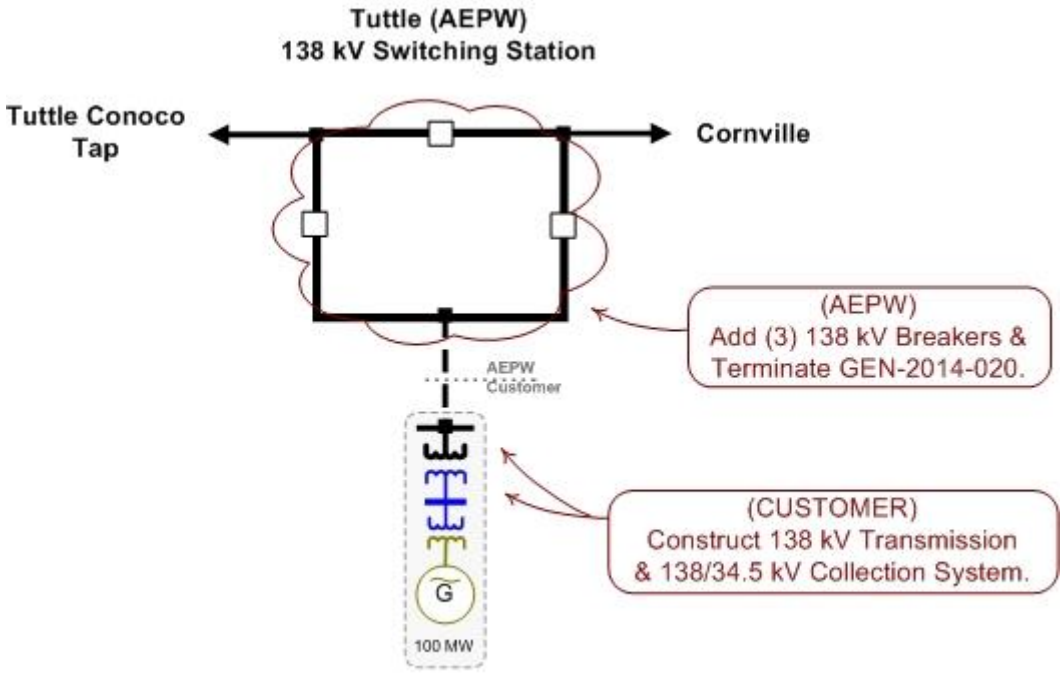
GEN-2014-007
Estimated Interconnection Cost: $21,089,492



GEN-2014-019
Estimated Interconnection Cost: $0

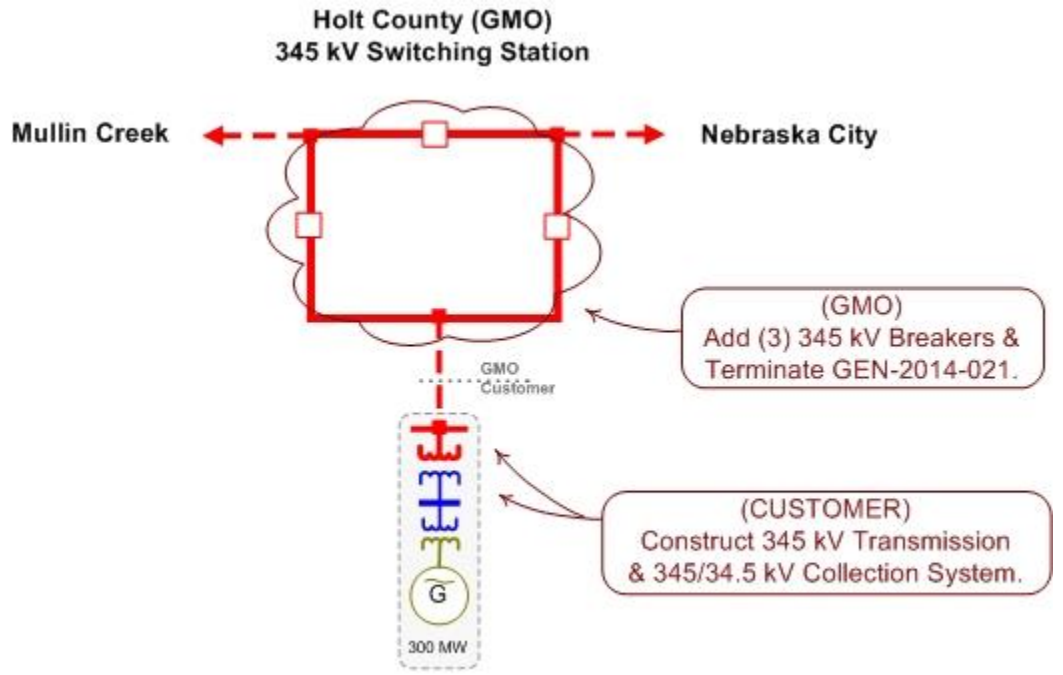


GEN-2014-020
Estimated Interconnection Cost: $6,457,000



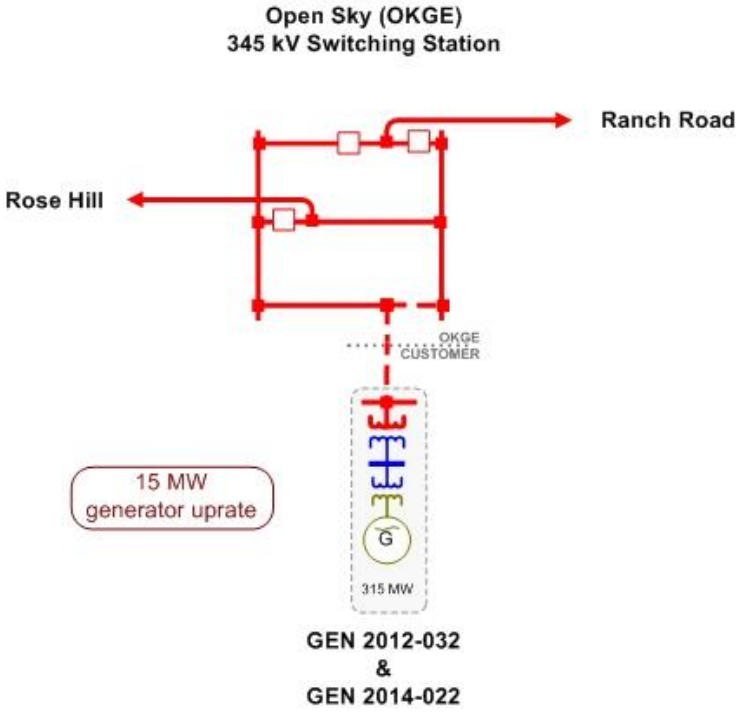
GEN-2014-020

GEN-2014-021
Estimated Interconnection Cost: $15,060,000

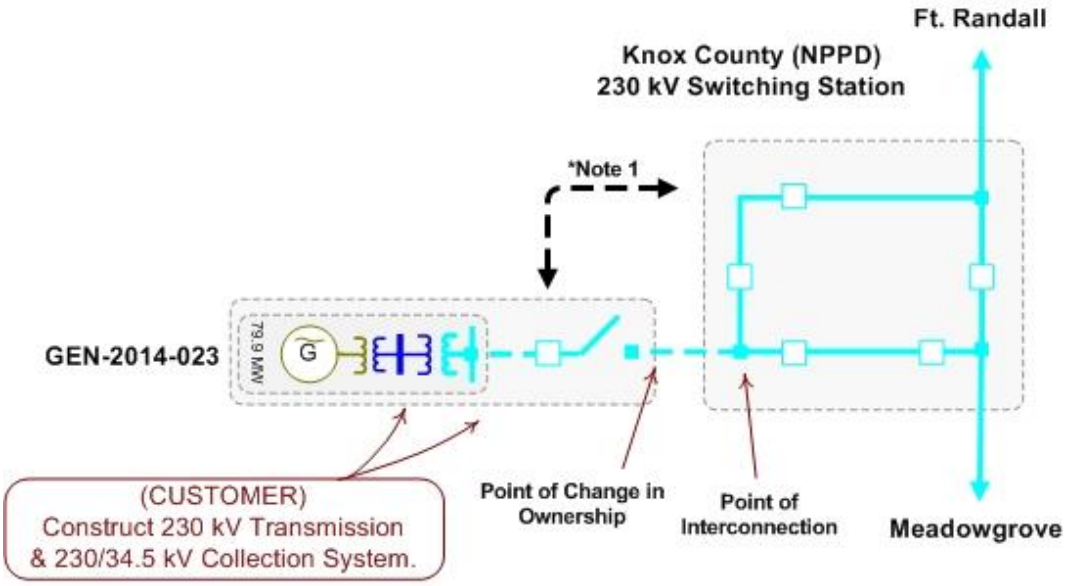


GEN-2014-021

GEN-2014-022
Estimated Interconnection Cost: $0

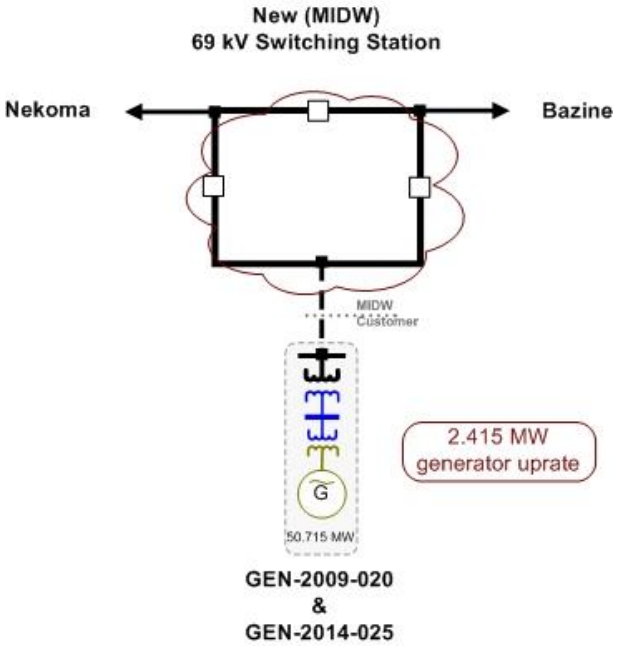


GEN-2014-023
Estimated Interconnection Cost: $9,200,000

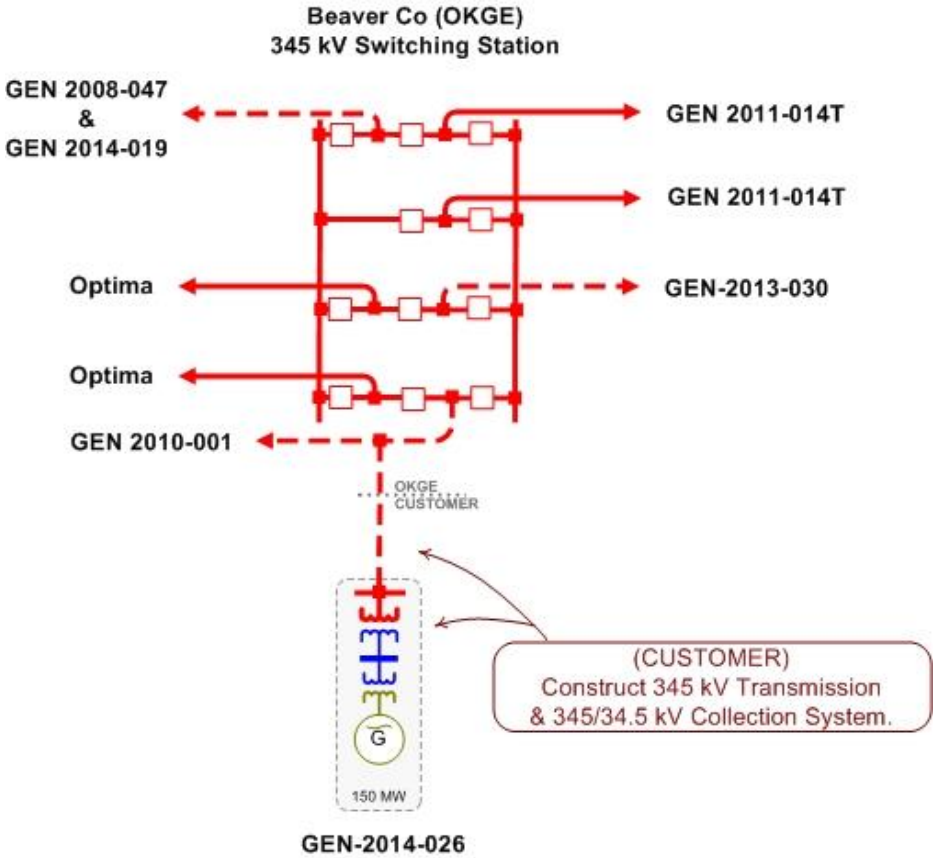


*Note 1: Breaker status & control signal to Transmission Owner to allow operation by Transmission Owner of 230kV breaker during Emergency Condition. Breaker operation will need coordination to ensure safe operation of the transmission line.

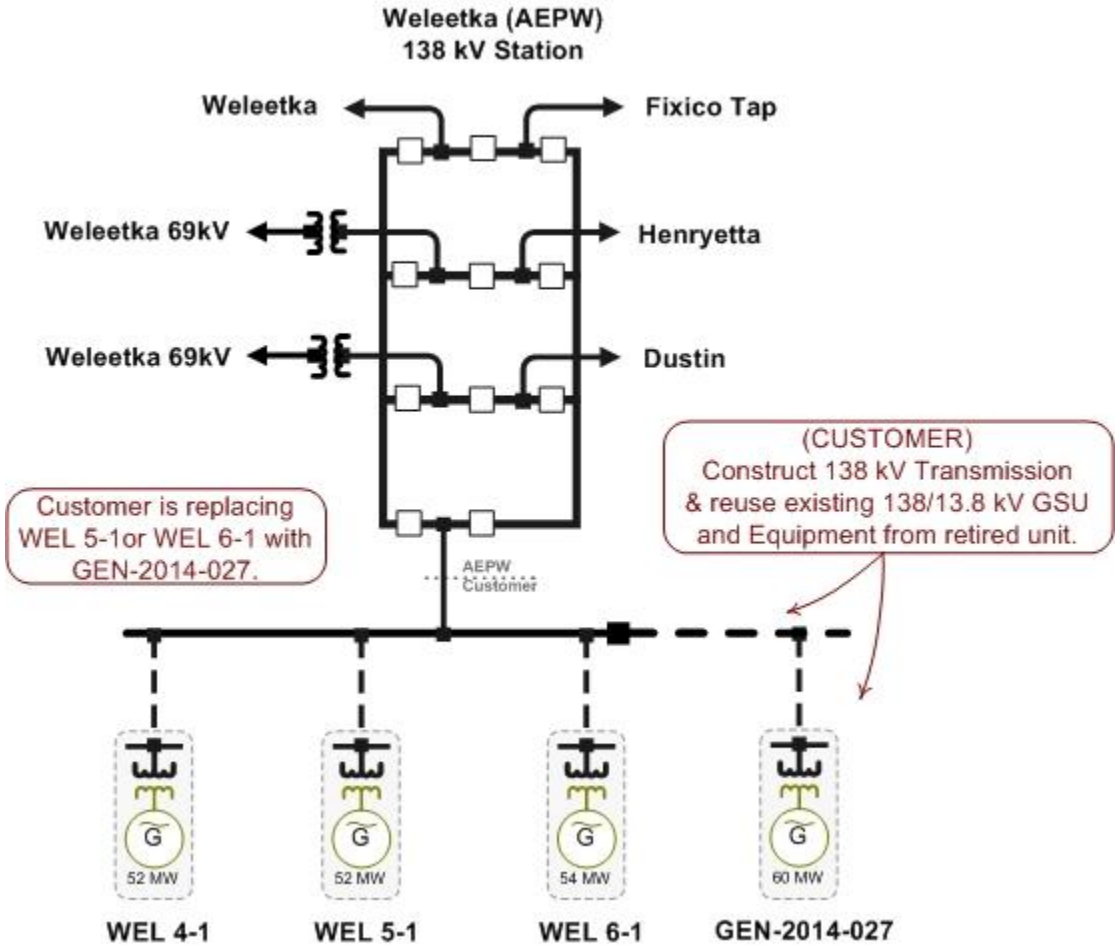
GEN-2014-025
Estimated Interconnection Cost: $0



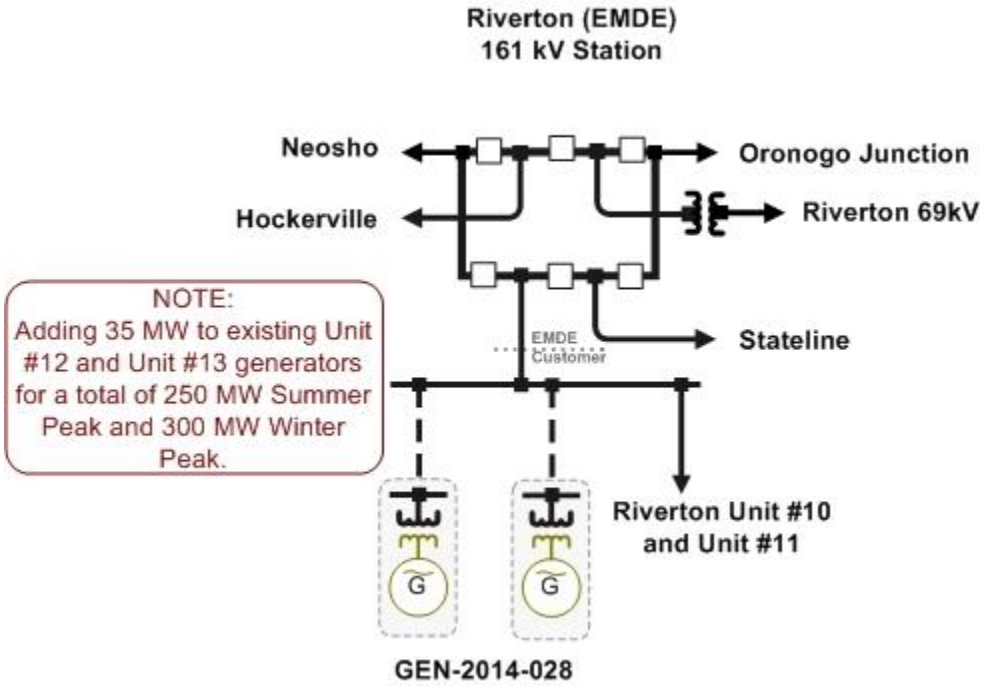
GEN-2014-026
Estimated Interconnection Cost: $0



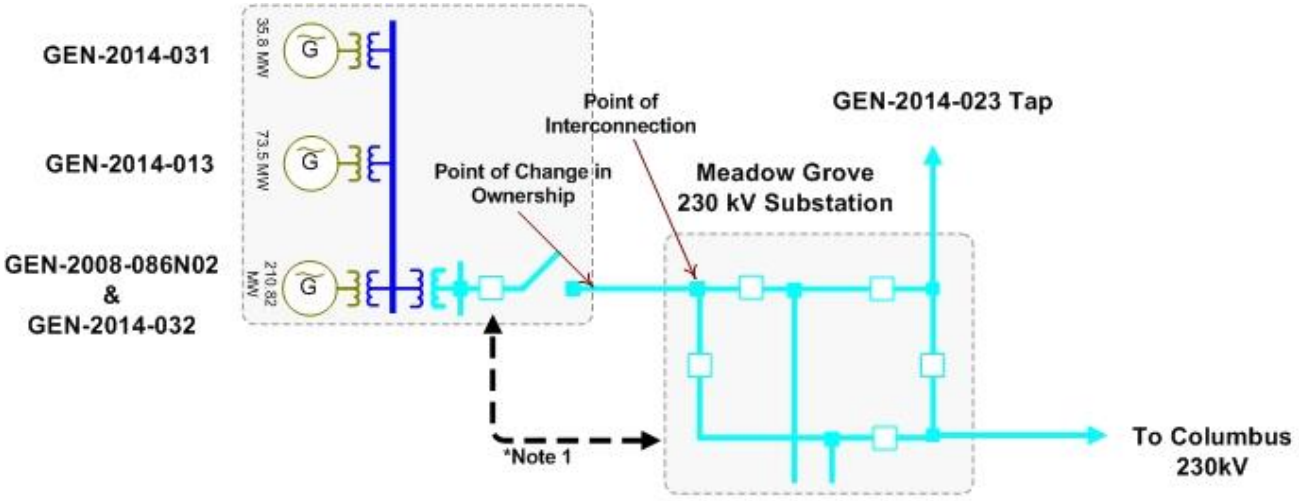
GEN-2014-027
Estimated Interconnection Cost: $0



GEN-2014-028
Estimated Interconnection Cost: $0

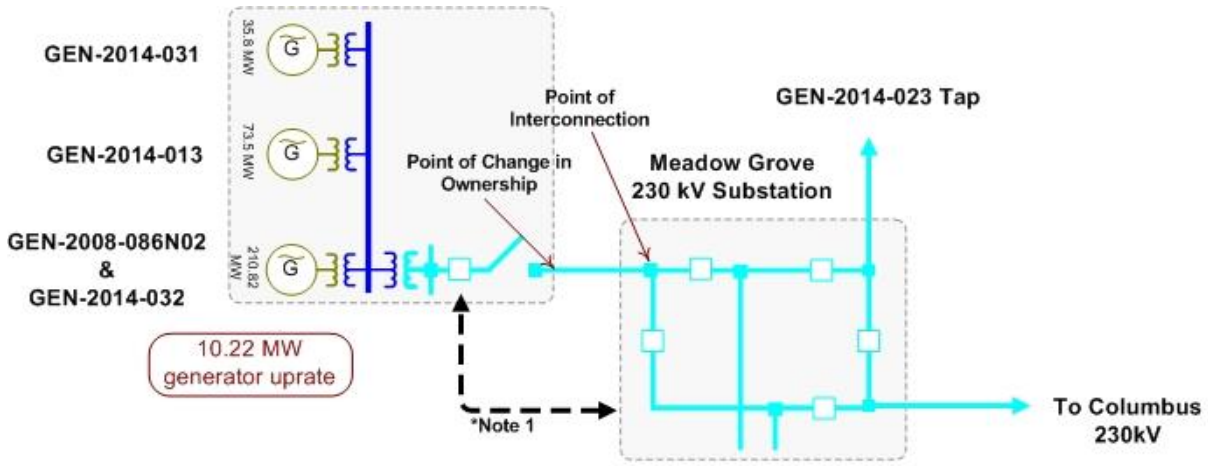


GEN-2014-031
Estimated Interconnection Cost: $100,000



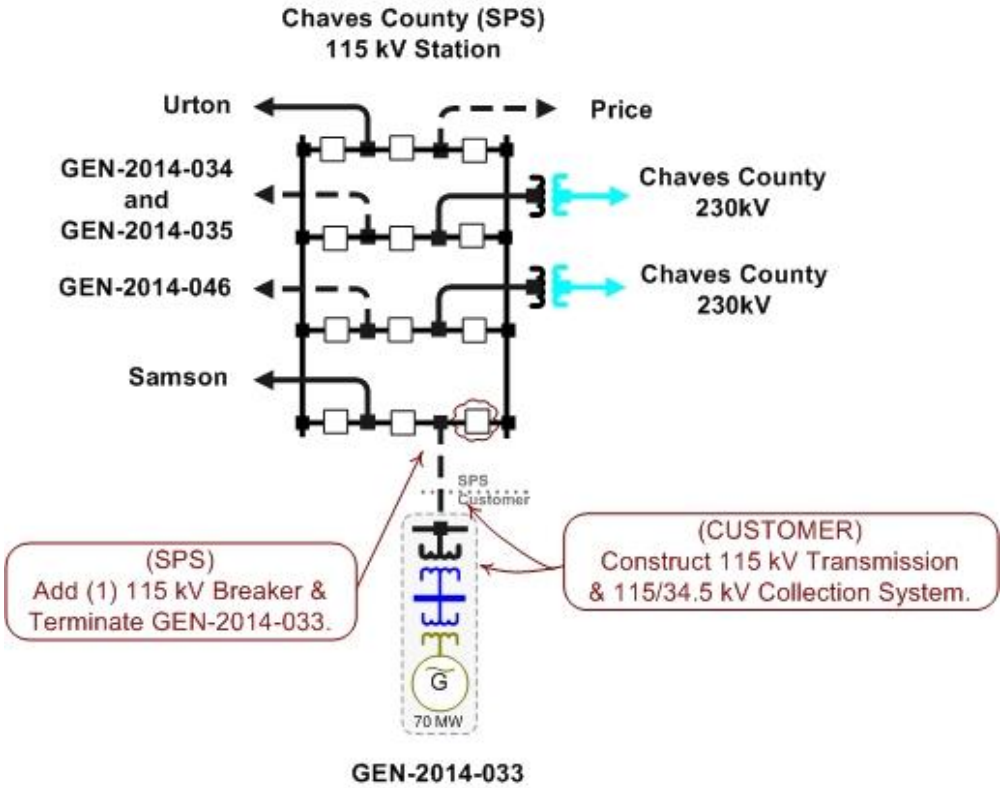
*Note 1: Breaker status & control signal to Transmission Owner to allow operation by Transmission Owner of 230kV breaker during Emergency Condition. Breaker operation will need coordination to ensure safe operation of the transmission line.

GEN-2014-032
Estimated Interconnection Cost: $100,000

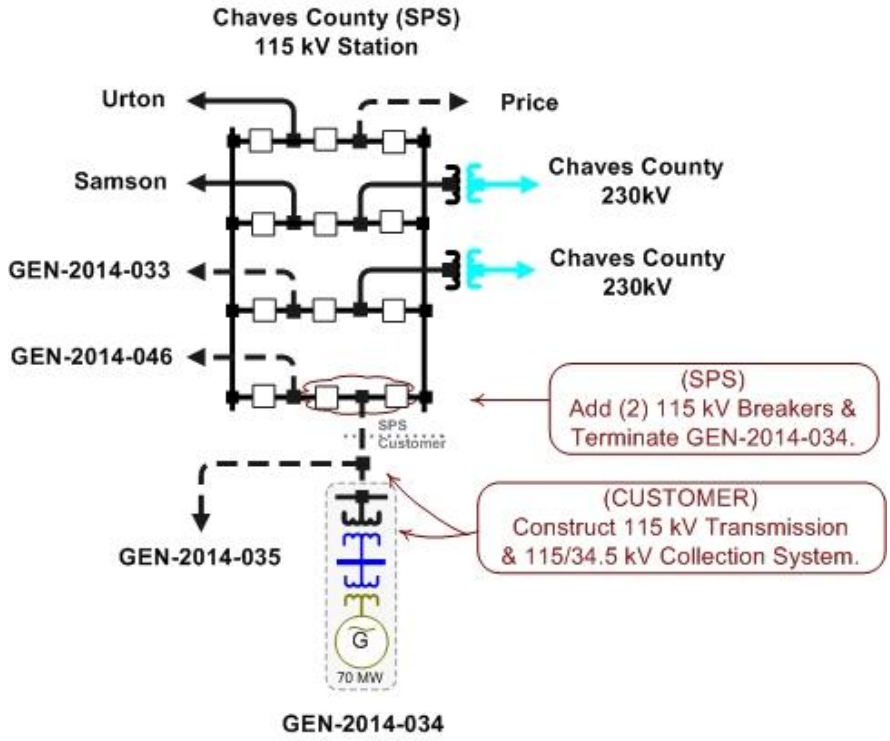


*Note 1: Breaker status & control signal to Transmission Owner to allow operation by Transmission Owner of 230kV breaker during Emergency Condition. Breaker operation will need coordination to ensure safe operation of the transmission line.

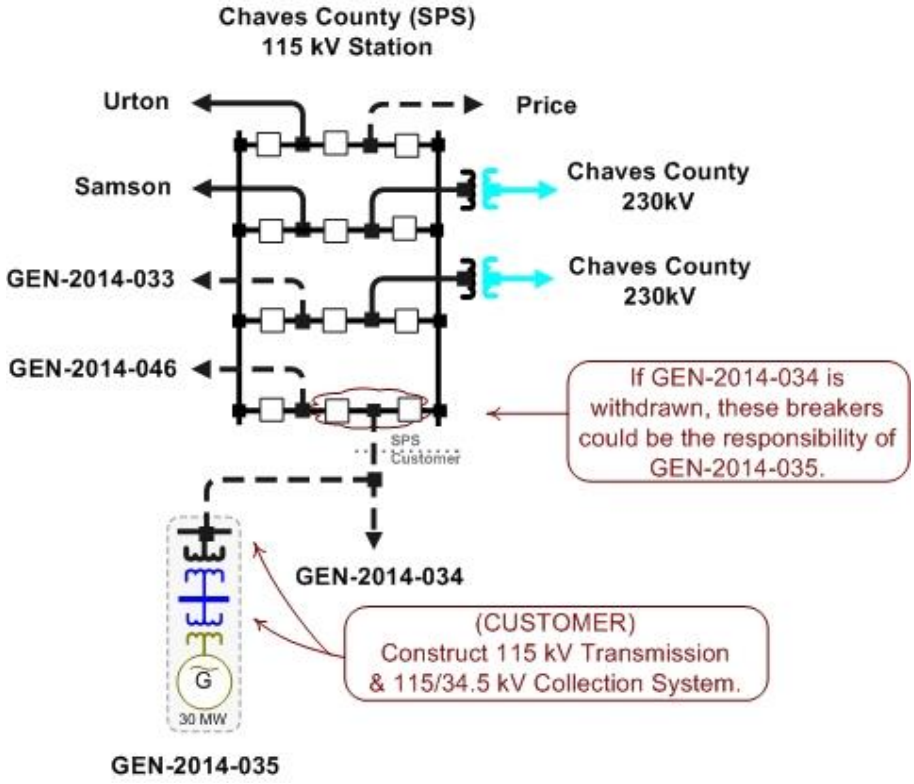
GEN-2014-033
Estimated Interconnection Cost: $975,005



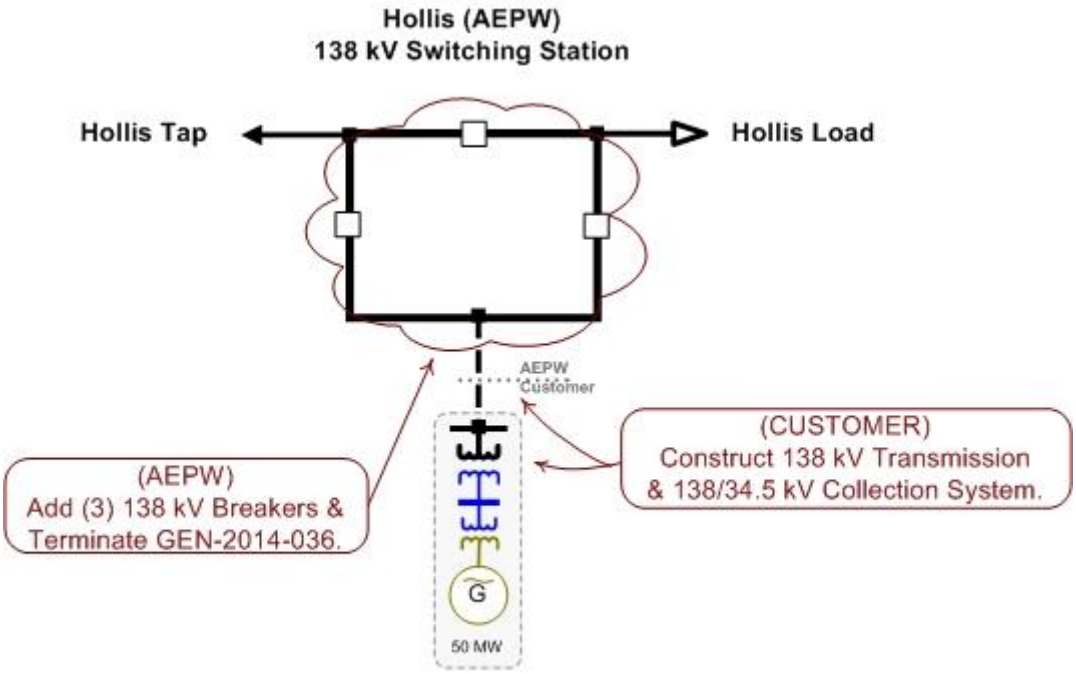
GEN-2014-034
Estimated Interconnection Cost: $1,886,507



GEN-2014-035
Estimated Interconnection Cost: $0

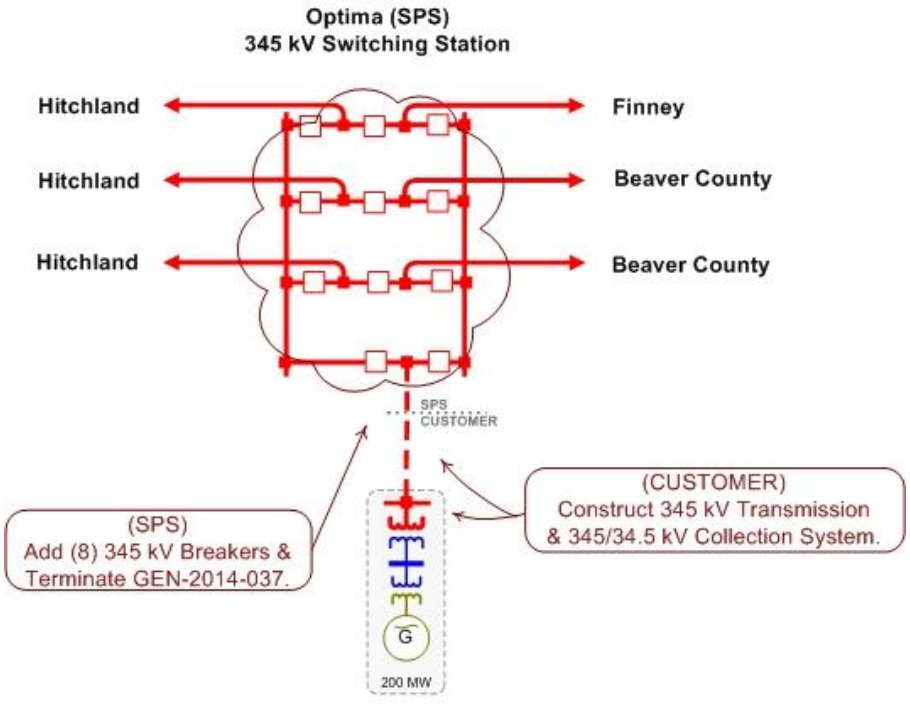


GEN-2014-036
Estimated Interconnection Cost: $6,006,000



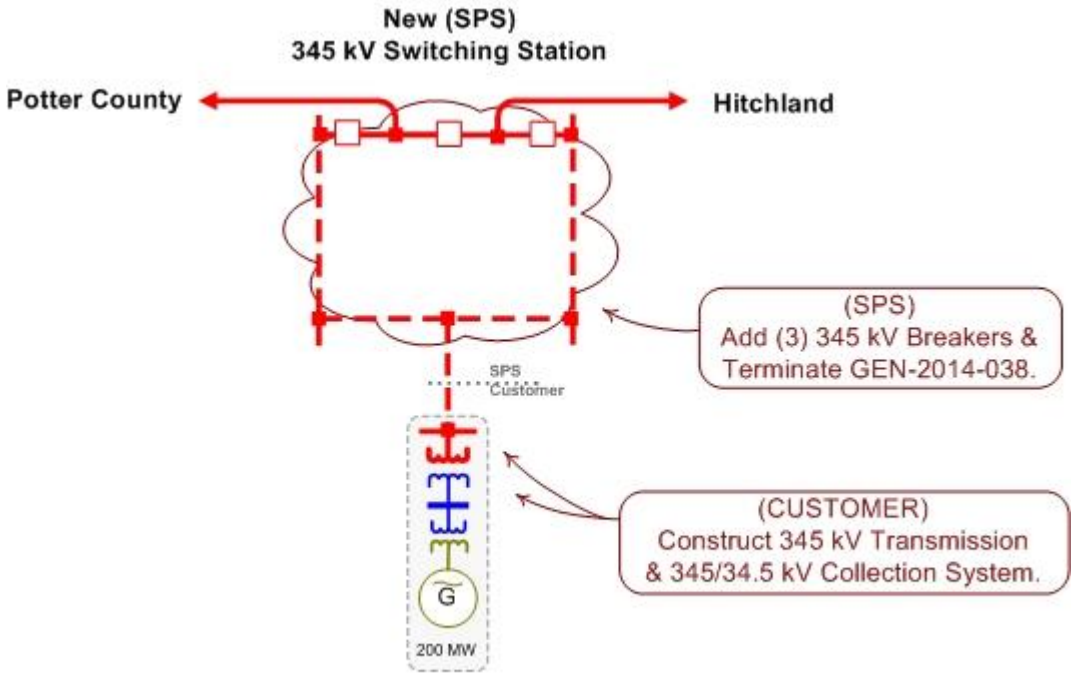
GEN-2014-036

GEN-2014-037
Estimated Interconnection Cost: $20,725,959



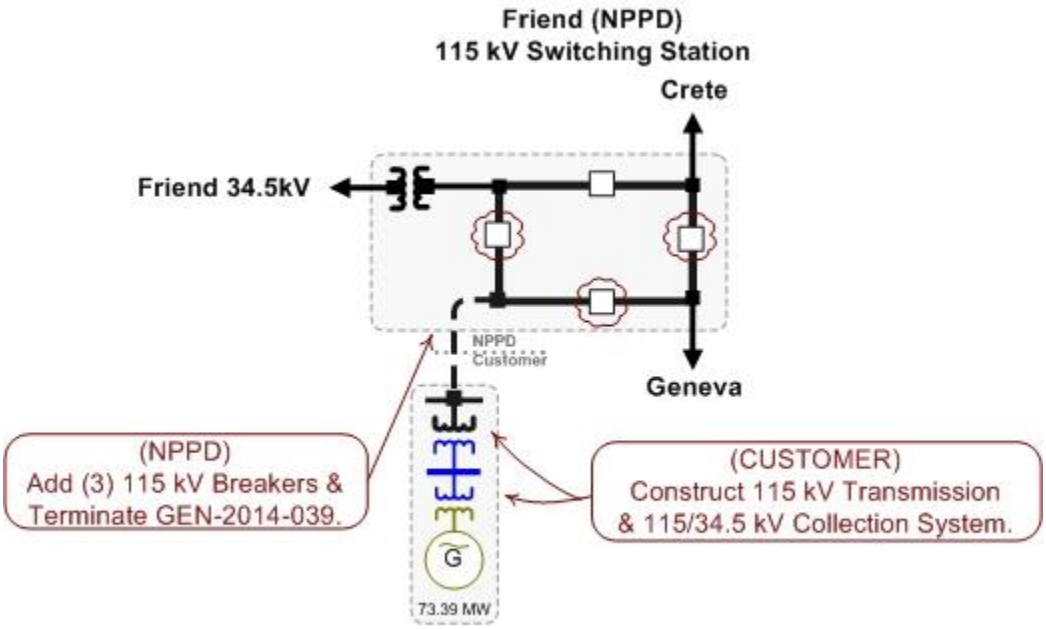
GEN 2014-037

GEN-2014-038
Estimated Interconnection Cost: $12,542,886



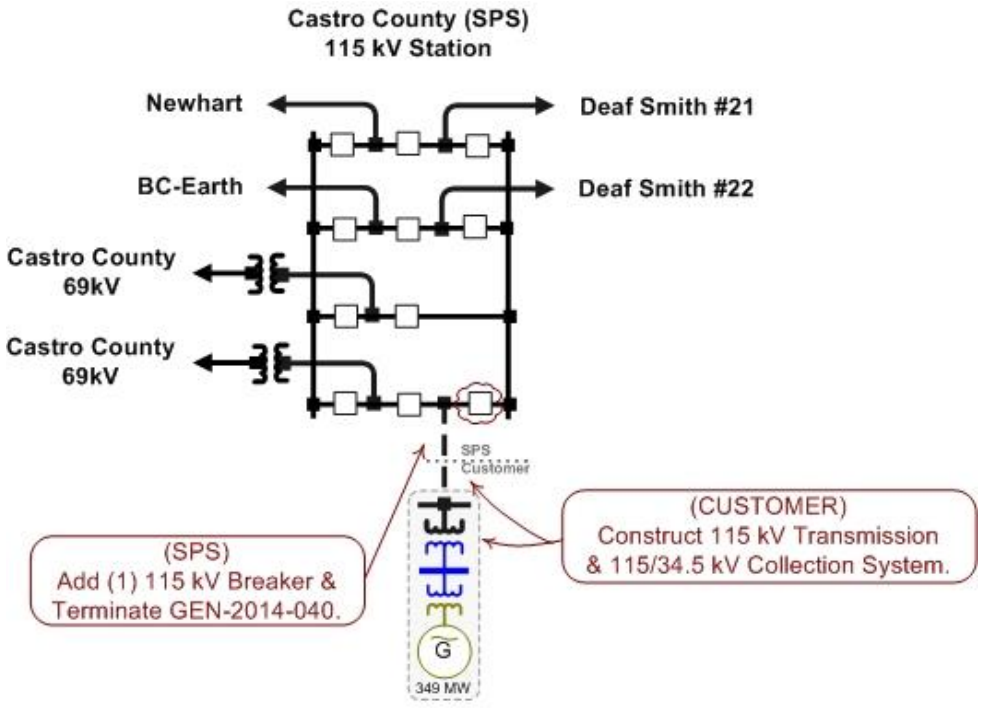
GEN-2014-038

GEN-2014-039
Estimated Interconnection Cost: $4,200,000



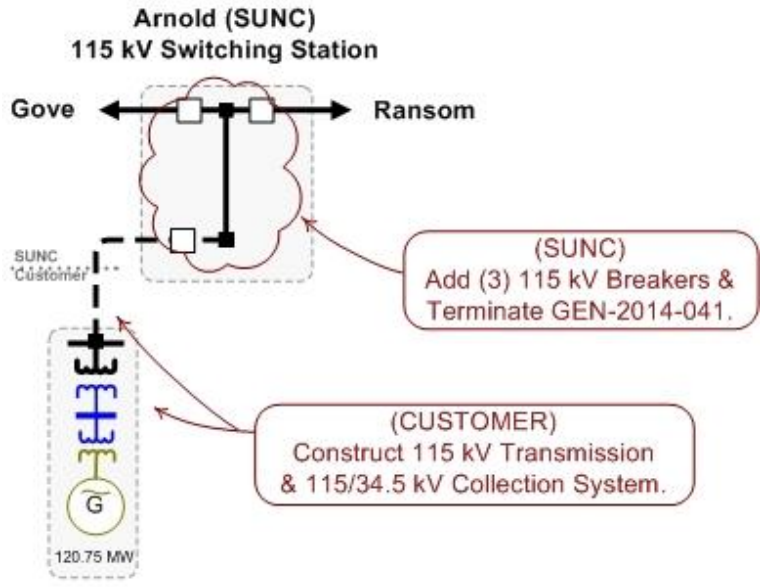
GEN-2014-039

GEN-2014-040
Estimated Interconnection Cost: $1,234,027



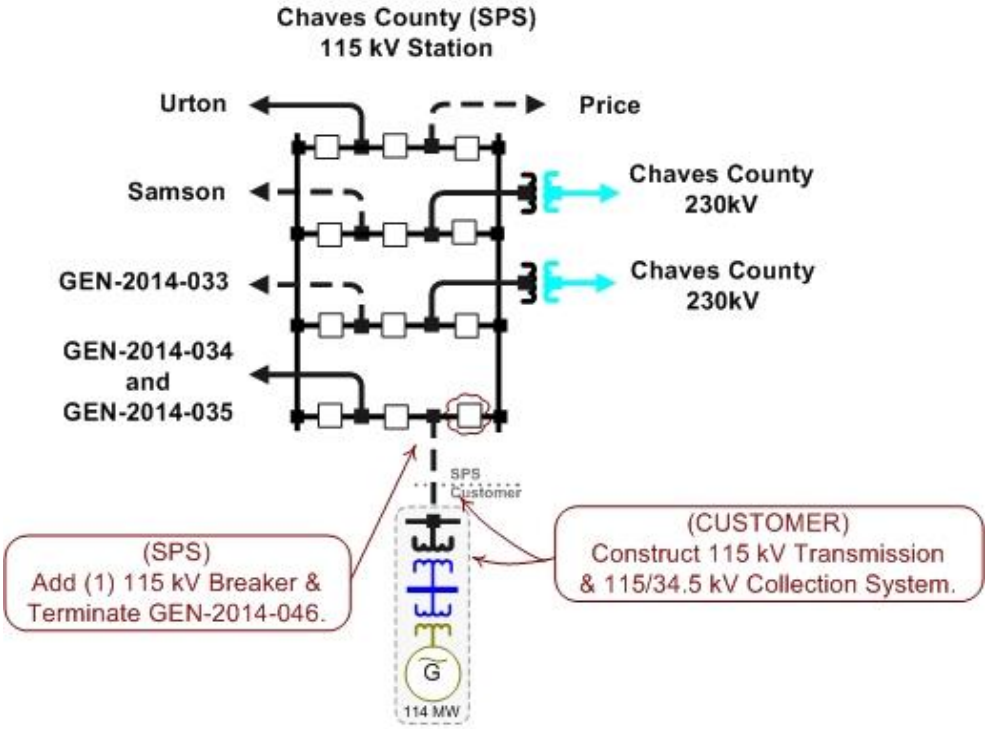
GEN-2014-040

GEN-2014-041
Estimated Interconnection Cost: $4,180,734



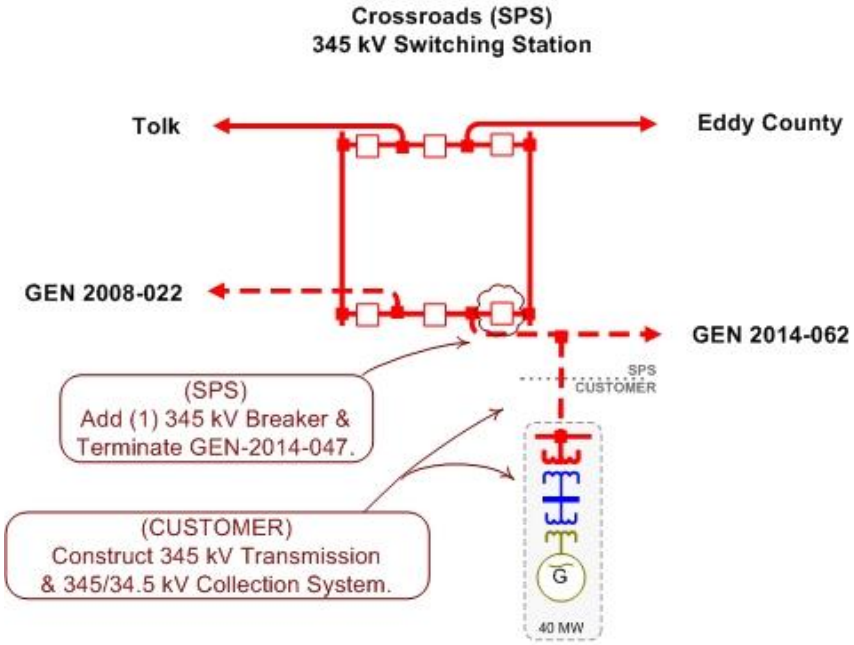
GEN-2014-041

GEN-2014-046
Estimated Interconnection Cost: $1,016,368



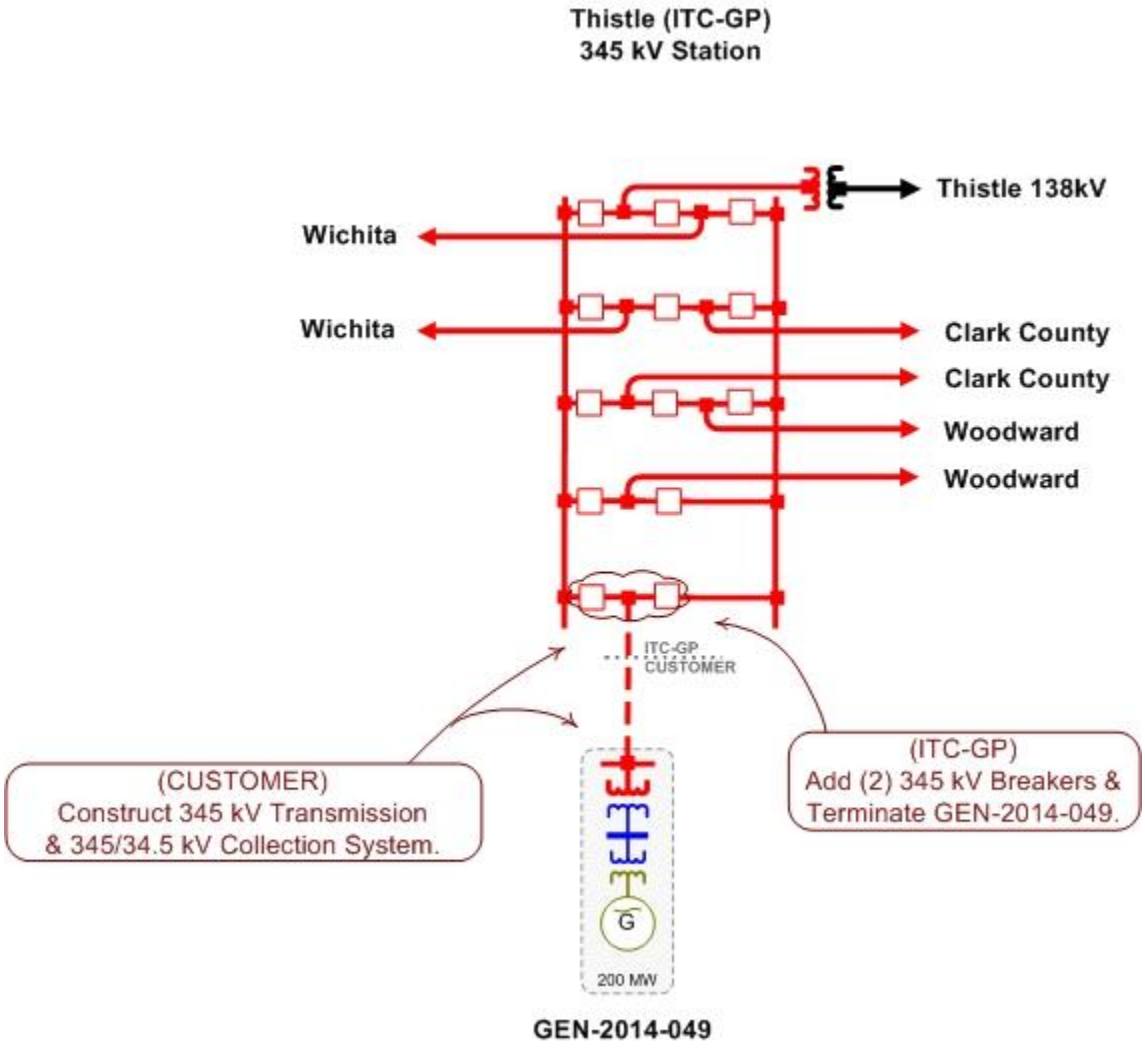
GEN-2014-046

GEN-2014-047
Estimated Interconnection Cost: $2,747,332

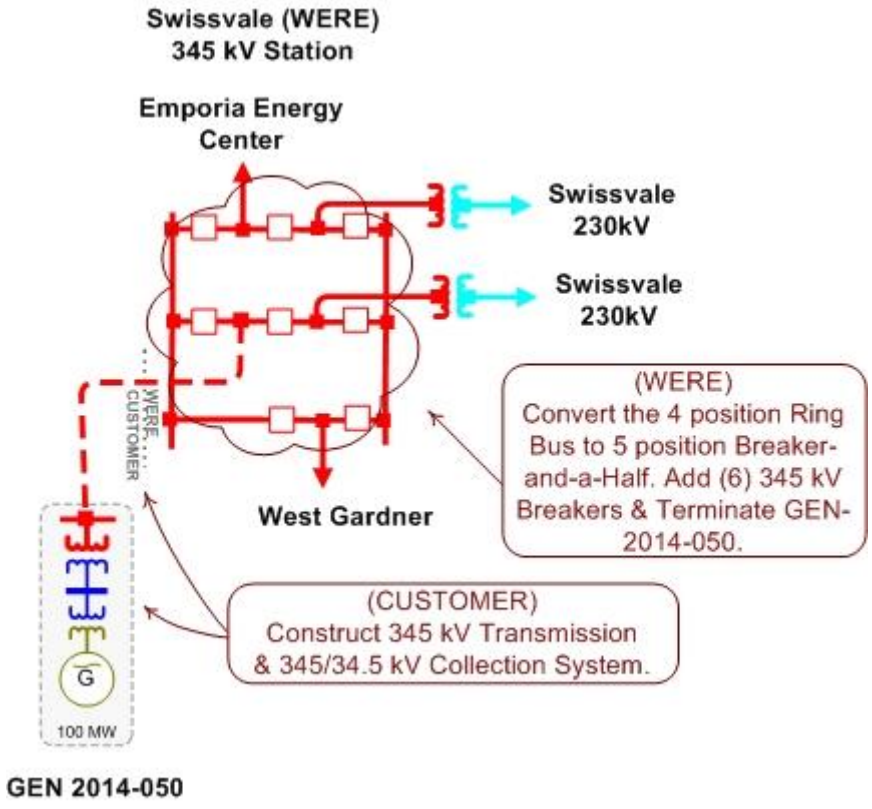


GEN 2014-047

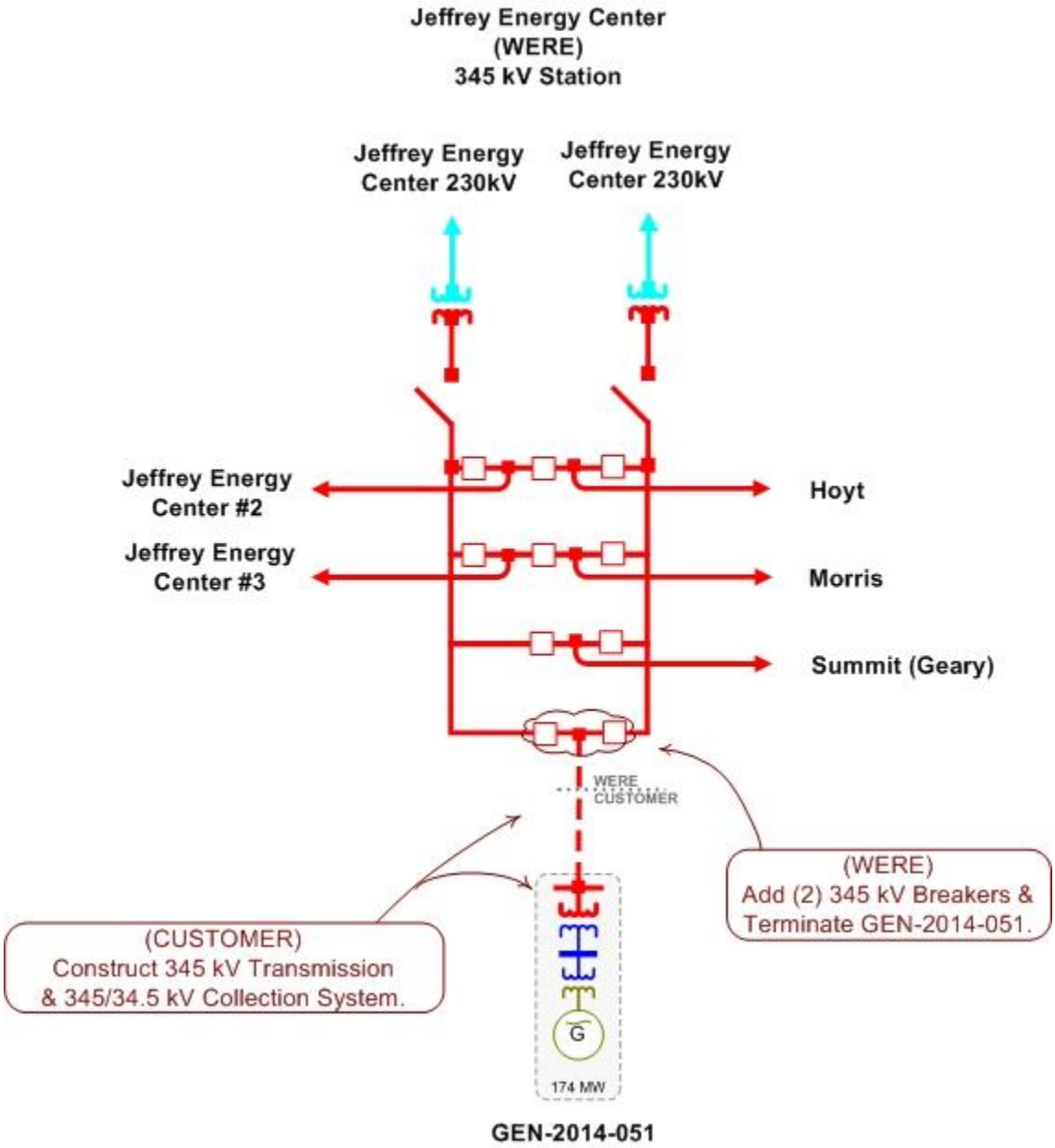
GEN-2014-049
Estimated Interconnection Cost: $3,923,113



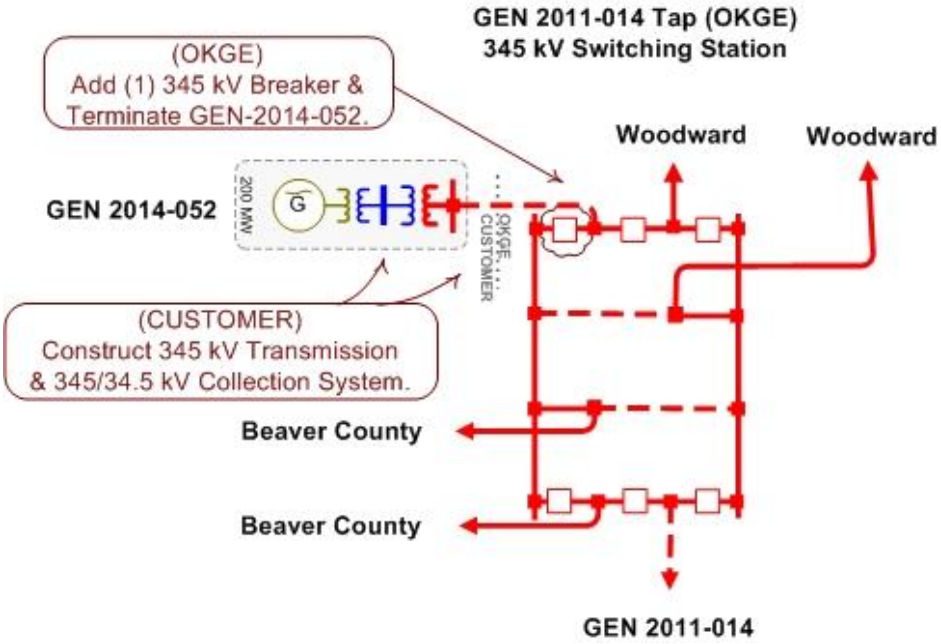
GEN-2014-050
Estimated Interconnection Cost: $31,318,756



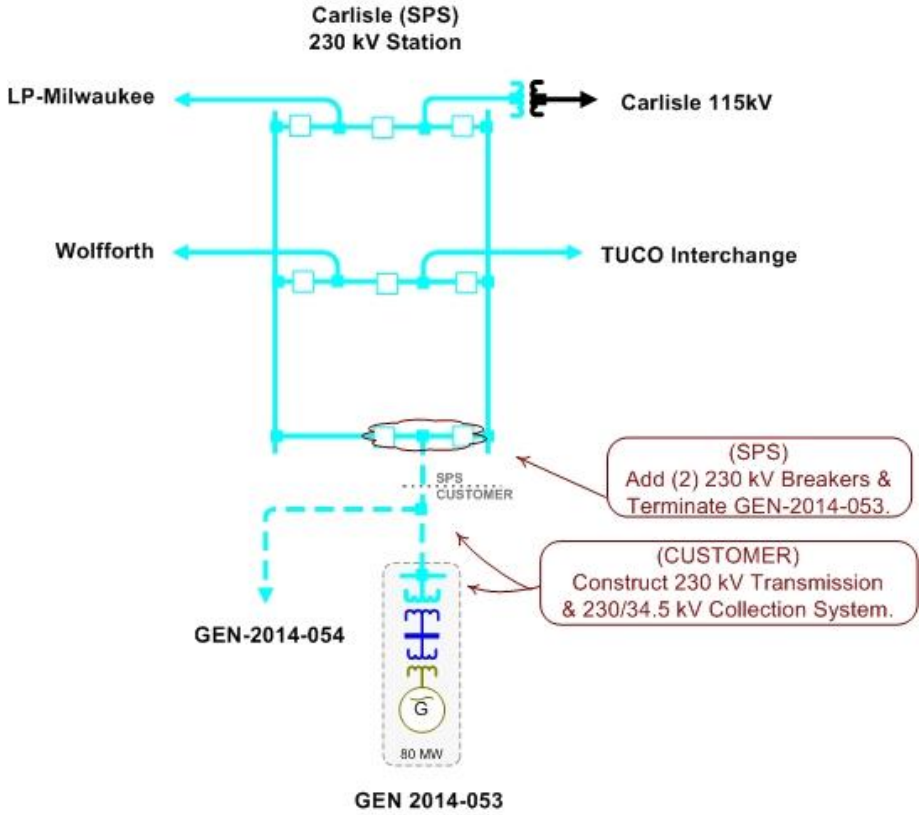
GEN-2014-051
Estimated Interconnection Cost: $10,739,421



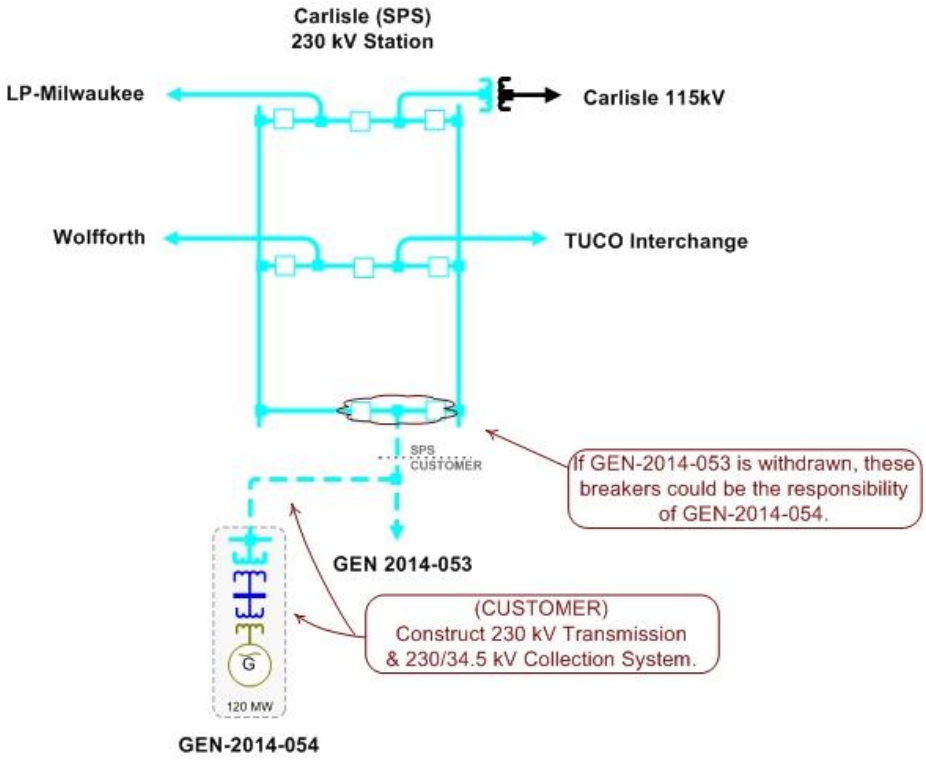
GEN-2014-052
Estimated Interconnection Cost: $2,250,100



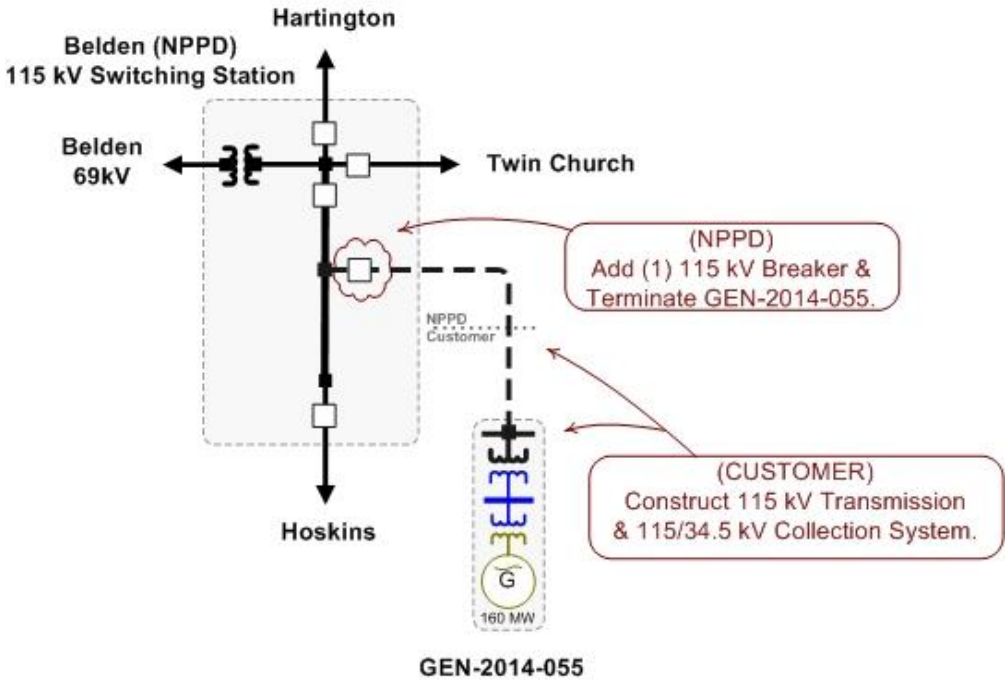
GEN-2014-053
Estimated Interconnection Cost: $2,403,415



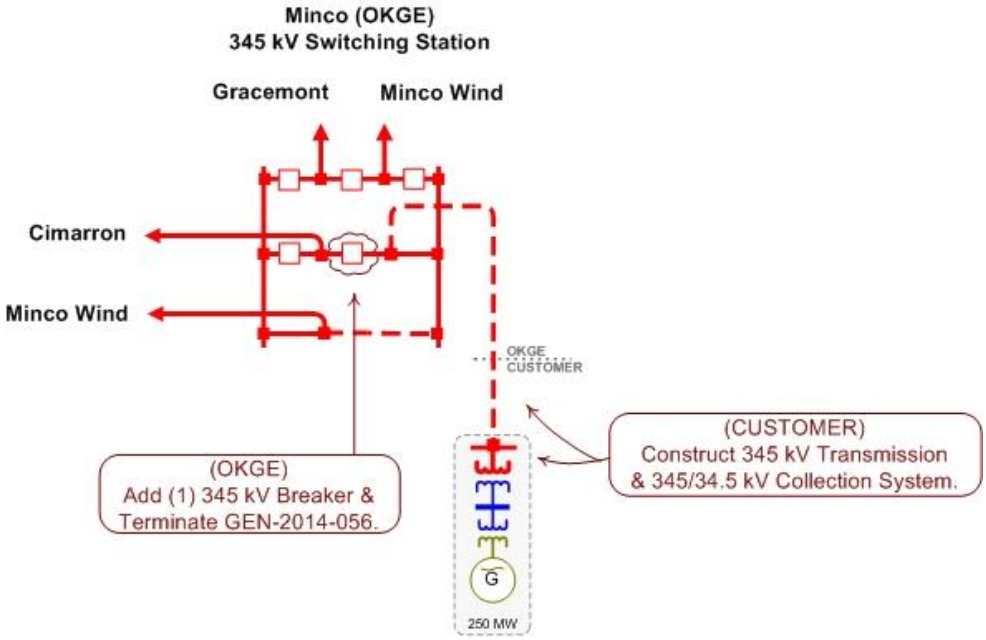
GEN-2014-054
Estimated Interconnection Cost: $0



GEN-2014-055
Estimated Interconnection Cost: $2,600,000

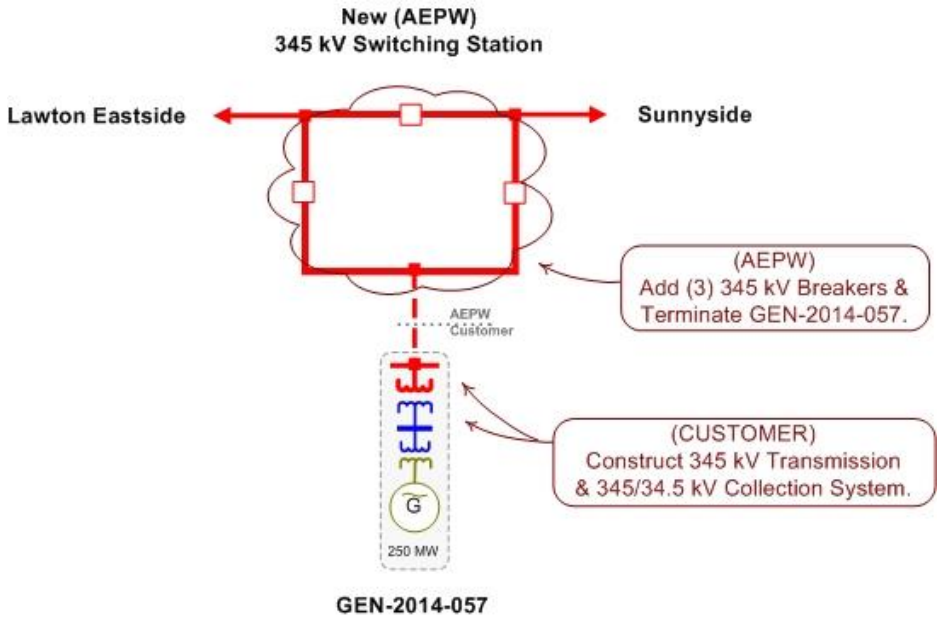


GEN-2014-056
Estimated Interconnection Cost: $2,250,100



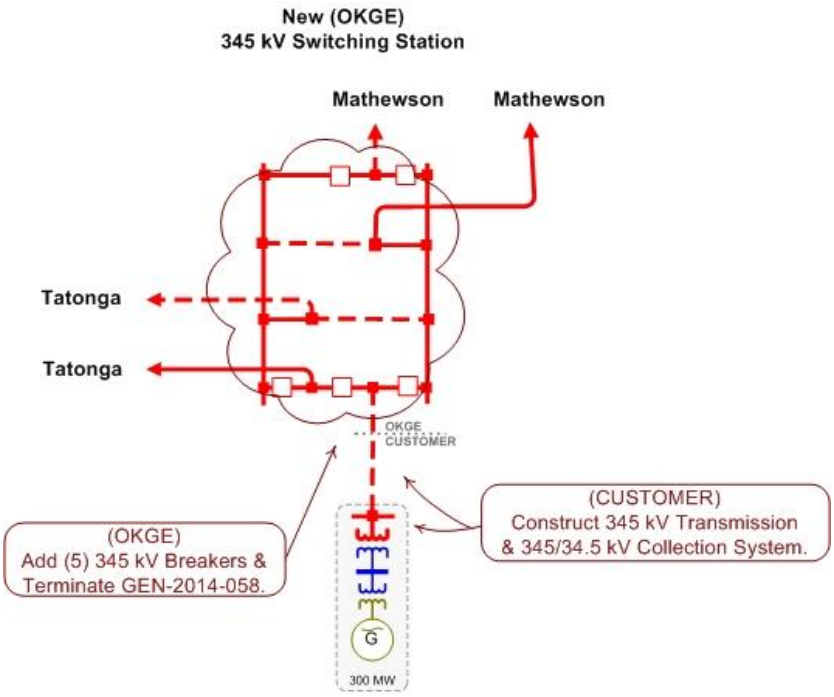
GEN 2014-056

GEN-2014-057
Estimated Interconnection Cost: $19,433,500

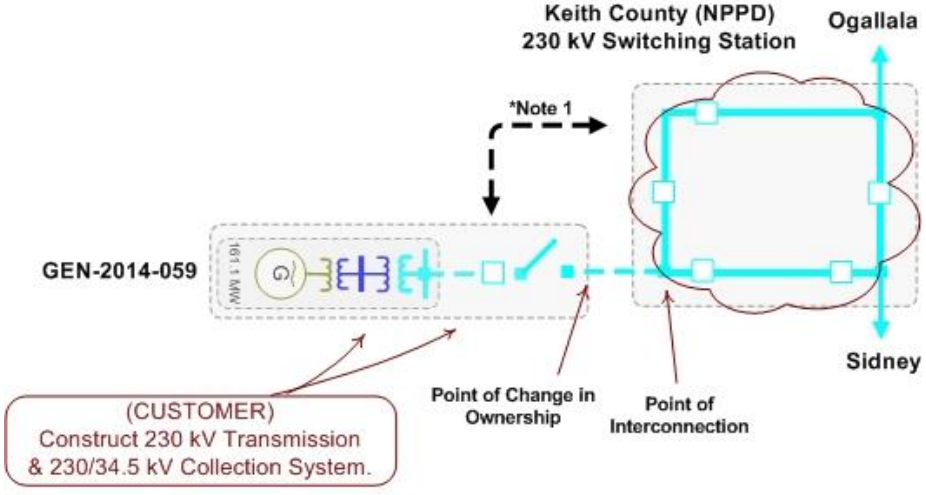


GEN-2014-057

GEN-2014-058
Estimated Interconnection Cost: $16,844,894

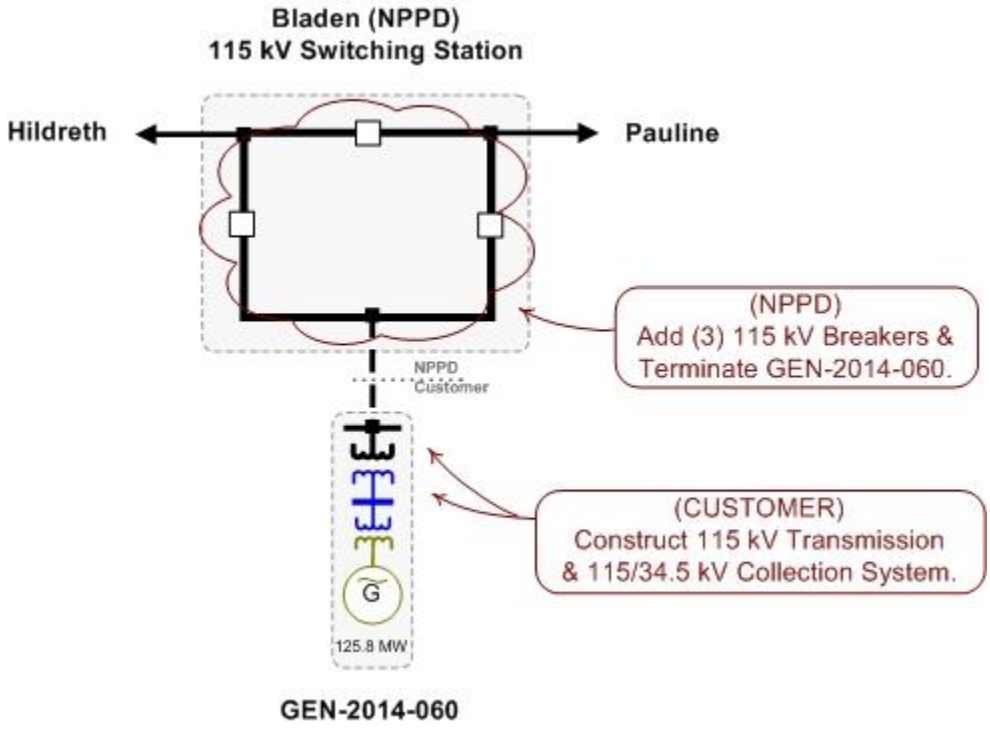


GEN-2014-059
Estimated Interconnection Cost: $9,200,000

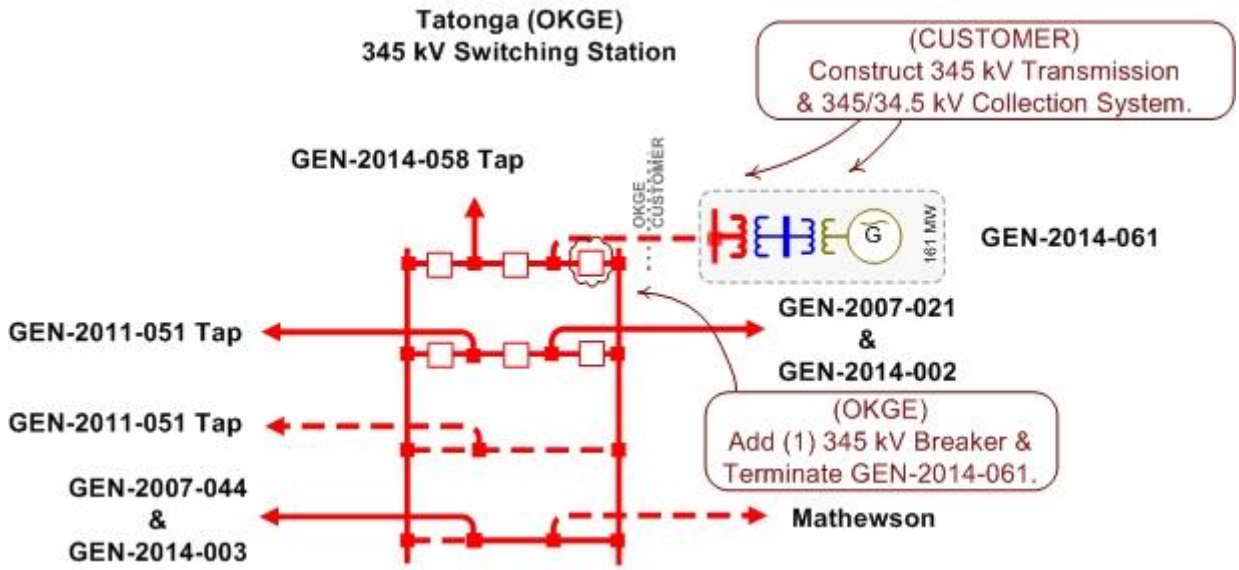


*Note 1: Breaker status & control signal to Transmission Owner to allow operation by Transmission Owner of 230kV breaker during Emergency Condition. Breaker operation will need coordination to ensure safe operation of the transmission line.

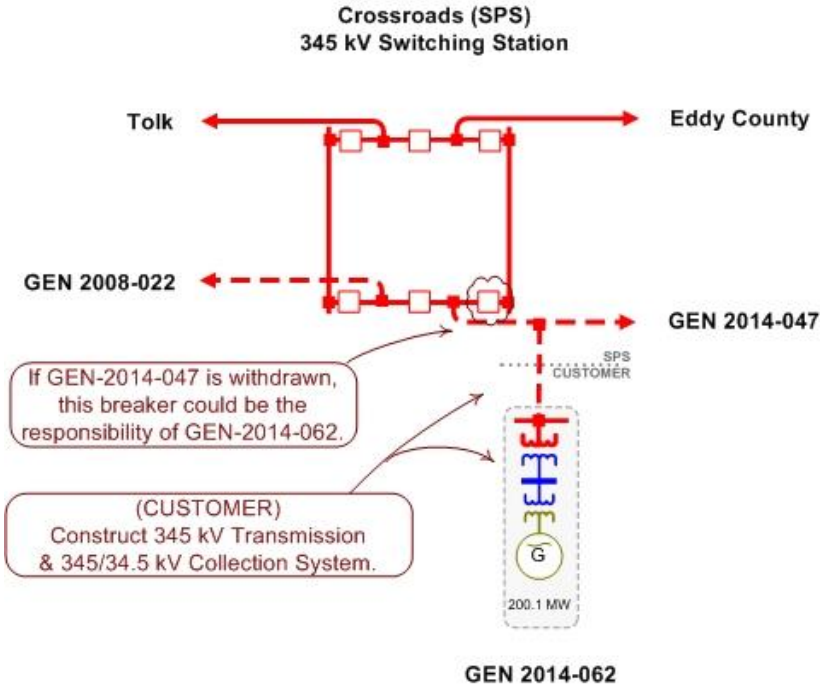
GEN-2014-060
Estimated Interconnection Cost: $6,300,000



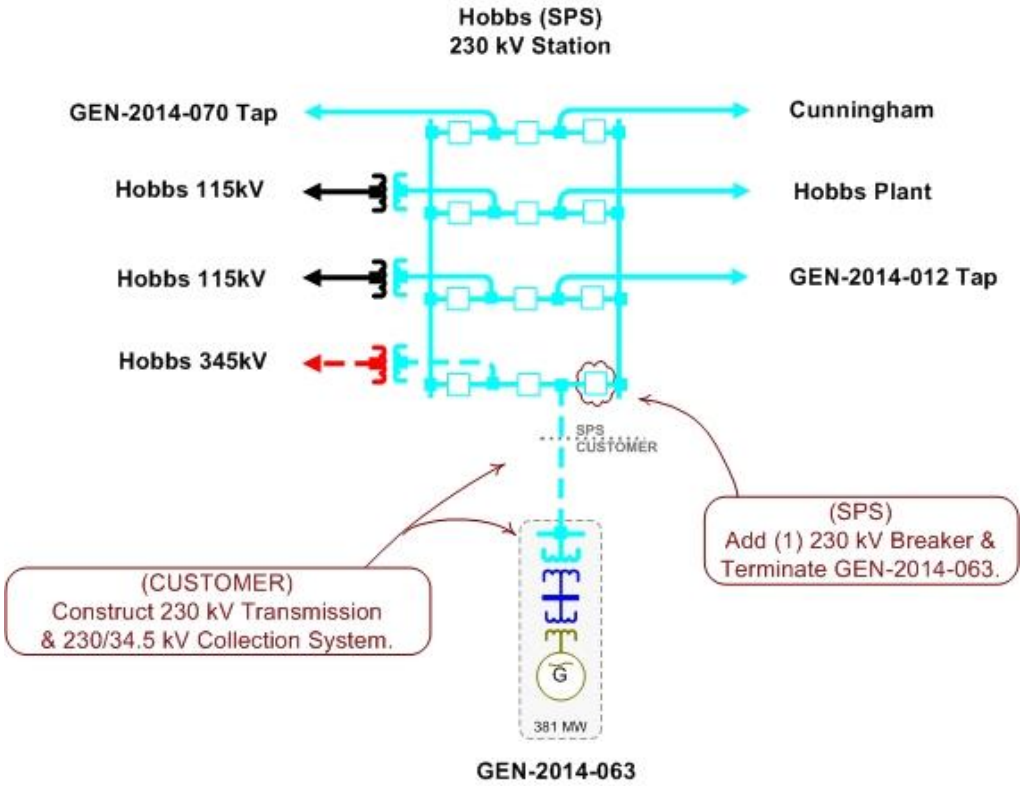
GEN-2014-061
Estimated Interconnection Cost: $2,250,100



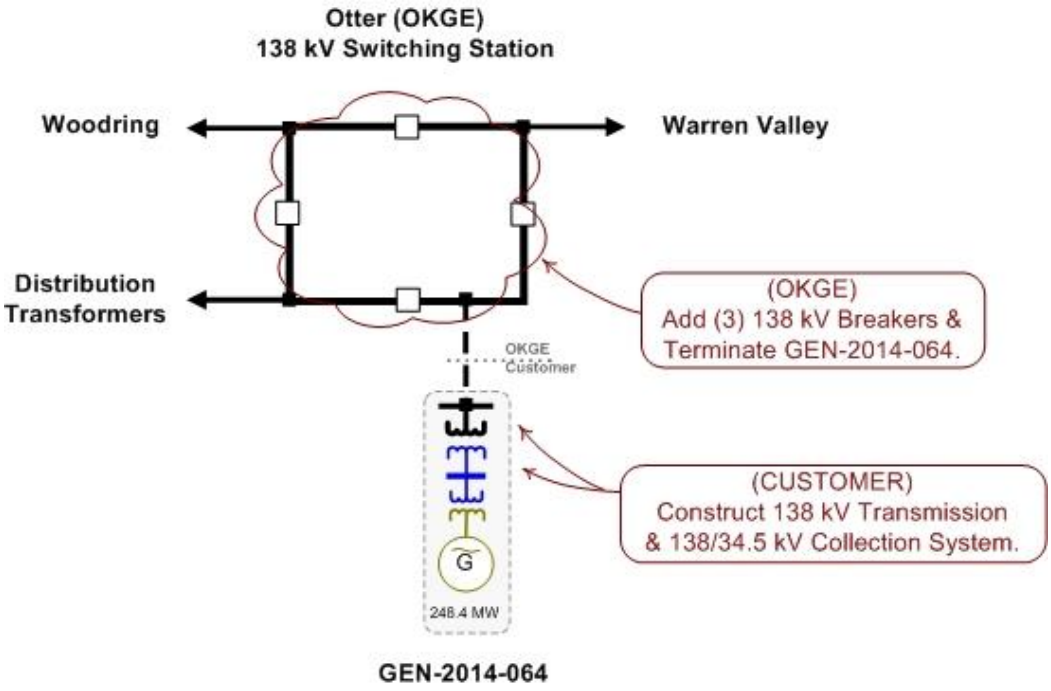
GEN-2014-062
Estimated Interconnection Cost: $0



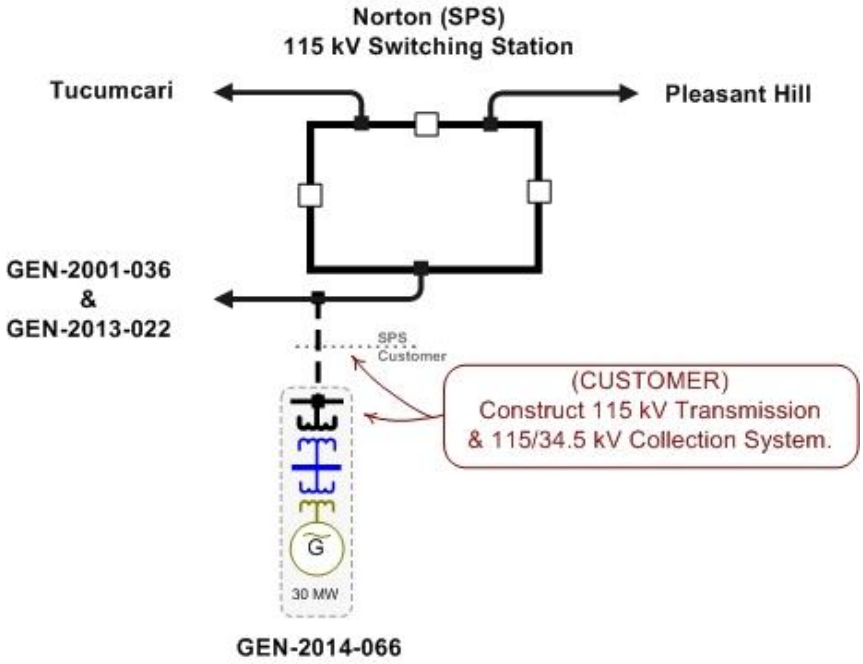
GEN-2014-063
Estimated Interconnection Cost: $1,231,574



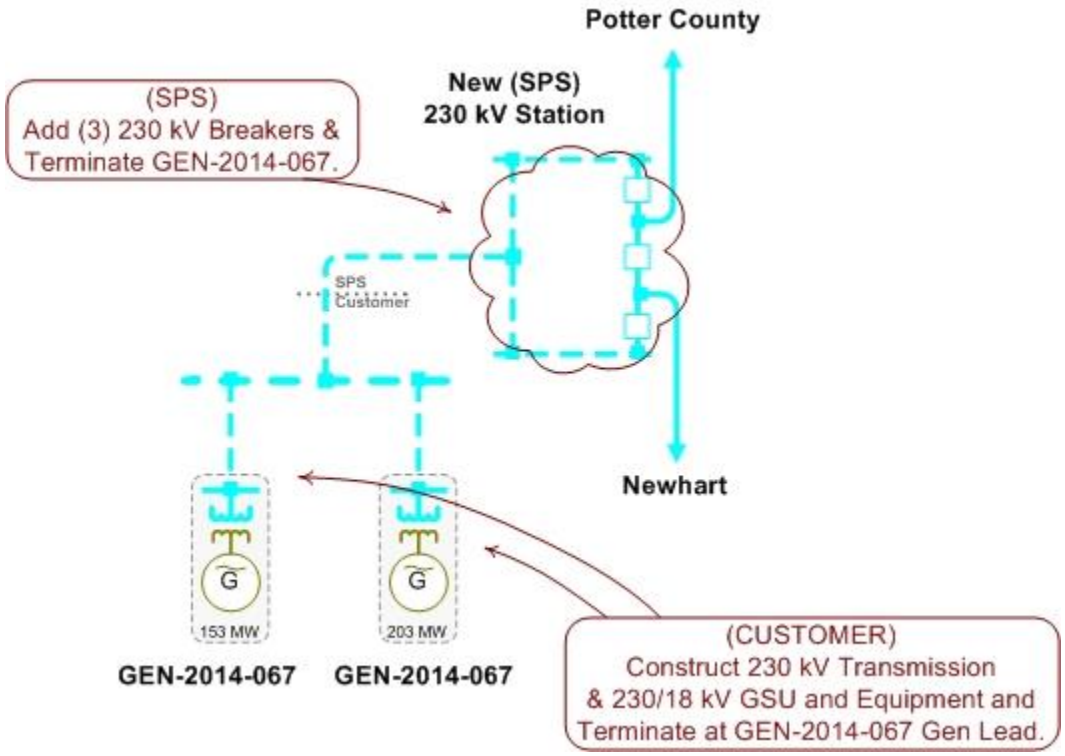
GEN-2014-064
Estimated Interconnection Cost: $3,217,651



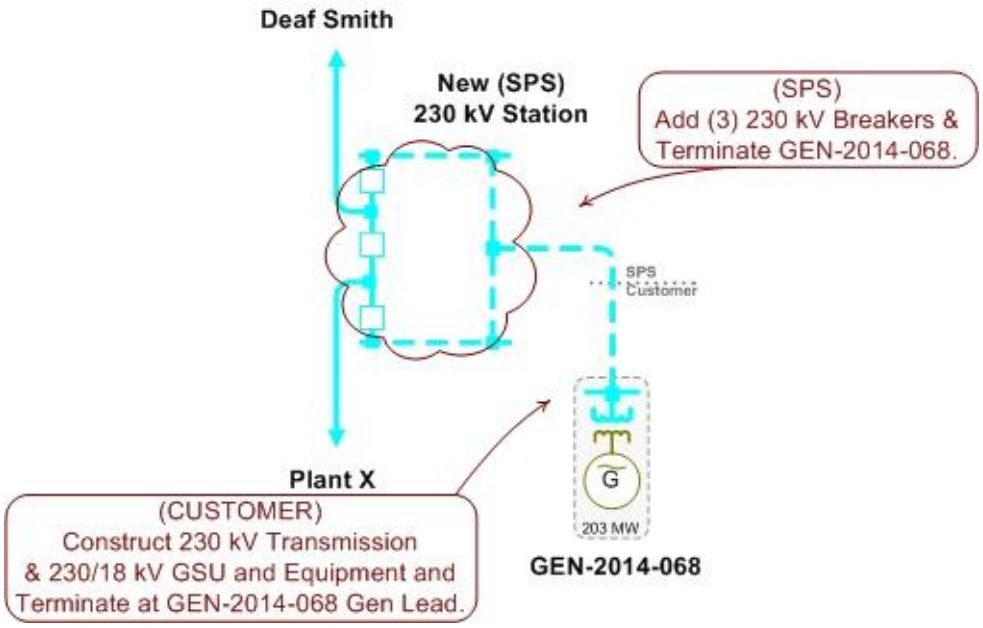
GEN-2014-066
Estimated Interconnection Cost: $0



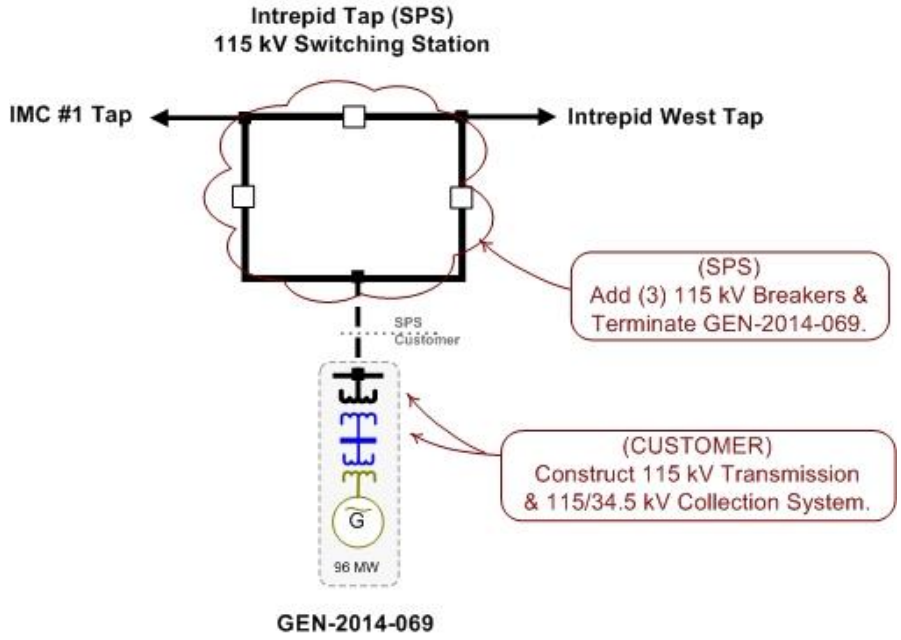
GEN-2014-067
Estimated Interconnection Cost: $6,822,245



GEN-2014-068
Estimated Interconnection Cost: $8,346,514

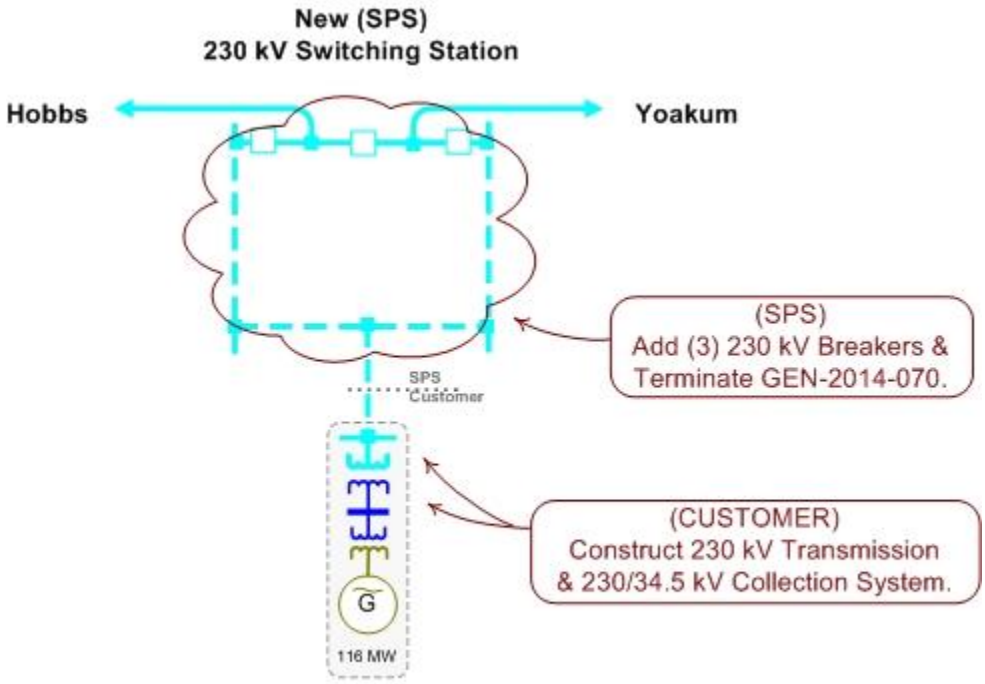


GEN-2014-069
Estimated Interconnection Cost: $1,231,574



GEN-2014-069

GEN-2014-070
Estimated Interconnection Cost: $5,637,360



GEN-2014-070

E: Cost Allocation per Interconnection Request (Including Prior Queued Upgrades)

Important Note:

****WITHDRAWAL OF HIGHER QUEUED PROJECTS WILL CAUSE A RESTUDY AND MAY RESULT IN HIGHER INTERCONNECTION COSTS****

This section shows each Generation Interconnection Request Customer, their current study impacted Network Upgrades, and the previously allocated upgrades upon which they rely to accommodate their interconnection to the transmission system.

The costs associated with the current study Network Upgrades are allocated to the Customers shown in this report.

In addition should a higher queued request, defined as one this study includes as a prior queued request, withdraw, the Network Upgrades assigned to the withdrawn request may be reallocated to the remaining requests that have an impact on the Network Upgrade under a restudy. Also, should a Interconnection Request choose to go into service prior to the operation date of any necessary Network Upgrades, the costs associated with those upgrades may be reallocated to the impacted Interconnection Request. The actual costs allocated to each Generation Interconnection Request Customer will be determined at the time of a restudy.

The required interconnection costs listed do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. In addition, costs associated with a short circuit analysis will be allocated should the Interconnection Request Customer choose to execute a Facility Study Agreement.

There may be additional costs allocated to each Customer. See Appendix F for more details.

Appendix E. Cost Allocation Per Request

(Including Previously Allocated Network Upgrades*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
ASGI-2014-002			
ASGI-2014-002 Interconnection Costs See One-Line Diagram.	Current Study	$6,403,000	$6,403,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$596,715	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$367,058	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$176,511	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$23,756	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$300,173	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$642,998	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$3,321,711	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$1,345,518	$68,000,000
Norton - Pleasant Hill 230kV CKT 1 Convert 54 miles of 115kV from Norton - Pleasant Hill to 230kV.	Current Study	$25,000,000	$40,000,000
Norton 230/115kV Reactive Power Support Build Norton 24MVAR Switchable Capacitor Bank on 13.2kV tertiary bus of 230/115kV transformer.	Current Study	$937,500	$1,500,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$693,583	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$1,926,309	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$2,627,773	$105,000,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$1,928,067	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$138,762	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$46,429,432	

ASGI-2014-004

ASGI-2014-004 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$411,000	$411,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$134,302	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,758	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$39,727	$12,000,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,882	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,500	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$143,636	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$747,616	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$231,725	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$149,217	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$331,749	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$560,505	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$241,192	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$26,572	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,154,383	
ASGI-2014-005			
ASGI-2014-005 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$533,000	$533,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$134,302	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,758	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$39,727	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,882	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,500	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$143,636	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$747,616	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$231,725	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$149,217	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$331,749	$59,000,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$560,505	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$241,192	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$26,572	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,276,383	
ASGI-2014-008			
ASGI-2014-008 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$844,000	$844,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$133,130	$30,000,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,780	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$39,380	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,872	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,518	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$142,609	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$741,089	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$235,862	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$1,110	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$148,393	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$337,671	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$573,455	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$279,404	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$14,268	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,627,543	
ASGI-2014-009			
ASGI-2014-009 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$470,000	$470,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$135,348	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,736	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$40,037	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,891	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,482	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$144,538	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$753,436	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$227,960	$68,000,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$149,952	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$326,359	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$547,997	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$206,916	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$38,047	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,177,698	
ASGI-2014-010			
ASGI-2014-010 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$1,130,000	$1,130,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$135,768	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,725	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$40,161	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,895	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,473	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$144,905	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$755,775	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$226,449	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$150,248	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$324,196	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$542,960	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$192,288	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$42,659	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,822,502	
ASGI-2014-011			
ASGI-2014-011 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$1,117,000	$1,117,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$135,524	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,725	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$40,089	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,893	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,473	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$144,685	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$754,415	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$227,341	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$150,080	$30,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$325,472	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$546,004	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$199,843	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$39,909	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
PCA Interchange - Quahada 115kV CKT 1 Rebuild approximately 11 miles of 115kV from PCA Interchange - Quahada as per 2015 ITPNT.	Previously Allocated		$6,736,917
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,817,453	
ASGI-2014-012			
ASGI-2014-012 Interconnection Costs See One-Line Diagram. This cost includes SPS distribution costs.	Current Study	$886,000	$886,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$136,794	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$72,703	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$40,464	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$4,904	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$59,455	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$145,786	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$761,486	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$222,783	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$150,968	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$318,947	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$531,089	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$157,383	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$53,679	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$3,542,441	
ASGI-2014-013			
ASGI-2014-013 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$28,713	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$14,523	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$8,493	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$992	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$11,876	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$30,286	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$159,836	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$39,186	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$31,147	$30,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$56,101	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$85,098	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$23,458	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$28,195	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$517,905	
ASGI-2014-014			
ASGI-2014-014 Interconnection Costs See One-Line Diagram.	Current Study	$134,164	$134,164
	Current Study Total	$134,164	
GEN-2010-048			

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Arnold - Ransom 115kV CKT 1 Replace terminal equipment to achieve at least a 600 amp rating.	Current Study	$130,224	$3,000,000
GEN-2010-048 Interconnection Costs See Oneline Diagram.	Current Study	$4,000,000	$4,000,000
Smokey Hills - Summit 230kV CKT 1 Replace structures in Midwest to get rating up to 400MVA.	Current Study	$100,000	$100,000
Bucker - Spearville 345V CKT 1 Replace Terminal equipment	Previously Allocated		$1,480,238
Iatan - Nashua 345KV CKT 1 Balanced Portfolio: Iatan - Nashua 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$60,569,180
Nashua 345/161/13.8KV Autotransformer CKT 1 Balanced Portfolio: Nashua/161/13.8 Autotransformer 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$4,230,000
	Current Study Total	$4,230,224	
GEN-2012-031			
Cimarron - Draper Lake 345kV CKT 1 Replace terminal equipment to at least 2000 amps.	Current Study	$41,225	$80,000
GEN-2012-031 Interconnection Costs See One-Line Diagram.	Current Study	$20,000	$20,000
	Current Study Total	$61,225	
GEN-2013-010			
Clark County Reactive Power Support Install 100Mvar SVC at Clark County Substation.	Current Study	$9,364,372	$20,000,000
GEN-2013-010 Interconnection Costs See One-Line Diagram.	Current Study	$11,216,355	$11,216,355
Knoll - Postrock 230kV CKT 1 Rebuild approximately 1 mile of 230kV from Knoll - Post Rock.	Current Study	$150,000	$150,000
Bucker - Spearville 345V CKT 1 Replace Terminal equipment	Previously Allocated		$1,480,238
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Viola - Sumner County 138kV CKT 1 Per SPP 2014 ITP NT and SPP-NTC-200296 for 6/1/2019 in-service.	Previously Allocated		$51,513,963

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
	Current Study Total	$20,730,727	
GEN-2013-027			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,860,202	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$1,098,183	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$550,257	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$71,880	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$898,072	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,998,988	$35,000,000
GEN-2013-027 Interconnection Costs See One-line diagram	Current Study	$5,647,985	$5,647,985
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$10,355,122	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$3,859,322	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$2,129,929	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$5,525,195	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$8,012,409	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$5,051,354	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$144,738	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$47,203,637	
GEN-2014-007			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$8,401,099	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$3,128,330	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$2,485,088	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$206,764	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$2,558,286	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$11,878,058	$35,000,000
GEN-2014-007 Interconnection Costs See One-line diagram	Current Study	$21,089,492	$21,089,492
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$46,766,119	$167,000,000
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$2,687,072	$68,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$5,882,616	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$3,846,944	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$13,886,018	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$13,699,111	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$4,165,870	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$140,680,868	
GEN-2014-019			
Beaver County - Grapevine 345kV CKT 1 Build approximately 75 miles of new 345kV from Beaver County - Grapevine.	Current Study	$1,539,961	$68,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$70,789	$12,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$53,893	$15,000,000
GEN-2014-019 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$606,672	$68,000,000
Grapevine Substation Upgrade 345kV Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.	Current Study	$271,758	$12,000,000
Woodward - Woodward EHV 138kV CKT 1 NRIS only required upgrade: Rebuild approximately 4.5 miles of 138kV from Woodward - Woodward EHV.	Current Study	$3,116,300	$3,116,300
Woodward - Woodward EHV 138kV CKT 2 NRIS only required upgrade: Rebuild approximately 9 miles of 138kV from Woodward - Woodward EHV.	Current Study	$6,275,095	$6,275,095
Woodward XFMR 138/69/13.2kV CKT 1 NRIS only required upgrade: Replace existing	Current Study	$4,000,000	$4,000,000
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Glass Mountain - Mooreland 138kV NRIS only required upgrade: Rebuild approximatley 24 miles of 138kV line	Previously Allocated		$15,072,467
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Northwest 345/138k/13.8kVAutotransformer CKT 3 NRIS only required upgrade: Per 2009-AG2-AFS6	Previously Allocated		$15,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
Woodward (OKGE) - Woodward (WFEC) 69kV CKT 1 NRIS only required upgrade: Per NTC 20003	Previously Allocated		$1,050,000
	Current Study Total	$15,934,468	
GEN-2014-020			
GEN-2014-020 Interconnection Costs See One-Line Diagram.	Current Study	$6,457,000	$6,457,000
	Current Study Total	$6,457,000	
GEN-2014-021			
GEN-2014-021 Interconnection Costs See One-Line Diagram.	Current Study	$15,060,000	$15,060,000
Nashua 345/161/13.8KV Autotransformer CKT 1 Balanced Portfolio: Nashua/161/13.8 Autotransformer 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$4,230,000
Nebraska City - Sibley 345kV CKT 1 Priority Project: Nebraska City - Mullin Creek - Sibley 345kV circuit 1 (Total Project E&C Cost Shown).	Previously Allocated		$301,029,091
	Current Study Total	$15,060,000	
GEN-2014-022			
GEN-2014-022 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Fairfax 138/69kV CKT 1 Per AECI Affected System Study for DISIS-2012-002	Previously Allocated		$2,200,000
Remington - Fairfax 138KV CKT 1 Increase conductor clearance	Previously Allocated		$400,000
	Current Study Total	$0	
GEN-2014-023			
GEN-2014-023 Interconnection Costs See One-Line Diagram.	Current Study	$9,200,000	$9,200,000
GEN-2014-059 Tap - Ogallala 230kV CKT 1 Replace terminal equipment and increase line clearance. ERIS upgrade for GEN-2014-059. NRIS upgrade for GEN-2014-023.	Current Study	$12,657	$3,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Meadow Grove - South Norfolk 230kV CKT 1 Build approximately 25 miles of new 230kV circuit from Meadow Grove - South Norfolk.	Current Study	$12,830,990	$25,800,000
Meadow Grove - South Norfolk 230kV CKT 1 Incremental Upgrade In the event Meadow Grove - South Norfolk Project is not feasible to uprate to 368MVA, The Meadow Grove - North Petersburg 115kV build project might be needed.	Current Study	$TBD	$TBD
Petersburg - North Petersburg 115kV CKT 1 Replace Strain Bus.	Current Study	$238,591	$800,000
South Norfolk 345/230/13.8kV Transformer CKT 1 Build new 345/230kV substation on Hoskins - Shell Creek 345kV and build new 345/230/13.8kV transformer.	Current Study	$8,802,656	$17,700,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000
	Current Study Total	$31,084,894	
GEN-2014-025			
GEN-2014-025 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Iatan - Nashua 345KV CKT 1 Balanced Portfolio: Iatan - Nashua 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$60,569,180
Nashua 345/161/13.8KV Autotransformer CKT 1 Balanced Portfolio: Nashua/161/13.8 Autotransformer 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$4,230,000
	Current Study Total	$0	
GEN-2014-026			
Beaver County - Grapevine 345kV CKT 1 Build approximately 75 miles of new 345kV from Beaver County - Grapevine.	Current Study	$15,399,615	$68,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$707,895	$12,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$538,925	$15,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-026 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$6,066,719	$68,000,000
Grapevine Substation Upgrade 345kV Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.	Current Study	$2,717,579	$12,000,000
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$25,430,733	
GEN-2014-027			
GEN-2014-027 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
	Current Study Total	$0	
GEN-2014-028			
GEN-2014-028 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
	Current Study Total	$0	
GEN-2014-031			
GEN-2014-031 Interconnection Costs See One-Line Diagram.	Current Study	$100,000	$100,000
Meadow Grove - South Norfolk 230kV CKT 1 Build approximately 25 miles of new 230kV circuit from Meadow Grove - South Norfolk.	Current Study	$10,149,660	$25,800,000
Meadow Grove - South Norfolk 230kV CKT 1 Incremental Upgrade In the event Meadow Grove - South Norfolk Project is not feasible to uprate to 368MVA, The Meadow Grove - North Petersburg 115kV build project might be needed.	Current Study	$TBD	$TBD

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Petersburg - North Petersburg 115kV CKT 1 Replace Strain Bus.	Current Study	$144,268	$800,000
South Norfolk 345/230/13.8kV Transformer CKT 1 Build new 345/230kV substation on Hoskins - Shell Creek 345kV and build new 345/230/13.8kV transformer.	Current Study	$6,963,139	$17,700,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Hoskins - Dixon County - Twin Church 230kV Rerate per NPPD Facility Study	Previously Allocated		$500,000
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000
	Current Study Total	$17,357,067	

GEN-2014-032

GEN-2014-032 Interconnection Costs See One-Line Diagram.	Current Study	$100,000	$100,000
Meadow Grove - South Norfolk 230kV CKT 1 Build approximately 25 miles of new 230kV circuit from Meadow Grove - South Norfolk.	Current Study	$2,819,350	$25,800,000
Meadow Grove - South Norfolk 230kV CKT 1 Incremental Upgrade In the event Meadow Grove - South Norfolk Project is not feasible to uprate to 368MVA, The Meadow Grove - North Petersburg 115kV build project might be needed.	Current Study	$TBD	$TBD
Petersburg - North Petersburg 115kV CKT 1 Replace Strain Bus.	Current Study	$40,074	$800,000
South Norfolk 345/230/13.8kV Transformer CKT 1 Build new 345/230kV substation on Hoskins - Shell Creek 345kV and build new 345/230/13.8kV transformer.	Current Study	$1,934,205	$17,700,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Hoskins - Dixon County - Twin Church 230kV Rerate per NPPD Facility Study	Previously Allocated		$500,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000
	Current Study Total	$4,893,630	
GEN-2014-033			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$892,717	$30,000,000
Chaves County 115kV Reactive Power Support (+0/-120Mvar) of reactive compensation required to meet voltage recovery criteria. Requirement may be mitigated by revising dynamic models by the manufacturer.	Current Study	$5,932,203	$25,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$510,935	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$264,070	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$33,764	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$417,832	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$960,387	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$4,969,458	$167,000,000
GEN-2014-033 Interconnection Costs See One-Line Diagram.	Current Study	$975,005	$975,005
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$1,761,484	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$21,261	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,011,209	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$2,521,827	$59,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$4,084,891	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$2,612,612	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$125,901	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$27,095,555	
GEN-2014-034			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$892,717	$30,000,000
Chaves County 115kV Reactive Power Support (+0/-120Mvar) of reactive compensation required to meet voltage recovery criteria. Requirement may be mitigated by revising dynamic models by the manufacturer.	Current Study	$5,932,203	$25,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$510,935	$15,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$264,070	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$33,764	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$417,832	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$960,387	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$4,969,458	$167,000,000
GEN-2014-034 Interconnection Costs See One-Line Diagram.	Current Study	$1,886,507	$1,886,507
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$1,761,484	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$21,261	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,011,209	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$2,521,827	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$4,084,891	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$2,612,612	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$125,901	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$28,007,057	
GEN-2014-035			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$382,593	$30,000,000
Chaves County 115kV Reactive Power Support (+0/-120Mvar) of reactive compensation required to meet voltage recovery criteria. Requirement may be mitigated by revising dynamic models by the manufacturer.	Current Study	$2,542,373	$25,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$218,972	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$113,173	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$14,470	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$179,071	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$411,594	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$2,129,768	$167,000,000
GEN-2014-035 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$754,922	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$9,112	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$433,375	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$1,080,783	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$1,750,668	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$1,119,691	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$53,958	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$11,194,521	

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-036			
GEN-2014-036 Interconnection Costs See One-Line Diagram.	Current Study	$6,006,000	$6,006,000
	Current Study Total	$6,006,000	
GEN-2014-037			
Beaver County - Grapevine 345kV CKT 1 Build approximately 75 miles of new 345kV from Beaver County - Grapevine.	Current Study	$18,139,755	$68,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$833,854	$12,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$724,183	$15,000,000
GEN-2014-037 Interconnection Costs See One-Line Diagram.	Current Study	$20,725,959	$20,725,959
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$7,146,205	$68,000,000
Grapevine Substation Upgrade 345kV Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.	Current Study	$3,201,133	$12,000,000
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$50,771,090	
GEN-2014-038			
Beaver County - Grapevine 345kV CKT 1 Build approximately 75 miles of new 345kV from Beaver County - Grapevine.	Current Study	$16,059,814	$68,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$738,243	$12,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$770,022	$15,000,000
GEN-2014-038 Interconnection Costs See One-Line Diagram.	Current Study	$12,542,886	$12,542,886
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$6,326,807	$68,000,000
Grapevine Substation Upgrade 345kV Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.	Current Study	$2,834,085	$12,000,000
Potter County Interchange 345/230/13kV Transformer CKT 2 Build second 345/230/13kV transformer at Potter County	Current Study	$15,000,000	$15,000,000
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$54,271,856	
GEN-2014-039			
GEN-2014-039 Interconnection Costs See One-Line Diagram.	Current Study	$4,200,000	$4,200,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000
	Current Study Total	$4,200,000	
GEN-2014-040			
Bailey County Earth - Castro County115kV CKT 1 Rebuild approximately 14 miles of 115kV from BC-Earth - Castro County.	Current Study	$9,000,000	$9,000,000
Bushland Interchange - Hillside 115kV CKT 1 Replace terminal equipment.	Current Study	$71,410	$200,000
Bushland Interchange 230/115/13.2kV Transformer CKT 1 Replace the existing Bushland 230/115/13.2kV transformer circuit 1.	Current Study	$1,785,256	$5,000,000
Castro County - Deaf Smith 21 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 1 mile of 115kV from Castro County - Deaf Smith #21.	Current Study	$800,000	$800,000
Deaf Smith 21 - Deaf Smith County Interchange 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 22 miles of 115kV from Deaf Smith #21 - Deaf Smith County Interchange.	Current Study	$15,000,000	$15,000,000
GEN-2014-040 Interconnection Costs See One-Line Diagram.	Current Study	$1,234,027	$1,234,027
GEN-2014-067 Tap - GEN-2014-068 Tap 230kV Build GEN-2014-067 Tap to GEN-2014-068 Tap 230kV circuit	Current Study	$2,191,547	$15,100,000
Canyon West Substation - Dawn Substation 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 14 miles of 115kV from Canyon West Substation - Dawn Substation per 2015 ITPNT.	Previously Allocated		$8,110,872
Dawn Substation - Panda Energy Substation 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 8.5 miles of 115kV from Dawn Substation - Panda Energy Substation per 2015 ITPNT.	Previously Allocated		$5,737,375
	Current Study Total	$30,082,240	
GEN-2014-041			
Arnold - Ransom 115kV CKT 1 Replace terminal equipment to achieve at least a 600 amp rating.	Current Study	$2,869,776	$3,000,000
GEN-2014-041 Interconnection Costs See One-Line Diagram.	Current Study	$4,180,734	$4,180,734
Bucker - Spearville 345V CKT 1 Replace Terminal equipment	Previously Allocated		$1,480,238
Ellsworth - Mullergren 115kV CKT 1 Per SPP 2012 NT and SPP-NTC-200173 for 6/1/2015 in-service(Total Project E&C Cost Shown).	Previously Allocated		$19,459,597

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Iatan - Nashua 345KV CKT 1 Balanced Portfolio: Iatan - Nashua 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$60,569,180
Nashua 345/161/13.8KV Autotransformer CKT 1 Balanced Portfolio: Nashua/161/13.8 Autotransformer 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$4,230,000
	Current Study Total	$7,050,510	
GEN-2014-046			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,594,137	$30,000,000
Chaves County 115kV Reactive Power Support (+0/-120Mvar) of reactive compensation required to meet voltage recovery criteria. Requirement may be mitigated by revising dynamic models by the manufacturer.	Current Study	$10,593,220	$25,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$912,383	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$471,554	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$60,292	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$746,129	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,714,976	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$8,874,032	$167,000,000
GEN-2014-046 Interconnection Costs See One-Line Diagram.	Current Study	$1,016,368	$1,016,368
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$3,145,507	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$37,966	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,805,730	$30,000,000
Plant X - Tolk East 230kV NRIS only required upgrade: Rebuild approximately 10 miles of 230kV	Current Study	$10,675,706	$15,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$4,503,262	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$7,294,449	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$4,665,379	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$224,824	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
Chaves County - Price - CV Pines - Capitan 115kV CKT 1 NRIS only required upgrade: Per HPILs SPP-NTC-200256 (Total Project E&C Cost Shown)	Previously Allocated		$14,275,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$58,335,913	
GEN-2014-047			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$493,005	$30,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$291,652	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$145,833	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$19,152	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$238,508	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$538,432	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$2,744,396	$167,000,000
GEN-2014-047 Interconnection Costs See One-Line Diagram.	Current Study	$2,747,332	$2,747,332
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$1,103,959	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$1,549	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$565,774	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$1,580,481	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$3,005,335	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$2,875,095	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$499,001	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$16,849,503	
GEN-2014-049			
Clark County Reactive Power Support Install 100Mvar SVC at Clark County Substation.	Current Study	$10,635,628	$20,000,000
GEN-2014-049 Interconnection Costs See One-Line Diagram.	Current Study	$3,923,113	$3,923,113
Harper - Milan Tap 138kV CKT 1 Rebuild approximately 22 miles of 138kV line	Current Study	$9,613,332	$9,613,332
Milan Tap - Clearwater 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Current Study	$18,000,000	$18,000,000
Bucker - Spearville 345V CKT 1 Replace Terminal equipment	Previously Allocated		$1,480,238
Clearwater - Viola 138kV CKT 1 Per SPP 2013 ITP NT and SPP-NTC-200213 for 6/1/2018 in-service.	Previously Allocated		$40,525,225
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Gill - Viola 138kV CKT 1 Per SPP 2013 ITP NT and SPP-NTC-200213 for 6/1/2018 in-service.	Previously Allocated		$22,234,744

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Viola - Sumner County 138kV CKT 1 Per SPP 2014 ITP NT and SPP-NTC-200296 for 6/1/2019 in-service.	Previously Allocated		$51,513,963
Viola 345/138 kV Transformer CKT 1 Per SPP 2013 ITP NT and SPP-NTC-200213 for 6/1/2018 in-service.	Previously Allocated		$15,402,744
	Current Study Total	$42,172,073	
GEN-2014-050			
GEN-2014-050 Interconnection Costs See One-Line Diagram.	Current Study	$31,318,756	$31,318,756
Iatan - Nashua 345KV CKT 1 Balanced Portfolio: Iatan - Nashua 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$60,569,180
	Current Study Total	$31,318,756	
GEN-2014-051			
GEN-2014-051 Interconnection Costs See One-Line Diagram.	Current Study	$10,739,421	$10,739,421
Iatan - Nashua 345KV CKT 1 Balanced Portfolio: Iatan - Nashua 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$60,569,180
Nashua 345/161/13.8KV Autotransformer CKT 1 Balanced Portfolio: Nashua/161/13.8 Autotransformer 345kV CKT 1 (Total Project E&C Cost Shown).	Previously Allocated		$4,230,000
	Current Study Total	$10,739,421	
GEN-2014-052			
Beaver County - Grapevine 345kV CKT 1 Build approximately 75 miles of new 345kV from Beaver County - Grapevine.	Current Study	$16,860,855	$68,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$775,065	$12,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$646,275	$15,000,000
GEN-2014-052 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$6,642,379	$68,000,000
Grapevine Substation Upgrade 345kV Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.	Current Study	$2,975,445	$12,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$30,150,120	
GEN-2014-053			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,181,039	$30,000,000
Carlisle 230/115/13kV Transformer CKT 1 Replace existing Carlisle 230/115/13kV Transformer circuit #1.	Current Study	$2,000,000	$5,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$579,671	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$349,357	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$39,976	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$474,044	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,242,878	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$6,574,453	$167,000,000
GEN-2014-053 Interconnection Costs See One-Line Diagram.	Current Study	$2,403,415	$2,403,415
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$1,476,503	$68,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,268,713	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$2,113,833	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$3,350,355	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$1,473,031	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$1,312,173	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$25,839,442	

GEN-2014-054

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,771,559	$30,000,000
Carlisle 230/115/13kV Transformer CKT 1 Replace existing Carlisle 230/115/13kV Transformer circuit #1.	Current Study	$3,000,000	$5,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$869,507	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$524,036	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$59,965	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$711,066	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,864,317	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$9,861,679	$167,000,000
GEN-2014-054 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$2,214,754	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,903,070	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$3,170,750	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$5,025,532	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$2,209,546	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$1,968,259	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$35,154,040	
GEN-2014-055			
Gavins Point - Yankton Junction 115kV CKT 1 Will be studied further under WAPA affected system study.	Current Study	$10,000,000	$10,000,000
GEN-2014-055 Interconnection Costs See One-Line Diagram.	Current Study	$2,600,000	$2,600,000
Petersburg - North Petersburg 115kV CKT 1 Replace Strain Bus.	Current Study	$377,067	$800,000
Hoskins - Dixon County - Twin Church 230kV Rerate per NPPD Facility Study	Previously Allocated		$500,000
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
	Current Study Total	$12,977,067	
GEN-2014-056			
Cimarron - Draper Lake 345kV CKT 1 Replace terminal equipment to at least 2000 amps.	Current Study	$38,775	$80,000
GEN-2014-056 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
LES - GEN-2014-057 Tap - Sunnyside 345kV CKT 1 Replace Terminal Equipment.	Current Study	$40,208	$200,000
	Current Study Total	$2,329,083	
GEN-2014-057			
GEN-2014-057 Interconnection Costs See One-Line Diagram.	Current Study	$19,433,500	$19,433,500
LES - GEN-2014-057 Tap - Sunnyside 345kV CKT 1 Replace Terminal Equipment.	Current Study	$159,792	$200,000
	Current Study Total	$19,593,292	
GEN-2014-058			
GEN-2014-058 Interconnection Costs See One-Line Diagram.	Current Study	$16,844,894	$16,844,894
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$16,844,894	
GEN-2014-059			
GEN-2014-059 Interconnection Costs See One-Line Diagram.	Current Study	$9,200,000	$9,200,000
GEN-2014-059 Tap - Ogallala 230kV CKT 1 Replace terminal equipment and increase line clearance. ERIS upgrade for GEN-2014-059. NRIS upgrade for GEN-2014-023.	Current Study	$2,987,343	$3,000,000
Gerald Gentleman Station Flowgate Stability Limit Mitigation Mitigation for GGS Flowgate Stability Limit. TBD in the Facilities Study with NPPD.	Current Study	$TBD	$TBD

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Ogallala - Gerald Gentleman Station 230kV CKT 1 Replace terminal equipment and increase line clearance.	Current Study	$500,000	$500,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
Broken Bow - Ord 115kV CKT 1 Build a new 35 mile 115kV line from Broken Bow Wind - Ord. SPP-NTC-200294.	Previously Allocated		$34,593,371
Cherry County - Holt County 345kV CKT 1 Build approximately 117 Miles of 345kV from Cherry County to Holt County. (Total Project E&C Cost Shown).	Previously Allocated		$313,376,623
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Gentleman - Cherry County 345kV CKT 1 Build approximately 110 Miles of 345kV from Gentleman to Cherry County. (Total Project E&C Cost Shown).	Previously Allocated		$313,376,623
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Stegall - Scottsbluff 115kV CKT 1 Install Stegall 345/115kV transformer and build a new 22 mile 115kV line from Stegall - Scottsbluff. SPP-NTC-200253.	Previously Allocated		$35,000,000
Thedford 345/115kV Transformer CKT 1 Install Thedford 345/115kV transformer (Total Project E&C Cost Shown). SPP-NTC-200277.	Previously Allocated		$10,236,800
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000
	Current Study Total	$12,687,343	
GEN-2014-060			
GEN-2014-060 Interconnection Costs See One-Line Diagram.	Current Study	$6,300,000	$6,300,000
Battle Creek-County Line 115kV CKT 1 Rebuild approximately 11 miles of 115kV from Battle Creek to County Line.	Previously Allocated		$4,000,000
County Line-Neligh East 115kV CKT 1 Rebuild approximately 12 miles of 115kV from County Line to Neligh East.	Previously Allocated		$8,050,000
Hoskins - Neligh 345/115kV Projects Per SPP 2014 ITP NT and NTC 200253 for 6/1/2016 in-service.	Previously Allocated		$98,697,720
Twin Church - Dixon County 230kV Increase conductor clearances to accommodate 320MVA facility rating	Previously Allocated		$100,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
	Current Study Total	$6,300,000	
GEN-2014-061			
GEN-2014-061 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Mathewson - Cimarron 345kV CKT 2 Build second 345kV circuit from Matthewson - Cimarron @ 3000 amps per ITP10.	Previously Allocated		$42,903,753
Tatonga - GEN-2014-058 Tap - Mathewson 345kV CKT 2 Build second 345kV circuit from Tatonga - Matthewson @ 3000 amps per ITP10.	Previously Allocated		$104,260,473
Woodward - GEN-2011-051 Tap - Tatonga 345kV CKT 2 Build second circuit from Woodward - Tatonga 345kV	Previously Allocated		$71,876,622
	Current Study Total	$2,250,100	
GEN-2014-062			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$2,465,026	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$1,458,262	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$729,167	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$95,759	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$1,192,538	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$2,692,161	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$13,721,978	$167,000,000
GEN-2014-062 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$5,519,793	$68,000,000
Oasis - San Juan Tap 230kV CKT 1 Replace the line trap at Oasis.	Current Study	$7,743	$100,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$2,828,870	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$7,902,406	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$15,026,675	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$14,375,473	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$2,495,006	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$70,510,857	

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-063			
Andrews 230/115/13kV Transformer CKT 1 and 2 NRIS only required upgrade: Replace existing Andrews 230/115/13kV Transformers circuit #1 and #2.	Current Study	$12,000,000	$12,000,000
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$5,245,724	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$2,768,705	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$1,551,712	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$187,116	$1,000,000
Cunningham Station - Maddox Station 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 3 miles of 115kV line.	Current Study	$1,914,000	$1,914,000
Cunningham Station - Potash Junction Interchange 230kV CKT 1 NRIS only required upgrade: Replace Line Traps.	Current Study	$169,656	$200,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$2,264,192	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$5,586,411	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$29,201,199	$167,000,000
GEN-2014-063 Interconnection Costs See One-Line Diagram.	Current Study	$1,231,574	$1,231,574
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$8,384,230	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$5,775,949	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$12,003,275	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$20,059,473	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$5,221,936	$64,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$2,299,390	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$115,864,542	
GEN-2014-064			
GEN-2014-064 Interconnection Costs See One-Line Diagram.	Current Study	$3,217,651	$3,217,651
Fairfax 138/69kV CKT 1 Per AECI Affected System Study for DISIS-2012-002	Previously Allocated		$2,200,000
Remington - Fairfax 138KV CKT 1 Increase conductor clearance	Previously Allocated		$400,000
	Current Study Total	$3,217,651	
GEN-2014-066			

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$358,029	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$220,235	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$105,907	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$14,253	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$180,104	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$385,799	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$1,993,026	$167,000,000
GEN-2014-066 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$807,311	$68,000,000
Norton - Pleasant Hill 230kV CKT 1 Convert 54 miles of 115kV from Norton - Pleasant Hill to 230kV.	Current Study	$15,000,000	$40,000,000
Norton 230/115kV Reactive Power Support Build Norton 24MVAR Switchable Capacitor Bank on 13.2kV tertiary bus of 230/115kV transformer.	Current Study	$562,500	$1,500,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$416,150	$30,000,000
Plant X - Tolk East 230kV NRIS only required upgrade: Rebuild approximately 10 miles of 230kV	Current Study	$4,324,294	$15,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$1,155,785	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$1,576,664	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$1,156,840	$64,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$83,257	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$28,340,153	
GEN-2014-067			
GEN-2014-067 Interconnection Costs See One-Line Diagram.	Current Study	$6,822,245	$6,822,245
GEN-2014-067 Tap - GEN-2014-068 Tap 230kV Build GEN-2014-067 Tap to GEN-2014-068 Tap 230kV circuit	Current Study	$8,220,768	$15,100,000
	Current Study Total	$15,043,013	
GEN-2014-068			
Bushland Interchange - Hillside 115kV CKT 1 Replace terminal equipment.	Current Study	$128,590	$200,000
Bushland Interchange 230/115/13.2kV Transformer CKT 1 Replace the existing Bushland 230/115/13.2kV transformer circuit 1.	Current Study	$3,214,744	$5,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-067 Tap - GEN-2014-068 Tap 230kV Build GEN-2014-067 Tap to GEN-2014-068 Tap 230kV circuit	Current Study	$4,687,685	$15,100,000
GEN-2014-068 Interconnection Costs See One-Line Diagram.	Current Study	$8,346,514	$8,346,514
	Current Study Total	$16,377,533	
GEN-2014-069			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,290,240	$30,000,000
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$698,371	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$381,660	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$46,875	$1,000,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$571,114	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,379,615	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$7,182,336	$167,000,000
GEN-2014-069 Interconnection Costs See One-Line Diagram.	Current Study	$1,231,574	$1,231,574
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$2,221,234	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,433,170	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$3,180,027	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$5,370,485	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$2,284,627	$64,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$264,804	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
GEN-2014-069 Tap - IMC Tap 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 2 miles of 115kV from GEN-2014-069 Tap - IMC #1 Tap as per 2015 ITPNT.	Previously Allocated		$1,327,927
IMC Tap - Livingston Ridge 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 10 miles of 115kV from IMC #1 Tap - Livingston Ridge as per 2015 ITPNT.	Previously Allocated		$6,469,386
Intrepid Tap - GEN-2014-069 Tap 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 2 miles of 115kV from Intrepid Tap - GEN-2014-069 Tap as per 2015 ITPNT.	Previously Allocated		$1,327,927
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction - Intrepid Tap 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 1.5 miles of 115kV from Potash Junction - Intrepid Tap as per 2015 ITPNT.	Previously Allocated		$1,258,393
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$27,536,132	
GEN-2014-070			
Border 345kV Reactive Power Support Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.	Current Study	$1,601,317	$30,000,000

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Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Elk City 230kV CKT 1 Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.	Current Study	$843,094	$15,000,000
Chisholm Substation Upgrade 345kV Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.	Current Study	$473,678	$12,000,000
Cimarron - Minco 345kV CKT 1 Replace 1600 amp switches.	Current Study	$57,004	$1,000,000
Cunningham Station - Potash Junction Interchange 230kV CKT 1 NRIS only required upgrade: Replace Line Traps.	Current Study	$30,344	$200,000
Elk City 230/138/13kV Transformer CKT 1 Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.	Current Study	$689,465	$15,000,000
GEN 2014-007 Tap - TUCO 2 345kV CKT 1 Build GEN-2014-007 Tap - TUCO 2 345kV.	Current Study	$1,702,917	$35,000,000
GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2 Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm	Current Study	$8,913,999	$167,000,000
GEN-2014-070 Interconnection Costs See One-Line Diagram.	Current Study	$5,637,360	$5,637,360
Grapevine - Chisholm 345kV CKT 1 Build approximately 75 miles of new 345kV from Grapevine - Chisholm.	Current Study	$2,525,095	$68,000,000
Oklaunion 345kV Reactive Power Support Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.	Current Study	$1,761,433	$30,000,000
Potter County - Grapevine 345kV CKT 1 Build approximately 65 miles of new 345kV from Potter County - Grapevine.	Current Study	$3,615,050	$59,000,000
Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County.	Current Study	$5,896,770	$105,000,000
Tolk - TUCO 2 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - TUCO 2.	Current Study	$1,172,950	$64,000,000
TUCO 2 Substation Upgrade 345kV Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.	Current Study	$828,253	$15,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Chisholm - Gracemont 345kV CKT 1 Per SPP-NTC-200255 and 200240 (Total Project E&C Cost Shown)	Previously Allocated		$162,952,357
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
Yoakum 230/115/13kV Transformer CKT 1&2 NRIS only required upgrade: Replace existing two Yoakum 230/115/13kV transformers per SPP-NTC-200262.	Previously Allocated		$7,514,514
	Current Study Total	$35,748,728	
	TOTAL CURRENT STUDY COSTS:	**$1,255,482,858***	

* Does not include cost to mitigate GGS Stability Flowgate Limitation or Meadow Grove - South Norfolk 230kV incremental upgrade costs.

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

E1: Stand Alone Cost Allocation per Interconnection Request (Including Prior Queued Upgrades)

Important Note:

****WITHDRAWAL OF HIGHER QUEUED PROJECTS WILL CAUSE A RESTUDY AND MAY RESULT IN HIGHER INTERCONNECTION COSTS****

This section shows each Generation Interconnection Request Customer, their current study impacted Network Upgrades, and the previously allocated upgrades upon which they rely to accommodate their interconnection to the transmission system UNDER A STAND ALONE SCENARIO ONLY.

The costs associated with the current study Network Upgrades are allocated to the Customers shown in this report.

In addition should a higher queued request, defined as one this study includes as a prior queued request, withdraw, the Network Upgrades assigned to the withdrawn request may be reallocated to the remaining requests that have an impact on the Network Upgrade under a restudy. Also, should a Interconnection Request choose to go into service prior to the operation date of any necessary Network Upgrades, the costs associated with those upgrades may be reallocated to the impacted Interconnection Request. The actual costs allocated to each Generation Interconnection Request Customer will be determined at the time of a restudy.

The required interconnection costs listed do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. In addition, costs associated with a short circuit analysis will be allocated should the Interconnection Request Customer choose to execute a Facility Study Agreement.

There may be additional costs allocated to each Customer. See Appendix F for more details.

Appendix E1. Cost Allocation Per Stand-Alone Request

(Including Previously Allocated Network Upgrades*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2010-048			
GEN-2010-048 Interconnection Costs See Oneline Diagram.	Current Study	$4,000,000	$4,000,000
Smokey Hills - Summit 230kV CKT 1 Replace structures in Midwest to get rating up to 400MVA.	Current Study	$100,000	$100,000
	Current Study Total	$4,100,000	
GEN-2012-031			
GEN-2012-031 Interconnection Costs See One-Line Diagram.	Current Study	$20,000	$20,000
	Current Study Total	$20,000	
GEN-2013-010			
GEN-2013-010 Interconnection Costs See One-Line Diagram.	Current Study	$11,216,355	$11,216,355
GEN-2013-010 Tap 345kV Reactive Power Support Install 50Mvar SVC for Reactive Power Support	Current Study	$10,000,000	$10,000,000
	Current Study Total	$21,216,355	
GEN-2013-027			
GEN-2013-027 Interconnection Costs See One-line diagram	Current Study	$5,647,985	$5,647,985
Tolk - Plant X 230kV CKT 3 Build a 3rd circuit between Tolk - Plant 230kV	Current Study	$20,000,000	$20,000,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$25,647,985	
GEN-2014-007			

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-007 Interconnection Costs See One-line diagram	Current Study	$21,089,492	$21,089,492
Grapevine - Nichols 230kV CKT 1 Replace line traps at both terminals	Current Study	$400,000	$400,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$21,489,492	

GEN-2014-019

GEN-2014-019 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Woodward - Woodward EHV 138kV CKT 1 NRIS only required upgrade: Rebuild approximately 4.5 miles of 138kV from Woodward - Woodward EHV.	Current Study	$3,116,300	$3,116,300

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Woodward XFMR 138/69/13.2kV CKT 1 NRIS only required upgrade: Replace existing	Current Study	$0	$0
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
Northwest 345/138k/13.8kVAutotransformer CKT 3 NRIS only required upgrade: Per 2009-AG2-AFS6	Previously Allocated		$15,000,000
	Current Study Total	$3,116,300	
GEN-2014-020			
GEN-2014-020 Interconnection Costs See One-Line Diagram.	Current Study	$6,457,000	$6,457,000
	Current Study Total	$6,457,000	
GEN-2014-021			
GEN-2014-021 Interconnection Costs See One-Line Diagram.	Current Study	$15,060,000	$15,060,000
Nebraska City - Sibley 345kV CKT 1 Priority Project: Nebraska City - Mullin Creek - Sibley 345kV circuit 1 (Total Project E&C Cost Shown).	Previously Allocated		$301,029,091
	Current Study Total	$15,060,000	
GEN-2014-022			
GEN-2014-022 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
	Current Study Total	$0	
GEN-2014-023			
Albion - Petersbug 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 12 miles of 115kV from Albion - Petersburg.	Current Study	$2,700,000	$2,700,000
GEN-2014-023 Interconnection Costs See One-Line Diagram.	Current Study	$9,200,000	$9,200,000
Meadow Grove - South Norfolk 230kV CKT 1 Build approximately 25 miles of new 230kV circuit from Meadow Grove - South Norfolk.	Current Study	$25,800,000	$25,800,000
Petersburg - North Petersburg 115kV CKT 1 Replace Strain Bus.	Current Study	$800,000	$800,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
South Norfolk 345/230/13.8kV Transformer CKT 1 Build new 345/230kV substation on Hoskins - Shell Creek 345kV and build new 345/230/13.8kV transformer.	Current Study	$17,700,000	$17,700,000
	Current Study Total	$56,200,000	
GEN-2014-025			
GEN-2014-025 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
	Current Study Total	$0	
GEN-2014-026			
GEN-2014-026 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
	Current Study Total	$0	
GEN-2014-027			
GEN-2014-027 Interconnection Costs See One-Line Diagram.	Current Study	$5,000,000	$5,000,000
	Current Study Total	$5,000,000	
GEN-2014-028			
GEN-2014-028 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
	Current Study Total	$0	
GEN-2014-031			
GEN-2014-031 Interconnection Costs See One-Line Diagram.	Current Study	$100,000	$100,000
	Current Study Total	$100,000	
GEN-2014-032			
GEN-2014-032 Interconnection Costs See One-Line Diagram.	Current Study	$100,000	$100,000
	Current Study Total	$100,000	
GEN-2014-033			

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-033 Interconnection Costs See One-Line Diagram.	Current Study	$975,005	$975,005
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$975,005	

GEN-2014-034

GEN-2014-034 Interconnection Costs See One-Line Diagram.	Current Study	$1,886,507	$1,886,507
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$1,886,507	

GEN-2014-035

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-035 Interconnection Costs See One-Line Diagram. GEN-2014-035 would be at the GEN-2014-034 terminal position in Stand-Alone Scenario.	Current Study	$1,886,507	$1,886,507
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$1,886,507	
GEN-2014-036			
GEN-2014-036 Interconnection Costs See One-Line Diagram.	Current Study	$6,006,000	$6,006,000
	Current Study Total	$6,006,000	
GEN-2014-037			
GEN-2014-037 Interconnection Costs See One-Line Diagram.	Current Study	$20,725,959	$20,725,959
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
	Current Study Total	$20,725,959	
GEN-2014-038			
GEN-2014-038 Interconnection Costs See One-Line Diagram.	Current Study	$12,542,886	$12,542,886
Potter County Interchange 345/230/13kV Transformer CKT 2 Build second 345/230/13kV transformer at Potter County	Current Study	$15,000,000	$15,000,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
	Current Study Total	$27,542,886	
GEN-2014-039			
GEN-2014-039 Interconnection Costs See One-Line Diagram.	Current Study	$4,200,000	$4,200,000
	Current Study Total	$4,200,000	
GEN-2014-040			
Bailey County Earth - Castro County115kV CKT 1 Rebuild approximately 14 miles of 115kV from BC-Earth - Castro County.	Current Study	$9,000,000	$9,000,000
GEN-2014-040 Interconnection Costs See One-Line Diagram.	Current Study	$1,234,027	$1,234,027
	Current Study Total	$10,234,027	
GEN-2014-041			
Arnold - Ransom 115kV CKT 1 Replace terminal equipment to achieve at least a 600 amp rating.	Current Study	$3,000,000	$3,000,000
GEN-2014-041 Interconnection Costs See One-Line Diagram.	Current Study	$4,180,734	$4,180,734
	Current Study Total	$7,180,734	
GEN-2014-046			
Carlsbad Interchange - Pecos Interchange 115kV CKT 1 NRIS only required upgrade: Upgrader terminal equipment to atleast 152MVA	Current Study	$200,000	$200,000
GEN-2014-046 Interconnection Costs See One-Line Diagram. GEN-2014-046 would be at the GEN-2014-034 terminal position in Stand-Alone Scenario.	Current Study	$1,886,507	$1,886,507
Tolk - Plant X 230kV CKT 3 Build a 3rd circuit between Tolk - Plant 230kV	Current Study	$20,000,000	$20,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$22,086,507	
GEN-2014-047			
GEN-2014-047 Interconnection Costs See One-Line Diagram.	Current Study	$2,747,332	$2,747,332
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$2,747,332	
GEN-2014-049			
GEN-2014-049 Interconnection Costs See One-Line Diagram.	Current Study	$3,923,113	$3,923,113
Harper - Milan Tap 138kV CKT 1 Rebuild approximately 22 miles of 138kV line	Current Study	$9,613,332	$9,613,332
Milan Tap - Clearwater 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Current Study	$18,000,000	$18,000,000
Thistle 345kV Reactive Power Support Install 75Mvar SVC for Reactive Power Support	Current Study	$15,000,000	$15,000,000
Gill - Viola 138kV CKT 1 Per SPP 2013 ITP NT and SPP-NTC-200213 for 6/1/2018 in-service.	Previously Allocated		$22,234,744

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Viola - Sumner County 138kV CKT 1 Per SPP 2014 ITP NT and SPP-NTC-200296 for 6/1/2019 in-service.	Previously Allocated		$51,513,963
Viola 345/138 kV Transformer CKT 1 Per SPP 2013 ITP NT and SPP-NTC-200213 for 6/1/2018 in-service.	Previously Allocated		$15,402,744
	Current Study Total	$46,536,445	
GEN-2014-050			
GEN-2014-050 Interconnection Costs See One-Line Diagram.	Current Study	$31,318,756	$31,318,756
	Current Study Total	$31,318,756	
GEN-2014-051			
GEN-2014-051 Interconnection Costs See One-Line Diagram.	Current Study	$10,739,421	$10,739,421
	Current Study Total	$10,739,421	
GEN-2014-052			
GEN-2014-052 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
	Current Study Total	$2,250,100	
GEN-2014-053			
GEN-2014-053 Interconnection Costs See One-Line Diagram.	Current Study	$2,403,415	$2,403,415
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$2,403,415	
GEN-2014-054			
Carlisle 230/115/13kV Transformer CKT 1 Replace existing Carlisle 230/115/13kV Transformer circuit #1.	Current Study	$5,000,000	$5,000,000
GEN-2014-054 Interconnection Costs See One-Line Diagram. GEN-2014-054 would be at the GEN-2014-053 terminal position in Stand-Alone Scenario.	Current Study	$2,403,415	$2,403,415
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Kiowa - Road Runner 345/230/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$21,560,659
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$7,403,415	
GEN-2014-055			
Gavins Point - Yankton Junction 115kV CKT 1 Will be studied further under WAPA affected system study.	Current Study	$10,000,000	$10,000,000
GEN-2014-055 Interconnection Costs See One-Line Diagram.	Current Study	$2,600,000	$2,600,000
	Current Study Total	$12,600,000	
GEN-2014-056			

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-056 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
	Current Study Total	$2,250,100	
GEN-2014-057			
GEN-2014-057 Interconnection Costs See One-Line Diagram.	Current Study	$19,433,500	$19,433,500
	Current Study Total	$19,433,500	
GEN-2014-058			
GEN-2014-058 Interconnection Costs See One-Line Diagram.	Current Study	$16,844,894	$16,844,894
Woodward - Northwest 345kV CKT 1 Increase Woodward - Northwest 345kV CKT to atleast 3000 amps	Previously Allocated		$0
	Current Study Total	$16,844,894	
GEN-2014-059			
GEN-2014-059 Interconnection Costs See One-Line Diagram.	Current Study	$9,200,000	$9,200,000
GEN-2014-059 Tap - Ogallala 230kV CKT 1 Replace terminal equipment and increase line clearance.	Current Study	$3,000,000	$3,000,000
Gerald Gentleman Station Flowgate Stability Limit Mitigation Mitigation for GGS Flowgate Stability Limit. TBD in the Facilities Study with NPPD.	Current Study	$TBD	$TBD
Ogallala - Gerald Gentleman Station 230kV CKT 1 Replace terminal equipment and increase line clearance.	Current Study	$500,000	$500,000
Cherry County - Holt County 345kV CKT 1 Build approximately 117 Miles of 345kV from Cherry County to Holt County. (Total Project E&C Cost Shown).	Previously Allocated		$313,376,623
Gentleman - Cherry County 345kV CKT 1 Build approximately 110 Miles of 345kV from Gentleman to Cherry County. (Total Project E&C Cost Shown).	Previously Allocated		$313,376,623
	Current Study Total	$12,700,000	
GEN-2014-060			
GEN-2014-060 Interconnection Costs See One-Line Diagram.	Current Study	$6,300,000	$6,300,000
	Current Study Total	$6,300,000	
GEN-2014-061			

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-061 Interconnection Costs See One-Line Diagram.	Current Study	$2,250,100	$2,250,100
FPL Switch - Mooreland 138kV CKT 1 Rebuild approximately 0.2 miles of 138kV line	Previously Allocated		$820,000
FPL Switch - Woodward 138kV CKT 1 Rebuild approximately 12 miles of 138kV line	Previously Allocated		$8,499,000
	Current Study Total	$2,250,100	
GEN-2014-062			
GEN-2014-062 Interconnection Costs See One-Line Diagram. GEN-2014-062 would be at the GEN-2014-047 terminal position in Stand-Alone Scenario.	Current Study	$2,747,332	$2,747,332
Tolk - Plant X 230kV CKT 3 Build a 3rd circuit between Tolk - Plant 230kV	Current Study	$20,000,000	$20,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$22,747,332	
GEN-2014-063			
Andrews 230/115/13kV Transformer CKT 1 and 2 NRIS only required upgrade: Replace existing Andrews 230/115/13kV Transformers circuit #1 and #2.	Current Study	$12,000,000	$12,000,000
Cunningham Station - Maddox Station 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 3 miles of 115kV line.	Current Study	$1,914,000	$1,914,000
Cunningham Station - Potash Junction Interchange 230kV CKT 1 NRIS only required upgrade: Replace Line Traps.	Current Study	$200,000	$200,000

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2014-063 Interconnection Costs See One-Line Diagram.	Current Study	$1,231,574	$1,231,574
Grapevine - Nichols 230kV CKT 1 Replace line traps at both terminals	Current Study	$400,000	$400,000
Hobbs 230/115/13kV Transformer CKT 1 NRIS only required upgrade: replace Hobbs 230/115/13kV transformer	Current Study	$4,000,000	$4,000,000
Monument Sub - West Hobbs Switching Station 115kV CKT 1 NRIS only required upgrade: Rebuild approximately 6 miles of 115kV	Current Study	$3,000,000	$3,000,000
Tolk - Plant X 230kV CKT 3 Build a 3rd circuit between Tolk - Plant 230kV	Current Study	$20,000,000	$20,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230/115 kV Ckt 1 Per HPILs SPP-NTC-200282 (Total Project E&C Cost Shown)	Previously Allocated		$3,508,346
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
TUCO Interchange - Yoakum - Hobbs 345/230kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$237,543,568
	Current Study Total	$42,745,574	

GEN-2014-064

GEN-2014-064 Interconnection Costs See One-Line Diagram.	Current Study	$3,217,651	$3,217,651

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
	Current Study Total	$3,217,651	
GEN-2014-066			
Carlsbad Interchange - Pecos Interchange 115kV CKT 1 NRIS only required upgrade: Upgrader terminal equipment to atleast 152MVA	Current Study	$200,000	$200,000
GEN-2014-066 Interconnection Costs See One-Line Diagram.	Current Study	$0	$0
Norton - Pleasant Hill 230kV CKT 1 Convert 54 miles of 115kV from Norton - Pleasant Hill to 230kV.	Current Study	$40,000,000	$40,000,000
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$40,200,000	
GEN-2014-067			
GEN-2014-067 Interconnection Costs See One-Line Diagram.	Current Study	$6,822,245	$6,822,245
GEN-2014-067 Tap - GEN-2014-068 Tap 230kV Build GEN-2014-067 Tap to GEN-2014-068 Tap 230kV circuit	Current Study	$15,100,000	$15,100,000
	Current Study Total	$21,922,245	
GEN-2014-068			
GEN-2014-068 Interconnection Costs See One-Line Diagram.	Current Study	$8,346,514	$8,346,514
	Current Study Total	$8,346,514	
GEN-2014-069			
GEN-2014-069 Interconnection Costs See One-Line Diagram.	Current Study	$1,231,574	$1,231,574

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
Agave Hill 115kV Reactive Power Support Build Agave Hill 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Amoco Wasson - Oxy Tap 230kV CKT 1 Replace line traps at both terminals	Previously Allocated		$200,000
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Livingston Ridge - Sage Brush - Lagarto - Cardinal 115kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$37,316,546
Ochoa 115kV Reactive Power Support Build Ochoa 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$1,619,280
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$1,231,574	
GEN-2014-070			
GEN-2014-070 Interconnection Costs See One-Line Diagram.	Current Study	$5,637,360	$5,637,360
China Draw 115kV Reactive Power Support Build China Draw SVC (+200Mvar/-50Mvar) per 2015 ITPNT.	Previously Allocated		$17,142,313
Hobbs Interchange - Kiowa 345kV CKT 1 Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$65,989,591
Kiowa - North Loving - China Draw 345/115kV Projects Per HPILs SPP-NTC-200283 (Total Project E&C Cost Shown)	Previously Allocated		$62,619,690
Potash Junction 230kV Reactive Power Support Build Potash Junction 100Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$6,465,875
Road Runner 115kV Reactive Power Support Build Road Runner SVC (+200Mvar/-50Mvar) and 28.8Mvar Capacitor bank per 2015 ITPNT.	Previously Allocated		$18,761,593
	Current Study Total	$5,637,360	
	TOTAL CURRENT STUDY COSTS:	**$583,056,992***	

* Does not include cost to mitigate GGS Stability Flowgate Limitation.

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

F: Cost Allocation per Proposed Study Network Upgrade

Important Note:

****WITHDRAWAL OF HIGHER QUEUED PROJECTS WILL CAUSE A RESTUDY AND MAY RESULT IN HIGHER INTERCONNECTION COSTS****

This section shows each Direct Assigned Facility and Network Upgrade and the Generation Interconnection Request Customer(s) which have an impact in this study assuming all higher queued projects remain in the queue and achieve commercial operation.

The required interconnection costs listed do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. In addition, costs associated with a short circuit analysis will be allocated should the Interconnection Request Customer choose to execute a Facility Study Agreement.

There may be additional costs allocated to each Customer. See Appendix E for more details.

Appendix F. Cost Allocation by Upgrade

Andrews 230/115/13kV Transformer CKT 1 and 2			**$12,000,000**
NRIS only required upgrade: Replace existing Andrews 230/115/13kV Transformers circuit #1 and #2.			
	GEN-2014-063	$12,000,000	
	Total Allocated Costs	**$12,000,000**	
Arnold - Ransom 115kV CKT 1			**$3,000,000**
Replace terminal equipment to achieve at least a 600 amp rating.			
	GEN-2010-048	$130,224	
	GEN-2014-041	$2,869,776	
	Total Allocated Costs	**$3,000,000**	
ASGI-2014-002 Interconnection Costs			**$6,403,000**
See One-Line Diagram.			
	ASGI-2014-002	$6,403,000	
	Total Allocated Costs	**$6,403,000**	
ASGI-2014-004 Interconnection Costs			**$411,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-004	$411,000	
	Total Allocated Costs	**$411,000**	
ASGI-2014-005 Interconnection Costs			**$533,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-005	$533,000	
	Total Allocated Costs	**$533,000**	
ASGI-2014-008 Interconnection Costs			**$844,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-008	$844,000	
	Total Allocated Costs	**$844,000**	
ASGI-2014-009 Interconnection Costs			**$470,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-009	$470,000	
	Total Allocated Costs	**$470,000**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

ASGI-2014-010 Interconnection Costs			**$1,130,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-010	$1,130,000	
	Total Allocated Costs	**$1,130,000**	
ASGI-2014-011 Interconnection Costs			**$1,117,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-011	$1,117,000	
	Total Allocated Costs	**$1,117,000**	
ASGI-2014-012 Interconnection Costs			**$886,000**
See One-Line Diagram. This cost includes SPS distribution costs.			
	ASGI-2014-012	$886,000	
	Total Allocated Costs	**$886,000**	
ASGI-2014-013 Interconnection Costs			**$0**
See One-Line Diagram.			
	ASGI-2014-013	$0	
	Total Allocated Costs	**$0**	
ASGI-2014-014 Interconnection Costs			**$134,164**
See One-Line Diagram.			
	ASGI-2014-014	$134,164	
	Total Allocated Costs	**$134,164**	
Bailey County Earth - Castro County115kV CKT 1			**$9,000,000**
Rebuild approximately 14 miles of 115kV from BC-Earth - Castro County.			
	GEN-2014-040	$9,000,000	
	Total Allocated Costs	**$9,000,000**	
Beaver County - Grapevine 345kV CKT 1			**$68,000,000**
Build approximately 75 miles of new 345kV from Beaver County - Grapevine.			
	GEN-2014-019	$1,539,961	
	GEN-2014-026	$15,399,615	
	GEN-2014-037	$18,139,755	
	GEN-2014-038	$16,059,814	
	GEN-2014-052	$16,860,855	
	Total Allocated Costs	**$68,000,000**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Border 345kV Reactive Power Support **$30,000,000**

Install 200Mvar Capacitor Bank(s) and 200Mvar SVC at Border Substation.

ASGI-2014-002	$596,715
ASGI-2014-004	$134,302
ASGI-2014-005	$134,302
ASGI-2014-008	$133,130
ASGI-2014-009	$135,348
ASGI-2014-010	$135,768
ASGI-2014-011	$135,524
ASGI-2014-012	$136,794
ASGI-2014-013	$28,713
GEN-2013-027	$1,860,202
GEN-2014-007	$8,401,099
GEN-2014-033	$892,717
GEN-2014-034	$892,717
GEN-2014-035	$382,593
GEN-2014-046	$1,594,137
GEN-2014-047	$493,005
GEN-2014-053	$1,181,039
GEN-2014-054	$1,771,559
GEN-2014-062	$2,465,026
GEN-2014-063	$5,245,724
GEN-2014-066	$358,029
GEN-2014-069	$1,290,240
GEN-2014-070	$1,601,317
Total Allocated Costs	**$30,000,000**

Bushland Interchange 230/115/13.2kV Transformer CKT 1 **$5,000,000**

Replace the existing Bushland 230/115/13.2kV transformer circuit 1.

GEN-2014-040	$1,785,256
GEN-2014-068	$3,214,744
Total Allocated Costs	**$5,000,000**

Bushland Interchange - Hillside 115kV CKT 1 **$200,000**

Replace terminal equipment.

GEN-2014-040	$71,410
GEN-2014-068	$128,590
Total Allocated Costs	**$200,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Carlisle 230/115/13kV Transformer CKT 1		**$5,000,000**
Replace existing Carlisle 230/115/13kV Transformer circuit #1.		
	GEN-2014-053	$2,000,000
	GEN-2014-054	$3,000,000
	Total Allocated Costs	**$5,000,000**
Castro County - Deaf Smith 21 115kV CKT 1		**$800,000**
NRIS only required upgrade: Rebuild approximately 1 mile of 115kV from Castro County - Deaf Smith #21.		
	GEN-2014-040	$800,000
	Total Allocated Costs	**$800,000**
Chaves County 115kV Reactive Power Support		**$25,000,000**
(+0/-120Mvar) of reactive compensation required to meet voltage recovery criteria. Requirement may be mitigated by revising dynamic models by the manufac		
	GEN-2014-033	$5,932,203
	GEN-2014-034	$5,932,203
	GEN-2014-035	$2,542,373
	GEN-2014-046	$10,593,220
	Total Allocated Costs	**$25,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Chisholm Substation Upgrade 345kV **$12,000,000**

Expand planned Chisholm Substation to tap and terminate Woodward - Border 345kV into the Chisholm Substation.

ASGI-2014-002	$176,511
ASGI-2014-004	$39,727
ASGI-2014-005	$39,727
ASGI-2014-008	$39,380
ASGI-2014-009	$40,037
ASGI-2014-010	$40,161
ASGI-2014-011	$40,089
ASGI-2014-012	$40,464
ASGI-2014-013	$8,493
GEN-2013-027	$550,257
GEN-2014-007	$2,485,088
GEN-2014-019	$70,789
GEN-2014-026	$707,895
GEN-2014-033	$264,070
GEN-2014-034	$264,070
GEN-2014-035	$113,173
GEN-2014-037	$833,854
GEN-2014-038	$738,243
GEN-2014-046	$471,554
GEN-2014-047	$145,833
GEN-2014-052	$775,065
GEN-2014-053	$349,357
GEN-2014-054	$524,036
GEN-2014-062	$729,167
GEN-2014-063	$1,551,712
GEN-2014-066	$105,907
GEN-2014-069	$381,660
GEN-2014-070	$473,678
Total Allocated Costs	**$12,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Chisholm - Elk City 230kV CKT 1 **$15,000,000**

Rebuild approximately 15 miles of 230kV from Chisholm - Elk City.

ASGI-2014-002	$367,058
ASGI-2014-004	$72,758
ASGI-2014-005	$72,758
ASGI-2014-008	$72,780
ASGI-2014-009	$72,736
ASGI-2014-010	$72,725
ASGI-2014-011	$72,725
ASGI-2014-012	$72,703
ASGI-2014-013	$14,523
GEN-2013-027	$1,098,183
GEN-2014-007	$3,128,330
GEN-2014-033	$510,935
GEN-2014-034	$510,935
GEN-2014-035	$218,972
GEN-2014-046	$912,383
GEN-2014-047	$291,652
GEN-2014-053	$579,671
GEN-2014-054	$869,507
GEN-2014-062	$1,458,262
GEN-2014-063	$2,768,705
GEN-2014-066	$220,235
GEN-2014-069	$698,371
GEN-2014-070	$843,094
Total Allocated Costs	**$15,000,000**

Cimarron - Draper Lake 345kV CKT 1 **$80,000**

Replace terminal equipment to at least 2000 amps.

GEN-2012-031	$41,225
GEN-2014-056	$38,775
Total Allocated Costs	**$80,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Cimarron - Minco 345kV CKT 1 **$1,000,000**

Replace 1600 amp switches.

ASGI-2014-002	$23,756
ASGI-2014-004	$4,882
ASGI-2014-005	$4,882
ASGI-2014-008	$4,872
ASGI-2014-009	$4,891
ASGI-2014-010	$4,895
ASGI-2014-011	$4,893
ASGI-2014-012	$4,904
ASGI-2014-013	$992
GEN-2013-027	$71,880
GEN-2014-007	$206,764
GEN-2014-033	$33,764
GEN-2014-034	$33,764
GEN-2014-035	$14,470
GEN-2014-046	$60,292
GEN-2014-047	$19,152
GEN-2014-053	$39,976
GEN-2014-054	$59,965
GEN-2014-062	$95,759
GEN-2014-063	$187,116
GEN-2014-066	$14,253
GEN-2014-069	$46,875
GEN-2014-070	$57,004
Total Allocated Costs	**$1,000,000**

Clark County Reactive Power Support **$20,000,000**

Install 100Mvar SVC at Clark County Substation.

GEN-2013-010	$9,364,372
GEN-2014-049	$10,635,628
Total Allocated Costs	**$20,000,000**

Cunningham Station - Maddox Station 115kV CKT 1 **$1,914,000**

NRIS only required upgrade: Rebuild approximately 3 miles of 115kV line.

GEN-2014-063	$1,914,000
Total Allocated Costs	**$1,914,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Cunningham Station - Potash Junction Interchange 230kV CKT 1		**$200,000**
NRIS only required upgrade: Replace Line Traps.		
	GEN-2014-063	$169,656
	GEN-2014-070	$30,344
	Total Allocated Costs	**$200,000**
Deaf Smith 21 - Deaf Smith County Interchange 115kV CKT 1		**$15,000,000**
NRIS only required upgrade: Rebuild approximately 22 miles of 115kV from Deaf Smith #21 - Deaf Smith County Interchange.		
	GEN-2014-040	$15,000,000
	Total Allocated Costs	**$15,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Elk City 230/138/13kV Transformer CKT 1 **$15,000,000**

Replace terminal equipment for Elk City Transformer to achieve transformer limit of 450MVA.

ASGI-2014-002	$300,173
ASGI-2014-004	$59,500
ASGI-2014-005	$59,500
ASGI-2014-008	$59,518
ASGI-2014-009	$59,482
ASGI-2014-010	$59,473
ASGI-2014-011	$59,473
ASGI-2014-012	$59,455
ASGI-2014-013	$11,876
GEN-2013-027	$898,072
GEN-2014-007	$2,558,286
GEN-2014-019	$53,893
GEN-2014-026	$538,925
GEN-2014-033	$417,832
GEN-2014-034	$417,832
GEN-2014-035	$179,071
GEN-2014-037	$724,183
GEN-2014-038	$770,022
GEN-2014-046	$746,129
GEN-2014-047	$238,508
GEN-2014-052	$646,275
GEN-2014-053	$474,044
GEN-2014-054	$711,066
GEN-2014-062	$1,192,538
GEN-2014-063	$2,264,192
GEN-2014-066	$180,104
GEN-2014-069	$571,114
GEN-2014-070	$689,465
Total Allocated Costs	**$15,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN 2014-007 Tap - TUCO 2 345kV CKT 1 **$35,000,000**

Build GEN-2014-007 Tap - TUCO 2 345kV.

ASGI-2014-002	$642,998
ASGI-2014-004	$143,636
ASGI-2014-005	$143,636
ASGI-2014-008	$142,609
ASGI-2014-009	$144,538
ASGI-2014-010	$144,905
ASGI-2014-011	$144,685
ASGI-2014-012	$145,786
ASGI-2014-013	$30,286
GEN-2013-027	$1,998,988
GEN-2014-007	$11,878,058
GEN-2014-033	$960,387
GEN-2014-034	$960,387
GEN-2014-035	$411,594
GEN-2014-046	$1,714,976
GEN-2014-047	$538,432
GEN-2014-053	$1,242,878
GEN-2014-054	$1,864,317
GEN-2014-062	$2,692,161
GEN-2014-063	$5,586,411
GEN-2014-066	$385,799
GEN-2014-069	$1,379,615
GEN-2014-070	$1,702,917
Total Allocated Costs	**$35,000,000**

GEN-2014-059 Tap - Ogallala 230kV CKT 1 **$3,000,000**

Replace terminal equipment and increase line clearance. ERIS upgrade for GEN-2014-059. NRIS upgrade for GEN-2014-023.

GEN-2014-023	$12,657
GEN-2014-059	$2,987,343
Total Allocated Costs	**$3,000,000**

Gavins Point - Yankton Junction 115kV CKT 1 **$10,000,000**

Will be studied further under WAPA affected system study.

GEN-2014-055	$10,000,000
Total Allocated Costs	**$10,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2010-048 Interconnection Costs			**$4,000,000**
See Oneline Diagram.			
	GEN-2010-048	$4,000,000	
	Total Allocated Costs	**$4,000,000**	
GEN-2012-031 Interconnection Costs			**$20,000**
See One-Line Diagram.			
	GEN-2012-031	$20,000	
	Total Allocated Costs	**$20,000**	
GEN-2013-010 Interconnection Costs			**$11,216,355**
See One-Line Diagram.			
	GEN-2013-010	$11,216,355	
	Total Allocated Costs	**$11,216,355**	
GEN-2013-027 Interconnection Costs			**$5,647,985**
See One-line diagram			
	GEN-2013-027	$5,647,985	
	Total Allocated Costs	**$5,647,985**	
GEN-2014-007 Interconnection Costs			**$21,089,492**
See One-line diagram			
	GEN-2014-007	$21,089,492	
	Total Allocated Costs	**$21,089,492**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2014-007 Tap - Border - Chisholm 345kV CKT 2			**$167,000,000**
Build approximately 167 miles of second circuit 345kV from GEN-2014-007 Tap - Border - Chisholm			
	ASGI-2014-002	$3,321,711	
	ASGI-2014-004	$747,616	
	ASGI-2014-005	$747,616	
	ASGI-2014-008	$741,089	
	ASGI-2014-009	$753,436	
	ASGI-2014-010	$755,775	
	ASGI-2014-011	$754,415	
	ASGI-2014-012	$761,486	
	ASGI-2014-013	$159,836	
	GEN-2013-027	$10,355,122	
	GEN-2014-007	$46,766,119	
	GEN-2014-033	$4,969,458	
	GEN-2014-034	$4,969,458	
	GEN-2014-035	$2,129,768	
	GEN-2014-046	$8,874,032	
	GEN-2014-047	$2,744,396	
	GEN-2014-053	$6,574,453	
	GEN-2014-054	$9,861,679	
	GEN-2014-062	$13,721,978	
	GEN-2014-063	$29,201,199	
	GEN-2014-066	$1,993,026	
	GEN-2014-069	$7,182,336	
	GEN-2014-070	$8,913,999	
	Total Allocated Costs	**$167,000,000**	
GEN-2014-019 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-019	$0	
	Total Allocated Costs	**$0**	
GEN-2014-020 Interconnection Costs			**$6,457,000**
See One-Line Diagram.			
	GEN-2014-020	$6,457,000	
	Total Allocated Costs	**$6,457,000**	

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GEN-2014-021 Interconnection Costs			**$15,060,000**
See One-Line Diagram.			
	GEN-2014-021	$15,060,000	
	Total Allocated Costs	**$15,060,000**	
GEN-2014-022 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-022	$0	
	Total Allocated Costs	**$0**	
GEN-2014-023 Interconnection Costs			**$9,200,000**
See One-Line Diagram.			
	GEN-2014-023	$9,200,000	
	Total Allocated Costs	**$9,200,000**	
GEN-2014-025 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-025	$0	
	Total Allocated Costs	**$0**	
GEN-2014-026 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-026	$0	
	Total Allocated Costs	**$0**	
GEN-2014-027 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-027	$0	
	Total Allocated Costs	**$0**	
GEN-2014-028 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-028	$0	
	Total Allocated Costs	**$0**	
GEN-2014-031 Interconnection Costs			**$100,000**
See One-Line Diagram.			
	GEN-2014-031	$100,000	
	Total Allocated Costs	**$100,000**	

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GEN-2014-032 Interconnection Costs			**$100,000**
See One-Line Diagram.			
	GEN-2014-032	$100,000	
	Total Allocated Costs	**$100,000**	
GEN-2014-033 Interconnection Costs			**$975,005**
See One-Line Diagram.			
	GEN-2014-033	$975,005	
	Total Allocated Costs	**$975,005**	
GEN-2014-034 Interconnection Costs			**$1,886,507**
See One-Line Diagram.			
	GEN-2014-034	$1,886,507	
	Total Allocated Costs	**$1,886,507**	
GEN-2014-035 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-035	$0	
	Total Allocated Costs	**$0**	
GEN-2014-036 Interconnection Costs			**$6,006,000**
See One-Line Diagram.			
	GEN-2014-036	$6,006,000	
	Total Allocated Costs	**$6,006,000**	
GEN-2014-037 Interconnection Costs			**$20,725,959**
See One-Line Diagram.			
	GEN-2014-037	$20,725,959	
	Total Allocated Costs	**$20,725,959**	
GEN-2014-038 Interconnection Costs			**$12,542,886**
See One-Line Diagram.			
	GEN-2014-038	$12,542,886	
	Total Allocated Costs	**$12,542,886**	
GEN-2014-039 Interconnection Costs			**$4,200,000**
See One-Line Diagram.			
	GEN-2014-039	$4,200,000	
	Total Allocated Costs	**$4,200,000**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2014-040 Interconnection Costs			**$1,234,027**
See One-Line Diagram.			
	GEN-2014-040	$1,234,027	
	Total Allocated Costs	**$1,234,027**	
GEN-2014-041 Interconnection Costs			**$4,180,734**
See One-Line Diagram.			
	GEN-2014-041	$4,180,734	
	Total Allocated Costs	**$4,180,734**	
GEN-2014-046 Interconnection Costs			**$1,016,368**
See One-Line Diagram.			
	GEN-2014-046	$1,016,368	
	Total Allocated Costs	**$1,016,368**	
GEN-2014-047 Interconnection Costs			**$2,747,332**
See One-Line Diagram.			
	GEN-2014-047	$2,747,332	
	Total Allocated Costs	**$2,747,332**	
GEN-2014-049 Interconnection Costs			**$3,923,113**
See One-Line Diagram.			
	GEN-2014-049	$3,923,113	
	Total Allocated Costs	**$3,923,113**	
GEN-2014-050 Interconnection Costs			**$31,318,756**
See One-Line Diagram.			
	GEN-2014-050	$31,318,756	
	Total Allocated Costs	**$31,318,756**	
GEN-2014-051 Interconnection Costs			**$10,739,421**
See One-Line Diagram.			
	GEN-2014-051	$10,739,421	
	Total Allocated Costs	**$10,739,421**	
GEN-2014-052 Interconnection Costs			**$2,250,100**
See One-Line Diagram.			
	GEN-2014-052	$2,250,100	
	Total Allocated Costs	**$2,250,100**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2014-053 Interconnection Costs			**$2,403,415**
See One-Line Diagram.			
	GEN-2014-053	$2,403,415	
	Total Allocated Costs	**$2,403,415**	
GEN-2014-054 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-054	$0	
	Total Allocated Costs	**$0**	
GEN-2014-055 Interconnection Costs			**$2,600,000**
See One-Line Diagram.			
	GEN-2014-055	$2,600,000	
	Total Allocated Costs	**$2,600,000**	
GEN-2014-056 Interconnection Costs			**$2,250,100**
See One-Line Diagram.			
	GEN-2014-056	$2,250,100	
	Total Allocated Costs	**$2,250,100**	
GEN-2014-057 Interconnection Costs			**$19,433,500**
See One-Line Diagram.			
	GEN-2014-057	$19,433,500	
	Total Allocated Costs	**$19,433,500**	
GEN-2014-058 Interconnection Costs			**$16,844,894**
See One-Line Diagram.			
	GEN-2014-058	$16,844,894	
	Total Allocated Costs	**$16,844,894**	
GEN-2014-059 Interconnection Costs			**$9,200,000**
See One-Line Diagram.			
	GEN-2014-059	$9,200,000	
	Total Allocated Costs	**$9,200,000**	
GEN-2014-060 Interconnection Costs			**$6,300,000**
See One-Line Diagram.			
	GEN-2014-060	$6,300,000	
	Total Allocated Costs	**$6,300,000**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2014-061 Interconnection Costs			**$2,250,100**
See One-Line Diagram.			
	GEN-2014-061	$2,250,100	
	Total Allocated Costs	**$2,250,100**	
GEN-2014-062 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-062	$0	
	Total Allocated Costs	**$0**	
GEN-2014-063 Interconnection Costs			**$1,231,574**
See One-Line Diagram.			
	GEN-2014-063	$1,231,574	
	Total Allocated Costs	**$1,231,574**	
GEN-2014-064 Interconnection Costs			**$3,217,651**
See One-Line Diagram.			
	GEN-2014-064	$3,217,651	
	Total Allocated Costs	**$3,217,651**	
GEN-2014-066 Interconnection Costs			**$0**
See One-Line Diagram.			
	GEN-2014-066	$0	
	Total Allocated Costs	**$0**	
GEN-2014-067 Interconnection Costs			**$6,822,245**
See One-Line Diagram.			
	GEN-2014-067	$6,822,245	
	Total Allocated Costs	**$6,822,245**	
GEN-2014-067 Tap - GEN-2014-068 Tap 230kV			**$15,100,000**
Build GEN-2014-067 Tap to GEN-2014-068 Tap 230kV circuit			
	GEN-2014-040	$2,191,547	
	GEN-2014-067	$8,220,768	
	GEN-2014-068	$4,687,685	
	Total Allocated Costs	**$15,100,000**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

GEN-2014-068 Interconnection Costs		**$8,346,514**
See One-Line Diagram.		
	GEN-2014-068	$8,346,514
	Total Allocated Costs	**$8,346,514**
GEN-2014-069 Interconnection Costs		**$1,231,574**
See One-Line Diagram.		
	GEN-2014-069	$1,231,574
	Total Allocated Costs	**$1,231,574**
GEN-2014-070 Interconnection Costs		**$5,637,360**
See One-Line Diagram.		
	GEN-2014-070	$5,637,360
	Total Allocated Costs	**$5,637,360**
Gerald Gentleman Station Flowgate Stability Limit Mitigation		**$TBD**
Mitigation for GGS Flowgate Stability Limit. TBD in the Facilities Study with NPPD.		
	GEN-2014-059	$TBD
	Total Allocated Costs	**$TBD**
Grapevine Substation Upgrade 345kV		**$12,000,000**
Build Grapevine Substation and terminate Beaver Co - Grapevine, Potter Co - Grapevine, Grapevine - Chisholm 345kV into the Grapevine Substation.		
	GEN-2014-019	$271,758
	GEN-2014-026	$2,717,579
	GEN-2014-037	$3,201,133
	GEN-2014-038	$2,834,085
	GEN-2014-052	$2,975,445
	Total Allocated Costs	**$12,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Grapevine - Chisholm 345kV CKT 1			**$68,000,000**
Build approximately 75 miles of new 345kV from Grapevine - Chisholm.			
	ASGI-2014-002	$1,345,518	
	ASGI-2014-004	$231,725	
	ASGI-2014-005	$231,725	
	ASGI-2014-008	$235,862	
	ASGI-2014-009	$227,960	
	ASGI-2014-010	$226,449	
	ASGI-2014-011	$227,341	
	ASGI-2014-012	$222,783	
	ASGI-2014-013	$39,186	
	GEN-2013-027	$3,859,322	
	GEN-2014-007	$2,687,072	
	GEN-2014-019	$606,672	
	GEN-2014-026	$6,066,719	
	GEN-2014-033	$1,761,484	
	GEN-2014-034	$1,761,484	
	GEN-2014-035	$754,922	
	GEN-2014-037	$7,146,205	
	GEN-2014-038	$6,326,807	
	GEN-2014-046	$3,145,507	
	GEN-2014-047	$1,103,959	
	GEN-2014-052	$6,642,379	
	GEN-2014-053	$1,476,503	
	GEN-2014-054	$2,214,754	
	GEN-2014-062	$5,519,793	
	GEN-2014-063	$8,384,230	
	GEN-2014-066	$807,311	
	GEN-2014-069	$2,221,234	
	GEN-2014-070	$2,525,095	
	Total Allocated Costs	**$68,000,000**	
Harper - Milan Tap 138kV CKT 1			**$9,613,332**
Rebuild approximately 22 miles of 138kV line			
	GEN-2014-049	$9,613,332	
	Total Allocated Costs	**$9,613,332**	

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Knoll - Postrock 230kV CKT 1		**$150,000**
Rebuild approximately 1 mile of 230kV from Knoll - Post Rock.		
	GEN-2013-010	$150,000
	Total Allocated Costs	**$150,000**
LES - GEN-2014-057 Tap - Sunnyside 345kV CKT 1		**$200,000**
Replace Terminal Equipment.		
	GEN-2014-056	$40,208
	GEN-2014-057	$159,792
	Total Allocated Costs	**$200,000**
Meadow Grove - South Norfolk 230kV CKT 1		**$25,800,000**
Build approximately 25 miles of new 230kV circuit from Meadow Grove - South Norfolk.		
	GEN-2014-023	$12,830,990
	GEN-2014-031	$10,149,660
	GEN-2014-032	$2,819,350
	Total Allocated Costs	**$25,800,000**
Meadow Grove - South Norfolk 230kV CKT 1 Incremental Upgrade		**$TBD**
In the event Meadow Grove - South Norfolk Project is not feasible to uprate to 368MVA, The Meadow Grove - North Petersburg 115kV build project might be needed.		
	GEN-2014-023	$0
	GEN-2014-031	$0
	GEN-2014-032	$0
	Total Allocated Costs	**$0**
Milan Tap - Clearwater 138kV CKT 1		**$18,000,000**
Rebuild approximately 12 miles of 138kV line		
	GEN-2014-049	$18,000,000
	Total Allocated Costs	**$18,000,000**
Norton 230/115kV Reactive Power Support		**$1,500,000**
Build Norton 24MVAR Switchable Capacitor Bank on 13.2kV tertiary bus of 230/115kV transformer.		
	ASGI-2014-002	$937,500
	GEN-2014-066	$562,500
	Total Allocated Costs	**$1,500,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Norton - Pleasant Hill 230kV CKT 1		**$40,000,000**
Convert 54 miles of 115kV from Norton - Pleasant Hill to 230kV.		
	ASGI-2014-002	$25,000,000
	GEN-2014-066	$15,000,000
	Total Allocated Costs	**$40,000,000**
Oasis - San Juan Tap 230kV CKT 1		**$100,000**
Replace the line trap at Oasis.		
	ASGI-2014-008	$1,110
	GEN-2014-033	$21,261
	GEN-2014-034	$21,261
	GEN-2014-035	$9,112
	GEN-2014-046	$37,966
	GEN-2014-047	$1,549
	GEN-2014-062	$7,743
	Total Allocated Costs	**$100,000**
Ogallala - Gerald Gentleman Station 230kV CKT 1		**$500,000**
Replace terminal equipment and increase line clearance.		
	GEN-2014-059	$500,000
	Total Allocated Costs	**$500,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Oklaunion 345kV Reactive Power Support **$30,000,000**

Install 150Mvar Capacitor Bank(s) and 150Mvar SVC at Oklaunion.

ASGI-2014-002	$693,583
ASGI-2014-004	$149,217
ASGI-2014-005	$149,217
ASGI-2014-008	$148,393
ASGI-2014-009	$149,952
ASGI-2014-010	$150,248
ASGI-2014-011	$150,080
ASGI-2014-012	$150,968
ASGI-2014-013	$31,147
GEN-2013-027	$2,129,929
GEN-2014-007	$5,882,616
GEN-2014-033	$1,011,209
GEN-2014-034	$1,011,209
GEN-2014-035	$433,375
GEN-2014-046	$1,805,730
GEN-2014-047	$565,774
GEN-2014-053	$1,268,713
GEN-2014-054	$1,903,070
GEN-2014-062	$2,828,870
GEN-2014-063	$5,775,949
GEN-2014-066	$416,150
GEN-2014-069	$1,433,170
GEN-2014-070	$1,761,433
Total Allocated Costs	**$30,000,000**

Petersburg - North Petersburg 115kV CKT 1 **$800,000**

Replace Strain Bus.

GEN-2014-023	$238,591
GEN-2014-031	$144,268
GEN-2014-032	$40,074
GEN-2014-055	$377,067
Total Allocated Costs	**$800,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Plant X - Tolk East 230kV		**$15,000,000**
NRIS only required upgrade: Rebuild approximately 10 miles of 230kV		
	GEN-2014-046	$10,675,706
	GEN-2014-066	$4,324,294
	Total Allocated Costs	**$15,000,000**
Potter County Interchange 345/230/13kV Transformer CKT 2		**$15,000,000**
Build second 345/230/13kV transformer at Potter County		
	GEN-2014-038	$15,000,000
	Total Allocated Costs	**$15,000,000**
Potter County - Grapevine 345kV CKT 1		**$59,000,000**
Build approximately 65 miles of new 345kV from Potter County - Grapevine.		
	ASGI-2014-002	$1,926,309
	ASGI-2014-004	$331,749
	ASGI-2014-005	$331,749
	ASGI-2014-008	$337,671
	ASGI-2014-009	$326,359
	ASGI-2014-010	$324,196
	ASGI-2014-011	$325,472
	ASGI-2014-012	$318,947
	ASGI-2014-013	$56,101
	GEN-2013-027	$5,525,195
	GEN-2014-007	$3,846,944
	GEN-2014-033	$2,521,827
	GEN-2014-034	$2,521,827
	GEN-2014-035	$1,080,783
	GEN-2014-046	$4,503,262
	GEN-2014-047	$1,580,481
	GEN-2014-053	$2,113,833
	GEN-2014-054	$3,170,750
	GEN-2014-062	$7,902,406
	GEN-2014-063	$12,003,275
	GEN-2014-066	$1,155,785
	GEN-2014-069	$3,180,027
	GEN-2014-070	$3,615,050
	Total Allocated Costs	**$59,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Smokey Hills - Summit 230kV CKT 1		**$100,000**
Replace structures in Midwest to get rating up to 400MVA.		
	GEN-2010-048	$100,000
	Total Allocated Costs	**$100,000**
South Norfolk 345/230/13.8kV Transformer CKT 1		**$17,700,000**
Build new 345/230kV substation on Hoskins - Shell Creek 345kV and build new 345/230/13.8kV transformer.		
	GEN-2014-023	$8,802,656
	GEN-2014-031	$6,963,139
	GEN-2014-032	$1,934,205
	Total Allocated Costs	**$17,700,000**
Tolk - Potter County 345kV CKT 1		**$105,000,000**
Build approximately 115 miles of 345kV from Tolk - Potter County.		
	ASGI-2014-002	$2,627,773
	ASGI-2014-004	$560,505
	ASGI-2014-005	$560,505
	ASGI-2014-008	$573,455
	ASGI-2014-009	$547,997
	ASGI-2014-010	$542,960
	ASGI-2014-011	$546,004
	ASGI-2014-012	$531,089
	ASGI-2014-013	$85,098
	GEN-2013-027	$8,012,409
	GEN-2014-007	$13,886,018
	GEN-2014-033	$4,084,891
	GEN-2014-034	$4,084,891
	GEN-2014-035	$1,750,668
	GEN-2014-046	$7,294,449
	GEN-2014-047	$3,005,335
	GEN-2014-053	$3,350,355
	GEN-2014-054	$5,025,532
	GEN-2014-062	$15,026,675
	GEN-2014-063	$20,059,473
	GEN-2014-066	$1,576,664
	GEN-2014-069	$5,370,485
	GEN-2014-070	$5,896,770
	Total Allocated Costs	**$105,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Tolk - TUCO 2 345kV CKT 1 **$64,000,000**

Build approximately 64 miles of 345kV from Tolk - TUCO 2.

ASGI-2014-002	$1,928,067
ASGI-2014-004	$241,192
ASGI-2014-005	$241,192
ASGI-2014-008	$279,404
ASGI-2014-009	$206,916
ASGI-2014-010	$192,288
ASGI-2014-011	$199,843
ASGI-2014-012	$157,383
ASGI-2014-013	$23,458
GEN-2013-027	$5,051,354
GEN-2014-007	$13,699,111
GEN-2014-033	$2,612,612
GEN-2014-034	$2,612,612
GEN-2014-035	$1,119,691
GEN-2014-046	$4,665,379
GEN-2014-047	$2,875,095
GEN-2014-053	$1,473,031
GEN-2014-054	$2,209,546
GEN-2014-062	$14,375,473
GEN-2014-063	$5,221,936
GEN-2014-066	$1,156,840
GEN-2014-069	$2,284,627
GEN-2014-070	$1,172,950
Total Allocated Costs	**$64,000,000**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

TUCO 2 Substation Upgrade 345kV **$15,000,000**

Build TUCO 2 345kV substation and approximately 1 mile 345kV from TUCO - TUCO 2.

ASGI-2014-002	$138,762
ASGI-2014-004	$26,572
ASGI-2014-005	$26,572
ASGI-2014-008	$14,268
ASGI-2014-009	$38,047
ASGI-2014-010	$42,659
ASGI-2014-011	$39,909
ASGI-2014-012	$53,679
ASGI-2014-013	$28,195
GEN-2013-027	$144,738
GEN-2014-007	$4,165,870
GEN-2014-033	$125,901
GEN-2014-034	$125,901
GEN-2014-035	$53,958
GEN-2014-046	$224,824
GEN-2014-047	$499,001
GEN-2014-053	$1,312,173
GEN-2014-054	$1,968,259
GEN-2014-062	$2,495,006
GEN-2014-063	$2,299,390
GEN-2014-066	$83,257
GEN-2014-069	$264,804
GEN-2014-070	$828,253
Total Allocated Costs	**$15,000,000**

Woodward XFMR 138/69/13.2kV CKT 1 **$4,000,000**

NRIS only required upgrade: Replace existing

GEN-2014-019	$4,000,000
Total Allocated Costs	**$4,000,000**

Woodward - Woodward EHV 138kV CKT 1 **$3,116,300**

NRIS only required upgrade: Rebuild approximately 4.5 miles of 138kV from Woodward - Woodward EHV.

GEN-2014-019	$3,116,300
Total Allocated Costs	**$3,116,300**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

Woodward - Woodward EHV 138kV CKT 2		**$6,275,095**
NRIS only required upgrade: Rebuild approximately 9 miles of 138kV from Woodward - Woodward EHV.		
	GEN-2014-019	$6,275,095
	Total Allocated Costs	**$6,275,095**

* Withdrawal of higher queued projects will cause a restudy and may result in higher costs

G: Power Flow Analysis (Constraints Used For Mitigation)

See next page.

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.3925	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.36658	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.33719	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	956	994	0.19625	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.1943	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	560	560	0.17033	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	560	560	0.16859	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.14337	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.13458	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.12851	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	478	502	0.07081	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	319	351	0.06204	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_002		Non-Converged Contingency	287	316	0.05735	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.40329	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.37516	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.34832	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	560	560	0.17416	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.13511	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.13029	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	0	0	0.4898	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	0	0	0.39987	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	0	0	0.36114	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	956	994	0.2449	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.18423	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_002		Non-Converged Contingency	1792	1792	0.18423	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.40427	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.3778	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.34636	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.27524	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1033	1071	0.20213	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.19556	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.17318	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.17318	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	560	560	0.17318	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	478	502	0.17116	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1195	1195	0.16748	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.16237	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1584	2098	0.15315	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	329	361	0.15081	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1792	1792	0.14077	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13762	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13762	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.13678	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	956	1052	0.13678	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.13678	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.13147	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	557	557	0.10908	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	557	557	0.10908	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	329	361	0.09811	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	329	361	0.09811	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.09778	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.09778	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1195	1195	0.09778	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1195	1195	0.09778	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	421	439	0.08119	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	435	470	0.08119	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	396	441	0.08119	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	329	361	0.07932	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	1532	1793	0.07445	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	329	361	0.0673	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	439	439	0.0625	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_002		Non-Converged Contingency	287	316	0.0625	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.39272	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.36679	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.33737	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.2692	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	956	994	0.19636	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.1944	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	478	502	0.17034	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.16869	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.16869	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	560	560	0.16869	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1330	1940	0.147	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	2302	2532	0.1466	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.14344	-	SPP-SWPS-02

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.13465	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.1346	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.1346	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.12859	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.12859	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.12859	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	319	351	0.09959	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	319	351	0.09959	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.0972	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.0972	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1195	1195	0.0972	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	1195	1195	0.0972	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	439	439	0.07172	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	349	395	0.07172	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	396	441	0.07172	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_002		Non-Converged Contingency	319	351	0.06292	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.40354	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.3754	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.34854	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.27594	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	956	994	0.20177	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	956	1052	0.17427	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	956	1052	0.17427	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	560	560	0.17427	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_002		Non-Converged Contingency	956	1052	0.1352	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.39316	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.36723	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.33778	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.26953	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	956	994	0.19658	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.16889	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.16889	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	560	560	0.16889	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	1330	1940	0.14714	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13477	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13477	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.12875	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.12875	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.12875	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_002		Non-Converged Contingency	439	439	0.0718	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.40373	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.37558	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.34872	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.27608	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_002		Non-Converged Contingency	956	994	0.20186	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.40496	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.37847	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.34698	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.27573	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	1033	1071	0.20248	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.17349	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.17349	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	560	560	0.17349	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13787	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.13787	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.13704	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	956	1052	0.13704	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.13704	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_002		Non-Converged Contingency	421	439	0.08132	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.39734	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.30355	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.2945	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	956	994	0.19867	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.15732	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	1420	1775	0.15732	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.15178	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	956	1052	0.15178	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_002		Non-Converged Contingency	717	926	0.03352	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.40746	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.3025	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_002		Non-Converged Contingency	956	994	0.20373	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.40763	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.31568	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	0	0	0.30938	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	1033	1071	0.20381	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.16005	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	1420	1775	0.16005	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_002		Non-Converged Contingency	987	1083	0.15784	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.4018	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.36043	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.28419	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_002		Non-Converged Contingency	956	994	0.18022	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.36981	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_002		Non-Converged Contingency	0	0	0.29177	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_002		Non-Converged Contingency	956	994	0.1849	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_002		Non-Converged Contingency	1033	1071	0.18612	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_002		Non-Converged Contingency	0	0	0.26693	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.15081	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06187	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22459	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22459	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.135	117.459	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.11945	109.8457	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.11955	102.7859	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13485	101.5217	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	108.2089	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	102.9513	SPP-SWPS-W65
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	102.3635	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41345	102.025	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11258	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09811	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09996	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11329	121.8496	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.0433	100	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.135	104.9103	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05735	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05735	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03457	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11258	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.09811	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09996	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11329	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.09078	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.2449	100.5636	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.3499	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.2566	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.2136	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.6534	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.0343	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.699	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0276	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0154	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.3448	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6777	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4136	GEN562414 1-G13-022 0.4800
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.9203	GEN562414 1-G13-022 0.4800
FDNS	06ALL	0	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5615	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	0	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	0	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.8	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.32702	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.32765	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21336	103.0857	SPP-SWPS-K37
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21336	103.0855	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.22197	102.0323	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32999	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.33064	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21488	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2231	107.4157	SPP-SWPS-K37
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2231	107.4155	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.23067	106.3195	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25928	101.792	SPP-SWPS-T59
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21121	101.1844	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2101	100.8711	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21407	99.8	HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2968	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2968	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0619	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13502	115.5826	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13487	100.3254	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	106.4206	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	25SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41287	102.362	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	101.2246	SPP-SWPS-W65
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.38443	100.8693	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	100.6868	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10006	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10206	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10252	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.13502	103.0789	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05738	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05738	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.10006	115.7639	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.0944	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.0895	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.2744	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.1012	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.4464	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8475	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6381	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9624	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9331	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2195	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.8973	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.6123	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4921	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4848	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.8423	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.6304	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36883	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36693	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31727	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31696	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.26418	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.2128	SPP-SWPS-K37
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.2125	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.1524	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37198	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37009	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23363	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32017	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31987	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20862	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27415	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.4642	SPP-SWPS-K37
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.464	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.4014	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22382	102.8649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	102.5611	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23858	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20797	101.9674	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21006	101.9357	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	101.2494	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	100.9651	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	99.8	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	99.7	SPP-SWPS-T59
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21027	99.7	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21139	99.5	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21139	99.5	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_002	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.21941	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29161	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29161	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.297	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.297	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2839	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2839	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06193	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.225	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.225	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13504	113.3005	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	106.4204	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41287	101.8749	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	101.2191	SPP-SWPS-W65
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	100.6818	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.38443	99.9	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09838	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10014	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10208	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10252	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.13504	100.8686	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06193	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06193	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0626	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0626	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.09838	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.10014	112.1124	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.2248	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.2071	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1969	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.3549	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.7716	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.508	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8245	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6891	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0034	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9614	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2201	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.7756	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6571	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.6459	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4024	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.3936	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	3	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.7712	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5534	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	3	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	99.9	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36907	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.30273	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36754	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31732	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31696	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.26436	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.22254	99.5	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37223	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.30556	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23358	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37071	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32022	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31987	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20861	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27432	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21542	105.2413	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21542	105.2333	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.23126	103.6901	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2739	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2672	SPP-SWPS-K37
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2671	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23848	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22396	100.9789	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25961	100.1136	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2102	99.7	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_002	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.21926	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29198	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30038	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29198	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30038	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23697	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23697	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24367	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29715	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29715	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24367	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.28426	124.5596	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.28426	117.4955	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.29224	112.1754	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	ASGI_14_002	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.29224	107.0115	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0639	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23177	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23177	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.12955	102.0025	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41064	104.2816	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41067	100.3758	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07687	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.07697	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08033	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_002	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08003	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0639	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0639	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06468	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06468	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06425	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06425	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05958	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05958	112.6698	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.0957	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.1308	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1537	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.3341	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.3796	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.4474	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8561	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6692	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9763	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9487	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2037	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.9066	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6267	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4898	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.3752	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.2918	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.7553	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5369	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	99.9	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27316	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.21596	118.9896	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22744	107.9918	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22812	103.0762	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27239	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27578	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20WP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.21823	120.0441	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	25SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22978	109.113	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20SP	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23045	104.0126	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	ASGI_14_002	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27503	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06241	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.21876	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.21876	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	20SP	ASGI_14_002	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.40877	101.3669	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06241	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06241	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06333	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06333	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0627	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0627	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05804	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05804	111.0916	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.2291	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.1117	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1093	BASE CASE
FDNS	06ALL	5	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.4221	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1105	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.5152	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.7372	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6487	GEN560759 1-ASGI13_02_3 0.6900

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9482	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9229	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.1818	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.7914	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6172	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4311	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4023	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.979	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.811	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5203	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06726	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06753	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06753	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	116.9672	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.2735	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	118.1874	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1102	BASE CASE
FDNS	06ALL	6	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	116.239	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	113.2066	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	105.9931	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.6477	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.0852	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.3178	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	6	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.4558	GEN562414 1-G13-022 0.4800
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.9921	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	6	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.0949	GEN562414 1-G13-022 0.4800
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06726	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_002	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06752	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06752	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_002	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	116.8051	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.2718	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	118.1872	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1111	BASE CASE
FDNS	06ALL	7	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	116.2418	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	113.142	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	105.9947	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.648	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	25SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.086	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.3198	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	7	15SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.4557	GEN562414 1-G13-022 0.4800
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.9924	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	7	20SP	ASGI_14_002	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.0951	GEN562414 1-G13-022 0.4800
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.43048	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.31849	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.29496	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.21853	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	956	994	0.21524	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.18374	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.14748	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.11921	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.11242	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.10623	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.10325	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	478	502	0.06203	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	287	316	0.05749	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.0541	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.44138	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.32733	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.30673	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	560	560	0.15336	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.12593	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.10433	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	0	0	0.54867	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	0	0	0.33943	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	0	0	0.3149	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	956	994	0.27434	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.21263	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_004		Non-Converged Contingency	1792	1792	0.21263	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.44959	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.31809	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.31393	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.29755	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1033	1071	0.2248	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.18321	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1195	1195	0.17794	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1792	1792	0.16218	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.15905	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.15905	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1584	2098	0.15501	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.14878	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.14878	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	560	560	0.14878	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.12579	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	956	1052	0.12579	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.12579	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.12314	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	478	502	0.12014	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	329	361	0.10737	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	329	361	0.10672	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	329	361	0.10672	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	557	557	0.10192	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	557	557	0.10192	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.10072	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.09161	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.09161	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1195	1195	0.09161	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1195	1195	0.09161	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	329	361	0.08774	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	1532	1793	0.0715	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	439	439	0.06247	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	287	316	0.06247	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	421	439	0.06157	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	435	470	0.06157	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	396	441	0.06157	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_004		Non-Converged Contingency	329	361	0.0519	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.43069	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	2302	2532	0.32692	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.3187	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.30499	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.29514	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	717	926	0.21849	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.21849	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	956	994	0.21535	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.18383	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.1525	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.1525	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1330	1940	0.14872	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.14757	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.14757	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.14757	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	478	502	0.13204	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.11928	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.11928	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.11928	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.11589	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.11589	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.11514	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.11249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.1063	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.09192	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.09192	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1195	1195	0.09192	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	1195	1195	0.09192	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	439	439	0.05625	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	349	395	0.05625	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	396	441	0.05625	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.05005	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.44163	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.32757	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.312	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.30695	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	956	994	0.22082	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	956	1052	0.15347	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	956	1052	0.15347	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	560	560	0.15347	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_004		Non-Converged Contingency	956	1052	0.12603	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.43114	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.31914	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.30533	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.29555	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	956	994	0.21557	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.15266	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.15266	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	1330	1940	0.14887	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.14777	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.14777	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	560	560	0.14777	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.11945	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.11945	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.11945	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	319	351	0.1151	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_004		Non-Converged Contingency	439	439	0.05632	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.44182	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.32775	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.31214	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.30712	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_004		Non-Converged Contingency	956	994	0.22091	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.45028	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.31859	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.31459	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.29817	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	1033	1071	0.22514	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.1593	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.1593	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.14908	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.14908	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	560	560	0.14908	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.12605	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	956	1052	0.12605	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.12605	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_004		Non-Converged Contingency	421	439	0.06171	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.42848	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.26579	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.26037	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	717	926	0.25188	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	956	994	0.21424	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.17406	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	1420	1775	0.17406	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.13289	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_004		Non-Converged Contingency	956	1052	0.13289	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.43871	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.26852	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_004		Non-Converged Contingency	956	994	0.21935	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.44266	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.27462	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	0	0	0.26976	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	1033	1071	0.22133	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.17889	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	1420	1775	0.17889	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_004		Non-Converged Contingency	987	1083	0.13731	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.38646	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.37726	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.24858	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_004		Non-Converged Contingency	956	994	0.19323	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.39595	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_004		Non-Converged Contingency	0	0	0.25629	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_004		Non-Converged Contingency	956	994	0.19798	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_004		Non-Converged Contingency	1033	1071	0.20182	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_004		Non-Converged Contingency	0	0	0.23397	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	ASGI_14_004	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10737	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0618	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23824	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23824	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_004	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03093	117.459	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_004	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03079	101.5217	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12296	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10672	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11619	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12366	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03093	104.9103	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12296	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10672	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11619	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12366	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07932	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27434	100.5636	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24802	107.9334	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24802	107.6534	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21606	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.12604	100.8711	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24802	100	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24802	99.8	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23778	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03095	115.5826	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_004	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03081	100.3254	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11629	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11067	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11107	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03095	103.0789	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11629	115.7639	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24806	108.2501	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	2	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24806	107.9329	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22069	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21864	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22271	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22068	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25371	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2089	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2584	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24806	100.2599	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	2	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24806	100	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	ASGI_14_004	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29702	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_004	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23311	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23779	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23865	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23865	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03097	113.3005	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10699	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11637	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11068	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11107	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_004	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03097	100.8686	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	113.0082	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10699	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11637	112.1124	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24806	108.2506	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_004	TO->FROM	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24806	107.9332	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22093	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21925	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22296	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25366	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22129	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20889	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_004	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2583	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24806	100.2605	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24806	100	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	ASGI_14_004	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29687	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_004	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25138	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_004	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25138	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_004	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26056	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_004	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26056	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24294	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24294	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09701	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09229	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0956	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_004	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09535	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24779	107.986	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24779	107.6699	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24779	100	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24779	99.8	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	5	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06233	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2286	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2286	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06233	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06233	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06336	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06336	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06274	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06274	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05813	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05813	111.0916	BASE CASE
FDNS	06ALL	5	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24766	107.8491	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	5	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24766	99.9	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23573	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23573	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	116.9672	BASE CASE
FDNS	06ALL	6	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24764	107.8263	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	6	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24764	107.5197	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	6	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24764	99.8	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	6	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24764	99.6	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	15SP	ASGI_14_004	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23573	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_004	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23573	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.3517	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	7	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06242	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_004	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06242	116.8051	BASE CASE
FDNS	06ALL	7	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24764	149.8429	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.24764	146.2542	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	25SP	ASGI_14_004	TO->FROM	RED_BLUFF 3115.00 - SAND DUNES SUB 115KV CKT 1	159	160	0.24764	116.9825	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_004	TO->FROM	RED_BLUFF 3115.00 - SAND DUNES SUB 115KV CKT 1	159	160	0.24764	115.2777	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24764	145.8305	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.24764	142.8158	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	8	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.22928	106.6418	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	8	25SP	ASGI_14_004	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.22928	106.3651	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	8	25SP	ASGI_14_004	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.22928	99.5	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.43048	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.31849	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.29496	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.21853	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	956	994	0.21524	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.18374	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.14748	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.11921	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.11242	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.10623	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.10325	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	478	502	0.06203	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	287	316	0.05749	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.0541	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.44138	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.32733	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.30673	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	560	560	0.15336	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.12593	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.10433	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	0	0	0.54767	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	0	0	0.34051	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	0	0	0.31569	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	956	994	0.27384	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.21215	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_005		Non-Converged Contingency	1792	1792	0.21215	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.44882	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.31737	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.31506	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.29839	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1033	1071	0.22441	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.18342	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1195	1195	0.17776	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1792	1792	0.16181	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15868	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15868	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1584	2098	0.15498	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.14919	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.14919	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	560	560	0.14919	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.12598	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	956	1052	0.12598	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.12598	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.12381	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	478	502	0.1209	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	329	361	0.10801	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	329	361	0.10729	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	329	361	0.10729	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	557	557	0.10216	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	557	557	0.10216	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.10124	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.09171	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.09171	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1195	1195	0.09171	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1195	1195	0.09171	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	329	361	0.08766	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	1532	1793	0.07155	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	421	439	0.0619	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	435	470	0.0619	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	396	441	0.0619	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_005		Non-Converged Contingency	329	361	0.05216	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.43069	-	SPSCONT-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	2302	2532	0.32692	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.3187	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.30499	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.29514	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	717	926	0.21849	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.21849	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	956	994	0.21535	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.18383	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.1525	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.1525	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1330	1940	0.14872	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.14757	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.14757	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.14757	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	478	502	0.13204	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.11928	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.11928	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.11928	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.11589	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.11589	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.11514	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.11249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.1063	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.09192	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.09192	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1195	1195	0.09192	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	1195	1195	0.09192	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	439	439	0.05625	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	349	395	0.05625	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	396	441	0.05625	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.05005	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.44163	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.32757	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.312	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.30695	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	956	994	0.22082	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	956	1052	0.15347	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	956	1052	0.15347	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	560	560	0.15347	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_005		Non-Converged Contingency	956	1052	0.12603	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.43114	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.31914	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.30533	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.29555	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	956	994	0.21557	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15266	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15266	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	1330	1940	0.14887	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.14777	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.14777	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	560	560	0.14777	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.11945	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.11945	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.11945	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	319	351	0.1151	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_005		Non-Converged Contingency	439	439	0.05632	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.44182	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.32775	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.31214	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.30712	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_005		Non-Converged Contingency	956	994	0.22091	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.44951	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.31786	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.31573	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.299	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	1033	1071	0.22476	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15893	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.15893	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.1495	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.1495	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	560	560	0.1495	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.12624	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	956	1052	0.12624	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.12624	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_005		Non-Converged Contingency	421	439	0.06204	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.42848	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.26579	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.26037	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	717	926	0.25188	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	956	994	0.21424	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.17406	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	1420	1775	0.17406	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.13289	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_005		Non-Converged Contingency	956	1052	0.13289	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.43871	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.26852	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_005		Non-Converged Contingency	956	994	0.21935	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.44242	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.27489	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	0	0	0.2693	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	1033	1071	0.22121	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.17878	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	1420	1775	0.17878	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_005		Non-Converged Contingency	987	1083	0.13745	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.38646	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.37726	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.24858	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_005		Non-Converged Contingency	956	994	0.19323	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.39595	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_005		Non-Converged Contingency	0	0	0.25629	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_005		Non-Converged Contingency	956	994	0.19798	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_005		Non-Converged Contingency	1033	1071	0.20154	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_005		Non-Converged Contingency	0	0	0.23397	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_005	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10801	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0618	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23801	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23801	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_005	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03093	117.459	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_005	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03079	101.5217	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12351	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10729	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11619	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1242	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03093	104.9103	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03417	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12351	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10729	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11619	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1242	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07951	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27384	100.5636	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22133	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.12604	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23778	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03095	115.5826	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_005	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03081	100.3254	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11629	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11124	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11164	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03095	103.0789	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11629	115.7639	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22069	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21864	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22271	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22068	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25371	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21418	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2584	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_005	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29702	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_005	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23311	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23779	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23842	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23842	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_005	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03097	113.3005	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10756	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11637	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11126	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11164	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03097	100.8686	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10756	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11637	112.1124	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22093	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21925	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22296	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25366	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22129	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21417	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_005	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2583	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_005	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29687	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_005	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25138	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_005	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25138	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_005	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26028	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_005	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26028	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24287	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24287	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09701	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09241	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09572	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_005	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09547	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06233	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22841	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22841	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06233	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06233	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06335	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06335	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06272	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06272	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05813	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05813	111.0916	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23557	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23557	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	116.9672	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_005	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23557	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_005	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23557	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	7	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06242	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_005	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06242	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.42798	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.32254	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.29775	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.24672	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	956	994	0.21399	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.18443	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.14887	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.11982	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.11446	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.10856	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.1081	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	478	502	0.06261	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	287	316	0.05749	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.05463	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.43885	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.33139	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.30949	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	560	560	0.15475	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.12654	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.10605	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	0	0	0.54288	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	0	0	0.34741	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	0	0	0.31946	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	956	994	0.27144	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.20984	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_008		Non-Converged Contingency	1792	1792	0.20984	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.44513	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.32224	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.31388	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.30237	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1033	1071	0.22257	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.18443	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1195	1195	0.17691	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1792	1792	0.16007	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15694	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15694	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1584	2098	0.15483	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.15118	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.15118	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	560	560	0.15118	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.127	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.12687	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	956	1052	0.12687	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.12687	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	478	502	0.12442	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	329	361	0.111	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	329	361	0.11003	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	329	361	0.11003	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.10375	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	557	557	0.10336	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	557	557	0.10336	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.09221	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.09221	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1195	1195	0.09221	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1195	1195	0.09221	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	329	361	0.0874	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	1532	1793	0.07179	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	421	439	0.0635	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	435	470	0.0635	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	396	441	0.0635	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_008		Non-Converged Contingency	329	361	0.05342	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.42819	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.32275	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	2302	2532	0.31338	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.30263	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.29794	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	717	926	0.24669	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.24669	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	956	994	0.21409	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.18453	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15132	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15132	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.14897	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.14897	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.14897	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1330	1940	0.14861	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	478	502	0.13621	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.13136	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.1199	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.1199	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.1199	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.1177	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.1177	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.11453	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.10817	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.09227	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.09227	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1195	1195	0.09227	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	1195	1195	0.09227	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	439	439	0.05727	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	349	395	0.05727	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	396	441	0.05727	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.0509	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.4391	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.33163	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.30971	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.30961	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	956	994	0.21955	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	956	1052	0.15486	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	956	1052	0.15486	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	560	560	0.15486	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_008		Non-Converged Contingency	956	1052	0.12664	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.42863	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.32319	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.30296	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.29834	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	956	994	0.21432	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15148	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15148	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.14917	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.14917	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	560	560	0.14917	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	1330	1940	0.14875	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	319	351	0.13133	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.12006	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.12006	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.12006	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_008		Non-Converged Contingency	439	439	0.05734	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.43929	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.33182	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.30989	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.30975	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_008		Non-Converged Contingency	956	994	0.21964	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.44582	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.32291	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.31437	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.30298	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	1033	1071	0.22291	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.15719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.15149	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.15149	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	560	560	0.15149	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.12713	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	956	1052	0.12713	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.12713	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_008		Non-Converged Contingency	421	439	0.06363	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.42769	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	717	926	0.28324	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.2667	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.25937	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	956	994	0.21385	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.17367	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	1420	1775	0.17367	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.13335	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_008		Non-Converged Contingency	956	1052	0.13335	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.43792	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.2675	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_008		Non-Converged Contingency	956	994	0.21896	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.44107	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.27642	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	0	0	0.26949	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	1033	1071	0.22053	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.17809	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	1420	1775	0.17809	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_008		Non-Converged Contingency	987	1083	0.13821	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.38466	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.38082	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.24728	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_008		Non-Converged Contingency	956	994	0.19233	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.39413	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_008		Non-Converged Contingency	0	0	0.25497	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_008		Non-Converged Contingency	956	994	0.19706	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_008		Non-Converged Contingency	1033	1071	0.2002	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_008		Non-Converged Contingency	0	0	0.2324	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_008	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.111	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0618	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2369	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2369	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0328	117.459	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03031	109.8457	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03041	102.7859	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03265	101.5217	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1261	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11003	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11801	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12679	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.0328	104.9103	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05749	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0342	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1261	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11003	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11801	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12679	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08045	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27144	100.5636	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2192	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21981	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22129	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22193	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24364	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.1358	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.22281	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03282	115.5826	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03267	100.3254	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11811	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11398	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11438	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03282	103.0789	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11811	115.7639	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.23788	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.23572	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20778	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24004	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23789	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27106	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20979	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20944	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23657	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27559	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_008	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.31668	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_008	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.21823	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.22282	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06187	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23731	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23731	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_008	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03283	113.3005	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.1103	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1182	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11399	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11438	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03283	100.8686	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05757	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05757	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.1103	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1182	112.1124	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.23813	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.23634	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20783	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24029	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27101	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23851	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20984	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20945	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23656	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_008	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27548	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_008	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.31653	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_008	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25056	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_008	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25056	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_008	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2592	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_008	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2592	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24245	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24245	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09734	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09316	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09647	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_008	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09622	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05989	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05989	112.6698	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06229	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2275	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2275	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06329	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06329	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06266	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06266	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05808	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05808	111.0916	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_008	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.21027	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06653	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23484	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23484	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06653	141.4774	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	6	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06653	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06754	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06754	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06676	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06676	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06244	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06244	116.9672	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_008	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.21098	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_008	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06654	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23484	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_008	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23484	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06654	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06654	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06754	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06754	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06244	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_008	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06244	116.8051	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_008	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.21098	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.4327	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.31553	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.29249	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	956	994	0.21635	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.19083	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.18312	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.14624	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.11866	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.11061	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.10457	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.09918	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	478	502	0.06151	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	287	316	0.0575	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.05364	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.44361	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.32437	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.30429	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	560	560	0.15214	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.1254	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.1028	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	0	0	0.54955	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	0	0	0.33737	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	0	0	0.31421	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	956	994	0.27477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.21305	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_009		Non-Converged Contingency	1792	1792	0.21305	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.45027	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.31873	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.31181	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.29683	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1033	1071	0.22513	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.18303	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1195	1195	0.17809	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1792	1792	0.1625	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15937	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15937	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1584	2098	0.15504	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.14842	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.14842	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	560	560	0.14842	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.12563	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	956	1052	0.12563	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.12563	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.12256	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	478	502	0.11957	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	329	361	0.10688	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	329	361	0.10622	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	329	361	0.10622	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	557	557	0.10169	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	557	557	0.10169	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.10026	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.09151	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.09151	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1195	1195	0.09151	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1195	1195	0.09151	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	329	361	0.08774	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	1532	1793	0.07145	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	439	439	0.06247	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	287	316	0.06247	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	421	439	0.06128	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	435	470	0.06128	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	396	441	0.06128	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_009		Non-Converged Contingency	329	361	0.05167	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.43291	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	2302	2532	0.33774	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.31573	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.30708	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.29267	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	956	994	0.21646	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	717	926	0.19079	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.19079	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.18322	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15354	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15354	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1330	1940	0.14882	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.14634	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.14634	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.14634	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	478	502	0.12822	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.11874	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.11874	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.11874	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.11426	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.11426	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.11069	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.10464	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.1003	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.09161	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.09161	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1195	1195	0.09161	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	1195	1195	0.09161	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	439	439	0.05534	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	349	395	0.05534	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	396	441	0.05534	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.0493	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.44386	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.32461	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.31411	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.30451	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	956	994	0.22193	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	956	1052	0.15225	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	956	1052	0.15225	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	560	560	0.15225	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_009		Non-Converged Contingency	956	1052	0.12549	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.43336	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.31617	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.30741	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.29307	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	956	994	0.21668	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15371	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15371	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	1330	1940	0.14897	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.14654	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.14654	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	560	560	0.14654	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.11891	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.11891	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.11891	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	319	351	0.10027	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_009		Non-Converged Contingency	439	439	0.05542	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.44405	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.32479	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.31425	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.30468	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_009		Non-Converged Contingency	956	994	0.22202	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.45095	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.31923	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.31248	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.29745	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	1033	1071	0.22548	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15961	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.15961	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.14872	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.14872	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	560	560	0.14872	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.12589	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	956	1052	0.12589	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.12589	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_009		Non-Converged Contingency	421	439	0.06141	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.42909	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.26508	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.26215	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	717	926	0.22121	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	956	994	0.21455	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.17436	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	1420	1775	0.17436	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.13254	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_009		Non-Converged Contingency	956	1052	0.13254	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.43932	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.27032	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_009		Non-Converged Contingency	956	994	0.21966	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.44299	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.27424	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	0	0	0.26864	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	1033	1071	0.22149	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.17907	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	1420	1775	0.17907	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_009		Non-Converged Contingency	987	1083	0.13712	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.38807	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.37399	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.25065	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_009		Non-Converged Contingency	956	994	0.19403	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.39757	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_009		Non-Converged Contingency	0	0	0.25838	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_009		Non-Converged Contingency	956	994	0.19878	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_009		Non-Converged Contingency	1033	1071	0.20206	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_009		Non-Converged Contingency	0	0	0.23629	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_009	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10688	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0618	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23845	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23845	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12249	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10622	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11455	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12318	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12249	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10622	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11455	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12318	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07915	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27477	100.5636	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21321	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.11666	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25104	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11465	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11017	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11057	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11465	115.7639	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23706	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24183	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_009	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.27816	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock	06ALL	3	15G	ASGI_14_009	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.24634	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_009	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25105	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23885	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23885	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10649	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11473	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11018	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11057	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05759	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05759	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10649	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_009	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11473	112.1124	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23701	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_009	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24172	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_009	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.27801	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_009	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25219	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_009	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25219	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_009	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26064	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_009	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26064	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24305	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24305	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09678	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09207	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09538	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_009	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09513	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06237	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22876	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22876	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06237	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06237	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06337	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06337	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06274	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06274	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05818	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05818	111.0916	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06648	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	116.9672	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_009	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06649	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_009	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06649	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06649	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0624	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_009	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0624	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.43359	-	SPSCONT-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.31434	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.29149	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	956	994	0.21679	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.18287	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.17968	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.14575	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.11844	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.10989	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.10391	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.09755	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	478	502	0.06131	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	287	316	0.05751	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.05345	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.44451	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.32318	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.30331	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	560	560	0.15165	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.12518	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.10219	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	0	0	0.54948	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	0	0	0.33882	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	0	0	0.31426	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	956	994	0.27474	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.21302	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_010		Non-Converged Contingency	1792	1792	0.21302	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.45022	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.31868	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.31326	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.29688	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1033	1071	0.22511	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.18304	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1195	1195	0.17808	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1792	1792	0.16247	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15934	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15934	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1584	2098	0.15504	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.14844	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.14844	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	560	560	0.14844	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.12564	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	956	1052	0.12564	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.12564	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.12261	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	478	502	0.1195	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	329	361	0.10683	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	329	361	0.10624	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	329	361	0.10624	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	557	557	0.10173	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	557	557	0.10173	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.1003	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.09152	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.09152	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1195	1195	0.09152	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1195	1195	0.09152	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	329	361	0.08782	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	1532	1793	0.07146	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	439	439	0.06247	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	287	316	0.06247	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	421	439	0.0613	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	435	470	0.0613	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	396	441	0.0613	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_010		Non-Converged Contingency	329	361	0.05169	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.4338	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	2302	2532	0.34207	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.31455	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.30792	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.29168	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	956	994	0.2169	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.18297	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	717	926	0.17965	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.17965	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15396	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15396	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1330	1940	0.14886	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.14584	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.14584	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.14584	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	478	502	0.12669	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.11852	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.11852	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.11852	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.11361	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.11361	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.10996	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.10398	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.09435	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.09148	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.09148	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1195	1195	0.09148	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	1195	1195	0.09148	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	439	439	0.05498	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	349	395	0.05498	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	396	441	0.05498	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.04899	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.44476	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.32342	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.31496	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.30353	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	956	994	0.22238	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	956	1052	0.15176	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	956	1052	0.15176	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	560	560	0.15176	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_010		Non-Converged Contingency	956	1052	0.12527	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.43425	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.31499	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.30825	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.29208	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	956	994	0.21712	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15413	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15413	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	1330	1940	0.14901	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.14604	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.14604	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	560	560	0.14604	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.11869	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.11869	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.11869	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	319	351	0.09431	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_010		Non-Converged Contingency	439	439	0.05506	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.44494	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.32361	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.3151	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.3037	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_010		Non-Converged Contingency	956	994	0.22247	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.4509	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.31918	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.31393	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.2975	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	1033	1071	0.22545	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15959	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.15959	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.14875	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.14875	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	560	560	0.14875	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.1259	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	956	1052	0.1259	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.1259	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_010		Non-Converged Contingency	421	439	0.06144	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.42934	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.2648	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.26288	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	956	994	0.21467	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	717	926	0.20887	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.17448	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	1420	1775	0.17448	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.1324	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_010		Non-Converged Contingency	956	1052	0.1324	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.43957	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.27104	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_010		Non-Converged Contingency	956	994	0.21978	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.44282	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.27444	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	0	0	0.27049	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	1033	1071	0.22141	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.17898	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	1420	1775	0.17898	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_010		Non-Converged Contingency	987	1083	0.13722	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.38871	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.37267	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.25149	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_010		Non-Converged Contingency	956	994	0.19436	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.39821	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_010		Non-Converged Contingency	0	0	0.25922	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_010		Non-Converged Contingency	956	994	0.19911	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_010		Non-Converged Contingency	1033	1071	0.20205	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_010		Non-Converged Contingency	0	0	0.23723	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_010	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10683	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23843	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23843	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12251	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10624	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11389	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12321	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06247	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12251	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10624	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11389	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12321	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07916	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27474	100.5636	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21138	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.11289	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25636	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11399	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11019	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1106	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05754	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05754	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11399	115.7639	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23036	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23516	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_010	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.27058	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_010	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25164	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_010	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25637	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23884	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23884	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10652	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11407	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11021	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1106	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0576	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0576	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10652	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_010	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11407	112.1124	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23032	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_010	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23506	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15SP	ASGI_14_010	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.27043	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_010	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25252	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_010	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25252	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_010	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26083	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_010	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26083	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24299	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24299	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09668	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09221	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09552	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_010	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09527	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06488	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06239	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22876	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22876	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06239	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06239	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06275	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06275	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0582	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0582	111.0916	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06648	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23585	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23585	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06238	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06238	116.9672	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_010	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06648	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_010	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23586	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0667	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_010	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.43307	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.31494	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.29207	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	956	994	0.21654	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.18645	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.18302	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.14604	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.11857	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.11031	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.10429	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.0984	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	478	502	0.06143	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	287	316	0.0575	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.05356	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.44399	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.32378	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.30388	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	560	560	0.15194	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.12531	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.10255	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	0	0	0.54771	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	0	0	0.34341	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	0	0	0.31565	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	956	994	0.27385	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.21217	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_011		Non-Converged Contingency	1792	1792	0.21217	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.44885	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.31796	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.31739	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.29835	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1033	1071	0.22443	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.18341	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1195	1195	0.17777	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1792	1792	0.16183	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.1587	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.1587	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1584	2098	0.15498	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.14917	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.14917	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	560	560	0.14917	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.12597	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	956	1052	0.12597	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.12597	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.12379	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	478	502	0.12064	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	329	361	0.1078	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	329	361	0.10724	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	329	361	0.10724	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	557	557	0.10222	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	557	557	0.10222	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.10123	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.09171	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.09171	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1195	1195	0.09171	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1195	1195	0.09171	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	329	361	0.08785	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	1532	1793	0.07155	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	421	439	0.0619	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	435	470	0.0619	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	396	441	0.0619	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_011		Non-Converged Contingency	329	361	0.05215	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.43328	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	2302	2532	0.33973	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.31514	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.30743	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.29226	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	956	994	0.21664	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	717	926	0.18642	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.18642	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.18311	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15372	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15372	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1330	1940	0.14884	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.14613	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.14613	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.14613	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	478	502	0.12759	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.11865	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.11865	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.11865	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.11399	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.11399	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.11038	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.10436	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.09806	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.09156	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.09156	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1195	1195	0.09156	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	1195	1195	0.09156	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	439	439	0.05519	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	349	395	0.05519	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	396	441	0.05519	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.04917	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.44424	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.32402	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.31447	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.3041	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	956	994	0.22212	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	956	1052	0.15205	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	956	1052	0.15205	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	560	560	0.15205	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_011		Non-Converged Contingency	956	1052	0.1254	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.43373	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.31558	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.30776	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.29266	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	956	994	0.21686	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15388	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15388	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	1330	1940	0.14898	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.14633	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.14633	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	560	560	0.14633	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.11881	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.11881	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.11881	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	319	351	0.09803	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_011		Non-Converged Contingency	439	439	0.05527	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.44442	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.3242	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.31461	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.30427	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_011		Non-Converged Contingency	956	994	0.22221	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.44954	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.31863	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.31789	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.29896	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	1033	1071	0.22477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15894	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.15894	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.14948	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.14948	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	560	560	0.14948	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.12623	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	956	1052	0.12623	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.12623	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_011		Non-Converged Contingency	421	439	0.06203	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.4292	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.26496	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.26233	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	717	926	0.21635	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	956	994	0.2146	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.17442	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	1420	1775	0.17442	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.13248	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_011		Non-Converged Contingency	956	1052	0.13248	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.43943	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.27049	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_011		Non-Converged Contingency	956	994	0.21972	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.44211	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.27525	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	0	0	0.2733	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	1033	1071	0.22106	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.1786	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	1420	1775	0.1786	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_011		Non-Converged Contingency	987	1083	0.13763	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.38834	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.37345	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.25087	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_011		Non-Converged Contingency	956	994	0.19417	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.39784	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_011		Non-Converged Contingency	0	0	0.2586	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_011		Non-Converged Contingency	956	994	0.19892	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_011		Non-Converged Contingency	1033	1071	0.20156	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_011		Non-Converged Contingency	0	0	0.23656	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_011	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.1078	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23802	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23802	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12345	136.6421	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10724	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11427	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12415	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03417	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12345	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10724	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11427	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12415	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07951	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27385	100.5636	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.45803	102.2866	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21649	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.1152	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_011	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.25319	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11437	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11119	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11159	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11437	115.7639	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.45758	100.9761	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23442	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20934	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23919	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_011	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.27515	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_011	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.24848	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_011	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.2532	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23843	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23843	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10751	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11445	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1112	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11159	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05759	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05759	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10751	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_011	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11445	112.1124	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.45758	100.9605	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23437	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	20SP	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20933	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_011	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23908	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_011	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.275	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_011	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25232	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_011	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25232	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_011	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26073	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_011	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26073	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24277	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24277	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09673	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09267	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09598	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_011	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09573	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.46076	103.1537	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06238	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22844	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22844	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06238	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06238	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06336	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06336	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06273	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06273	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05819	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05819	111.0916	BASE CASE
FDNS	06ALL	5	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.46197	104.3488	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06648	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23559	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23559	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	116.9672	BASE CASE
FDNS	06ALL	6	25SP	ASGI_14_011	TO->FROM	PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1	139	160	0.46219	104.514	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_011	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06648	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23559	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_011	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23559	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06648	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_011	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06239	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.43576	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.31112	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.28907	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	956	994	0.21788	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.18227	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.15359	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.14453	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.11791	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.10812	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.10228	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.09324	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	478	502	0.06081	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	287	316	0.05751	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.05299	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.4467	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.31997	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.30091	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	560	560	0.15046	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.12465	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.1007	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	0	0	0.54881	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	0	0	0.34364	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	0	0	0.31478	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	956	994	0.2744	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.2127	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_012		Non-Converged Contingency	1792	1792	0.2127	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.44969	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.31819	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.31813	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.29743	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1033	1071	0.22485	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.18318	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1195	1195	0.17796	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1792	1792	0.16223	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.1591	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.1591	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1584	2098	0.15502	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.14871	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.14871	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	560	560	0.14871	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.12576	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	956	1052	0.12576	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.12576	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.12307	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	478	502	0.11968	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	329	361	0.107	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	329	361	0.10659	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	329	361	0.10659	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	557	557	0.10198	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	557	557	0.10198	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.10066	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.09159	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.09159	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1195	1195	0.09159	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1195	1195	0.09159	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	329	361	0.08802	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	1532	1793	0.07149	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	421	439	0.06153	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	435	470	0.06153	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	396	441	0.06153	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_012		Non-Converged Contingency	329	361	0.05187	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.43598	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	2302	2532	0.35327	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.31133	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.30997	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.28925	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	956	994	0.21799	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.18236	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15499	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15499	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	717	926	0.15355	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.15355	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1330	1940	0.14896	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.14463	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.14463	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.14463	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	478	502	0.12299	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.11799	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.11799	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.11799	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.11201	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.11201	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.10819	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.10235	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.09118	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.09118	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1195	1195	0.09118	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	1195	1195	0.09118	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.08036	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	439	439	0.0541	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	349	395	0.0541	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	396	441	0.0541	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.04825	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.44695	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.32021	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.31703	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.30113	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	956	994	0.22347	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	956	1052	0.15057	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	956	1052	0.15057	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	560	560	0.15057	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_012		Non-Converged Contingency	956	1052	0.12474	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.43642	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.31177	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.3103	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.28966	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	956	994	0.21821	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15515	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15515	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	1330	1940	0.14911	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.14483	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.14483	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	560	560	0.14483	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.11815	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.11815	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.11815	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	319	351	0.08033	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_012		Non-Converged Contingency	439	439	0.05417	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.44713	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.32039	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.31717	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.30131	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_012		Non-Converged Contingency	956	994	0.22357	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.45038	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.3188	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.31869	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.29804	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	1033	1071	0.22519	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15934	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.15934	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.14902	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.14902	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	560	560	0.14902	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.12603	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	956	1052	0.12603	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.12603	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_012		Non-Converged Contingency	421	439	0.06167	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.42997	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.26421	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.26407	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	956	994	0.21498	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	717	926	0.17993	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.17479	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	1420	1775	0.17479	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.13204	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_012		Non-Converged Contingency	956	1052	0.13204	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.4402	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.27238	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_012		Non-Converged Contingency	956	994	0.2201	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.44222	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.27573	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	0	0	0.27514	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	1033	1071	0.22111	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.17865	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	1420	1775	0.17865	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_012		Non-Converged Contingency	987	1083	0.13757	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.39028	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.36951	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.25309	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_012		Non-Converged Contingency	956	994	0.19514	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.3998	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_012		Non-Converged Contingency	0	0	0.26084	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_012		Non-Converged Contingency	956	994	0.1999	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_012		Non-Converged Contingency	1033	1071	0.20188	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_012		Non-Converged Contingency	0	0	0.23908	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_012	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.107	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23828	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23828	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12284	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10659	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11228	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12353	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	116.7294	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05751	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12284	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10659	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11228	119.1784	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	25SP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12353	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07929	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.2744	100.5636	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26476	105.5633	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	0	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26476	101.3678	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20848	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.10406	100.8711	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_012	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.26924	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11238	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11054	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11094	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05754	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05754	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11238	115.7639	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26478	105.7366	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	2	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26478	101.5391	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	2	15SP	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21458	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15G	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21945	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	ASGI_14_012	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.25266	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_012	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.26448	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_012	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.26925	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06185	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23868	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23868	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_012	FROM->TO	COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.28179	99.6	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10686	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11246	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11056	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11094	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0576	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0576	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10686	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_012	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11246	112.1124	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26478	105.735	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	3	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26478	101.5375	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21453	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	ASGI_14_012	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21934	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	ASGI_14_012	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.25251	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_012	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25328	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_012	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25328	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_012	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26125	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_012	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26125	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2428	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2428	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09642	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09267	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09598	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_012	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09573	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05991	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05991	112.6698	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26491	105.8785	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26491	101.6822	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	4	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.28261	99.5	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06243	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22866	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22866	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06243	136.1751	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	5	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06243	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06276	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06276	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05824	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05824	111.0916	BASE CASE
FDNS	06ALL	5	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	106.0098	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	5	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	101.8142	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	5	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.28296	99.9	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06645	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23576	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23576	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06645	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06645	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06236	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06236	116.9672	BASE CASE
FDNS	06ALL	6	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	106.0052	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	6	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	101.8093	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	6	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.28302	100	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_012	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06646	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23577	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_012	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23577	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06646	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06646	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0675	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06237	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_012	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06237	116.8051	BASE CASE
FDNS	06ALL	7	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	130.1755	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.27675	127.5915	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.27675	123.0368	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26503	116.9126	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.24024	101.0465	National Enrichment Plant Tap - TEAGUE SUB 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	LEA ROAD SUB - WARD SUB 115KV CKT 1	120	141	0.26503	114.1117	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	LEA ROAD SUB - WARD SUB 115KV CKT 1	120	141	0.27675	108.4355	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	LEA ROAD SUB - WARD SUB 115KV CKT 1	120	141	0.27675	105.134	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	LEA ROAD SUB - WARD SUB 115KV CKT 1	120	141	0.26503	102.334	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	WARD SUB - WHITTEN SUB 115KV CKT 1	141	141	0.26503	111.3281	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	WARD SUB - WHITTEN SUB 115KV CKT 1	141	141	0.27675	105.2525	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	WARD SUB - WHITTEN SUB 115KV CKT 1	141	141	0.27675	102.1074	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	25SP	ASGI_14_012	FROM->TO	WARD SUB - WHITTEN SUB 115KV CKT 1	141	141	0.26503	99.8	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	8	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26118	105.7066	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	8	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.26118	101.6004	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	06ALL	8	25SP	ASGI_14_012	TO->FROM	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1	141	141	0.27716	100.5128	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.49187	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.44982	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.27266	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	560	560	0.26696	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	956	994	0.22491	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.1783	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	560	560	0.13633	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.11441	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.09715	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.09222	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	287	316	0.05761	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	478	502	0.05749	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	ASGI_14_013		Non-Converged Contingency	319	351	0.04972	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.50074	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.46077	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.28478	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	560	560	0.14239	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.1212	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.09149	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	0	0	0.562	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	0	0	0.52178	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	0	0	0.30364	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	956	994	0.281	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.2191	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20SP	ASGI_14_013		Non-Converged Contingency	1792	1792	0.2191	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.49551	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.45989	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.3278	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.28569	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1033	1071	0.22994	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1195	1195	0.18036	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.18035	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1792	1792	0.16718	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.1639	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.1639	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1584	2098	0.15548	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.14285	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.14285	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	560	560	0.14285	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.12323	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	956	1052	0.12323	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.12323	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.11474	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	557	557	0.10009	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	557	557	0.10009	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	329	361	0.09976	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	478	502	0.09572	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.09413	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.09018	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.09018	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1195	1195	0.09018	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1195	1195	0.09018	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	329	361	0.08738	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	329	361	0.08195	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	329	361	0.08195	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	1532	1793	0.07081	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	439	439	0.06251	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	287	316	0.06251	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	421	439	0.05737	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	435	470	0.05737	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	396	441	0.05737	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	ASGI_14_013		Non-Converged Contingency	329	361	0.04859	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.49208	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.45003	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.32319	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.27285	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	956	994	0.22502	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.1784	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16159	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16159	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1330	1940	0.14964	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13642	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13642	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	560	560	0.13642	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.11448	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.11448	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.11448	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.09722	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.09229	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.0892	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.0892	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1195	1195	0.0892	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	1195	1195	0.0892	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	319	351	0.08333	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	319	351	0.08333	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	478	502	0.05801	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	439	439	0.04861	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	349	395	0.04861	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	396	441	0.04861	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	2302	2532	0.04841	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	ASGI_14_013		Non-Converged Contingency	319	351	0.04368	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.50098	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.46102	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.33033	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.285	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	956	994	0.23051	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	956	1052	0.1425	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	956	1052	0.1425	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	560	560	0.1425	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15SP	ASGI_14_013		Non-Converged Contingency	956	1052	0.12129	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.49252	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.45048	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.32352	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.27325	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	956	994	0.22524	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16176	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16176	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	1330	1940	0.14978	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13663	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13663	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	560	560	0.13663	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.11465	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.11465	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.11465	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	ASGI_14_013		Non-Converged Contingency	439	439	0.04869	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.50116	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.4612	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.33046	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.28518	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	ASGI_14_013		Non-Converged Contingency	956	994	0.2306	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.49618	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.46058	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.3283	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.28631	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	1033	1071	0.23029	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16415	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.16415	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.14315	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.14315	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	560	560	0.14315	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.12349	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	956	1052	0.12349	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.12349	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	ASGI_14_013		Non-Converged Contingency	421	439	0.0575	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.4819	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.43174	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.2615	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	956	994	0.21587	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.17548	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	1420	1775	0.17548	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13075	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	ASGI_14_013		Non-Converged Contingency	956	1052	0.13075	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.49004	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.44193	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	ASGI_14_013		Non-Converged Contingency	956	994	0.22096	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.48534	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.44208	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	0	0	0.27486	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	1033	1071	0.22104	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.17833	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	1420	1775	0.17833	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	ASGI_14_013		Non-Converged Contingency	987	1083	0.13743	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.47324	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.40055	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.34495	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	ASGI_14_013		Non-Converged Contingency	956	994	0.20027	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.48101	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_013		Non-Converged Contingency	0	0	0.41008	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	ASGI_14_013		Non-Converged Contingency	956	994	0.20504	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	ASGI_14_013		Non-Converged Contingency	1033	1071	0.20573	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	ASGI_14_013		Non-Converged Contingency	0	0	0.46102	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	ASGI_14_013	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.08738	101.5534	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06181	113.4735	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2414	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2414	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09859	136.6421	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08195	132.2163	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08366	131.4305	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09928	121.8496	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06181	138.4188	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06181	134.8226	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06251	124.3952	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06251	121.3474	BASE CASE
FDNS	06ALL	0	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	116.7294	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	113.7162	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_013	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03404	129.1657	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09859	123.6909	BASE CASE
FDNS	06ALL	0	20WP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08195	119.8727	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.08366	119.1784	BASE CASE
FDNS	06ALL	0	25SP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09928	108.0411	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_013	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07688	116.7703	BASE CASE
FDNS	06ALL	0	20SP	ASGI_14_013	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.281	100.5636	BASE CASE
FDNS	06ALL	0	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46246	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46246	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	110.2266	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08376	128.0393	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0859	111.3743	BASE CASE
FDNS	06ALL	2	25SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08628	108.102	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.6585	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	136.1816	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	116.2184	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05763	115.7248	BASE CASE
FDNS	06ALL	2	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	115.5957	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05763	113.3374	BASE CASE
FDNS	06ALL	2	15SP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.08376	115.7639	BASE CASE
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45694	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45694	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46266	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46266	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.44486	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.44486	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06187	107.2905	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2418	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2418	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08222	125.527	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08384	124.4638	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08591	110.1288	BASE CASE
FDNS	06ALL	3	25SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08628	108.1359	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	136.7044	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	134.7743	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	120.9984	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	118.7916	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	115.3873	BASE CASE
FDNS	06ALL	3	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	114.9816	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05769	113.0082	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05769	111.2724	BASE CASE
FDNS	06ALL	3	20WP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08222	113.1656	BASE CASE
FDNS	06ALL	3	15SP	ASGI_14_013	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.08384	112.1124	BASE CASE
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45731	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45382	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45731	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45382	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28922	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28922	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29362	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46282	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46282	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29362	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.44522	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.44522	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.44152	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.44152	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06406	108.5972	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24275	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24275	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0787	109.2433	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.07724	109.2302	BASE CASE
FDNS	06ALL	4	25SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08055	101.1465	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_013	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08029	99.6	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	138.1648	BASE CASE
FDNS	06ALL	4	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	136.1088	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	122.2498	BASE CASE
FDNS	06ALL	4	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	120.0503	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.5062	BASE CASE
FDNS	06ALL	4	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.0464	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05994	114.4046	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05994	112.6698	BASE CASE
FDNS	06ALL	4	15G	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.43958	104.0003	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	4	20WP	ASGI_14_013	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.43534	102.2342	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	5	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06282	106.0807	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23147	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23147	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06282	136.1751	BASE CASE
FDNS	06ALL	5	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06282	134.6159	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	119.424	BASE CASE
FDNS	06ALL	5	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	117.8253	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.4889	BASE CASE
FDNS	06ALL	5	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.1366	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05865	112.4843	BASE CASE
FDNS	06ALL	5	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05865	111.0916	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06638	109.9464	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23794	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23794	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06638	141.4774	BASE CASE
FDNS	06ALL	6	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06638	139.9872	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.4983	BASE CASE
FDNS	06ALL	6	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.054	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.6548	BASE CASE
FDNS	06ALL	6	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.2714	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06229	118.2226	BASE CASE
FDNS	06ALL	6	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06229	116.9672	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_013	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06638	109.6725	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23795	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	ASGI_14_013	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23795	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06638	141.4917	BASE CASE
FDNS	06ALL	7	15SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06638	140.1546	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	124.5089	BASE CASE
FDNS	06ALL	7	20WP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06748	123.1834	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.7054	BASE CASE
FDNS	06ALL	7	20SP	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06669	119.3517	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0623	117.8707	BASE CASE
FDNS	06ALL	7	15G	ASGI_14_013	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0623	116.8051	BASE CASE
FDNS	04ALL	0	15SP	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21333	109.49	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	15G	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21819	107.9902	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	20WP	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21087	105.6983	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	20SP	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21079	102.1173	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	2	15G	G12_031	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.20349	102.8181	GRACEMONT - MINCO 345KV CKT 1
FDNS	01ALL	2	20WP	G12_031	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.2052	101.0828	GRACEMONT - MINCO 345KV CKT 1
FDNS	01ALL	2	20WP	G12_031	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.19068	95.4	MATHWSN7 345.00 - WOODRING 345KV CKT 1
FDNS	01ALL	2	20WP	G12_031	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.20918	95.2	ARCADIA - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	1505	1793	0.48729	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	1793	1793	0.16359	-	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	1793	1793	0.16359	-	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 2
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	726.6	726.6	0.14518	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	956	1052	0.12243	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G13_010		Non-Converged Contingency	0	0	0.12243	-	SPP-SWPS-05
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	1505	1793	0.49049	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	1793	1793	0.16324	-	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	1793	1793	0.16324	-	CLARKCOUNTY7345.00 - THISTLE7 345.00 345KV CKT 2
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	726.6	726.6	0.145	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	956	1052	0.11975	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G13_010		Non-Converged Contingency	0	0	0.11975	-	SPP-SWPS-05
FDNSLock-Blown up	03ALL	0	20SP	G13_010		Non-Converged Contingency	1505	1793	0.49125	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20SP	G13_010		Non-Converged Contingency	956	1052	0.11974	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20WP	G13_010		Non-Converged Contingency	1793	1793	0.49213	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20WP	G13_010		Non-Converged Contingency	726.6	726.6	0.14458	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20WP	G13_010		Non-Converged Contingency	0	0	0.11903	-	SPP-SWPS-05
FDNSLock-Blown up	03ALL	0	25SP	G13_010		Non-Converged Contingency	726.6	726.6	0.14622	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	25SP	G13_010		Non-Converged Contingency	956	1052	0.12351	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	03ALL	0	25SP	G13_010	FROM->TO	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1	726.6	726.6	0.28402	105.4458	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	03ALL	0	20WP	G13_010	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.03034	106.9365	BASE CASE
FDNS	03ALL	0	15SP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20536	111.3985	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL	0	15G	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20564	106.7013	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL	0	20SP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20501	106.4435	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL	0	20WP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20514	105.3971	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL	0	25SP	G13_010	FROM->TO	SPPSPSTIES	1011	1011	0.10534	111.8417	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.40646	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.36674	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.32172	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	956	994	0.20323	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.19042	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	560	560	0.16351	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	560	560	0.16086	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.132	-	SPP-SWPS-02

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.12509	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	0	0	0.12421	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	478	502	0.06758	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	319	351	0.05916	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G13_027		Non-Converged Contingency	287	316	0.05741	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	0	0	0.41729	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	0	0	0.37539	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	0	0	0.33306	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	560	560	0.16653	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	0	0	0.13174	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G13_027		Non-Converged Contingency	0	0	0.12079	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	0	0	0.508	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	0	0	0.40103	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	0	0	0.34693	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	956	994	0.254	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	1420	1775	0.193	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G13_027		Non-Converged Contingency	1792	1792	0.193	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.41828	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.37789	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.33136	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1420	1775	0.28848	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1033	1071	0.20914	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.19175	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1195	1195	0.17071	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	987	1083	0.16568	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	987	1083	0.16568	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	560	560	0.16568	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1584	2098	0.15372	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.15021	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	478	502	0.14832	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1792	1792	0.14738	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1420	1775	0.14424	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1420	1775	0.14424	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	329	361	0.14014	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	329	361	0.14014	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	987	1083	0.13339	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	956	1052	0.13339	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.13339	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	329	361	0.13119	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	0	0	0.12198	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	557	557	0.11379	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	557	557	0.11379	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1420	1775	0.09587	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1420	1775	0.09587	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1195	1195	0.09587	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1195	1195	0.09587	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	329	361	0.08659	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	421	439	0.07511	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	435	470	0.07511	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	396	441	0.07511	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	1532	1793	0.07354	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	329	361	0.06256	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	439	439	0.06249	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G13_027		Non-Converged Contingency	287	316	0.06249	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.40667	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.36695	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.32191	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1420	1775	0.28235	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	956	994	0.20333	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.19052	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	2302	2532	0.17948	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	478	502	0.17718	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	956	1052	0.16095	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	956	1052	0.16095	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	560	560	0.16095	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1330	1940	0.14763	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	319	351	0.14395	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	319	351	0.14395	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1420	1775	0.14118	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1420	1775	0.14118	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.13207	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	956	1052	0.12517	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	956	1052	0.12517	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.12517	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	0	0	0.12427	-	SPP-SWPS-03

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1420	1775	0.09526	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1420	1775	0.09526	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1195	1195	0.09526	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	1195	1195	0.09526	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	439	439	0.06603	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	349	395	0.06603	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	396	441	0.06603	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G13_027		Non-Converged Contingency	319	351	0.05824	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	0	0	0.41754	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	0	0	0.37563	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	0	0	0.33328	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	1420	1775	0.28919	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	956	994	0.20877	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	956	1052	0.16664	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	956	1052	0.16664	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	560	560	0.16664	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G13_027		Non-Converged Contingency	956	1052	0.13183	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	0	0	0.40712	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	0	0	0.36739	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	0	0	0.32231	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	1420	1775	0.28268	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	956	994	0.20356	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	956	1052	0.16115	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	956	1052	0.16115	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	560	560	0.16115	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	1330	1940	0.14778	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	1420	1775	0.14134	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	1420	1775	0.14134	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	956	1052	0.12534	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	956	1052	0.12534	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	0	0	0.12534	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G13_027		Non-Converged Contingency	439	439	0.06611	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G13_027		Non-Converged Contingency	0	0	0.41773	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G13_027		Non-Converged Contingency	0	0	0.37581	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G13_027		Non-Converged Contingency	0	0	0.33346	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G13_027		Non-Converged Contingency	1420	1775	0.28933	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G13_027		Non-Converged Contingency	956	994	0.20886	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	0	0	0.41896	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	0	0	0.37856	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	0	0	0.33197	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	1420	1775	0.28898	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	1033	1071	0.20948	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	987	1083	0.16599	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	987	1083	0.16599	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	560	560	0.16599	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	1420	1775	0.14449	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	1420	1775	0.14449	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	987	1083	0.13365	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	956	1052	0.13365	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	0	0	0.13365	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G13_027		Non-Converged Contingency	421	439	0.07524	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	0	0	0.40912	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	0	0	0.29868	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	0	0	0.2893	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	956	994	0.20456	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	1420	1775	0.16366	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	1420	1775	0.16366	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	956	1052	0.14465	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G13_027		Non-Converged Contingency	956	1052	0.14465	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G13_027		Non-Converged Contingency	0	0	0.41927	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G13_027		Non-Converged Contingency	0	0	0.30675	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G13_027		Non-Converged Contingency	956	994	0.20964	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	0	0	0.42017	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	0	0	0.31122	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	0	0	0.30099	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	1033	1071	0.21009	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	1420	1775	0.16685	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	1420	1775	0.16685	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G13_027		Non-Converged Contingency	987	1083	0.15049	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G13_027		Non-Converged Contingency	0	0	0.39334	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G13_027		Non-Converged Contingency	0	0	0.36997	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G13_027		Non-Converged Contingency	0	0	0.28773	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G13_027		Non-Converged Contingency	956	994	0.18499	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G13_027		Non-Converged Contingency	0	0	0.37939	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G13_027		Non-Converged Contingency	0	0	0.29536	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	5	15SP	G13_027		Non-Converged Contingency	956	994	0.1897	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G13_027		Non-Converged Contingency	1033	1071	0.1909	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G13_027		Non-Converged Contingency	0	0	0.27141	-	SPP-SWPS-01
FDNS	00NR	0	15SP	G13_027	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.03237	104.8374	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20WP	G13_027	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.13119	101.5534	BASE CASE
FDNS	00NR	0	15SP	G13_027	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03237	104.4554	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03237	101.3328	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2288	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2288	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06NR	0	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03148	109.0104	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03148	108.9614	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	20SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15516	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.14014	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14425	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15586	121.8496	BASE CASE
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06124	118.1013	SPSCONT-01
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06137	118.0981	SPP-SWPS-01
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06124	117.9229	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06843	112.0417	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08019	111.2849	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06121	108.4595	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07414	106.981	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06121	105.9206	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06104	105.4592	SPP-SWPS-T04
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05982	104.7078	BASE CASE
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06561	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06648	102.6116	PLANT X STATION (WH ALM20171) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06602	102.2167	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06121	101.5313	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06561	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06561	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06019	100.1741	SPSCONT-02X
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06466	100.0806	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05982	99.6	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05982	99.6	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05982	99.6	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	06ALL	0	20WP	G13_027	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.03233	100	BASE CASE
FDNS	06NR	0	15G	G13_027	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03148	100.4285	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G13_027	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03148	100.3774	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	121.3474	BASE CASE
FDNS	06ALL	0	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	116.7294	BASE CASE
FDNS	06ALL	0	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G13_027	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03445	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15516	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.14014	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14425	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15586	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G13_027	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08726	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G13_027	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.254	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40111	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40173	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30275	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2252	103.0857	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2252	103.0855	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.25987	102.0323	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.40585	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.40649	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.52403	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	0	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30652	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24106	107.4157	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24106	107.4155	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27563	106.3195	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23909	101.792	SPP-SWPS-T59
FDNS	06ALL	0	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23706	101.3272	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23391	101.1844	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22857	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23097	99.8	HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28523	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	0	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04643	105.0789	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	0	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04643	102.256	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28523	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06188	110.2266	BASE CASE
FDNS	06NR	2	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03152	107.6989	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	2	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03152	107.6528	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14435	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14409	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14453	108.102	BASE CASE
FDNS	06ALL	2	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	116.2184	BASE CASE
FDNS	06ALL	2	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.5957	BASE CASE
FDNS	06ALL	2	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14435	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G13_027	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.22277	112.3462	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.22277	106.2692	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39585	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39391	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39074	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39042	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3032	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27429	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22538	101.2128	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22538	101.2125	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22538	101.1524	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.40034	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39841	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.52454	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39541	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3951	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.51751	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	2	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30697	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29038	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24125	105.4642	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24125	105.464	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24125	105.4014	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2452	102.8649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23927	102.5611	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	2	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.52947	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22907	101.9674	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23422	101.9357	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23927	101.2494	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23927	100.9651	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23927	99.8	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23927	99.7	SPP-SWPS-T59
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22874	99.7	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23409	99.5	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23409	99.5	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G13_027	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.63262	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27995	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27995	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04652	106.2146	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28543	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04652	103.6813	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28543	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.27254	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.27254	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06191	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22921	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22921	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06NR	3	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03154	106.3758	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	3	15G	G13_027	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03154	106.3334	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.14041	125.527	BASE CASE
FDNS	06ALL	3	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14443	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14411	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14453	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06191	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06191	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.0082	BASE CASE
FDNS	06ALL	3	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.14041	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G13_027	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14443	112.1124	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15SP	G13_027	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.2229	104.9966	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.2229	100.849	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	557	557	0.21437	100.3948	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3961	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.37621	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39453	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39079	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.39042	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30341	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27447	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21882	100.9992	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21882	100.9916	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.26045	99.5	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.40059	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.3808	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.52449	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39903	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39546	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3951	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.5175	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	3	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30718	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29056	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23413	105.2413	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23413	105.2333	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27621	103.6901	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2414	103.2739	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2414	103.2672	SPP-SWPS-K37
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2414	103.2671	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.52936	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.24535	100.9789	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23942	100.1136	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23435	99.7	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G13_027	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.63247	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28031	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28859	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28031	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28859	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24501	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24501	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06NR	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04657	106.2473	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25185	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06NR	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.04657	104.3792	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28558	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.28558	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25185	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2729	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2729	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.28077	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G13_027	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.28077	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06395	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23578	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23578	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12228	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11942	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12276	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G13_027	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12248	99.6	BASE CASE
FDNS	06ALL	4	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06395	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06395	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06475	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06475	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06432	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06432	116.0464	BASE CASE
FDNS	06ALL	4	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0597	114.4046	BASE CASE
FDNS	06ALL	4	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0597	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3049	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.29055	118.9896	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30201	107.9918	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30271	103.0762	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3041	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30907	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20WP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.29481	120.0441	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	25SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30634	109.113	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30703	104.0126	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30829	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06237	106.0807	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	5	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22168	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22168	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06237	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06237	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06327	119.424	BASE CASE
FDNS	06ALL	5	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06327	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06264	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06264	115.1366	BASE CASE
FDNS	06ALL	5	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05806	112.4843	BASE CASE
FDNS	06ALL	5	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05806	111.0916	BASE CASE
FDNS	06ALL	6	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06698	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22986	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22986	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06698	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06698	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06803	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06803	123.054	BASE CASE
FDNS	06ALL	6	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06724	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06724	119.2714	BASE CASE
FDNS	06ALL	6	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0628	118.2226	BASE CASE
FDNS	06ALL	6	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0628	116.9672	BASE CASE
FDNS	06ALL	7	15SP	G13_027	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06698	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22987	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G13_027	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22987	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06698	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06698	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06803	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06803	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06724	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06724	119.3517	BASE CASE
FDNS	06ALL	7	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0628	117.8707	BASE CASE
FDNS	06ALL	7	15G	G13_027	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0628	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	0	0	0.37196	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	956	994	0.18598	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	0	0	0.17379	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	0	0	0.16354	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	0	0	0.09314	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	560	560	0.08177	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	287	316	0.06996	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	0	0	0.06254	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_007		Non-Converged Contingency	478	502	0.03456	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_007		Non-Converged Contingency	0	0	0.38347	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_007		Non-Converged Contingency	0	0	0.1774	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_007		Non-Converged Contingency	0	0	0.10029	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_007		Non-Converged Contingency	560	560	0.0887	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_007		Non-Converged Contingency	0	0	0.07226	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	0	0	0.55007	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	1420	1775	0.34037	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	1792	1792	0.34037	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	956	994	0.27503	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	0	0	0.20635	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_007		Non-Converged Contingency	0	0	0.11332	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	0	0	0.38328	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1420	1775	0.25858	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1420	1775	0.25858	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1792	1792	0.24496	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1584	2098	0.20486	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1195	1195	0.19406	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1033	1071	0.19164	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	0	0	0.17888	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	0	0	0.17598	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	987	1083	0.10202	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	956	1052	0.10202	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	0	0	0.10202	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	987	1083	0.08944	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	987	1083	0.08944	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	560	560	0.08944	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1420	1775	0.08799	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1420	1775	0.08799	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1195	1195	0.08799	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1195	1195	0.08799	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	439	439	0.07436	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	287	316	0.07436	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	0	0	0.07027	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	1532	1793	0.06899	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	329	361	0.06087	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	557	557	0.05732	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	557	557	0.05732	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	478	502	0.05105	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	329	361	0.04739	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	329	361	0.04297	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_007		Non-Converged Contingency	329	361	0.04297	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	0	0	0.37218	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1420	1775	0.25546	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1420	1775	0.25546	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1330	1940	0.19953	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	956	994	0.18609	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	0	0	0.17389	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	0	0	0.16373	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	956	1052	0.09322	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	956	1052	0.09322	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	0	0	0.09322	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1420	1775	0.08694	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1420	1775	0.08694	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1195	1195	0.08694	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	1195	1195	0.08694	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	956	1052	0.08186	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	956	1052	0.08186	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	560	560	0.08186	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	0	0	0.06275	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	319	351	0.04557	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_007		Non-Converged Contingency	319	351	0.04557	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	0	0	0.38372	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	956	994	0.19186	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	0	0	0.17762	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	956	1052	0.10038	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	956	1052	0.08881	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	956	1052	0.08881	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	560	560	0.08881	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_007		Non-Converged Contingency	0	0	0.0725	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	0	0	0.37262	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	1420	1775	0.25563	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	1420	1775	0.25563	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	1330	1940	0.19967	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	956	994	0.18631	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	0	0	0.16413	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	956	1052	0.09338	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	956	1052	0.09338	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	0	0	0.09338	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	956	1052	0.08206	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	956	1052	0.08206	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	560	560	0.08206	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_007		Non-Converged Contingency	0	0	0.06319	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_007		Non-Converged Contingency	0	0	0.38391	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_007		Non-Converged Contingency	956	994	0.19196	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_007		Non-Converged Contingency	0	0	0.1778	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_007		Non-Converged Contingency	0	0	0.07269	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	0	0	0.38397	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	1420	1775	0.25883	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	1420	1775	0.25883	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	1033	1071	0.19199	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	0	0	0.1795	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	987	1083	0.10228	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	956	1052	0.10228	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	0	0	0.10228	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	987	1083	0.08975	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	987	1083	0.08975	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	560	560	0.08975	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_007		Non-Converged Contingency	0	0	0.07093	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	0	0	0.39837	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	1420	1775	0.23313	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	1420	1775	0.23313	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	956	994	0.19919	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	0	0	0.18907	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	0	0	0.09568	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	956	1052	0.09454	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_007		Non-Converged Contingency	956	1052	0.09454	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_007		Non-Converged Contingency	0	0	0.40892	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_007		Non-Converged Contingency	956	994	0.20446	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_007		Non-Converged Contingency	0	0	0.10433	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	0	0	0.40957	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	1420	1775	0.23661	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	1420	1775	0.23661	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	1033	1071	0.20479	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	0	0	0.20379	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	0	0	0.10383	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_007		Non-Converged Contingency	987	1083	0.1019	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_007		Non-Converged Contingency	0	0	0.37094	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_007		Non-Converged Contingency	0	0	0.26279	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_007		Non-Converged Contingency	956	994	0.18547	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_007		Non-Converged Contingency	0	0	0.08812	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_007		Non-Converged Contingency	0	0	0.3809	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_007		Non-Converged Contingency	956	994	0.19045	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_007		Non-Converged Contingency	0	0	0.09642	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	20WP	G14_007		Non-Converged Contingency	1033	1071	0.19144	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_007		Non-Converged Contingency	0	0	0.08448	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_007	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.04739	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.07356	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25394	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25394	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06788	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.04297	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0455	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06863	121.8496	BASE CASE
FDNS	06ALL	0	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07356	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07356	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07436	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07436	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06996	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06996	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_007	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0403	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.06788	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.04297	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.0455	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.06863	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_007	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.05808	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_007	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27503	100.5636	BASE CASE
FDNS	06ALL	2	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0736	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0456	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04692	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04729	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0736	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0736	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07415	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06999	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07415	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06999	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.0456	115.7639	BASE CASE
FDNS	06ALL	3	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.07363	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25435	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25435	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.04324	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04568	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04694	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04729	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07363	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07363	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07447	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07447	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07415	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07415	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07005	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07005	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.04324	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_007	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.04568	112.1124	BASE CASE
FDNS	06ALL	4	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.07063	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25297	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.25297	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05788	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.05568	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05896	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_007	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05874	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07063	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07063	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07153	122.2498	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07153	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0711	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0711	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0669	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0669	112.6698	BASE CASE
FDNS	06ALL	5	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06954	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24313	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24313	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06954	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06954	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07055	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07055	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06992	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06992	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06578	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06578	111.0916	BASE CASE
FDNS	06ALL	6	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0709	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24586	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24586	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0709	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0709	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07205	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07205	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07127	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07127	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06711	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06711	116.9672	BASE CASE
FDNS	06ALL	7	15SP	G14_007	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.07091	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24586	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_007	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24586	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07091	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07091	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07205	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07205	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07127	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07127	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06712	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_007	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06712	116.8051	BASE CASE
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.40504	-	SPSCONT-05AX
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1420	1775	0.28889	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1420	1775	0.28889	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	956	1052	0.21285	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	956	1052	0.21285	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.21285	-	SPP-SWPS-05
FDNSLock-Blown up	02NR	0	15G	G14_019		Non-Converged Contingency	956	1052	0.20872	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02NR	0	15G	G14_019		Non-Converged Contingency	956	1052	0.20872	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02NR	0	15G	G14_019		Non-Converged Contingency	0	0	0.20872	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1420	1775	0.20252	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1420	1775	0.20252	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1195	1195	0.20252	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1195	1195	0.20252	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.13201	-	SPSCONT-01
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1561	1793	0.1245	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1561	1793	0.1245	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	956	1052	0.11423	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	956	1052	0.11423	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	560	560	0.11423	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.11352	-	SPP-SWPS-02A
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	726.6	726.6	0.11064	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	1413	1517	0.11064	-	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.0851	-	SPP-SWPS-01
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.07568	-	SPP-SWPS-02
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	0	0	0.0712	-	SPP-SWPS-03
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	956	994	0.066	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	439	439	0.03784	-	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	287	316	0.03784	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	319	351	0.03784	-	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	349	395	0.03784	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_019		Non-Converged Contingency	396	441	0.03784	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	1420	1775	0.29173	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	1420	1775	0.29173	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	956	1052	0.22172	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	956	1052	0.22172	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	0	0	0.22172	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	956	1052	0.10609	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	02ALL	0	15SP	G14_019		Non-Converged Contingency	560	560	0.10609	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_019		Non-Converged Contingency	956	1052	0.21453	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_019		Non-Converged Contingency	956	1052	0.21453	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_019		Non-Converged Contingency	0	0	0.21453	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	1420	1775	0.28748	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	1420	1775	0.28748	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	987	1083	0.2176	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	956	1052	0.2176	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	0	0	0.2176	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	1420	1775	0.19432	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	1195	1195	0.19432	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	1195	1195	0.19432	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	987	1083	0.11083	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_019		Non-Converged Contingency	560	560	0.11083	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_019		Non-Converged Contingency	1420	1775	0.29941	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_019		Non-Converged Contingency	1420	1775	0.29941	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15G	G14_019		Non-Converged Contingency	956	1052	0.2027	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_019		Non-Converged Contingency	956	1052	0.2027	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_019		Non-Converged Contingency	0	0	0.2027	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	15SP	G14_019		Non-Converged Contingency	1420	1775	0.30227	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_019		Non-Converged Contingency	1420	1775	0.30227	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15SP	G14_019		Non-Converged Contingency	956	1052	0.21146	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_019		Non-Converged Contingency	956	1052	0.21146	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_019		Non-Converged Contingency	0	0	0.21146	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20SP	G14_019		Non-Converged Contingency	956	1052	0.20533	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_019		Non-Converged Contingency	956	1052	0.20533	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_019		Non-Converged Contingency	0	0	0.20533	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20WP	G14_019		Non-Converged Contingency	1420	1775	0.29831	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_019		Non-Converged Contingency	1420	1775	0.29831	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	20WP	G14_019		Non-Converged Contingency	987	1083	0.20829	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_019		Non-Converged Contingency	956	1052	0.20829	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_019		Non-Converged Contingency	0	0	0.20829	-	SPP-SWPS-05
FDNS	00NR	0	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07487	100.5579	SPSCONT-01
FDNS	00NR	0	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07509	99.6	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.07487	99.5	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10603	138.4889	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10603	135.3232	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10603	126.4774	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10603	124.4486	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10603	122.5468	SPSCONT-05AX
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.10772	121.3134	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.10772	118.2101	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07882	116.5125	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.05782	115.5699	BASE CASE
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.08335	113.1616	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.08335	112.2143	DEWEY - IODINE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	110.6609	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	110.6229	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07975	109.5505	SPP-SWPS-03
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	108.9231	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	108.747	SPP-SWPS-02A
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.10772	108.5809	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07882	108.4468	WOODWARD - WOODWARD 69KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10703	107.5781	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07802	106.0589	SPSCONT-01
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	105.9312	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	105.928	SPP-SWPS-02
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.0796	105.9221	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07746	105.7188	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07746	105.7188	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07794	104.8512	SPP-SWPS-01
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07802	104.8281	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.10703	104.4898	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07439	104.13	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07513	104.0433	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07513	104.0433	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07003	103.04	BASE CASE
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.10772	102.3204	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07207	102.1465	DEWEY - TALOGA 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07014	101.0325	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.10772	100.7707	SPSCONT-05AX
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07354	100	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07003	100	GEN514805 1-SOONER UNIT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	287	287	0.0816	100	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07003	99.8	GEN520443 1-REDHIL-WTG1 12.000

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.07077	99.6	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10603	252.4664	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10603	246.7236	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10603	230.3546	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10603	226.7152	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05782	225.3302	BASE CASE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10603	223.3509	SPSCONT-05AX
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07882	212.3537	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08335	206.0925	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08335	204.4645	DEWEY - IODINE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	201.0417	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	200.9713	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	200.7676	BASE CASE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07975	199.1885	SPP-SWPS-03
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	198.0085	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07882	197.8271	WOODWARD - WOODWARD 69KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	197.4321	SPP-SWPS-02A
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10703	196.8912	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	192.4627	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	192.4556	SPP-SWPS-02
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07802	192.4513	SPSCONT-01
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0796	192.4446	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07746	191.7022	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07746	191.7022	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10703	191.1724	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07794	190.2333	SPP-SWPS-01
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07802	190.1847	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07439	189.1065	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07513	188.6188	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07513	188.6188	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07207	185.5687	DEWEY - TALOGA 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07014	183.3147	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07354	181.6143	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	181.1267	GEN514805 1-SOONER UNIT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10772	181.0288	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	181.0185	GEN520443 1-REDHIL-WTG1 12.000
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07077	180.7878	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07354	179.893	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0719	179.4924	FARGO JCT - WOODWARD 69KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07113	179.4049	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07113	179.3841	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	179.2261	GEN514806 1-SOONER UNIT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07168	178.9056	MINGO - SETAB 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	178.741	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07266	178.7063	CARTER JCT - WOODWARD 69KV CKT 1
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	178.6235	GEN515226 1-MUSKOGEE 6G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0719	178.6106	FARGO JCT - FT SUPPLY 69KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	178.3616	GEN520922 1-SLEEPING BEAR
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07113	178.2433	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	178.2147	GEN515225 1-MUSKOGEE 5G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07266	178.1008	CARTER JCT - MOORELAND 69KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07266	178.1005	MOORELAND (MOORELND) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07013	178.0916	CIMARRON - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	178.0355	GEN509403 1-PIRKEY GENERATION
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07609	177.9671	RENFROW7 345.00 - VIOLA 7 345.00 345KV CKT 1
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.9285	GEN509394 1-FLINT CREEK
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.9211	GEN509416 1-TURK GENERATION
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07179	177.8477	MINGO - RED WILLOW 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0714	177.807	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07135	177.7318	HOLCOMB - SETAB 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06962	177.6003	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.5775	GEN336821 1-GRAND GULF UNIT
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.5177	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.1828	GEN336153 1-WATERFORD UNIT#3
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	177.0357	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07077	176.9593	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.8987	GEN501801 1-DOLET HILLS UNIT1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.8447	GEN335831 1-RIVERBEND UNIT#1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.7556	GEN515223 1-MUSKOGEE 4G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.7513	GEN509406 1-WELSH #3
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.7511	GEN509404 1-WELSH #1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06993	176.7064	ELK CITY - FALCON ROAD 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0643	176.5529	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.4949	GEN515040 1-SEMINOLE 1G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.4527	GEN515041 1-SEMINOLE 2G

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07197	176.4126	BENTON - WICHITA 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07064	176.4008	SPP-MKEC-08
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.3296	GEN511840 1-NORTHEASTERN STATION #3
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.2761	GEN512688 2-GRDA1 GSU2 22
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10772	176.2722	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.2635	GEN511839 1-NORTHEASTERN STATION #2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.2606	GEN511841 1-NORTHEASTERN STATION #4
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.1914	GEN509405 1-WELSH #2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.1788	GEN511938 1-OEC STEAM # 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	176.1788	GEN511941 1-OEC STEAM # 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	175.9412	GEN520947 1-HUGO1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07069	175.8525	AXTELL - POST ROCK 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	175.7455	GEN511843 1-RIVERSIDE STATION #2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07047	175.5651	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07047	175.5649	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07029	175.4484	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	175.3864	GEN515042 1-SEMINOLE 3G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07034	175.2066	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07035	175.1857	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	175.0698	GEN590011 2-ERCOT EQUIVALENCE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07094	175.0147	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	174.5235	NC1_GEN-NEBRASKA CITY 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10703	173.9918	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06208	173.9866	BASE CASE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06971	172.5754	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06845	172.5447	DOVER - TWIN LAKES 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07256	172.4544	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06845	172.4396	DOVER - DOVER SW 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	172.1471	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	172.0299	GEN515393 1-OGEWND2G
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	172.0226	GEN515365 1-CENT 21 0.7000
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.8748	GEN635214 4-NEAL UNIT 4
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.8436	GEN562023 1-G11_020_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.8436	GEN562026 1-G11_019_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.8119	GEN526332 1-JONES GEN #2 21 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.7065	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.5959	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.5797	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.4338	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.425	GEN635213 3-NEAL UNIT 3
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.3817	GEN560586 1-G06-44-4 4.1600
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.3788	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.3788	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06941	171.2043	KNOBHILL (KNOBHIL4) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06941	171.1727	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.1103	GEN560585 1-G06-44-3 4.1600
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	171.0323	GEN527166 1-MUSTANG_6 118.000
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	170.6074	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	170.5545	GEN526331 1-JONES GEN #1 22 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06551	170.5523	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06763	170.3534	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06763	170.3534	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06837	170.3115	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07054	170.2435	IODINE - MOORELAND 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	170.2064	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06798	169.6489	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.6246	GEN562524 1-G14_026_3 12.000
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.5453	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.5453	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.545	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.5225	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.5225	GEN560287 1-G10-01-2WTG 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06798	169.4366	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.2912	GEN560256 1-G10-14-1 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.1563	GEN560257 1-G10-14-2 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.1004	GEN531447 1-HOLCOMB GENERATOR
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	169.0646	GEN562544 1-G14_038_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07354	168.9134	SPSCONT-02X
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10885	168.7209	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	168.6287	GEN562648 1-G14_037_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06718	167.9735	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	167.7697	GEN562574 1-G14_052_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	167.7357	GEN562042 1-G11_014_3 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06793	167.6945	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06718	167.6879	ROMAN NOSE - SOUTHARD 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06793	167.2133	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06718	167.0887	DEWEY - SOUTHARD 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06551	166.8972	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06737	166.1887	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06389	165.4839	DOVER SW - OKEENE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06551	165.3339	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	165.3207	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	165.2706	GEN560121 1-G08471419 0.5750
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	165.2068	GEN562432 1-G13-030 0.6900
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06551	164.7283	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07003	164.1364	GEN562017 1-G11_022_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10885	163.4649	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07908	163.4577	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10703	162.6254	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06109	162.5083	IMO TAP - MEN TAP 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06904	162.4837	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02ALL	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06298	162.3467	BASE CASE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06109	161.8783	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10772	161.491	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06109	161.35	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06366	160.2151	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10703	160.0691	SPSCONT-05AX
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0617	159.6529	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0617	159.6529	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06333	158.7941	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06184	157.6219	CEDARDALE - OKEENE 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06184	156.8713	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07826	156.5855	SPSCONT-01
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06036	154.9324	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	154.6967	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	154.6657	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07818	154.4462	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07826	154.351	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06036	154.1332	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08403	153.9668	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02ALL	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06501	153.9084	BASE CASE
FDNS	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06245	153.6558	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08403	152.2829	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10772	151.888	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock	02NR	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06235	151.8609	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	150.8366	SPP-SWPS-02A
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10772	149.6124	SPSCONT-05AX
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	148.4175	GEN520998 1-MORLND3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0816	148.3661	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08216	147.6033	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	146.9016	GEN520997 1-MORLND2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10885	146.6008	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08049	146.3407	SPSCONT-01
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	145.4636	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	145.4573	SPP-SWPS-02
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08078	145.4445	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07604	144.4379	SPP-SWPS-03
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	143.4784	BASE CASE
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08046	143.0784	SPP-SWPS-01
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08049	143.0601	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0774	142.6443	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0774	142.6443	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08612	142.6337	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07473	142.3871	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07908	142.2019	WOODWARD - WOODWARD 69KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08612	140.9576	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07849	140.948	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07517	138.4305	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07517	138.4305	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08152	137.0312	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08701	136.2475	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10885	135.5447	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07416	135.4362	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	135.397	GEN520998 1-MORLND3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07015	135.3233	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07849	135.177	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08701	134.2157	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0816	133.9227	WOODWARD - WOODWARD 69KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	133.8763	GEN520997 1-MORLND2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	133.7262	GEN520998 1-MORLND3

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07849	133.6139	SPP-SWPS-05
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	133.2641	GEN520996 1-MORLND1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10885	132.9895	SPSCONT-05AX
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	132.6364	GEN520997 1-MORLND2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07999	132.5698	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07999	132.5698	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07175	131.8635	DEWEY - TALOGA 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08152	131.6318	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08152	131.6306	SPP-SWPS-02
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08152	131.6194	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	131.4444	GEN514805 1-SOONER UNIT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08109	131.1257	SPSCONT-01
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07816	130.987	SPP-SWPS-03
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06981	130.8122	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	129.6547	GEN514806 1-SOONER UNIT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07702	129.619	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07748	129.5619	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07748	129.5619	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07131	129.4878	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07131	129.3646	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	129.2144	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07154	129.2112	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.9419	GEN509403 1-PIRKEY GENERATION
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.8833	GEN509416 1-TURK GENERATION
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07184	128.826	MINGO - SETAB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.8177	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.798	GEN515042 1-SEMINOLE 3G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08148	128.7191	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.6814	GEN520922 1-SLEEPING BEAR
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07083	128.5242	SPP-MKEC-08
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08106	128.4877	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07206	128.4303	BENTON - WICHITA 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07131	128.3916	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.3574	GEN515225 1-MUSKOGEE 5G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07208	128.3532	FARGO JCT - WOODWARD 69KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.3423	GEN515226 1-MUSKOGEE 6G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.3118	GEN515223 1-MUSKOGEE 4G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08109	128.3046	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.302	GEN336821 1-GRAND GULF UNIT
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.1581	GEN509406 1-WELSH #3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.1579	GEN509404 1-WELSH #1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.0807	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.0234	GEN511843 1-RIVERSIDE STATION #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	128.0088	GEN511842 1-RIVERSIDE STATION #1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.9597	GEN520947 1-HUGO1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06492	127.8818	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07154	127.8486	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.8253	GEN515040 1-SEMINOLE 1G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.7755	GEN512688 2-GRDA1 GSU2 22
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.7572	GEN509394 1-FLINT CREEK
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07152	127.7215	HOLCOMB - SETAB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.7018	GEN336153 1-WATERFORD UNIT#3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.6795	GEN511840 1-NORTHEASTERN STATION #3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.6423	GEN511839 1-NORTHEASTERN STATION #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.6172	GEN511841 1-NORTHEASTERN STATION #4
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07066	127.6149	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07066	127.6148	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.5427	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.5391	GEN509405 1-WELSH #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.5271	GEN514939 1-HORSESHOE LAKE 8G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.4332	GEN501801 1-DOLET HILLS UNIT1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08148	127.3789	SPP-SWPS-05
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.3413	GEN335831 1-RIVERBEND UNIT#1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07084	127.3259	CONWAY SUB - NICHOLS STATION 115KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07644	127.3228	RENFROW7 345.00 - VIOLA 7 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07073	127.2453	CIMARRON - NORTHWEST 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08148	127.2236	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07208	127.161	FARGO JCT - FT SUPPLY 69KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07048	127.1041	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	127.0008	GEN562425 1-G13-028CT 20.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07017	126.996	ELK CITY - FALCON ROAD 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.9514	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	126.9478	BASE CASE
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.8896	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.8676	GEN509409 1-WILKES #3

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.8541	GEN300006 1-NEW MADRID UNIT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.8477	GEN300007 1-NEW MADRID UNIT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.8368	GEN509398 1-KNOXLEE #5
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07084	126.8364	CONWAY SUB - KIRBY SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	126.8333	BASE CASE
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07084	126.8135	SPP-SWPS-T53
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07467	126.7918	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07467	126.7811	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.7808	GEN515041 1-SEMINOLE 2G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	126.7546	GEN301382 1-1OSAGEWINDG10.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08022	126.1677	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08022	126.1677	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08216	125.8889	WOODWARD - WOODWARD 69KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07654	125.4973	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07281	125.1241	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08214	124.5498	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06785	123.0362	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07411	122.7056	DEWEY - TALOGA 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06993	122.6357	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08183	122.59	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.575	GEN515365 1-CENT 21 0.7000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07077	122.5682	DELAWARE - NORTHEAST STATION 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07265	122.5504	OPENSKY7 345.00 - RANCHRD7 345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	122.5133	GEN514805 1-SOONER UNIT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.5072	GEN560121 1-G08471419 0.5750
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.49	GEN562432 1-G13-030 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07519	122.4774	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07519	122.4757	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.4548	GEN562616 1-G14_067S 18.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.4457	GEN562556 1-G14_046_3 0.3420
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.4436	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.3702	GEN526333 1-JONES GEN #3 21 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0709	122.3574	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.3237	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.3068	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.3068	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.2644	GEN515393 1-OGEWND2G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	122.2586	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06901	122.2521	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07077	122.1462	FT SUPPLY - IODINE 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07783	122.0809	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07783	122.0809	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.9988	GEN562483 1-G13_027_3 0.6900
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.068	121.8628	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06601	121.8245	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07316	121.7725	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.7279	GEN527166 1-MUSTANG_6 118.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.6616	GEN562618 1-G14_068CT 18.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07265	121.6595	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.6304	GEN562617 1-G14_067CT 18.000
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07372	121.6042	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.5906	GEN560738 1-G13_016_2 18.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.068	121.572	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07372	121.4843	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07871	121.4419	SPP-SWPS-03
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.3949	GEN526331 1-JONES GEN #1 22 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.3943	GEN526332 1-JONES GEN #2 21 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07398	121.2827	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	121.2504	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	121.2029	GEN514806 1-SOONER UNIT 2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06856	121.0952	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07756	120.9936	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.9599	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.9539	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07438	120.9192	MINGO - SETAB 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.8453	GEN562078 1-G11_051_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07234	120.7733	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.7644	GEN525844 1-ELK_1 118.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.6489	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.597	GEN509403 1-PIRKEY GENERATION
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0745	120.5965	FARGO JCT - WOODWARD 69KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07372	120.5957	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07077	120.5769	IODINE - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.5687	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.5556	GEN336821 1-GRAND GULF UNIT

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.5513	GEN509416 1-TURK GENERATION
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07398	120.5366	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07401	120.5036	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.5028	GEN520922 1-SLEEPING BEAR
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07343	120.4896	SPP-MKEC-08
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.4197	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.3168	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06963	120.3003	KNOBHILL (KNOBHIL4) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06963	120.2772	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.2354	GEN515226 1-MUSKOGEE 6G
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0672	120.0529	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.0239	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.0239	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	120.0237	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.0214	GEN509406 1-WELSH #3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.0212	GEN509404 1-WELSH #1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06168	120.0204	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06168	120.0204	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	120.0061	GEN336153 1-WATERFORD UNIT#3
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06901	119.9902	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06861	119.9833	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.9392	GEN511843 1-RIVERSIDE STATION #2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.8653	GEN512688 2-GRDA1 GSU2 22
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.8504	GEN515223 1-MUSKOGEE 4G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06785	119.8278	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.8146	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.8099	GEN515225 1-MUSKOGEE 5G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.7625	GEN520947 1-HUGO1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.7176	GEN509394 1-FLINT CREEK
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.6788	GEN501801 1-DOLET HILLS UNIT1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.664	GEN511840 1-NORTHEASTERN STATION #3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.6566	GEN511842 1-RIVERSIDE STATION #1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.6538	GEN335831 1-RIVERBEND UNIT#1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07454	119.6228	BENTON - WICHITA 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07402	119.6092	HOLCOMB - SETAB 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.6091	GEN511839 1-NORTHEASTERN STATION #2
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0672	119.5647	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07319	119.5081	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07319	119.5076	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0745	119.4757	MINGO - RED WILLOW 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0745	119.4231	FARGO JCT - FT SUPPLY 69KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07401	119.4213	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07574	119.3237	VIOLA 7 345.00 - WICHITA 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.2939	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07329	119.2784	AXTELL - POST ROCK 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.2571	GEN300006 1-NEW MADRID UNIT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.2512	GEN300007 1-NEW MADRID UNIT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	119.2396	GEN520996 1-MORLND1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07323	119.2289	CONWAY SUB - NICHOLS STATION 115KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.2232	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	119.2046	GEN562425 1-G13-028CT 20.000
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0729	119.1846	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07535	119.1771	CARTER JCT - WOODWARD 69KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07398	119.1356	SPSCONT-02X
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	118.9931	GEN509409 1-WILKES #3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	118.9925	GEN301382 1-1OSAGEWINDG10.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07323	118.9297	SPP-SWPS-T53
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	118.8513	GEN531447 1-HOLCOMB GENERATOR
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08214	118.8216	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08214	118.8137	SPP-SWPS-02
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08214	118.8054	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06901	118.7564	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06727	118.552	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0672	118.4838	DEWEY - SOUTHARD 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	117.9317	GEN562550 1-G14_040_3 0.6900
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	117.8021	GEN562608 1-G14_063_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08183	117.7094	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06823	117.6757	MOORELAND - TALOGA 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	117.6401	GEN525562 1-TOLK GEN #2 24 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0711	117.5984	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	117.516	GEN514805 1-SOONER UNIT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07281	117.0488	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08183	116.2049	SPP-SWPS-05
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07707	116.1588	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06861	116.0852	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	116.0614	GEN525561 1-TOLK GEN #1 24 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06601	116.0173	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07175	115.8201	CIMARRON - MINCO 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07419	115.631	DEWEY - TALOGA 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.5352	GEN562074 1-G11_049_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07113	115.5167	DOVER - DOVER SW 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	115.4752	GEN514806 1-SOONER UNIT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.4011	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.3964	GEN523461 1-BLACKHAWK GEN #1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.3963	GEN523462 1-BLACKHAWK GEN #2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07229	115.3855	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07494	115.3345	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.3329	GEN562621 1-G14_069_3 0.5500
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.327	GEN515365 1-CENT 21 0.7000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0711	115.314	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.2743	GEN560121 1-G08471419 0.5750
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.2734	GEN562432 1-G13-030 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0717	115.2561	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.1168	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.0801	GEN515393 1-OGEWND2G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	115.0534	GEN562624 1-G14_070_3 0.5500
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	115.0428	GEN515042 1-SEMINOLE 3G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.9328	GEN635214 4-NEAL UNIT 4
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.8852	GEN562616 1-G14_067S 18.000
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06601	114.8676	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.8639	GEN562556 1-G14_046_3 0.3420
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.856	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06946	114.8454	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07416	114.8075	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07326	114.7836	IODINE - MOORELAND 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.7145	GEN635213 3-NEAL UNIT 3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07604	114.6103	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07416	114.6086	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.586	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.586	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.5789	GEN526331 1-JONES GEN #1 22 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.5785	GEN526332 1-JONES GEN #2 21 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07481	114.525	MINGO - SETAB 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.5139	GEN509403 1-PIRKEY GENERATION
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.5045	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.5014	GEN509416 1-TURK GENERATION
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.4686	GEN562483 1-G13_027_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.4639	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.4597	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.4163	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.2922	GEN520922 1-SLEEPING BEAR
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.2276	GEN336821 1-GRAND GULF UNIT
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.1529	GEN562618 1-G14_068CT 18.000
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.1343	GEN562617 1-G14_067CT 18.000
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.1334	GEN560738 1-G13_016_2 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.1327	GEN515225 1-MUSKOGEE 5G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.1167	GEN515226 1-MUSKOGEE 6G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.0919	GEN525844 1-ELK_1 118.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	114.085	GEN515223 1-MUSKOGEE 4G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.085	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06419	114.082	DOVER SW - OKEENE 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07088	114.0665	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.0618	GEN526333 1-JONES GEN #3 21 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06601	114.0492	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07387	114.0336	SPP-MKEC-08
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	114.0289	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	114.0107	GEN562017 1-G11_022_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.9703	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.8908	GEN562078 1-G11_051_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07604	113.8103	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07446	113.797	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.7424	GEN509406 1-WELSH #3
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.7422	GEN509404 1-WELSH #1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.726	GEN511843 1-RIVERSIDE STATION #2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.711	GEN511842 1-RIVERSIDE STATION #1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07416	113.6834	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0711	113.64	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.6371	GEN527166 1-MUSTANG_6 118.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.5928	GEN520947 1-HUGO1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.5773	GEN336153 1-WATERFORD UNIT#3

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.5661	GEN512688 2-GRDA1 GSU2 22
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.5648	GEN562495 1-G14_012_2 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07495	113.5548	FARGO JCT - WOODWARD 69KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06947	113.4597	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.4267	GEN509394 1-FLINT CREEK
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.3872	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.3718	GEN511840 1-NORTHEASTERN STATION #3
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06947	113.3675	CHISHOLM7 345.00 () 345/230/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07446	113.3443	HOLCOMB - SETAB 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.323	GEN511839 1-NORTHEASTERN STATION #2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.2957	GEN515040 1-SEMINOLE 1G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07364	113.271	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07364	113.2709	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.254	GEN514939 1-HORSESHOE LAKE 8G
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.2404	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.2403	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.2402	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07493	113.2233	BENTON - WICHITA 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	113.2172	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.1773	GEN335831 1-RIVERBEND UNIT#1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	113.1268	GEN501801 1-DOLET HILLS UNIT1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06458	113.0749	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06458	113.0749	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07012	112.9484	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06946	112.94	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.8662	GEN515041 1-SEMINOLE 2G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.7653	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07289	112.7642	ELK CITY - FALCON ROAD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07104	112.7256	MOORELAND - TALOGA 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.7011	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07604	112.6669	SPSCONT-02X
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.6402	GEN562425 1-G13-028CT 20.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07446	112.6241	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.5763	GEN300006 1-NEW MADRID UNIT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07493	112.5702	MINGO - RED WILLOW 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.569	GEN300007 1-NEW MADRID UNIT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07338	112.5613	ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06974	112.5328	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.4963	GEN509409 1-WILKES #3
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.4517	GEN514936 1-HORSESHOE LAKE 7S
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.4488	GEN509398 1-KNOXLEE #5
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.4261	GEN514859 1-MUSTANG 4G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07274	112.4156	ONEY - WASHITA 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	112.3943	GEN301382 1-1OSAGEWINDG10.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	112.2022	GEN531447 1-HOLCOMB GENERATOR
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06947	112.1817	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06974	111.9869	DEWEY - SOUTHARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07335	111.5365	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	111.2928	GEN525562 1-TOLK GEN #2 24 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	110.8836	GEN562550 1-G14_040_3 0.6900
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06373	110.8485	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06947	110.7349	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	02ALL	0	25SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04913	110.6279	BASE CASE
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	110.5764	GEN525561 1-TOLK GEN #1 24 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06946	110.4931	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0634	110.3834	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06947	110.2924	CHERJTAP 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06164	110.2372	IMO TAP - MEN TAP 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	109.9043	GEN562608 1-G14_063_3 0.6900
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	109.5564	GEN562023 1-G11_020_3 0.6900
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07023	109.5564	GEN562026 1-G11_019_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07335	109.5453	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06164	109.2885	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06703	108.541	DOVER SW - OKEENE 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06164	108.5187	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07371	108.3782	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06779	108.2835	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.2507	GEN527161 1-MUSTANG GEN #1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.2507	GEN527162 1-MUSTANG GEN #2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07211	108.2363	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.1987	GEN562624 1-G14_070_3 0.5500
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.196	GEN560121 1-G08471419 0.5750
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.1459	GEN515365 1-CENT 21 0.7000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.1398	GEN562432 1-G13-030 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07531	108.1355	OPENSKY7 345.00 - RANCHRD7 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.1018	GEN562616 1-G14_067S 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.0943	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.0574	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.0345	GEN526334 1-JONES_4 116.500
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	108.0107	GEN562556 1-G14_046_3 0.3420
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.0694	108.0028	CHERJTAP 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.9934	GEN526333 1-JONES GEN #3 21 KV
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06779	107.9614	MOORELAND - NINE MILE 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07277	107.9462	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.9372	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.919	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07335	107.908	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.8619	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	107.8375	GEN562017 1-G11_022_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07375	107.8257	FT SUPPLY - IODINE 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.7082	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06258	107.6966	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.6899	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.6379	GEN515393 1-OGEWND2G
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.6174	GEN562483 1-G13_027_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.5797	GEN635214 4-NEAL UNIT 4
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.5631	GEN562495 1-G14_012_2 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.4729	GEN560738 1-G13_016_2 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.2823	GEN562618 1-G14_068CT 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.2778	GEN562617 1-G14_067CT 18.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.263	GEN527166 1-MUSTANG_6 118.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.2598	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07655	107.2284	SPSCONT-02X
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07531	107.205	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.0726	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	107.0694	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07133	107.0607	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.9887	GEN526331 1-JONES GEN #1 22 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.988	GEN526332 1-JONES GEN #2 21 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06504	106.8282	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06504	106.8282	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06969	106.7995	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.7893	GEN525844 1-ELK_1 118.000
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.7869	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.7657	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.7459	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.4743	GEN562078 1-G11_051_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	106.4043	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06461	106.2437	IMO TAP - MEN TAP 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07012	106.1902	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07375	106.1792	IODINE - MOORELAND 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06589	106.0296	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07002	105.956	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06461	105.7279	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	105.6839	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	105.6839	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	105.6837	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07389	105.643	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06461	105.3392	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07002	104.9727	DEWEY - SOUTHARD 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06202	104.7305	CEDARDALE - OKEENE 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06555	104.5498	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	104.5167	GEN531447 1-HOLCOMB GENERATOR
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06969	104.4931	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07012	104.432	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06647	104.3639	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	104.2676	GEN562023 1-G11_020_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.07261	104.2676	GEN562026 1-G11_019_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06647	104.1028	MOORELAND - NINE MILE 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06202	103.9884	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	00NR	0	25SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06144	103.9266	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07389	103.8335	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	103.8285	GEN562550 1-G14_040_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07012	103.7994	CHERJTAP 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07112	103.7837	MOORELAND - TALOGA 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	103.5163	GEN525561 1-TOLK GEN #1 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	103.3027	GEN562608 1-G14_063_3 0.6900
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	103.204	GEN525562 1-TOLK GEN #2 24 KV
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06969	103.1917	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06539	102.6391	CEDARDALE - OKEENE 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06469	102.4092	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06539	102.1045	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06096	101.46	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06753	101.3564	DOVER SW - OKEENE 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06999	100.5825	CHERJTAP 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06096	100.5544	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07307	100.244	GEN562017 1-G11_022_3 0.6900
FDNS	00NR	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06403	99.7	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	GLASS MOUNTAIN - MOORELAND 138KV CKT 1	124	124	0.03642	106.3833	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	GLASS MOUNTAIN - MOORELAND 138KV CKT 1	124	124	0.03642	104.3288	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock	00NR	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.08329	113.1175	SPSCONT-01
FDNS	00NR	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.08341	111.2255	SPP-SWPS-01
FDNS	00NR	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.08329	111.1367	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.08114	101.1542	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.08114	100	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.0501	99.8	BASE CASE
FDNS	00NR	0	15SP	G14_019	FROM->TO	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	493	0.04325	106.0466	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	493	0.04325	104.328	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD 69KV CKT 1	91	110	0.03236	119.4511	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD 69KV CKT 1	91	110	0.03236	117.3065	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	WOODWARD - WOODWARD 69KV CKT 1	91	110	0.03321	99.5	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.0832	121.4589	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08925	120.5735	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08925	118.4462	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08925	112.6592	SPSCONT-05AX
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08925	110.854	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08925	109.3033	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.09054	106.4604	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.09054	103.9114	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.08611	101.9687	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.07093	100.7768	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.07093	100.0623	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.09014	99.6	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	0	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 2	287	287	0.07587	110.4623	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03236	126.7636	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03236	124.9256	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03236	123.3355	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03236	120.9796	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03321	113.9417	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03243	112.0342	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03321	111.3375	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03321	110.764	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03243	109.6091	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03243	108.7331	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20WP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03321	108.0929	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03348	106.9153	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	15SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03243	106.1576	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03348	104.9482	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03348	103.5538	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	00NR	0	20SP	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03348	101.4626	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02ALL	2	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04338	176.6372	BASE CASE
FDNS	02ALL	2	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04755	124.8623	BASE CASE
FDNS	02ALL	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04888	121.7745	BASE CASE
FDNS	00NR	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06154	118.4496	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06137	116.1653	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05065	113.7242	BASE CASE
FDNS	00NR	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05481	110.5493	GEN520998 1-MORLND3
FDNS	00NR	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05481	109.0181	GEN520997 1-MORLND2
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06442	108.4305	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05957	107.4989	SPSCONT-01
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06442	106.8508	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05469	106.4122	GEN520998 1-MORLND3
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05953	105.8363	SPP-SWPS-01
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05957	105.8346	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05469	105.3212	GEN520997 1-MORLND2
FDNS	00NR	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06488	105.1934	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06135	103.8453	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	00NR	2	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06488	103.1085	DEWEY - IODINE 138KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06137	102.5065	WOODWARD - WOODWARD 69KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06135	99.8	SPP-SWPS-02
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06135	99.8	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06135	99.8	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	00NR	2	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05884	99.7	SPP-SWPS-03
FDNS	00NR	2	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.07182	102.5658	SPSCONT-01
FDNS	00NR	2	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.07198	100.6591	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	2	20WP	G14_019	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.07182	100.5555	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02ALL	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04293	111.5483	BASE CASE
FDNS	02ALL	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04293	110.9868	BASE CASE
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.08248	109.9883	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.08248	109.4146	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.05333	101.9473	BASE CASE
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.05333	101.6237	BASE CASE
FDNS	02NR	3	15G	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07944	101.5229	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	02NR	3	15G	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.07944	101.3579	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06072	101.2773	SPSCONT-01
FDNS	00NR	3	20WP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.08002	100.5434	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06072	100.4601	SPSCONT-01
FDNS	00NR	3	20WP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.08002	100.1445	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06072	100.0922	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	3	15SP	G14_019	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06068	100	SPP-SWPS-01
FDNS	02ALL	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03415	146.3913	BASE CASE
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04661	140.4775	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04945	133.6212	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04945	133.6099	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0489	130.5137	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0489	128.6138	DEWEY - IODINE 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	127.087	BASE CASE
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04661	124.0948	WOODWARD - WOODWARD 69KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04657	120.9224	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04201	120.88	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04544	119.6807	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03731	119.6099	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04648	119.2568	BVRCNTY7 345.00 - CHISHOLM7 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04265	119.1216	DEWEY - TALOGA 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04471	118.9834	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04471	118.9834	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04544	118.9116	SPP-SWPS-05
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04544	118.8764	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04539	118.3441	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04539	118.3431	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04257	118.1881	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04539	117.9309	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04539	117.9305	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04388	117.9253	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04388	117.9253	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04756	116.9089	SPSCONT-05AX
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	116.6745	GEN514805 1-SOONER UNIT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	115.8815	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0419	115.8124	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04484	115.604	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04484	115.604	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04257	115.453	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03731	115.4402	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04484	115.3359	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04484	115.3359	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	115.0715	GEN520443 1-REDHIL-WTG1 12.000
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04341	114.8385	CHISHOLM7 345.00 (CHISHOLM) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	114.6189	GEN520922 1-SLEEPING BEAR
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	114.3652	GEN514806 1-SOONER UNIT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04326	113.6066	SPSCONT-01
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04264	113.604	FARGO JCT - WOODWARD 69KV CKT 1
FDNSLock	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04161	113.5771	ELK CITY - FALCON ROAD 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04203	113.4987	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04203	113.3578	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04327	113.3182	SPP-SWPS-01
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04326	113.3108	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04221	113.0593	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04229	112.885	MINGO - SETAB 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.7868	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04203	112.7866	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04366	112.7716	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.7628	GEN515226 1-MUSKOGEE 6G
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04264	112.7115	FARGO JCT - FT SUPPLY 69KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.691	GEN509403 1-PIRKEY GENERATION
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04225	112.6822	SPP-SWPS-03
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04318	112.68	MATHWSN7 345.00 - WOODRING 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04251	112.6021	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5925	GEN509416 1-TURK GENERATION
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5496	GEN509394 1-FLINT CREEK
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5326	GEN515225 1-MUSKOGEE 5G

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5323	GEN515223 1-MUSKOGEE 4G
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04366	112.5213	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5101	GEN511839 1-NORTHEASTERN STATION #2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.5085	GEN511840 1-NORTHEASTERN STATION #3
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03822	112.4904	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04293	112.4818	MATHWSN7 345.00 - NORTHWEST 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.4711	GEN512688 2-GRDA1 GSU2 22
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	112.4652	GEN511841 1-NORTHEASTERN STATION #4
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03988	108.5251	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03988	108.5251	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04074	108.4003	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	108.3403	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	108.3322	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04258	108.3024	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04173	108.2778	IODINE - MOORELAND 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04074	108.2741	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	108.1452	GEN515393 1-OGEWND2G
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.9759	GEN562524 1-G14_026_3 12.000
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.9463	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.9463	GEN560287 1-G10-01-2WTG 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.942	GEN515365 1-CENT 21 0.7000
FDNSLock	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04107	107.9153	KNOBHILL (KNOBHIL4) 138/69/13.2KV TRANSFORMER CKT 1
FDNSLock	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04107	107.899	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04056	107.8101	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.7401	GEN560256 1-G10-14-1 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.6645	GEN560257 1-G10-14-2 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.5474	GEN562544 1-G14_038_3 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04048	107.5044	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.466	GEN531447 1-HOLCOMB GENERATOR
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.352	GEN562648 1-G14_037_3 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.1985	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.1985	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	107.1983	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	106.7681	GEN562574 1-G14_052_3 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	106.7506	GEN562042 1-G11_014_3 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03943	106.3892	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04251	106.3643	SPSCONT-02X
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03943	106.0427	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	105.9995	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	105.5134	GEN560121 1-G08471419 0.5750
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	105.445	GEN562432 1-G13-030 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04407	105.4421	VIOLA 7 345.00 - WICHITA 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03943	105.2801	DEWEY - SOUTHARD 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03822	105.0607	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04151	104.7917	GEN562017 1-G11_022_3 0.6900
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03701	104.4475	DOVER SW - OKEENE 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03822	103.8349	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03505	103.4814	IMO TAP - MEN TAP 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03822	103.2001	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03505	102.8441	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03505	102.3271	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03615	102.2723	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03615	102.2723	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04257	101.5967	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03745	101.0406	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR	3	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03724	100.5728	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	00NR	3	15SP	G14_019	FROM->TO	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	493	0.03878	100.9483	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	00NR	4	15SP	G14_019	FROM->TO	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	493	0.03865	100.8812	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	09ALL	0	15G	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	123.1209	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6423	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6236	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5535	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5089	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09NR	0	15G	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	108.9874	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNSLock	00NR	0	25SP	G14_023	FROM->TO	FT RANDAL - SPENCER 115KV CKT 1	120	120	0.0342	103.7108	AINSWORTH - AINSWORTH 115KV CKT 1
FDNS	00NR	0	15SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03861	122.4628	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	25SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03318	119.7054	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	20SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03345	119.1404	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	20WP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03169	114.1709	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	15G	G14_023	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.9443	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_023	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.1093	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_023	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.0068	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_023	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.6902	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_023	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.281	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	2	15SP	G14_023	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.3899	102.4812	KELLY - MEADOWGROVE4230.00 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	09ALL	2	25SP	G14_023	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.38772	100.6314	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	00NR	3	15SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03751	122.0637	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	25SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03211	119.3876	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	20SP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03237	118.8264	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	20WP	G14_023	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03062	113.9679	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	3	15SP	G14_023	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.0384	100.2686	BASE CASE
FDNS	04ALL	0	15SP	G14_025	TO->FROM	HEIZER - LACROSSE TAP 115KV CKT 1	88	88	0.36101	100.9716	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.40504	-	SPSCONT-05AX
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1420	1775	0.28889	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1420	1775	0.28889	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	956	1052	0.21285	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	956	1052	0.21285	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.21285	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1420	1775	0.20252	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1420	1775	0.20252	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1195	1195	0.20252	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1195	1195	0.20252	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.13201	-	SPSCONT-01
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1561	1793	0.1245	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1561	1793	0.1245	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	956	1052	0.11423	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	956	1052	0.11423	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	560	560	0.11423	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.11352	-	SPP-SWPS-02A
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	726.6	726.6	0.11064	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	1413	1517	0.11064	-	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.0851	-	SPP-SWPS-01
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.07568	-	SPP-SWPS-02
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	0	0	0.0712	-	SPP-SWPS-03
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	956	994	0.066	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	439	439	0.03784	-	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	287	316	0.03784	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	319	351	0.03784	-	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	349	395	0.03784	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_026		Non-Converged Contingency	396	441	0.03784	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	1420	1775	0.29173	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	1420	1775	0.29173	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	956	1052	0.22172	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	956	1052	0.22172	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	0	0	0.22172	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	956	1052	0.10609	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_026		Non-Converged Contingency	560	560	0.10609	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_026		Non-Converged Contingency	956	1052	0.21453	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_026		Non-Converged Contingency	956	1052	0.21453	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_026		Non-Converged Contingency	0	0	0.21453	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	1420	1775	0.28748	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	1420	1775	0.28748	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	987	1083	0.2176	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	956	1052	0.2176	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	0	0	0.2176	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	1420	1775	0.19432	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	1195	1195	0.19432	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	1195	1195	0.19432	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	987	1083	0.11083	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_026		Non-Converged Contingency	560	560	0.11083	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_026		Non-Converged Contingency	1420	1775	0.29941	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_026		Non-Converged Contingency	1420	1775	0.29941	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15G	G14_026		Non-Converged Contingency	956	1052	0.2027	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_026		Non-Converged Contingency	956	1052	0.2027	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_026		Non-Converged Contingency	0	0	0.2027	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	15SP	G14_026		Non-Converged Contingency	1420	1775	0.30227	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_026		Non-Converged Contingency	1420	1775	0.30227	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15SP	G14_026		Non-Converged Contingency	956	1052	0.21146	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_026		Non-Converged Contingency	956	1052	0.21146	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_026		Non-Converged Contingency	0	0	0.21146	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20SP	G14_026		Non-Converged Contingency	956	1052	0.20533	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_026		Non-Converged Contingency	956	1052	0.20533	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_026		Non-Converged Contingency	0	0	0.20533	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20WP	G14_026		Non-Converged Contingency	1420	1775	0.29831	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_026		Non-Converged Contingency	1420	1775	0.29831	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	20WP	G14_026		Non-Converged Contingency	987	1083	0.20829	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_026		Non-Converged Contingency	956	1052	0.20829	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_026		Non-Converged Contingency	0	0	0.20829	-	SPP-SWPS-05
FDNS	02ALL	0	15G	G14_026	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.05782	115.5699	BASE CASE
FDNS	02ALL	0	15G	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05782	225.3302	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	15SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06208	173.9866	BASE CASE
FDNS	02ALL	0	20SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06298	162.3467	BASE CASE
FDNS	02ALL	0	20WP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06501	153.9084	BASE CASE
FDNS	02ALL	0	25SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04913	110.6279	BASE CASE
FDNS	02ALL	0	20WP	G14_026	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.0501	99.8	BASE CASE
FDNS	02ALL	2	15G	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04338	176.6372	BASE CASE
FDNS	02ALL	2	15SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04755	124.8623	BASE CASE
FDNS	02ALL	2	20SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04888	121.7745	BASE CASE
FDNS	02ALL	2	20WP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05065	113.7242	BASE CASE
FDNS	02ALL	3	15SP	G14_026	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04293	111.5483	BASE CASE
FDNS	02ALL	3	15SP	G14_026	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04293	110.9868	BASE CASE
FDNS	02ALL	3	15G	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03415	146.3913	BASE CASE
FDNS	09ALL	0	15G	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	123.1209	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6423	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6236	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5535	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5089	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09NR	0	15G	G14_031	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	108.9874	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	00NR	0	15SP	G14_031	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03087	122.4628	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	15G	G14_031	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.9443	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_031	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.1093	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_031	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.0068	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_031	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.6902	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_031	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.281	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	2	15SP	G14_031	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.67959	102.4812	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	2	25SP	G14_031	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.67983	100.6314	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	3	15SP	G14_031	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.05144	100.2686	BASE CASE
FDNS	09ALL	0	15G	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	123.1209	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6423	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.6236	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5535	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	122.5089	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09NR	0	15G	G14_032	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	108.9874	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	00NR	0	15SP	G14_032	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.03087	122.4628	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	15G	G14_032	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.9443	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	25SP	G14_032	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.1093	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20WP	G14_032	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	108.0068	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	20SP	G14_032	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.6902	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	0	15SP	G14_032	TO->FROM	KELLY - MEADOWGROVE4230.00 230KV CKT 1	368	368	1	107.281	FT RANDAL - G14_023T 230.00 230KV CKT 1
FDNS	09ALL	2	15SP	G14_032	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.67959	102.4812	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	2	25SP	G14_032	FROM->TO	MEADOWGROVE4230.00 - S_NORFOLK 230.00 230KV CKT 1	320	320	0.67983	100.6314	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL	3	15SP	G14_032	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.05144	100.2686	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.41526	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.3423	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.3119	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	560	560	0.22745	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	956	994	0.20763	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.18797	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	560	560	0.15595	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	560	560	0.13467	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.12294	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	0	0	0.1176	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	478	502	0.06555	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	287	316	0.05744	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_033		Non-Converged Contingency	319	351	0.0573	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	0	0	0.42611	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	0	0	0.35103	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	0	0	0.32341	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	560	560	0.16171	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	0	0	0.12961	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_033		Non-Converged Contingency	0	0	0.11475	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	0	0	0.5217	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	0	0	0.37374	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	0	0	0.33612	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	956	994	0.26085	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	1420	1775	0.19962	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_033		Non-Converged Contingency	1792	1792	0.19962	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.42883	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.34981	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.31995	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1420	1775	0.29846	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1033	1071	0.21441	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.18887	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1195	1195	0.17315	-	GRACEMONT - MINCO 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	560	560	0.15997	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1584	2098	0.15416	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1792	1792	0.15237	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.1411	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	478	502	0.14105	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	987	1083	0.13083	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	956	1052	0.13083	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.13083	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	329	361	0.12511	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	329	361	0.11666	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	329	361	0.11666	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	0	0	0.11481	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	329	361	0.0855	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	1532	1793	0.07285	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	421	439	0.07055	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	435	470	0.07055	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	396	441	0.07055	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_033		Non-Converged Contingency	329	361	0.05896	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.41547	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	319	351	0.35342	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.34251	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.31209	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1420	1775	0.29065	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	2302	2532	0.24616	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	717	926	0.22741	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	560	560	0.22741	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	956	994	0.20773	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.18807	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	560	560	0.15605	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	478	502	0.15403	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1330	1940	0.14803	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.1249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.12301	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	319	351	0.12123	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	319	351	0.12123	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	0	0	0.11767	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	439	439	0.06245	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	349	395	0.06245	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	396	441	0.06245	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_033		Non-Converged Contingency	319	351	0.05522	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	0	0	0.42636	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	0	0	0.35127	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	0	0	0.32363	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	1420	1775	0.29755	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	956	994	0.21318	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	560	560	0.16182	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_033		Non-Converged Contingency	956	1052	0.12971	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	0	0	0.41592	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	319	351	0.35339	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	0	0	0.34295	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	0	0	0.31249	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	1420	1775	0.29098	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	956	994	0.20796	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	560	560	0.15625	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	1330	1940	0.14818	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	0	0	0.12318	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_033		Non-Converged Contingency	439	439	0.06252	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_033		Non-Converged Contingency	0	0	0.42655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_033		Non-Converged Contingency	0	0	0.35145	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_033		Non-Converged Contingency	0	0	0.32381	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_033		Non-Converged Contingency	1420	1775	0.29768	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_033		Non-Converged Contingency	956	994	0.21327	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	0	0	0.42951	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	0	0	0.35048	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	0	0	0.32056	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	1420	1775	0.29895	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	1033	1071	0.21476	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	560	560	0.16028	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	987	1083	0.13109	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	956	1052	0.13109	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	0	0	0.13109	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_033		Non-Converged Contingency	421	439	0.07068	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	0	0	0.41934	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	0	0	0.27678	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	717	926	0.27119	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	0	0	0.2677	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	956	994	0.20967	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_033		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_033		Non-Converged Contingency	0	0	0.42953	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_033		Non-Converged Contingency	0	0	0.27582	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_033		Non-Converged Contingency	956	994	0.21477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	0	0	0.43104	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	0	0	0.2881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	0	0	0.27974	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	1033	1071	0.21552	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_033		Non-Converged Contingency	987	1083	0.14405	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_033		Non-Converged Contingency	0	0	0.3922	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_033		Non-Converged Contingency	0	0	0.37579	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_033		Non-Converged Contingency	0	0	0.25547	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_033		Non-Converged Contingency	956	994	0.1879	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_033		Non-Converged Contingency	0	0	0.38524	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_033		Non-Converged Contingency	0	0	0.26313	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_033		Non-Converged Contingency	956	994	0.19262	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_033		Non-Converged Contingency	1033	1071	0.19444	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_033		Non-Converged Contingency	0	0	0.23953	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_033	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12511	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05185	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04811	109.8457	BASE CASE
FDNS	06ALL	0	25SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04821	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0517	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13209	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11666	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12155	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13279	121.8496	BASE CASE
FDNS	06ALL	0	20WP	G14_033	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.032	100	BASE CASE
FDNS	06ALL	0	15SP	G14_033	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05185	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	134.8226	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03435	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13209	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11666	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12155	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13279	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08458	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.26085	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29685	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29748	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29959	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30023	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28231	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.17584	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05187	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05172	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12165	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12061	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_033	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05187	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12165	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30838	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30639	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28609	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2158	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31109	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30911	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29442	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28874	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27556	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22441	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29922	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_033	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32769	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06189	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05188	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11693	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12173	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12062	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_033	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05188	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11693	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_033	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12173	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30863	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.27155	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30701	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28614	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21598	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31134	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27413	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29437	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30973	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28879	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27555	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22459	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29912	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_033	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32754	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_033	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.064	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_033	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0462	102.0025	BASE CASE
FDNS	06ALL	4	15SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09757	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.0949	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09823	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_033	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09796	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21052	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20973	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21261	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_033	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21184	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06224	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_033	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42894	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_033	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	G14_033	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_033	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4917	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	7	15SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_033	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_033	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.41526	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.3423	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.3119	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	560	560	0.22745	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	956	994	0.20763	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.18797	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	560	560	0.15595	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	560	560	0.13467	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.12294	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	0	0	0.1176	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	478	502	0.06555	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	287	316	0.05744	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_034		Non-Converged Contingency	319	351	0.0573	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	0	0	0.42611	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	0	0	0.35103	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	0	0	0.32341	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	560	560	0.16171	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	0	0	0.12961	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_034		Non-Converged Contingency	0	0	0.11475	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	0	0	0.5217	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	0	0	0.37374	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	0	0	0.33612	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	956	994	0.26085	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	1420	1775	0.19962	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_034		Non-Converged Contingency	1792	1792	0.19962	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.42883	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.34981	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.31995	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1420	1775	0.29846	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1033	1071	0.21441	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.18887	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1195	1195	0.17315	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	560	560	0.15997	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1584	2098	0.15416	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1792	1792	0.15237	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.1411	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	478	502	0.14105	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	987	1083	0.13083	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	956	1052	0.13083	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.13083	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	329	361	0.12511	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	329	361	0.11666	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	329	361	0.11666	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	0	0	0.11481	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	329	361	0.0855	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	1532	1793	0.07285	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	421	439	0.07055	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	435	470	0.07055	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	396	441	0.07055	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_034		Non-Converged Contingency	329	361	0.05896	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.41547	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	319	351	0.35342	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.34251	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.31209	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1420	1775	0.29065	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	2302	2532	0.24616	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	717	926	0.22741	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	560	560	0.22741	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	956	994	0.20773	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.18807	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	560	560	0.15605	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	478	502	0.15403	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1330	1940	0.14803	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.1249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.12301	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	319	351	0.12123	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	319	351	0.12123	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	0	0	0.11767	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	439	439	0.06245	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	349	395	0.06245	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	396	441	0.06245	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_034		Non-Converged Contingency	319	351	0.05522	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	0	0	0.42636	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	0	0	0.35127	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	0	0	0.32363	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	1420	1775	0.29755	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	956	994	0.21318	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	560	560	0.16182	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_034		Non-Converged Contingency	956	1052	0.12971	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	0	0	0.41592	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	319	351	0.35339	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	0	0	0.34295	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	0	0	0.31249	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	1420	1775	0.29098	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	956	994	0.20796	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	560	560	0.15625	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	1330	1940	0.14818	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	0	0	0.12318	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_034		Non-Converged Contingency	439	439	0.06252	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_034		Non-Converged Contingency	0	0	0.42655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_034		Non-Converged Contingency	0	0	0.35145	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_034		Non-Converged Contingency	0	0	0.32381	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_034		Non-Converged Contingency	1420	1775	0.29768	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_034		Non-Converged Contingency	956	994	0.21327	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	0	0	0.42951	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	0	0	0.35048	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	0	0	0.32056	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	1420	1775	0.29895	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	1033	1071	0.21476	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	560	560	0.16028	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	987	1083	0.13109	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	956	1052	0.13109	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	0	0	0.13109	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_034		Non-Converged Contingency	421	439	0.07068	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	0	0	0.41934	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	0	0	0.27678	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	717	926	0.27119	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	0	0	0.2677	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	956	994	0.20967	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_034		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_034		Non-Converged Contingency	0	0	0.42953	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_034		Non-Converged Contingency	0	0	0.27582	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_034		Non-Converged Contingency	956	994	0.21477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	0	0	0.43104	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	0	0	0.2881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	0	0	0.27974	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	1033	1071	0.21552	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_034		Non-Converged Contingency	987	1083	0.14405	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_034		Non-Converged Contingency	0	0	0.3922	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_034		Non-Converged Contingency	0	0	0.37579	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_034		Non-Converged Contingency	0	0	0.25547	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_034		Non-Converged Contingency	956	994	0.1879	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_034		Non-Converged Contingency	0	0	0.38524	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_034		Non-Converged Contingency	0	0	0.26313	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_034		Non-Converged Contingency	956	994	0.19262	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_034		Non-Converged Contingency	1033	1071	0.19444	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_034		Non-Converged Contingency	0	0	0.23953	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_034	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12511	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05185	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04811	109.8457	BASE CASE
FDNS	06ALL	0	25SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04821	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0517	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13209	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11666	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12155	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13279	121.8496	BASE CASE
FDNS	06ALL	0	20WP	G14_034	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.032	100	BASE CASE
FDNS	06ALL	0	15SP	G14_034	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05185	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03435	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13209	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11666	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12155	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13279	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08458	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.26085	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29685	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29748	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29959	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30023	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28231	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.17584	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05187	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05172	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12165	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12061	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_034	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05187	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12165	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30838	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30639	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28609	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2158	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31109	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30911	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29442	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28874	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27556	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22441	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29922	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_034	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32769	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06189	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05188	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11693	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12173	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12062	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_034	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05188	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11693	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_034	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12173	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30863	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.27155	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30701	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28614	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21598	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31134	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27413	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29437	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30973	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28879	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27555	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22459	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29912	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_034	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32754	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_034	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.064	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_034	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0462	102.0025	BASE CASE
FDNS	06ALL	4	15SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09757	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.0949	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09823	101.1465	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	20SP	G14_034	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09796	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21052	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20973	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21261	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_034	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21184	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06224	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_034	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42894	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_034	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	G14_034	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_034	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_034	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_034	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.41526	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.3423	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.3119	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	560	560	0.22745	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	956	994	0.20763	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.18797	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	560	560	0.15595	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	560	560	0.13467	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.12294	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	0	0	0.1176	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	478	502	0.06555	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	287	316	0.05744	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_035		Non-Converged Contingency	319	351	0.0573	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	0	0	0.42611	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	0	0	0.35103	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	0	0	0.32341	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	560	560	0.16171	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	0	0	0.12961	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_035		Non-Converged Contingency	0	0	0.11475	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	0	0	0.5217	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	0	0	0.37374	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	0	0	0.33612	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	956	994	0.26085	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	1420	1775	0.19962	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_035		Non-Converged Contingency	1792	1792	0.19962	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.42883	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.34981	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.31995	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1420	1775	0.29846	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1033	1071	0.21441	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.18887	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1195	1195	0.17315	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	560	560	0.15997	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1584	2098	0.15416	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1792	1792	0.15237	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.1411	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	478	502	0.14105	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	987	1083	0.13083	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	956	1052	0.13083	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.13083	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	329	361	0.12511	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	329	361	0.11666	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	329	361	0.11666	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	0	0	0.11481	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	329	361	0.0855	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	1532	1793	0.07285	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	421	439	0.07055	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	435	470	0.07055	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	396	441	0.07055	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_035		Non-Converged Contingency	329	361	0.05896	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.41547	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	319	351	0.35342	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.34251	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.31209	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1420	1775	0.29065	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	2302	2532	0.24616	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	717	926	0.22741	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	560	560	0.22741	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	956	994	0.20773	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.18807	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	560	560	0.15605	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	478	502	0.15403	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1330	1940	0.14803	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.1249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.12301	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	319	351	0.12123	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	319	351	0.12123	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	0	0	0.11767	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	439	439	0.06245	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	349	395	0.06245	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	396	441	0.06245	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_035		Non-Converged Contingency	319	351	0.05522	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	0	0	0.42636	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	0	0	0.35127	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	0	0	0.32363	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	1420	1775	0.29755	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	956	994	0.21318	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	560	560	0.16182	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_035		Non-Converged Contingency	956	1052	0.12971	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	0	0	0.41592	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	319	351	0.35339	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	0	0	0.34295	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	0	0	0.31249	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	1420	1775	0.29098	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	956	994	0.20796	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	560	560	0.15625	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	1330	1940	0.14818	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	0	0	0.12318	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_035		Non-Converged Contingency	439	439	0.06252	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_035		Non-Converged Contingency	0	0	0.42655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_035		Non-Converged Contingency	0	0	0.35145	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_035		Non-Converged Contingency	0	0	0.32381	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_035		Non-Converged Contingency	1420	1775	0.29768	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_035		Non-Converged Contingency	956	994	0.21327	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	0	0	0.42951	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	0	0	0.35048	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	0	0	0.32056	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	1420	1775	0.29895	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	1033	1071	0.21476	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	560	560	0.16028	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	987	1083	0.13109	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	956	1052	0.13109	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	0	0	0.13109	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_035		Non-Converged Contingency	421	439	0.07068	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	0	0	0.41934	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	0	0	0.27678	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	717	926	0.27119	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	0	0	0.2677	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	956	994	0.20967	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_035		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_035		Non-Converged Contingency	0	0	0.42953	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_035		Non-Converged Contingency	0	0	0.27582	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_035		Non-Converged Contingency	956	994	0.21477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	0	0	0.43104	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	0	0	0.2881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	0	0	0.27974	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	1033	1071	0.21552	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_035		Non-Converged Contingency	987	1083	0.14405	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_035		Non-Converged Contingency	0	0	0.3922	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_035		Non-Converged Contingency	0	0	0.37579	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_035		Non-Converged Contingency	0	0	0.25547	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_035		Non-Converged Contingency	956	994	0.1879	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_035		Non-Converged Contingency	0	0	0.38524	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_035		Non-Converged Contingency	0	0	0.26313	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_035		Non-Converged Contingency	956	994	0.19262	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_035		Non-Converged Contingency	1033	1071	0.19444	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_035		Non-Converged Contingency	0	0	0.23953	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_035	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12511	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05185	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04811	109.8457	BASE CASE
FDNS	06ALL	0	25SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04821	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0517	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13209	136.6421	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11666	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12155	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13279	121.8496	BASE CASE
FDNS	06ALL	0	20WP	G14_035	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.032	100	BASE CASE
FDNS	06ALL	0	15SP	G14_035	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05185	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03435	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13209	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11666	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12155	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13279	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08458	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.26085	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29685	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29748	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29959	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30023	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28231	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.17584	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05187	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05172	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12165	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12061	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_035	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05187	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12165	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30838	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30639	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28609	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2158	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31109	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30911	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29442	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28874	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27556	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22441	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29922	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_035	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32769	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06189	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05188	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11693	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12173	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12062	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_035	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05188	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11693	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_035	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12173	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30863	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.27155	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30701	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28614	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21598	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31134	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27413	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29437	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30973	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28879	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27555	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22459	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29912	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_035	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32754	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_035	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.064	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_035	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0462	102.0025	BASE CASE
FDNS	06ALL	4	15SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09757	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.0949	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09823	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_035	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09796	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21052	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20973	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21261	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_035	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21184	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06224	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_035	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42894	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.2714	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	6	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_035	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	G14_035	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_035	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_035	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_035	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.38207	-	SPSCONT-05AX
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1420	1775	0.26053	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1420	1775	0.26053	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	956	1052	0.24405	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	956	1052	0.24405	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.24405	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1420	1775	0.19103	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1420	1775	0.19103	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1195	1195	0.19103	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1195	1195	0.19103	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.14411	-	SPSCONT-01
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.1334	-	SPP-SWPS-02A
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	726.6	726.6	0.13257	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1413	1517	0.13257	-	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	956	1052	0.12818	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	956	1052	0.12818	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	560	560	0.12818	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1561	1793	0.11133	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	1561	1793	0.11133	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.10047	-	SPP-SWPS-01
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.08893	-	SPP-SWPS-02
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	0	0	0.08351	-	SPP-SWPS-03
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	956	994	0.07205	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	439	439	0.04447	-	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	287	316	0.04447	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	319	351	0.04447	-	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	349	395	0.04447	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_037		Non-Converged Contingency	396	441	0.04447	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	1420	1775	0.26329	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	1420	1775	0.26329	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	956	1052	0.25288	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	956	1052	0.25288	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	0	0	0.25288	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	956	1052	0.12011	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_037		Non-Converged Contingency	560	560	0.12011	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_037		Non-Converged Contingency	956	1052	0.24527	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_037		Non-Converged Contingency	956	1052	0.24527	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_037		Non-Converged Contingency	0	0	0.24527	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	1420	1775	0.25845	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	1420	1775	0.25845	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	987	1083	0.24834	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	956	1052	0.24834	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	0	0	0.24834	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	1420	1775	0.18212	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	1195	1195	0.18212	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	1195	1195	0.18212	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	987	1083	0.12546	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_037		Non-Converged Contingency	560	560	0.12546	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_037		Non-Converged Contingency	1420	1775	0.27043	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_037		Non-Converged Contingency	1420	1775	0.27043	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15G	G14_037		Non-Converged Contingency	956	1052	0.2345	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_037		Non-Converged Contingency	956	1052	0.2345	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_037		Non-Converged Contingency	0	0	0.2345	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	15SP	G14_037		Non-Converged Contingency	1420	1775	0.2732	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_037		Non-Converged Contingency	1420	1775	0.2732	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15SP	G14_037		Non-Converged Contingency	956	1052	0.24323	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_037		Non-Converged Contingency	956	1052	0.24323	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_037		Non-Converged Contingency	0	0	0.24323	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20SP	G14_037		Non-Converged Contingency	956	1052	0.23669	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_037		Non-Converged Contingency	956	1052	0.23669	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	02ALL	2	20SP	G14_037		Non-Converged Contingency	0	0	0.23669	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20WP	G14_037		Non-Converged Contingency	1420	1775	0.26857	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_037		Non-Converged Contingency	1420	1775	0.26857	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	20WP	G14_037		Non-Converged Contingency	987	1083	0.23965	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_037		Non-Converged Contingency	956	1052	0.23965	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_037		Non-Converged Contingency	0	0	0.23965	-	SPP-SWPS-05
FDNS	02ALL	0	15G	G14_037	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.05309	115.5699	BASE CASE
FDNS	02ALL	0	15G	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05309	225.3302	BASE CASE
FDNS	02ALL	0	15SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05722	173.9866	BASE CASE
FDNS	02ALL	0	20SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05831	162.3467	BASE CASE
FDNS	02ALL	0	20WP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06034	153.9084	BASE CASE
FDNS	02ALL	0	25SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04542	110.6279	BASE CASE
FDNS	02ALL	0	20WP	G14_037	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.0571	99.8	BASE CASE
FDNS	02ALL	2	15G	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03951	176.6372	BASE CASE
FDNS	02ALL	2	15SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04356	124.8623	BASE CASE
FDNS	02ALL	2	20SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04516	121.7745	BASE CASE
FDNS	02ALL	2	20WP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.04693	113.7242	BASE CASE
FDNS	02ALL	3	15SP	G14_037	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04337	111.5483	BASE CASE
FDNS	02ALL	3	15SP	G14_037	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04337	110.9868	BASE CASE
FDNS	02ALL	3	15G	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03182	146.3913	BASE CASE
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.36538	-	SPSCONT-05AX
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1420	1775	0.24124	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1420	1775	0.24124	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	956	1052	0.24122	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	956	1052	0.24122	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.24122	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	956	1052	0.21423	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	560	560	0.21423	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1420	1775	0.18269	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1420	1775	0.18269	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1195	1195	0.18269	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1195	1195	0.18269	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.16848	-	SPSCONT-01
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.16578	-	SPP-SWPS-02A
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	726.6	726.6	0.13117	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1413	1517	0.13117	-	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.12774	-	SPP-SWPS-01
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.11052	-	SPP-SWPS-02
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1561	1793	0.10749	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	1561	1793	0.10749	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	0	0	0.10428	-	SPP-SWPS-03
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	956	994	0.08424	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	439	439	0.05526	-	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	287	316	0.05526	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	319	351	0.05526	-	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	349	395	0.05526	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_038		Non-Converged Contingency	396	441	0.05526	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	956	1052	0.24998	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	956	1052	0.24998	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	0	0	0.24998	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	1420	1775	0.24391	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	1420	1775	0.24391	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	956	1052	0.20643	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_038		Non-Converged Contingency	560	560	0.20643	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_038		Non-Converged Contingency	956	1052	0.24163	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_038		Non-Converged Contingency	956	1052	0.24163	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_038		Non-Converged Contingency	0	0	0.24163	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	987	1083	0.2447	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	956	1052	0.2447	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	0	0	0.2447	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	1420	1775	0.23836	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	1420	1775	0.23836	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	987	1083	0.21373	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	560	560	0.21373	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	1420	1775	0.17275	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	1195	1195	0.17275	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_038		Non-Converged Contingency	1195	1195	0.17275	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_038		Non-Converged Contingency	1420	1775	0.25068	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_038		Non-Converged Contingency	1420	1775	0.25068	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15G	G14_038		Non-Converged Contingency	956	1052	0.23212	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_038		Non-Converged Contingency	956	1052	0.23212	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_038		Non-Converged Contingency	0	0	0.23212	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	15SP	G14_038		Non-Converged Contingency	1420	1775	0.25335	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_038		Non-Converged Contingency	1420	1775	0.25335	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15SP	G14_038		Non-Converged Contingency	956	1052	0.24078	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	02ALL	2	15SP	G14_038		Non-Converged Contingency	956	1052	0.24078	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_038		Non-Converged Contingency	0	0	0.24078	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20SP	G14_038		Non-Converged Contingency	956	1052	0.23353	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_038		Non-Converged Contingency	956	1052	0.23353	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_038		Non-Converged Contingency	0	0	0.23353	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20WP	G14_038		Non-Converged Contingency	1420	1775	0.24792	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_038		Non-Converged Contingency	1420	1775	0.24792	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	20WP	G14_038		Non-Converged Contingency	987	1083	0.23649	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_038		Non-Converged Contingency	956	1052	0.23649	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_038		Non-Converged Contingency	0	0	0.23649	-	SPP-SWPS-05
FDNS	02ALL	0	15G	G14_038	FROM->TO	FPL SWITCH - MORELAND 138KV CKT 1	268	287	0.04892	115.5699	BASE CASE
FDNS	02ALL	0	15G	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04892	225.3302	BASE CASE
FDNS	02ALL	0	15SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05287	173.9866	BASE CASE
FDNS	02ALL	0	20SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05439	162.3467	BASE CASE
FDNS	02ALL	0	20WP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05642	153.9084	BASE CASE
FDNS	02ALL	0	25SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04225	110.6279	BASE CASE
FDNS	02ALL	0	20WP	G14_038	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.06923	99.8	BASE CASE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21873	138.1474	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21873	138.1474	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	134.0295	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	133.8222	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21873	132.4717	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	131.493	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22866	131.195	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22866	131.195	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	130.0642	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	129.8714	SPP-SWPS-05
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	128.8537	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	128.458	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	128.4568	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	128.4447	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	128.2464	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	126.7694	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22866	125.8426	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22866	125.8426	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21108	125.8378	Hansford County Switch Station - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	125.8107	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	125.5981	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	124.7259	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	124.7029	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23682	124.555	SPP-SWPS-05
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	124.0674	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	124.0665	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	124.0572	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	123.8429	GEN562495 1-G14_012_2 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20991	123.5449	DWS FRISCO - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21474	123.3863	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21061	123.3709	Hitchland Interchange (SIEM 8743067) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	123.1084	GEN526332 1-JONES GEN #2 21 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	123.1071	GEN526331 1-JONES GEN #1 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20991	122.6036	DWS FRISCO - HITCHLAND INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	122.5662	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21108	122.4786	HITCHLAND INTERCHANGE - Hansford County Switch Station 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	122.4021	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	122.3697	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	122.3393	GEN525844 1-ELK_1 118.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	122.2271	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20996	122.1085	Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21474	121.9271	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.757	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.6867	GEN526333 1-JONES GEN #3 21 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.6867	GEN526334 1-JONES_4 116.500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21108	121.5761	Hansford County Switch Station - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.5352	GEN527166 1-MUSTANG_6 118.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	121.5144	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.4879	GEN527161 1-MUSTANG GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.4879	GEN527162 1-MUSTANG GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.4301	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.2205	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	121.2012	GEN527165 1-Mustang Gen #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20866	121.1585	HITCHLAND INTERCHANGE - OCHILTREE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20866	121.0661	OCHILTREE (H TP80219401) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.957	GEN524021 1-NICHOLS GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.8967	GEN524022 1-NICHOLS GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.6523	GEN527903 1-HOBBS PLANT #3 (ST)

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.5779	GEN523942 1-MAJSTC-WTG210.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.5669	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.5632	GEN523941 1-MAJSTC-WTG110.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.5603	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.4684	GEN528361 1-MADDOX GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.4485	GEN523462 1-BLACKHAWK GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.4324	GEN562550 1-G14_040_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.4	GEN523461 1-BLACKHAWK GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21379	120.3627	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21379	120.3627	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.2889	GEN562608 1-G14_063_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21094	120.2816	MINGO - SETAB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.1463	GEN525493 1-PLANT X GEN #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	120.0912	GEN525492 1-PLANT X GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.8733	GEN562495 1-G14_012_2 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.7615	GEN560105 1-G08-22 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	119.7503	HOLCOMB - SETAB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.6741	GEN528362 1-MADDOX GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20946	119.5735	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20991	119.5406	DWS FRISCO - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2085	119.4825	RB-SPURLOCK3115.00 - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.4689	GEN527881 1-CUNNINGHAM GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	119.4618	SPP-SWPS-V92
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21061	119.3949	Hitchland Interchange (SIEM 8743067) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	119.3722	OCHILTREE - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21474	119.3438	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2085	119.2793	MOORE COUNTY INTERCHANGE EAST BUS - RB-SPURLOCK3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	119.2777	Harrington Station East Bus - PRINGLE INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	119.2737	SPP-SWPS-K43
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	119.2663	PRINGLE INTERCHANGE (WH ALM12301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21105	119.2656	MINGO - RED WILLOW 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.253	GEN562617 1-G14_067CT 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.2399	GEN524285 1-WILDORADO WIND GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.2381	GEN336821 1-GRAND GULF UNIT
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21049	119.2216	SPSCONT-05AX
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.2039	GEN526332 1-JONES GEN #2 21 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.2028	GEN526331 1-JONES GEN #1 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	119.1912	SPEARMAN SUB - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.1749	GEN336153 1-WATERFORD UNIT#3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20859	119.1552	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20859	119.1552	HITCHLAND INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.1501	GEN562605 1-G14_062_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20817	119.1495	DALLAM COUNTY INTERCHANGE - SHERMAN COUNTY SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.1157	GEN562618 1-G14_068CT 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.1156	GEN562270 1-G12-020-2 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20794	119.064	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20794	119.0601	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	119.0357	GEN562269 1-G12-020-1 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.9778	GEN501801 1-DOLET HILLS UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20817	118.9655	SHERMAN COUNTY SUB - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	118.9619	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	118.9619	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	118.9601	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	118.9601	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.9506	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20877	118.9195	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	118.8697	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.8632	GEN335831 1-RIVERBEND UNIT#1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.8566	GEN562616 1-G14_067S 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	118.8559	SPEARMAN INTERCHANGE - SPEARMAN SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	118.8342	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20853	118.8015	MOORE COUNTY INTERCHANGE W. - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20773	118.7908	HOBBS - YOAKUM_345 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7625	GEN562483 1-G13_027_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7622	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7592	GEN522814 1-LUBBOCK POWER & LIGHT-MACKENZIE GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7415	GEN525491 1-PLANT X GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7283	GEN560738 1-G13_016_2 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20782	118.7243	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.7123	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.6962	GEN522866 1-LUBBOCK POWER & LIGHT-HOLLY GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20991	118.6944	DWS FRISCO - HITCHLAND INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.6891	GEN562556 1-G14_046_3 0.3420
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20892	118.6773	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20894	118.675	THISTLE7 345.00 - WICHITA 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20894	118.675	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20853	118.6523	DUMAS SUB - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	118.6227	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	118.6225	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	118.6223	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.6183	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	118.6145	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	118.614	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20892	118.5986	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21108	118.5962	HITCHLAND INTERCHANGE - Hansford County Switch Station 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5943	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5724	GEN562490 1-G14_007_4 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5724	GEN562492 1-G14_007_5 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20839	118.565	PRINGLE INTERCHANGE - RIVERVIEW INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.208	118.5645	MOORE COUNTY INTERCHANGE (ENRCO 136402) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5641	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5396	GEN562624 1-G14_070_3 0.5500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5359	GEN524471 1-QUAY_CNTY 113.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5346	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.526	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.52	GEN501813 1-RODEMACHER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	118.5146	MARTIN SUB - PANTEX NORTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5122	GEN524287 1-GS-PHWD_GEN10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.511	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.5034	GEN525844 1-ELK_1 118.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	118.4971	PANTEX NORTH SUB - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	118.4874	HIGHLAND PARK TAP - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.483	GEN562581 1-G14_054_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4744	GEN562621 1-G14_069_3 0.5500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4735	GEN334440 1-SABINE UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4556	GEN335206 1-NELSON UNIT 6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4216	GEN523815 1-LLANO ESTACADO WIND GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4134	GEN336831 1-BAXTER WILSON SES
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4091	GEN338146 1-INDEPENDENCE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.4039	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3935	GEN335204 1-NELSON UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3855	GEN501812 1-RODEMACHER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20785	118.3836	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.378	GEN337692 1-LAKE CATHERINE UNIT #4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3736	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3651	GEN334441 1-SABINE UNIT 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3607	GEN303007 1-1BC2 U2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3233	GEN336191 1-LITTLE GYPSY UNIT#3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	118.3223	GEN524485 1-CAPROCK WIND GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20996	118.2581	Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21474	118.0548	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.9758	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.911	GEN526333 1-JONES GEN #3 21 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.911	GEN526334 1-JONES_4 116.500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.7863	BASE CASE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.7738	GEN527166 1-MUSTANG_6 118.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.7307	GEN527162 1-MUSTANG GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.7306	GEN527161 1-MUSTANG GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.487	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.4694	GEN527165 1-Mustang Gen #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20866	117.3765	HITCHLAND INTERCHANGE - OCHILTREE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20866	117.3136	OCHILTREE (H TP80219401) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2495	GEN509402 1-LIEBERMAN #4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.249	GEN532723 1-EVANS ENERGY CENTER GAS TURBINE 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2488	GEN650093 3-ROKEBY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2462	GEN511954 S-COGENTRIX STEAM # 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2462	GEN511956 S-COGENTRIX STEAM # 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2462	GEN511958 S-COGENTRIX STEAM # 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2459	GEN560432 1-G08-124 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2445	GEN509401 1-LIEBERMAN #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2397	GEN509390 1-ARSENAL HILL
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2354	GEN524021 1-NICHOLS GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2326	GEN531601 1-SPVLW4-7 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20773	117.2232	SPP-SWPS-T70
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20755	117.2224	CANYON E_TP3115.00 - RANDALL COUNTY INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.219	GEN659116 1-SPIRIT MOUND UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.219	GEN659117 2-SPIRIT MOUND UNIT2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.218	GEN549901 2-JAMES RIVER GAS TURBINE 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.218	GEN560175 1-G0744_G1403 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2124	GEN539655 1-CLIFTON GENERATOR

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.2039	GEN503900 1-FITZHUGH CT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1876	GEN300013 1-HOLDEN UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1832	GEN560329 1-G10-45 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1819	GEN506749 1-EASTMAN GENERATION A
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1817	GEN511955 G-COGENTRIX GAS # 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1809	GEN531503 1-CIMRRN 1 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1805	GEN524022 1-NICHOLS GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1801	GEN640020 2-SHELDON STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1796	GEN514935 1-HORSESHOE LAKE 6G
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1779	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1738	GEN641086 1-ENERGY CENTER
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1728	GEN546697 1-QN GEN1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1714	GEN652544 5-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20764	117.1703	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1668	GEN652542 1-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1668	GEN652543 3-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1586	GEN645021 1-NORTH OMAHA 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1538	GEN532705 1-BPU - CITY OF MCPHERSON GAS TURBINE 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1526	GEN532733 1-GILL ENERGY CENTER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1522	GEN532734 1-GILL ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.152	GEN514998 1-MCCLAIN UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1464	GEN547655 1-STATE LINE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1438	GEN506754 1-LEBROCK STEAM 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1433	GEN514999 1-MCCLAIN UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1423	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2075	117.1345	AMARILLO SOUTH INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1308	GEN635213 3-NEAL UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1276	GEN659296 1-SDPRAIRWND1W0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20824	117.1251	CHAN/TASCOS6230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.124	GEN562023 1-G11_020_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.124	GEN562026 1-G11_019_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1234	GEN515000 1-MCCLAIN UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1214	GEN511942 1-OEC GAS # 2-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1184	GEN506752 1-LEBROCK GAS 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.111	GEN514905 1-REDBUD3S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1065	GEN514899 1-REDBUD1S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1065	GEN514900 1-REDBUD2S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1065	GEN514940 1-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1045	GEN542967 9-HAWTHORN UNIT #9
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1027	GEN656573 2-WISDOM G 69.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.1014	GEN539653 1-CIMARRON RIVER PLANT GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0994	GEN523201 1-EXCELN4-WTG10.6000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0991	GEN640028 1-COLUMCOGENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0943	GEN549899 5-JAMES RIVER 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0864	GEN511939 1-OEC GAS # 1-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0864	GEN511940 1-OEC GAS # 1-2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0844	GEN511836 1-NORTHEASTERN STATION #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0804	GEN531461 4-S4 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0775	GEN541170 4-LAKERD#4 13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0761	GEN650092 2-ROKEBY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0744	GEN659272 2-GROTON 2G13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0603	GEN541167 3-SHARPR#3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0586	GEN503909 1-FULTONU1 1 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0547	GEN531462 5-S5 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0533	GEN541165 1-SHARPR#1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0533	GEN541166 2-SHARPR#2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0459	GEN647418 8-FREMONT 8
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0336	GEN514912 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0328	GEN599951 1-PSCO LAMAR DC TIE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20774	117.03	SPP-SWPS-V44
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0297	GEN562032 1-G11_017_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.028	GEN532662 1-LAWRENCE ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0261	GEN659274 1-GROTON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0227	GEN640019 1-SHELDON STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.022	GEN640022 1-BEATRICE POWER STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0169	GEN300012 1-HOLDEN UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0144	GEN514911 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0144	GEN514942 2-REDBUD4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0123	GEN640023 2-BEATRICE POWER STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0123	GEN640024 3-BEATRICE POWER STATION UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	117.0093	GEN514910 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9951	GEN562453 1-ASGI13-07 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9935	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9906	GEN511858 1-TULSA POWER STATION # 4-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9886	GEN642067 1-PLATTE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9792	GEN509407 1-WILKES #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9758	GEN511957 G-COGENTRIX GAS # 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9737	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9713	GEN659320 1-STEGALLWECCG230.00
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9708	GEN520997 1-MORLND2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9596	GEN506750 1-EASTMAN GENERATION B
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9508	GEN652559 1-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9501	GEN645033 3-SARPY COUNTY 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9441	GEN541164 1-ARIES COMBUSTION TURBINE #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.942	GEN514859 1-MUSTANG 4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9346	GEN645022 2-NORTH OMAHA 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9293	GEN645023 3-NORTH OMAHA 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9232	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9232	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.92	GEN520998 1-MORLND3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.9143	GEN511854 1-TULSA POWER STATION # 2-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	116.9001	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	116.9	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8975	GEN515266 1-AES 1G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8975	GEN515267 1-AES 2G
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8918	GEN659270 1-WEST SW
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8909	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.888	GEN523942 1-MAJSTC-WTG210.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8846	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8824	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.881	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8746	GEN523941 1-MAJSTC-WTG110.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.862	GEN652556 2-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.862	GEN652557 4-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.862	GEN652558 6-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.858	GEN532672 1-TECUMSEH ENERGY CENTER UNIT 8
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.854	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8456	GEN652457 1-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8456	GEN652458 2-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8456	GEN652459 3-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8449	GEN652460 4-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8449	GEN652461 5-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8406	GEN514936 1-HORSESHOE LAKE 7S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8388	GEN511953 G-COGENTRIX GAS # 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8342	GEN532742 5-EMPORIA ENERGY CENTER UNIT 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8331	GEN542954 3-MONTROSE UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8313	GEN635214 4-NEAL UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8187	GEN547642 1-RIVERTON GEN #12
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.812	GEN531610 1-WDCTWF-7 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8089	GEN640005 1-CANADAY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.808	GEN300020 1-1CHOTCT4 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.808	GEN300021 1-1CHOTCT5 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.808	GEN300033 1-CHOUTEAU STG 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8079	GEN300032 1-CHOUTEAU CTG 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8031	GEN546698 1-QN GEN2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8024	GEN541163 1-ARIES COMBUSTION TURBINE #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.8007	GEN528361 1-MADDOX GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7756	GEN562550 1-G14_040_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.77	GEN300024 1-1CHOTST6 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.77	GEN300031 1-CHOUTEAU CTG 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7681	GEN523462 1-BLACKHAWK GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7666	GEN511938 1-OEC STEAM # 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7648	GEN547656 1-STATE LINE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.764	GEN301382 1-1OSAGEWINDG10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.763	GEN547657 1-STATE LINE UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7612	GEN645024 4-NORTH OMAHA 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7611	GEN511941 1-OEC STEAM # 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7565	GEN542952 1-MONTROSE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7565	GEN542953 2-MONTROSE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7528	GEN542961 6-HAWTHORN COMBUSTION TURBINE #6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7335	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7246	GEN532725 1-EVANS ENERGY CENTER GAS TURBINE 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.7241	GEN523461 1-BLACKHAWK GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.6957	GEN532721 1-EVANS ENERGY CENTER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.6876	GEN532743 6-EMPORIA ENERGY CENTER UNIT 6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.6876	GEN532744 7-EMPORIA ENERGY CENTER UNIT 7
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.648	GEN509408 1-WILKES #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.637	GEN562608 1-G14_063_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.6343	GEN300017 1-1G2GPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21379	116.6011	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21379	116.6011	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.6003	GEN300016 1-1G1GPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20756	116.5894	SPP-SWPS-06X
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21094	116.5777	MINGO - SETAB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5725	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5197	GEN549890 1-SOUTHWEST 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5106	GEN645042 2-CASS COUNTY 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5105	GEN645041 1-CASS COUNTY 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5074	GEN525493 1-PLANT X GEN #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.5044	GEN532694 1-HUTCHINSON ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4931	GEN300001 1-THOMAS HILL UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4729	GEN547649 1-ASBURY UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	116.4579	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	116.4575	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4571	GEN525492 1-PLANT X GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.455	GEN562426 1-G13-028ST 17.500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4438	GEN531459 2-S2 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4347	GEN659354 1-DEERCREK STG18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4344	GEN659353 1-DEERCREK CTG18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4289	GEN514939 1-HORSESHOE LAKE 8G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.4234	GEN547658 1-STATE LINE COMBINED CYCLE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.2902	GEN515040 1-SEMINOLE 1G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.2462	GEN515041 1-SEMINOLE 2G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.2114	GEN645025 5-NORTH OMAHA 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1864	GEN523171 1-GOODWELL_2 10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1863	GEN520947 1-HUGO1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1595	GEN300010 1-ST FRANCIS UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1554	GEN560105 1-G08-22 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.132	GEN509398 1-KNOXLEE #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1254	GEN300015 1-1SGPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.1112	GEN509409 1-WILKES #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.0922	GEN300011 1-ST FRANCIS UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	116.087	HOLCOMB - SETAB 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.0754	GEN528362 1-MADDOX GEN #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.0197	GEN641089 2-ENERGY CENTER 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	116.0088	GEN505432 1-SIKESTON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.9636	GEN523170 1-GOODWELL_1 10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20946	115.9477	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.9067	GEN300002 1-THOMAS HILL UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	115.8981	SPP-SWPS-V92
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.8876	GEN527881 1-CUNNINGHAM GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.8756	GEN549893 2-SOUTHWEST 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2085	115.873	RB-SPURLOCK3115.00 - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.8571	GEN539670 4-JUDSON LARGE GENERATOR
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.82	GEN659110 1-LELAND OLDS UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	115.8091	OCHILTREE - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.7782	GEN546702 1-NM GEN N1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.7188	GEN562425 1-G13-028CT 20.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.7082	GEN562617 1-G14_067CT 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2085	115.6883	MOORE COUNTY INTERCHANGE EAST BUS - RB-SPURLOCK3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.6854	GEN524285 1-WILDORADO WIND GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21105	115.6772	MINGO - RED WILLOW 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.6746	GEN336821 1-GRAND GULF UNIT
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	115.6704	Harrington Station East Bus - PRINGLE INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	115.6656	SPP-SWPS-K43
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20933	115.6606	PRINGLE INTERCHANGE (WH ALM12301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	115.6421	SPEARMAN SUB - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21049	115.6214	SPSCONT-05AX
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.6168	GEN336153 1-WATERFORD UNIT#3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20859	115.606	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20859	115.606	HITCHLAND INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.5949	GEN562605 1-G14_062_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.5944	GEN562618 1-G14_068CT 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20817	115.5882	DALLAM COUNTY INTERCHANGE - SHERMAN COUNTY SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.5628	GEN562270 1-G12-020-2 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.5486	GEN515042 1-SEMINOLE 3G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20794	115.508	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20794	115.5049	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4897	GEN562269 1-G12-020-1 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4471	GEN523121 1-NBLWND-WTG110.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4437	GEN523122 1-NBLWND-WTG210.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4367	GEN501801 1-DOLET HILLS UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20817	115.4244	SHERMAN COUNTY SUB - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4128	GEN560584 1-G06-44-2 4.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	115.4123	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	115.4123	G14-058T 345.00 - MATHWSN7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.4118	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	115.4089	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20949	115.4089	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3984	GEN523107 1-NOVUS_WND 14.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20877	115.3653	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3499	GEN541151 3-SIBLEY GENERATING UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3398	GEN511842 1-RIVERSIDE STATION #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3396	GEN562616 1-G14_067S 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20917	115.3347	SPEARMAN INTERCHANGE - SPEARMAN SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3319	GEN335831 1-RIVERBEND UNIT#1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3291	GEN511843 1-RIVERSIDE STATION #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	115.3262	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3253	GEN511839 1-NORTHEASTERN STATION #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.325	GEN509406 1-WELSH #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3248	GEN509404 1-WELSH #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.3087	GEN523123 1-NBLWND-WTG310.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	115.2907	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20853	115.2824	MOORE COUNTY INTERCHANGE W. - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20773	115.2694	HOBBS - YOAKUM_345 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.2414	GEN562483 1-G13_027_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.2396	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.2376	GEN522814 1-LUBBOCK POWER & LIGHT-MACKENZIE GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.224	GEN532663 1-LAWRENCE ENERGY CENTER UNIT 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.2226	GEN525491 1-PLANT X GEN #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20782	115.2077	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.2077	GEN560738 1-G13_016_2 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.18	GEN522866 1-LUBBOCK POWER & LIGHT-HOLLY GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.1738	GEN562556 1-G14_046_3 0.3420
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20894	115.1502	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20894	115.1502	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20853	115.1466	DUMAS SUB - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20892	115.1409	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.1397	GEN511840 1-NORTHEASTERN STATION #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.1277	GEN515223 1-MUSKOGEE 4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.1079	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.1041	GEN515226 1-MUSKOGEE 6G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20871	115.1007	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0973	GEN532722 1-EVANS ENERGY CENTER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	115.0969	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	115.0967	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0941	GEN515225 1-MUSKOGEE 5G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0859	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	115.0843	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20924	115.0839	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20892	115.0663	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.208	115.0654	MOORE COUNTY INTERCHANGE (ENRCO 136402) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0648	GEN562490 1-G14_007_4 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0648	GEN562492 1-G14_007_5 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20839	115.0587	PRINGLE INTERCHANGE - RIVERVIEW INTERCHANGE 115KV CKT 1
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0443	GEN659382 1X-MANITOU G1X13.800
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0402	GEN659328 1-WATFRDCMBC1X13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0367	GEN562624 1-G14_070_3 0.5500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0337	GEN524471 1-QUAY_CNTY 113.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0233	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0179	GEN501813 1-RODEMACHER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	115.0119	MARTIN SUB - PANTEX NORTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.0096	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	115.008	GEN524287 1-GS-PHWD_GEN10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	114.9966	PANTEX NORTH SUB - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20787	114.9875	HIGHLAND PARK TAP - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9849	GEN562581 1-G14_054_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9767	GEN562621 1-G14_069_3 0.5500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9753	GEN334440 1-SABINE UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9589	GEN335206 1-NELSON UNIT 6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9228	GEN523815 1-LLANO ESTACADO WIND GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9203	GEN336831 1-BAXTER WILSON SES
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9164	GEN338146 1-INDEPENDENCE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.9021	GEN335204 1-NELSON UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.8947	GEN501812 1-RODEMACHER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20785	114.8897	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.8878	GEN337692 1-LAKE CATHERINE UNIT #4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.8839	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.8676	GEN509416 1-TURK GENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.8112	GEN560586 1-G06-44-4 4.1600

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.6943	GEN509394 1-FLINT CREEK
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.6871	GEN514805 1-SOONER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.6714	GEN514806 1-SOONER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.6219	GEN512688 2-GRDA1 GSU2 22
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.5372	GEN509403 1-PIRKEY GENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.5165	GEN560585 1-G06-44-3 4.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	114.3459	BASE CASE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.9421	GEN562524 1-G14_026_3 12.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.8517	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.8517	GEN560287 1-G10-01-2WTG 0.6900
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.8152	GEN659111 2-LELAND OLDS UNIT2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.8133	GEN590010 1-ERCOT EQUIVALENCE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7953	GEN300013 1-HOLDEN UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7927	GEN560329 1-G10-45 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7911	GEN531503 1-CIMRRN 1 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7909	GEN506749 1-EASTMAN GENERATION A
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7898	GEN511955 G-COGENTRIX GAS # 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7889	GEN640020 2-SHELDON STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7888	GEN514935 1-HORSESHOE LAKE 6G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7824	GEN641086 1-ENERGY CENTER
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7816	GEN546697 1-QN GEN1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7809	GEN652544 5-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20764	113.7795	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7767	GEN652542 1-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7767	GEN652543 3-BIG BEND
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7692	GEN645021 1-NORTH OMAHA 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7641	GEN532705 1-BPU - CITY OF MCPHERSON GAS TURBINE 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7633	GEN514998 1-MCCLAIN UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7626	GEN532733 1-GILL ENERGY CENTER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7623	GEN532734 1-GILL ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2075	113.7613	AMARILLO SOUTH INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.76	GEN300006 1-NEW MADRID UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7585	GEN547655 1-STATE LINE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.757	GEN300007 1-NEW MADRID UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7559	GEN506754 1-LEBROCK STEAM 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7553	GEN514999 1-MCCLAIN UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7432	GEN635213 3-NEAL UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7407	GEN659296 1-SDPRAIRWND1W0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7374	GEN523201 1-EXCELN4-WTG10.6000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.737	GEN515000 1-MCCLAIN UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7355	GEN511942 1-OEC GAS # 2-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7354	GEN562023 1-G11_020_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7354	GEN562026 1-G11_019_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7326	GEN506752 1-LEBROCK GAS 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7258	GEN514905 1-REDBUD3S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7217	GEN514899 1-REDBUD1S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7217	GEN514900 1-REDBUD2S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7217	GEN514940 1-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7189	GEN542967 9-HAWTHORN UNIT #9
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7176	GEN656573 2-WISDOM G 69.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20824	113.7147	CHAN/TASCOS6230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7144	GEN640028 1-COLUMCOGENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7107	GEN539653 1-CIMARRON RIVER PLANT GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7106	GEN549899 5-JAMES RIVER 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7034	GEN511939 1-OEC GAS # 1-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7034	GEN511940 1-OEC GAS # 1-2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.7015	GEN511836 1-NORTHEASTERN STATION #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6995	GEN531461 4-S4 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6952	GEN590011 2-ERCOT EQUIVALENCE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6941	GEN541170 4-LAKERD#4 13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6933	GEN650092 2-ROKEBY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6918	GEN659272 2-GROTON 2G13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6783	GEN541167 3-SHARPR#3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6777	GEN503909 1-FULTONU1 1 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6755	GEN531462 5-S5 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6719	GEN541165 1-SHARPR#1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6719	GEN541166 2-SHARPR#2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6655	GEN647418 8-FREMONT 8
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20774	113.6585	SPP-SWPS-V44
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6547	GEN514912 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6541	GEN599951 1-PSCO LAMAR DC TIE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.65	GEN562032 1-G11_017_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6485	GEN532662 1-LAWRENCE ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6473	GEN659274 1-GROTON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6442	GEN640019 1-SHELDON STATION UNIT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6436	GEN640022 1-BEATRICE POWER STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.638	GEN300012 1-HOLDEN UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6371	GEN514911 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6371	GEN514942 2-REDBUD4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6347	GEN640023 2-BEATRICE POWER STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6347	GEN640024 3-BEATRICE POWER STATION UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6325	GEN514910 2-REDBUD GEN
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6194	GEN562453 1-ASGI13-07 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6179	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6173	GEN542951 5-HAWTHORN UNIT #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6153	GEN511858 1-TULSA POWER STATION # 4-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6128	GEN642067 1-PLATTE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6047	GEN509407 1-WILKES #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.6017	GEN511957 G-COGENTRIX GAS # 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5996	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5984	GEN520997 1-MORLND2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5971	GEN659320 1-STEGALLWECCG230.00
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5867	GEN506750 1-EASTMAN GENERATION B
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.578	GEN652559 1-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5776	GEN645033 3-SARPY COUNTY 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5715	GEN541164 1-ARIES COMBUSTION TURBINE #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5704	GEN514859 1-MUSTANG 4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5633	GEN645022 2-NORTH OMAHA 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5583	GEN645023 3-NORTH OMAHA 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5535	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5535	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5519	GEN520998 1-MORLND3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5452	GEN511854 1-TULSA POWER STATION # 2-1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	113.532	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	113.5319	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5298	GEN515266 1-AES 1G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5298	GEN515267 1-AES 2G
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5238	GEN659270 1-WEST SW
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5134	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.5002	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4966	GEN652556 2-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4966	GEN652557 4-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4966	GEN652558 6-OAHE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4936	GEN532672 1-TECUMSEH ENERGY CENTER UNIT 8
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.489	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4816	GEN652458 2-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4816	GEN652459 3-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4815	GEN652457 1-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4807	GEN652460 4-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4807	GEN652461 5-GARRISON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4773	GEN514936 1-HORSESHOE LAKE 7S
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4759	GEN511953 G-COGENTRIX GAS # 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4717	GEN532742 5-EMPORIA ENERGY CENTER UNIT 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4715	GEN659103 1-ANTELOPE VALLEY UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4715	GEN659107 2-ANTELOPE VALLEY UNIT2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4706	GEN542954 3-MONTROSE UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4676	GEN635214 4-NEAL UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4574	GEN547642 1-RIVERTON GEN #12
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4552	GEN531610 1-WDCTWF-7 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4476	GEN300020 1-1CHOTCT4 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4476	GEN300021 1-1CHOTCT5 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4475	GEN300032 1-CHOUTEAU CTG 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4475	GEN300033 1-CHOUTEAU STG 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4472	GEN640005 1-CANADAY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4431	GEN546698 1-QN GEN2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4424	GEN541163 1-ARIES COMBUSTION TURBINE #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4127	GEN300024 1-1CHOTST6 16.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4126	GEN300031 1-CHOUTEAU CTG 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4095	GEN511938 1-OEC STEAM # 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4079	GEN547656 1-STATE LINE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4073	GEN301382 1-1OSAGEWINDG10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.406	GEN547657 1-STATE LINE UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4045	GEN511941 1-OEC STEAM # 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.404	GEN645024 4-NORTH OMAHA 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4002	GEN542952 1-MONTROSE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.4002	GEN542953 2-MONTROSE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.3968	GEN542961 6-HAWTHORN COMBUSTION TURBINE #6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.3796	GEN645001 1-FORT CALHOUN 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.3776	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.3708	GEN532725 1-EVANS ENERGY CENTER GAS TURBINE 3

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.3442	GEN532721 1-EVANS ENERGY CENTER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.337	GEN532743 6-EMPORIA ENERGY CENTER UNIT 6
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.337	GEN532744 7-EMPORIA ENERGY CENTER UNIT 7
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.2995	GEN509408 1-WILKES #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.2871	GEN300017 1-1G2GPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.2583	GEN562574 1-G14_052_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.2558	GEN300016 1-1G1GPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20756	113.2443	SPP-SWPS-06X
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.2293	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1937	GEN562042 1-G11_014_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1826	GEN549890 1-SOUTHWEST 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1732	GEN645041 1-CASS COUNTY 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1732	GEN645042 2-CASS COUNTY 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1678	GEN532694 1-HUTCHINSON ENERGY CENTER UNIT 4
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1582	GEN300001 1-THOMAS HILL UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1391	GEN547649 1-ASBURY UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	113.1233	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.123	GEN562426 1-G13-028ST 17.500
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20757	113.1229	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1165	GEN531459 2-S2 GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1036	GEN659354 1-DEERCREK STG18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.1033	GEN659353 1-DEERCREK CTG18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.0982	GEN514939 1-HORSESHOE LAKE 8G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.0938	GEN547658 1-STATE LINE COMBINED CYCLE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	113.073	GEN542956 2-LACYGNE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.9702	GEN515040 1-SEMINOLE 1G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.93	GEN515041 1-SEMINOLE 2G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.9216	GEN523171 1-GOODWELL_2 10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.8979	GEN645025 5-NORTH OMAHA 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.8744	GEN520947 1-HUGO1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.8501	GEN300010 1-ST FRANCIS UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.8241	GEN509398 1-KNOXLEE #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.8182	GEN300015 1-1SGPDEL 18.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.805	GEN509409 1-WILKES #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.7882	GEN300011 1-ST FRANCIS UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.7525	GEN523170 1-GOODWELL_1 10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.7407	GEN531447 1-HOLCOMB GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.7213	GEN641089 2-ENERGY CENTER 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.7116	GEN505432 1-SIKESTON
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.6794	GEN645011 1-NEBRASKA CITY 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.6175	GEN300002 1-THOMAS HILL UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.589	GEN549893 2-SOUTHWEST 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.5718	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.5486	GEN560256 1-G10-14-1 0.6900
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.5376	GEN659110 1-LELAND OLDS UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4992	GEN546702 1-NM GEN N1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4447	GEN562425 1-G13-028CT 20.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4199	GEN645012 2-NEBRASKA CITY 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4131	GEN560257 1-G10-14-2 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4038	GEN532653 1-JEFFREY ENERGY CENTER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.4037	GEN532652 1-JEFFREY ENERGY CENTER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.3982	GEN532651 1-JEFFREY ENERGY CENTER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.3883	GEN542955 1-LACYGNE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.3567	GEN542957 1-IATAN UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2931	GEN640009 1-COOPER NUCLEAR STATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2872	GEN515042 1-SEMINOLE 3G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2767	GEN523122 1-NBLWND-WTG210.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2623	GEN523121 1-NBLWND-WTG110.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2251	GEN560584 1-G06-44-2 4.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.2178	GEN523107 1-NOVUS_WND 14.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.1931	GEN300003 1-THOMAS HILL UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.1547	GEN523123 1-NBLWND-WTG310.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.1192	GEN562648 1-G14_037_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.1047	GEN541151 3-SIBLEY GENERATING UNIT #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0954	GEN511842 1-RIVERSIDE STATION #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0855	GEN511843 1-RIVERSIDE STATION #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0821	GEN511839 1-NORTHEASTERN STATION #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0811	GEN509406 1-WELSH #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0809	GEN509404 1-WELSH #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	112.0138	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.9885	GEN532663 1-LAWRENCE ENERGY CENTER UNIT 5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.9111	GEN511840 1-NORTHEASTERN STATION #3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8997	GEN515223 1-MUSKOGEE 4G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8779	GEN515226 1-MUSKOGEE 6G
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8724	GEN532722 1-EVANS ENERGY CENTER UNIT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8687	GEN515225 1-MUSKOGEE 5G
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8226	GEN659382 1X-MANITOU G1X13.800
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.8188	GEN659328 1-WATFRDCMBC1X13.800
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.6941	GEN560586 1-G06-44-4 4.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.6845	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.6591	GEN509416 1-TURK GENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.6121	GEN524295 1-SPNSPUR_WND10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.5002	GEN509394 1-FLINT CREEK
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.4939	GEN514805 1-SOONER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.4797	GEN514806 1-SOONER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.4334	GEN512688 2-GRDA1 GSU2 22
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.4295	GEN560585 1-G06-44-3 4.1600
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.3545	GEN509403 1-PIRKEY GENERATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.265	GEN542962 2-IATAN UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	111.2227	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.8871	GEN562524 1-G14_026_3 12.000
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.8269	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.8269	GEN560287 1-G10-01-2WTG 0.6900
FDNSLock	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.6877	GEN659111 2-LELAND OLDS UNIT2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.6865	GEN590010 1-ERCOT EQUIVALENCE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.6373	GEN300006 1-NEW MADRID UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.6345	GEN300007 1-NEW MADRID UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.5773	GEN590011 2-ERCOT EQUIVALENCE
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.5053	GEN542951 5-HAWTHORN UNIT #5
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.3699	GEN659103 1-ANTELOPE VALLEY UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.3699	GEN659107 2-ANTELOPE VALLEY UNIT2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.349	GEN560121 1-G08471419 0.5750
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.2847	GEN645001 1-FORT CALHOUN 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.244	GEN562574 1-G14_052_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.1975	GEN562042 1-G11_014_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.1229	GEN562432 1-G13-030 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	110.0023	GEN542956 2-LACYGNE UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.7139	GEN531447 1-HOLCOMB GENERATOR
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.6638	GEN560256 1-G10-14-1 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.6368	GEN645011 1-NEBRASKA CITY 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.5427	GEN560257 1-G10-14-2 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3964	GEN645012 2-NEBRASKA CITY 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3824	GEN532653 1-JEFFREY ENERGY CENTER UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3823	GEN532652 1-JEFFREY ENERGY CENTER UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3772	GEN532651 1-JEFFREY ENERGY CENTER UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3685	GEN542955 1-LACYGNE UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.3388	GEN542957 1-IATAN UNIT #1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.279	GEN640009 1-COOPER NUCLEAR STATION
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.2157	GEN562648 1-G14_037_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.1872	GEN300003 1-THOMAS HILL UNIT 3
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.1828	GEN562017 1-G11_022_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.0157	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	109.0098	GEN562544 1-G14_038_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	108.7098	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	108.3265	GEN542962 2-IATAN UNIT #2
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	108.2827	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	107.9255	GEN524295 1-SPNSPUR_WND10.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	107.5567	GEN560121 1-G08471419 0.5750
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	107.5476	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	107.4362	GEN562432 1-G13-030 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	106.5201	GEN562017 1-G11_022_3 0.6900
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	106.1638	GEN562544 1-G14_038_3 0.6900
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23786	105.5933	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23786	105.5933	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	105.4716	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	105.0528	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20775	104.8678	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23137	104.0146	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	102.9538	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	102.7493	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	102.7481	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	102.748	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	102.5603	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21899	102.0492	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23786	102.0373	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23786	102.0373	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23137	101.3323	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	100.3284	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	100.3273	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21849	100.3272	GEN523973 1-HARRINGTON GEN #3 24 KV

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21899	99.7	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02ALL	2	15G	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03597	176.6372	BASE CASE
FDNS	02ALL	2	15SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03985	124.8623	BASE CASE
FDNS	02ALL	2	20SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04199	121.7745	BASE CASE
FDNS	02ALL	2	20WP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.04376	113.7242	BASE CASE
FDNS	02ALL	2	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23359	101.3391	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL	2	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23359	101.3391	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL	2	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21295	101.3379	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL	2	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21295	100.5063	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL	3	15SP	G14_038	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04596	111.5483	BASE CASE
FDNS	02ALL	3	15SP	G14_038	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.04596	110.9868	BASE CASE
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	112.1383	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	109.6009	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	109.4771	SPP-SWPS-05
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	109.1866	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	106.7644	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20767	106.6495	SPP-SWPS-05
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.18708	102.7281	BASE CASE
FDNS	02ALL	3	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.18708	100.6473	BASE CASE
FDNS	05ALL	0	15G	G14_040	TO->FROM	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	159	160	0.48353	100.1926	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
FDNS	00NR	0	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.04591	104.8374	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04591	104.4554	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04591	101.3328	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_040	TO->FROM	CANYON WEST SUB - DAWN SUB 115KV CKT 1	96	96	0.0559	107.5383	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_040	FROM->TO	CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	160	160	0.27259	116.9748	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	00NR	0	20SP	G14_040	FROM->TO	CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	160	160	0.27437	103.855	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	00NR	0	20WP	G14_040	FROM->TO	CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	177	177	0.49387	100.9115	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
FDNS	00NR	0	15SP	G14_040	TO->FROM	DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.0559	111.8364	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_040	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	159	160	0.27259	107.6411	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	00NR	0	20WP	G14_040	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	165	177	0.49387	99.5	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
FDNS	00NR	0	15SP	G14_040	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.0559	117.6819	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.04984	105.8543	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04984	105.5596	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04984	102.3586	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	TO->FROM	CANYON WEST SUB - DAWN SUB 115KV CKT 1	96	96	0.06056	108.9444	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	TO->FROM	DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.06056	113.2444	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	15SP	G14_040	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.06056	119.0985	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	2	20WP	G14_040	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.06671	100.6289	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	148.0235	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	147.774	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	147.3596	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	146.8188	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	145.5353	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	145.1829	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	144.5981	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	144.5479	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	143.2	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	142.0913	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	140.4771	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	140.3777	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	139.979	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	136.3217	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	131.3612	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.67843	113.9666	MINGO (MINGO) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.67835	111.2532	MINGO (MINGO) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49259	109.4179	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60644	108.6478	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60686	107.6677	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60587	107.1024	HOLCOMB - SETAB 345KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63301	106.6427	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63301	106.5864	MIDW-CATB01B
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49218	106.4071	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63301	105.8076	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49259	105.6768	DIGHTON TAP - MANNING TAP 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49193	105.6419	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59572	105.54	MULLERGREN - SOUTH HAYS 230KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59831	105.391	GEN560309 1-G09201425 0.6900
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60687	105.3616	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63319	104.8436	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63319	104.7891	MIDW-CATB01B
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59999	104.643	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61107	104.5254	HOXIE - SEGNTP 3 115.00 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60685	104.2257	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.67848	104.0782	MINGO (MINGO) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63319	104.0249	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60015	103.9357	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.57293	103.7844	SCOTT CITY - SETAB 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61124	103.4633	HOXIE - SEGNTP 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60589	103.4478	HOLCOMB - SETAB 345KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61107	103.3946	MIDW-CATB01
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59602	103.1438	MULLERGREN - SOUTH HAYS 230KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59849	103.128	GEN560309 1-G09201425 0.6900
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49193	102.7117	DIGHTON TAP - MANNING TAP 115KV CKT 1
FDNS	04ALL	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49218	102.4541	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59572	102.371	G09201425 69.000 - NEKOMA 69KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61124	101.8809	MIDW-CATB01
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63277	101.6912	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60015	101.6255	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63277	101.6245	MIDW-CATB01B
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60506	101.1179	HOLCOMB - SETAB 345KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49218	100.9967	DIGHTON TAP - MANNING TAP 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63277	100.8544	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61124	100.4257	BEACH STATION - HOXIE 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59849	100.4219	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59809	100.3697	GEN560309 1-G09201425 0.6900
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63284	100.3438	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63284	100.3312	MIDW-CATB01B
FDNS	04ALL	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49259	100.2526	BEELER - DIGHTON TAP 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49217	100.1712	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63284	99.5	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61077	99.5	HOXIE - SEGNTP 3 115.00 115KV CKT 1
FDNS	04ALL	0	15SP	G14_041	TO->FROM	HEIZER - LACROSSE TAP 115KV CKT 1	88	88	0.25933	100.9716	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.41526	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.3423	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.3119	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	560	560	0.22745	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	956	994	0.20763	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.18797	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	560	560	0.15595	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	560	560	0.13467	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.12294	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	0	0	0.1176	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	478	502	0.06555	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	287	316	0.05744	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_046		Non-Converged Contingency	319	351	0.0573	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	0	0	0.42611	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	0	0	0.35103	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	0	0	0.32341	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	560	560	0.16171	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	0	0	0.12961	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_046		Non-Converged Contingency	0	0	0.11475	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	0	0	0.5217	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	0	0	0.37374	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	0	0	0.33612	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	956	994	0.26085	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	1420	1775	0.19962	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_046		Non-Converged Contingency	1792	1792	0.19962	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.42883	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.34981	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.31995	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1420	1775	0.29846	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1033	1071	0.21441	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.18887	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1195	1195	0.17315	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	987	1083	0.15997	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	560	560	0.15997	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1584	2098	0.15416	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1792	1792	0.15237	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1420	1775	0.14923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.1411	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	478	502	0.14105	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	987	1083	0.13083	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	956	1052	0.13083	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.13083	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	329	361	0.12511	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	329	361	0.11666	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	329	361	0.11666	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	0	0	0.11481	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	557	557	0.10763	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1420	1775	0.09443	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1195	1195	0.09443	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	329	361	0.0855	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	1532	1793	0.07285	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	421	439	0.07055	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	435	470	0.07055	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	396	441	0.07055	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_046		Non-Converged Contingency	329	361	0.05896	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.41547	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	319	351	0.35342	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.34251	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.31209	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1420	1775	0.29065	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	2302	2532	0.24616	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	717	926	0.22741	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	560	560	0.22741	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	956	994	0.20773	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.18807	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	956	1052	0.15605	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	560	560	0.15605	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	478	502	0.15403	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1330	1940	0.14803	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.1249	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	956	1052	0.12301	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.12301	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	319	351	0.12123	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	319	351	0.12123	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	0	0	0.11767	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1420	1775	0.09403	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	1195	1195	0.09403	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	439	439	0.06245	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	349	395	0.06245	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	396	441	0.06245	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_046		Non-Converged Contingency	319	351	0.05522	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	0	0	0.42636	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	0	0	0.35127	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	0	0	0.32363	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	1420	1775	0.29755	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	956	994	0.21318	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	956	1052	0.16182	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	560	560	0.16182	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_046		Non-Converged Contingency	956	1052	0.12971	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	0	0	0.41592	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	319	351	0.35339	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	0	0	0.34295	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	0	0	0.31249	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	1420	1775	0.29098	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	956	994	0.20796	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	956	1052	0.15625	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	560	560	0.15625	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	1330	1940	0.14818	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	1420	1775	0.14549	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	956	1052	0.12318	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	0	0	0.12318	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_046		Non-Converged Contingency	439	439	0.06252	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_046		Non-Converged Contingency	0	0	0.42655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_046		Non-Converged Contingency	0	0	0.35145	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_046		Non-Converged Contingency	0	0	0.32381	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15SP	G14_046		Non-Converged Contingency	1420	1775	0.29768	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_046		Non-Converged Contingency	956	994	0.21327	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	0	0	0.42951	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	0	0	0.35048	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	0	0	0.32056	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	1420	1775	0.29895	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	1033	1071	0.21476	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	987	1083	0.16028	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	560	560	0.16028	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	1420	1775	0.14948	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	987	1083	0.13109	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	956	1052	0.13109	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	0	0	0.13109	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_046		Non-Converged Contingency	421	439	0.07068	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	0	0	0.41934	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	0	0	0.27678	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	717	926	0.27119	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	0	0	0.2677	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	956	994	0.20967	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	1420	1775	0.16923	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_046		Non-Converged Contingency	956	1052	0.13839	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_046		Non-Converged Contingency	0	0	0.42953	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_046		Non-Converged Contingency	0	0	0.27582	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_046		Non-Converged Contingency	956	994	0.21477	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	0	0	0.43104	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	0	0	0.2881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	0	0	0.27974	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	1033	1071	0.21552	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	1420	1775	0.17277	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_046		Non-Converged Contingency	987	1083	0.14405	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_046		Non-Converged Contingency	0	0	0.3922	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_046		Non-Converged Contingency	0	0	0.37579	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_046		Non-Converged Contingency	0	0	0.25547	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_046		Non-Converged Contingency	956	994	0.1879	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_046		Non-Converged Contingency	0	0	0.38524	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_046		Non-Converged Contingency	0	0	0.26313	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_046		Non-Converged Contingency	956	994	0.19262	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_046		Non-Converged Contingency	1033	1071	0.19444	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_046		Non-Converged Contingency	0	0	0.23953	-	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_046	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.03317	104.8374	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20WP	G14_046	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12511	101.5534	BASE CASE
FDNS	00NR	0	15SP	G14_046	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03317	104.4554	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03317	101.3328	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23199	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05185	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04811	109.8457	BASE CASE
FDNS	06NR	0	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05128	109.0104	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05128	108.9614	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04365	108.6137	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	25SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.04821	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0517	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13209	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11666	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12155	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13279	121.8496	BASE CASE
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04458	118.1013	SPSCONT-01
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04473	118.0981	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04458	117.9229	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05102	112.0417	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.06022	111.2849	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04455	108.4595	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05434	106.981	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04455	105.9206	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04202	105.4592	SPP-SWPS-T04
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04308	104.7078	BASE CASE
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.061	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04835	102.6116	PLANT X STATION (WH ALM20171) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04905	102.2167	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04455	101.5313	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.061	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.061	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04349	100.1741	SPSCONT-02X
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04913	100.0806	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04308	99.6	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04308	99.6	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04308	99.6	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	06ALL	0	20WP	G14_046	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.032	100	BASE CASE
FDNS	06ALL	0	15SP	G14_046	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05185	104.9103	BASE CASE
FDNS	06NR	0	15G	G14_046	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05128	100.4285	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G14_046	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05128	100.3774	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03435	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13209	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11666	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12155	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.13279	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08458	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.26085	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29685	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.29748	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21523	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.13377	101.8966	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29959	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30023	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28231	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	0	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21722	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.17584	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23601	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	00NR	2	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.1736	101.6372	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05187	115.5826	BASE CASE
FDNS	06NR	2	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05132	107.6989	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	2	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05132	107.6528	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05172	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12165	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12061	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_046	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05187	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05747	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12165	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30838	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30639	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28609	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21568	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2158	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06NR	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.13434	101.0932	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	2	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31109	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30911	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29442	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28874	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27556	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21767	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22441	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29922	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_046	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32769	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23059	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23621	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15G	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2245	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.1736	101.6486	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	3	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06189	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23239	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05188	113.3005	BASE CASE
FDNS	06NR	3	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05134	106.3758	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	3	15G	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.05134	106.3334	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	20WP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.11693	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12173	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12062	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12103	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_046	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.05188	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06189	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05753	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.11693	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_046	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12173	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30863	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.27155	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.30701	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28614	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.28575	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21589	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21598	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06NR	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.13461	100.0647	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31134	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.27413	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29437	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.30973	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28879	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28842	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27555	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21788	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22459	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.29912	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_046	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.32754	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23096	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23165	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2463	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23636	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25381	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.22486	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_046	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.22537	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.17346	101.4809	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	4	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.064	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23927	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_046	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0462	102.0025	BASE CASE
FDNS	06ALL	4	15SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09757	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.0949	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09823	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_046	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09796	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.064	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06482	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06439	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05981	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21052	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.20973	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21261	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21184	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	00NR	5	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.17362	101.6449	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	5	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06224	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22378	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06224	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06318	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06255	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05798	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_046	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42894	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	00NR	6	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.17366	101.4884	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	6	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06701	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_046	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06NR	6	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.03094	109.0158	SPP-SWPS-06X
FDNS	00NR	7	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.17366	101.4878	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06ALL	7	15SP	G14_046	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06675	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_046	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23173	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06675	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06779	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.067	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_046	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06262	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_046	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.42971	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06NR	7	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.03094	109.0158	SPP-SWPS-06X
FDNS	00NR	8	15SP	G14_046	FROM->TO	CHAVES COUNTY INTERCHANGE - SAMSON SUB 115KV CKT 1	120	154	0.17368	101.5071	CHAVES COUNTY INTERCHANGE - URTON SUB 115KV CKT 1
FDNS	06NR	8	15G	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.03701	107.1469	SPP-SWPS-06X
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	560	560	0.69304	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.40787	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.3613	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.32015	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	956	994	0.20394	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.19003	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	560	560	0.16007	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	560	560	0.15737	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.13084	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.12475	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	0	0	0.12314	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	478	502	0.06726	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	319	351	0.05886	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_047		Non-Converged Contingency	287	316	0.05741	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	0	0	0.41872	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	0	0	0.36995	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	0	0	0.33151	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	560	560	0.16575	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	0	0	0.1314	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_047		Non-Converged Contingency	0	0	0.11981	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	0	0	0.51096	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	0	0	0.39342	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	0	0	0.3446	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	956	994	0.25548	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	1420	1775	0.19443	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_047		Non-Converged Contingency	1792	1792	0.19443	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.42055	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.37011	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.3289	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1420	1775	0.29063	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1033	1071	0.21028	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.19113	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1195	1195	0.17124	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	987	1083	0.16445	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	987	1083	0.16445	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	560	560	0.16445	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1584	2098	0.15382	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1792	1792	0.14845	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.14824	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	478	502	0.14677	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	329	361	0.13594	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	329	361	0.13594	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	987	1083	0.13284	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	956	1052	0.13284	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.13284	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	329	361	0.12989	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	0	0	0.12043	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	557	557	0.11256	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	557	557	0.11256	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1420	1775	0.09556	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1420	1775	0.09556	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1195	1195	0.09556	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1195	1195	0.09556	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	329	361	0.08632	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	421	439	0.07412	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	435	470	0.07412	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	396	441	0.07412	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	1532	1793	0.07339	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	439	439	0.06249	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	287	316	0.06249	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_047		Non-Converged Contingency	329	361	0.06178	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	717	926	0.69301	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	560	560	0.69301	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.40808	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.36151	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.32034	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1420	1775	0.28368	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	956	994	0.20404	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	2302	2532	0.19303	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.19013	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	478	502	0.17371	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	956	1052	0.16017	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	956	1052	0.16017	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	560	560	0.16017	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1330	1940	0.14769	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1420	1775	0.14184	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1420	1775	0.14184	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	319	351	0.14028	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	319	351	0.14028	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.13091	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	956	1052	0.12482	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	956	1052	0.12482	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	0	0	0.12321	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1420	1775	0.09506	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1420	1775	0.09506	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1195	1195	0.09506	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	1195	1195	0.09506	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	439	439	0.06546	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	349	395	0.06546	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	396	441	0.06546	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	319	351	0.05775	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_047		Non-Converged Contingency	319	351	0.04925	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	0	0	0.41897	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	0	0	0.37019	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	0	0	0.33173	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	1420	1775	0.29054	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	956	994	0.20948	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	956	1052	0.16586	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	956	1052	0.16586	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	560	560	0.16586	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_047		Non-Converged Contingency	956	1052	0.13149	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	0	0	0.40853	-	SPSCONT-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	0	0	0.36195	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	0	0	0.32074	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	1420	1775	0.28402	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	956	994	0.20426	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	956	1052	0.16037	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	956	1052	0.16037	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	560	560	0.16037	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	1330	1940	0.14784	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	1420	1775	0.14201	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	1420	1775	0.14201	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	956	1052	0.12499	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	956	1052	0.12499	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	0	0	0.12499	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	439	439	0.06553	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_047		Non-Converged Contingency	319	351	0.04921	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_047		Non-Converged Contingency	0	0	0.41915	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_047		Non-Converged Contingency	0	0	0.37037	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_047		Non-Converged Contingency	0	0	0.3319	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_047		Non-Converged Contingency	1420	1775	0.29068	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_047		Non-Converged Contingency	956	994	0.20958	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	0	0	0.42124	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	0	0	0.37078	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	0	0	0.32952	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	1420	1775	0.29113	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	1033	1071	0.21062	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	987	1083	0.16476	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	987	1083	0.16476	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	560	560	0.16476	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	1420	1775	0.14557	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	1420	1775	0.14557	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	987	1083	0.1331	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	956	1052	0.1331	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	0	0	0.1331	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_047		Non-Converged Contingency	421	439	0.07425	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	717	926	0.76673	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	0	0	0.42722	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	0	0	0.26675	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	0	0	0.2386	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	956	994	0.21361	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	1420	1775	0.17383	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	1420	1775	0.17383	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	956	1052	0.13338	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_047		Non-Converged Contingency	956	1052	0.13338	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_047		Non-Converged Contingency	0	0	0.43745	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_047		Non-Converged Contingency	0	0	0.2468	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_047		Non-Converged Contingency	956	994	0.21873	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	0	0	0.43855	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	0	0	0.27881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	0	0	0.24922	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	1033	1071	0.21927	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	1420	1775	0.17719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	1420	1775	0.17719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_047		Non-Converged Contingency	987	1083	0.13941	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_047		Non-Converged Contingency	0	0	0.41822	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_047		Non-Converged Contingency	0	0	0.36974	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_047		Non-Converged Contingency	0	0	0.22234	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_047		Non-Converged Contingency	956	994	0.18487	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_047		Non-Converged Contingency	0	0	0.3792	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_047		Non-Converged Contingency	0	0	0.23002	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_047		Non-Converged Contingency	956	994	0.1896	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_047		Non-Converged Contingency	1033	1071	0.19098	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_047		Non-Converged Contingency	0	0	0.20478	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_047	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12989	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22949	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22949	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03293	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03248	109.8457	BASE CASE
FDNS	06ALL	0	25SP	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03259	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03278	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15105	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.13594	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14057	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15175	121.8496	BASE CASE
FDNS	06ALL	0	20WP	G14_047	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.0322	100	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	15SP	G14_047	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03293	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03443	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15105	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.13594	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14057	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15175	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08668	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.25548	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38725	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38788	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.38898	125.3709	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22274	103.0857	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22274	103.0855	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.25213	102.0323	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.4136	101.3835	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39074	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39138	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.4867	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23299	107.4157	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23299	107.4155	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.26214	106.3195	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23292	101.792	SPP-SWPS-T59
FDNS	06ALL	0	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22663	101.3272	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27208	101.1844	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22093	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22791	99.8	HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2747	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2747	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06188	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03295	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0328	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14067	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13989	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14033	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_047	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03295	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14067	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_047	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21808	112.3462	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21808	106.2692	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38772	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38583	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3768	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37647	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40753	123.6888	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27059	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.2128	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.2125	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.1524	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39105	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38918	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49231	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38021	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37989	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.48013	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28106	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.4642	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.464	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.4014	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23877	102.8649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	102.5611	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	2	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49731	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22177	101.9674	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22569	101.9357	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	101.2494	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	100.9651	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	99.8	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	99.7	SPP-SWPS-T59
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22111	99.7	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27227	99.5	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27227	99.5	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_047	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.59005	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_047	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	478	610	0.47671	114.3892	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26943	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26943	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2749	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2749	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2623	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2623	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0619	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2299	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2299	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_047	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03296	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.13622	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14075	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13991	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14033	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_047	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03296	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.13622	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_047	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14075	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_047	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21821	104.9966	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21821	100.849	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	557	557	0.20809	100.3948	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38797	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.36226	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38645	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37685	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37647	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.38996	119.1408	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40826	117.8059	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27076	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21679	100.9992	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21679	100.9916	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.2527	99.5	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3913	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.36559	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49226	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3898	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38026	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37989	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.48012	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28124	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22652	105.2413	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22652	105.2333	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.26272	103.6901	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2739	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2672	SPP-SWPS-K37
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2671	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49721	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23891	100.9789	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23325	100.1136	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22583	99.7	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_047	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.5899	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_047	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	478	610	0.47758	108.8395	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	579	664	0.45789	107.3102	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2698	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27336	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2698	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27336	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24499	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24499	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25201	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27505	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_047	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27505	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25201	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.26266	124.5596	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.26266	117.4955	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.26595	112.1754	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_047	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.26595	107.0115	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06406	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24176	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24176	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10236	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09962	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10294	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_047	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10268	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05992	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05992	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22788	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.21074	118.9896	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22216	107.9918	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22289	103.0762	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22717	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23008	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20WP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.2129	120.0441	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	25SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2244	109.113	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20SP	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22513	104.0126	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_047	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22938	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06172	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22099	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22099	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06172	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06172	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06263	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06263	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.062	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.062	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05748	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05748	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_047	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26263	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06665	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22971	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22971	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06665	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06665	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_047	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26335	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	G14_047	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06666	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22972	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_047	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22972	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06666	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06666	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_047	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_047	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26335	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G14_049		Non-Converged Contingency	1505	1793	0.07571	-	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G14_049		Non-Converged Contingency	1505	1793	0.07571	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15G	G14_049		Non-Converged Contingency	726.6	726.6	0.075	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G14_049		Non-Converged Contingency	1505	1793	0.07859	-	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G14_049		Non-Converged Contingency	1505	1793	0.07859	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	15SP	G14_049		Non-Converged Contingency	726.6	726.6	0.0748	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20SP	G14_049		Non-Converged Contingency	1505	1793	0.07845	-	G13-010T 345.00 - POST ROCK 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	03ALL	0	20WP	G14_049		Non-Converged Contingency	1793	1793	0.07934	-	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20WP	G14_049		Non-Converged Contingency	1793	1793	0.07934	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL	0	20WP	G14_049		Non-Converged Contingency	726.6	726.6	0.07325	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL	0	25SP	G14_049		Non-Converged Contingency	726.6	726.6	0.07549	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	03ALL	0	15G	G14_049	TO->FROM	CLEARWATER - MILAN TAP 138KV CKT 1	110	110	0.03101	122.3108	BASE CASE
FDNS	03ALL	0	15G	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03518	175.173	BASE CASE
FDNS	03ALL	0	15SP	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03985	128.3702	BASE CASE
FDNS	03ALL	0	20SP	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03946	112.5815	BASE CASE
FDNS	03ALL	0	20WP	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.04102	106.9365	BASE CASE
FDNS	03ALL	0	15SP	G14_049	FROM->TO	HARPER - MILAN TAP 138KV CKT 1	127.2	136.7	0.03156	107.5231	BASE CASE
FDNS	03ALL	0	15G	G14_049	FROM->TO	HARPER - MILAN TAP 138KV CKT 1	138.6	143.4	0.03101	106.2443	BASE CASE
FDNS	03ALL	2	15G	G14_049	TO->FROM	CLEARWATER - MILAN TAP 138KV CKT 1	110	110	0.03101	121.6339	BASE CASE
FDNS	03ALL	2	15G	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03519	173.6296	BASE CASE
FDNS	03ALL	2	15G	G14_049	FROM->TO	HARPER - MILAN TAP 138KV CKT 1	138.6	143.4	0.03101	105.7498	BASE CASE
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.42457	-	SPSCONT-05AX
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1420	1775	0.313	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1420	1775	0.313	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1420	1775	0.21228	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1420	1775	0.21228	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1195	1195	0.21228	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1195	1195	0.21228	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	956	1052	0.18633	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	956	1052	0.18633	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.18633	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1561	1793	0.13569	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1561	1793	0.13569	-	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.12171	-	SPSCONT-01
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	956	1052	0.10237	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	956	1052	0.10237	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	560	560	0.10237	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.09661	-	SPP-SWPS-02A
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	726.6	726.6	0.09199	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	1413	1517	0.09199	-	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.07203	-	SPP-SWPS-01
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.06441	-	SPP-SWPS-02
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	956	994	0.06086	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	0	0	0.06073	-	SPP-SWPS-03
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	439	439	0.0322	-	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	287	316	0.0322	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	319	351	0.0322	-	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	349	395	0.0322	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15G	G14_052		Non-Converged Contingency	396	441	0.0322	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	1420	1775	0.31592	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	1420	1775	0.31592	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	956	1052	0.19523	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	956	1052	0.19523	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	0	0	0.19523	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	956	1052	0.09416	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	15SP	G14_052		Non-Converged Contingency	560	560	0.09416	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_052		Non-Converged Contingency	956	1052	0.18839	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_052		Non-Converged Contingency	956	1052	0.18839	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20SP	G14_052		Non-Converged Contingency	0	0	0.18839	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	1420	1775	0.31217	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	1420	1775	0.31217	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	1420	1775	0.2047	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	1195	1195	0.2047	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	1195	1195	0.2047	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	987	1083	0.19146	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	956	1052	0.19146	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	0	0	0.19146	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	987	1083	0.09838	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	02ALL	0	20WP	G14_052		Non-Converged Contingency	560	560	0.09838	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_052		Non-Converged Contingency	1420	1775	0.32405	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_052		Non-Converged Contingency	1420	1775	0.32405	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15G	G14_052		Non-Converged Contingency	956	1052	0.17565	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_052		Non-Converged Contingency	956	1052	0.17565	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15G	G14_052		Non-Converged Contingency	0	0	0.17565	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	15SP	G14_052		Non-Converged Contingency	1420	1775	0.32698	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_052		Non-Converged Contingency	1420	1775	0.32698	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	15SP	G14_052		Non-Converged Contingency	956	1052	0.18444	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_052		Non-Converged Contingency	956	1052	0.18444	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	15SP	G14_052		Non-Converged Contingency	0	0	0.18444	-	SPP-SWPS-05
FDNSLock-Blown up	02ALL	2	20SP	G14_052		Non-Converged Contingency	956	1052	0.17866	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_052		Non-Converged Contingency	956	1052	0.17866	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20SP	G14_052		Non-Converged Contingency	0	0	0.17866	-	SPP-SWPS-05

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	02ALL	2	20WP	G14_052		Non-Converged Contingency	1420	1775	0.32361	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_052		Non-Converged Contingency	1420	1775	0.32361	-	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNSLock-Blown up	02ALL	2	20WP	G14_052		Non-Converged Contingency	987	1083	0.18162	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_052		Non-Converged Contingency	956	1052	0.18162	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	02ALL	2	20WP	G14_052		Non-Converged Contingency	0	0	0.18162	-	SPP-SWPS-05
FDNS	02ALL	0	15G	G14_052	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.06185	115.5699	BASE CASE
FDNS	02ALL	0	15G	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06185	225.3302	BASE CASE
FDNS	02ALL	0	15SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06622	173.9866	BASE CASE
FDNS	02ALL	0	20SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06696	162.3467	BASE CASE
FDNS	02ALL	0	20WP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06899	153.9084	BASE CASE
FDNS	02ALL	0	25SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05229	110.6279	BASE CASE
FDNS	02ALL	0	20WP	G14_052	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.04415	99.8	BASE CASE
FDNS	02ALL	0	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.09127	117.7863	BASE CASE
FDNS	02ALL	0	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.09127	114.3459	BASE CASE
FDNS	02ALL	2	15G	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04666	176.6372	BASE CASE
FDNS	02ALL	2	15SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05095	124.8623	BASE CASE
FDNS	02ALL	2	20SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05204	121.7745	BASE CASE
FDNS	02ALL	2	20WP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05381	113.7242	BASE CASE
FDNS	02ALL	3	15SP	G14_052	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.03884	111.5483	BASE CASE
FDNS	02ALL	3	15SP	G14_052	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.03884	110.9868	BASE CASE
FDNS	02ALL	3	15G	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03744	146.3913	BASE CASE
FDNS	02ALL	3	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.06847	102.7281	BASE CASE
FDNS	02ALL	3	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.06847	100.6473	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.52793	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.45904	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	560	560	0.29841	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.26247	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	956	994	0.22952	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.17574	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	560	560	0.13123	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.11215	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.0896	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	0	0	0.0853	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	287	316	0.05764	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	478	502	0.05536	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_053		Non-Converged Contingency	319	351	0.04782	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	0	0	0.53689	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	0	0	0.47005	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	0	0	0.2747	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	560	560	0.13735	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	0	0	0.11897	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_053		Non-Converged Contingency	0	0	0.08513	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	0	0	0.56617	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	0	0	0.5323	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	0	0	0.30047	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	956	994	0.28309	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	1420	1775	0.22111	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_053		Non-Converged Contingency	1792	1792	0.22111	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.50578	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.4631	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1420	1775	0.33084	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.28235	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1033	1071	0.23155	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1195	1195	0.18109	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.17948	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1792	1792	0.16868	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1420	1775	0.16542	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1420	1775	0.16542	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1584	2098	0.15561	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	987	1083	0.14117	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	987	1083	0.14117	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	560	560	0.14117	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	987	1083	0.12246	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	956	1052	0.12246	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.12246	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.11189	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	329	361	0.09955	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	557	557	0.09873	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	557	557	0.09873	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	478	502	0.09498	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	0	0	0.0919	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1420	1775	0.08974	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1420	1775	0.08974	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1195	1195	0.08974	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1195	1195	0.08974	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	329	361	0.08661	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	329	361	0.08237	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	329	361	0.08237	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	1532	1793	0.07061	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	439	439	0.0625	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	287	316	0.0625	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	421	439	0.05594	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	435	470	0.05594	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	396	441	0.05594	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_053		Non-Converged Contingency	329	361	0.04748	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.52814	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.45925	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1420	1775	0.33188	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.26266	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	956	994	0.22962	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.17584	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1420	1775	0.16594	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1420	1775	0.16594	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1330	1940	0.15005	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	956	1052	0.13133	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	956	1052	0.13133	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	560	560	0.13133	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	956	1052	0.11223	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	956	1052	0.11223	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.11223	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.08967	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1420	1775	0.08792	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1420	1775	0.08792	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1195	1195	0.08792	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	1195	1195	0.08792	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	0	0	0.08537	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	319	351	0.07655	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	319	351	0.07655	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	478	502	0.04558	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	439	439	0.04483	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	349	395	0.04483	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	396	441	0.04483	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_053		Non-Converged Contingency	319	351	0.04053	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	0	0	0.53713	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	0	0	0.4703	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	1420	1775	0.33912	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	0	0	0.27492	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	956	994	0.23515	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	956	1052	0.13746	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	956	1052	0.13746	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	560	560	0.13746	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_053		Non-Converged Contingency	956	1052	0.11906	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	0	0	0.52858	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	0	0	0.4597	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	1420	1775	0.33221	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	0	0	0.26306	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	956	994	0.22985	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	1420	1775	0.16611	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	1420	1775	0.16611	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	1330	1940	0.1502	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	956	1052	0.13153	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	956	1052	0.13153	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	560	560	0.13153	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	956	1052	0.11239	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	956	1052	0.11239	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	0	0	0.11239	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_053		Non-Converged Contingency	439	439	0.04491	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_053		Non-Converged Contingency	0	0	0.53731	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_053		Non-Converged Contingency	0	0	0.47049	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_053		Non-Converged Contingency	1420	1775	0.33926	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_053		Non-Converged Contingency	0	0	0.27509	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_053		Non-Converged Contingency	956	994	0.23524	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	0	0	0.50645	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	0	0	0.46379	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	1420	1775	0.33134	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	0	0	0.28296	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	1033	1071	0.23189	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	1420	1775	0.16567	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	1420	1775	0.16567	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	987	1083	0.14148	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	987	1083	0.14148	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	560	560	0.14148	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	987	1083	0.12272	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	956	1052	0.12272	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	0	0	0.12272	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_053		Non-Converged Contingency	421	439	0.05608	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	0	0	0.52606	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	0	0	0.43785	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	0	0	0.2542	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	956	994	0.21892	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	1420	1775	0.17873	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	1420	1775	0.17873	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	956	1052	0.1271	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_053		Non-Converged Contingency	956	1052	0.1271	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_053		Non-Converged Contingency	0	0	0.53427	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_053		Non-Converged Contingency	0	0	0.44809	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_053		Non-Converged Contingency	956	994	0.22405	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	0	0	0.49743	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	0	0	0.44453	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	0	0	0.27209	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	1033	1071	0.22227	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	1420	1775	0.17965	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	1420	1775	0.17965	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_053		Non-Converged Contingency	987	1083	0.13605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_053		Non-Converged Contingency	0	0	0.51749	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_053		Non-Converged Contingency	0	0	0.40698	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_053		Non-Converged Contingency	0	0	0.33684	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_053		Non-Converged Contingency	956	994	0.20349	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_053		Non-Converged Contingency	0	0	0.52532	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_053		Non-Converged Contingency	0	0	0.41655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_053		Non-Converged Contingency	956	994	0.20828	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_053		Non-Converged Contingency	1033	1071	0.20685	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_053		Non-Converged Contingency	0	0	0.50603	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_053	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.08661	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24236	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24236	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09914	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08237	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07678	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09983	121.8496	BASE CASE
FDNS	06ALL	0	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05764	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05764	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_053	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03401	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09914	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08237	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07678	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09983	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_053	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07605	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_053	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.28309	100.5636	BASE CASE
FDNS	06ALL	0	15SP	G14_053	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.03521	100.8711	BASE CASE
FDNS	06ALL	0	25SP	G14_053	TO->FROM	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	319	351	0.21079	110.6607	SPP-SWPS-01
FDNS	06ALL	0	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51636	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51636	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07688	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08632	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0867	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05767	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05767	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07688	115.7639	BASE CASE
FDNS	06ALL	2	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51075	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51075	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51656	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51656	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49725	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49725	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06185	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24276	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24276	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08264	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07696	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08633	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0867	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06261	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06261	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05773	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05773	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08264	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_053	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07696	112.1124	BASE CASE
FDNS	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51112	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46862	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51112	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46862	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30008	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30008	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29702	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51671	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51671	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29702	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49761	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49761	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.45591	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.45591	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	25SP	G14_053	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.23925	100.2896	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	4	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06408	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24352	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24352	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07418	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.07816	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08147	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_053	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08122	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06408	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06408	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0649	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0649	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06447	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06447	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06	112.6698	BASE CASE
FDNS	06ALL	4	15G	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.50749	104.0003	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	4	20WP	G14_053	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45322	102.2342	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	5	25SP	G14_053	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.23967	100.8524	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	5	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06285	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23216	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23216	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06285	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06285	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05872	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05872	111.0916	BASE CASE
FDNS	06ALL	6	25SP	G14_053	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24016	101.3736	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	6	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06621	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06621	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06621	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	116.9672	BASE CASE
FDNS	06ALL	7	25SP	G14_053	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24016	101.4335	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	7	15SP	G14_053	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06622	109.6725	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	7	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_053	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06622	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06622	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_053	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	116.8051	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.52793	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.45904	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	560	560	0.29841	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.26247	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	956	994	0.22952	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.17574	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	560	560	0.13123	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.11215	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.0896	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	0	0	0.0853	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	287	316	0.05764	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	478	502	0.05536	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_054		Non-Converged Contingency	319	351	0.04782	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	0	0	0.53689	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	0	0	0.47005	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	0	0	0.2747	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	560	560	0.13735	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	0	0	0.11897	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_054		Non-Converged Contingency	0	0	0.08513	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	0	0	0.56617	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	0	0	0.5323	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	0	0	0.30047	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	956	994	0.28309	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	1420	1775	0.22111	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_054		Non-Converged Contingency	1792	1792	0.22111	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.50578	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.4631	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1420	1775	0.33084	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.28235	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1033	1071	0.23155	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1195	1195	0.18109	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.17948	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1792	1792	0.16868	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1420	1775	0.16542	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1420	1775	0.16542	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1584	2098	0.15561	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	987	1083	0.14117	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	987	1083	0.14117	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	560	560	0.14117	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	987	1083	0.12246	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	956	1052	0.12246	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.12246	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.11189	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	329	361	0.09955	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	557	557	0.09873	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	557	557	0.09873	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	478	502	0.09498	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	0	0	0.0919	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1420	1775	0.08974	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1420	1775	0.08974	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1195	1195	0.08974	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1195	1195	0.08974	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	329	361	0.08661	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	329	361	0.08237	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	329	361	0.08237	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	1532	1793	0.07061	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	439	439	0.0625	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	287	316	0.0625	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	421	439	0.05594	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	435	470	0.05594	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	396	441	0.05594	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_054		Non-Converged Contingency	329	361	0.04748	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.52814	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.45925	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1420	1775	0.33188	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.26266	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	956	994	0.22962	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.17584	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1420	1775	0.16594	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1420	1775	0.16594	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1330	1940	0.15005	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	956	1052	0.13133	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	956	1052	0.13133	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	560	560	0.13133	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	956	1052	0.11223	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	956	1052	0.11223	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.11223	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.08967	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1420	1775	0.08792	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1420	1775	0.08792	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1195	1195	0.08792	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	1195	1195	0.08792	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	0	0	0.08537	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	319	351	0.07655	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	319	351	0.07655	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	478	502	0.04558	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	439	439	0.04483	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	349	395	0.04483	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	396	441	0.04483	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_054		Non-Converged Contingency	319	351	0.04053	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	0	0	0.53713	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	0	0	0.4703	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	1420	1775	0.33912	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	0	0	0.27492	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	956	994	0.23515	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	956	1052	0.13746	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	956	1052	0.13746	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	560	560	0.13746	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_054		Non-Converged Contingency	956	1052	0.11906	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	0	0	0.52858	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	0	0	0.4597	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	1420	1775	0.33221	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	0	0	0.26306	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	956	994	0.22985	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	1420	1775	0.16611	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	1420	1775	0.16611	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	1330	1940	0.1502	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	956	1052	0.13153	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	956	1052	0.13153	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	560	560	0.13153	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	956	1052	0.11239	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	956	1052	0.11239	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	0	0	0.11239	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_054		Non-Converged Contingency	439	439	0.04491	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_054		Non-Converged Contingency	0	0	0.53731	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_054		Non-Converged Contingency	0	0	0.47049	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_054		Non-Converged Contingency	1420	1775	0.33926	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_054		Non-Converged Contingency	0	0	0.27509	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_054		Non-Converged Contingency	956	994	0.23524	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	0	0	0.50645	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	0	0	0.46379	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	1420	1775	0.33134	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	0	0	0.28296	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	1033	1071	0.23189	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	1420	1775	0.16567	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	1420	1775	0.16567	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	987	1083	0.14148	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	987	1083	0.14148	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	560	560	0.14148	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	987	1083	0.12272	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	956	1052	0.12272	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	0	0	0.12272	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_054		Non-Converged Contingency	421	439	0.05608	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	0	0	0.52606	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	0	0	0.43785	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	0	0	0.2542	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	956	994	0.21892	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	1420	1775	0.17873	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	1420	1775	0.17873	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	956	1052	0.1271	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	15G	G14_054		Non-Converged Contingency	956	1052	0.1271	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_054		Non-Converged Contingency	0	0	0.53427	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_054		Non-Converged Contingency	0	0	0.44809	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_054		Non-Converged Contingency	956	994	0.22405	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	0	0	0.49743	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	0	0	0.44453	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	0	0	0.27209	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	1033	1071	0.22227	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	1420	1775	0.17965	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	1420	1775	0.17965	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_054		Non-Converged Contingency	987	1083	0.13605	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_054		Non-Converged Contingency	0	0	0.51749	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_054		Non-Converged Contingency	0	0	0.40698	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_054		Non-Converged Contingency	0	0	0.33684	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_054		Non-Converged Contingency	956	994	0.20349	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_054		Non-Converged Contingency	0	0	0.52532	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_054		Non-Converged Contingency	0	0	0.41655	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_054		Non-Converged Contingency	956	994	0.20828	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_054		Non-Converged Contingency	1033	1071	0.20685	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_054		Non-Converged Contingency	0	0	0.50603	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_054	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.08661	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24236	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24236	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	20SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09914	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08237	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07678	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09983	121.8496	BASE CASE
FDNS	06ALL	0	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05764	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05764	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_054	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03401	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09914	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08237	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07678	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09983	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_054	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07605	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_054	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.28309	100.5636	BASE CASE
FDNS	06ALL	0	15SP	G14_054	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.03521	100.8711	BASE CASE
FDNS	06ALL	0	25SP	G14_054	TO->FROM	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	319	351	0.21079	110.6607	SPP-SWPS-01
FDNS	06ALL	0	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51636	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51636	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06183	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07688	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08632	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0867	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06183	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05767	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05767	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07688	115.7639	BASE CASE
FDNS	06ALL	2	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51075	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51075	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51656	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51656	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49725	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49725	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06185	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24276	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24276	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.08264	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07696	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08633	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0867	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06261	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06261	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0623	114.9816	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05773	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05773	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.08264	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_054	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.07696	112.1124	BASE CASE
FDNS	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51112	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46862	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51112	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.46862	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30008	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30008	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29702	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51671	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.51671	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29702	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49761	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.49761	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.45591	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.45591	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.23925	100.2896	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	4	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06408	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24352	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24352	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07418	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.07816	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08147	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_054	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08122	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06408	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06408	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0649	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0649	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06447	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06447	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06	112.6698	BASE CASE
FDNS	06ALL	4	15G	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.50749	104.0003	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	4	20WP	G14_054	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.45322	102.2342	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	5	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.23967	100.8524	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	5	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06285	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23216	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23216	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06285	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06285	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06374	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06311	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05872	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05872	111.0916	BASE CASE
FDNS	06ALL	6	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24016	101.3736	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	6	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06621	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06621	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06621	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	116.9672	BASE CASE
FDNS	06ALL	7	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24016	101.4335	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL	7	15SP	G14_054	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06622	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_054	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23854	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06622	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06622	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06742	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06663	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_054	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06216	116.8051	BASE CASE
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2154	147.8994	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2154	142.7935	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22034	129.9041	MANNING - SPIRIT MOUND 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2154	129.3595	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2182	127.1239	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22034	125.4378	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.30637	119.7188	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.26101	119.7066	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21782	116.2181	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2182	115.5252	CREIGHTON - NELIGH.EAST7115.00 115KV CKT 1
FDNS	09ALL	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21822	114.2655	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22034	114.1929	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.20757	113.5766	SIOUX CITY - TWIN CHURCH 230KV CKT 1
FDNS	09ALL	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21542	113.5127	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	0	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2204	113.4776	GAVINS POINT - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21819	111.9905	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21538	110.0534	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.31379	109.2575	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21542	109.1238	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.26729	105.8289	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21538	105.5979	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.18726	105.3791	BASE CASE
FDNS	09ALL	0	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2204	102.8257	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21418	153.9107	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21418	148.7816	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21418	135.3295	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21952	135.149	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21745	131.5264	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21952	130.6652	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.25971	125.6159	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.30624	124.6365	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21709	120.9062	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21745	119.8177	CREIGHTON - NELIGH.EAST7115.00 115KV CKT 1
FDNS	09ALL	2	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21421	119.6097	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21952	119.3615	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	2	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21747	118.763	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	2	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21958	118.2362	GAVINS POINT - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21744	116.5321	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL	2	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21416	116.2152	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21421	115.1935	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.31386	113.3069	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL	2	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21416	111.7193	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	2	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.18607	111.1747	BASE CASE
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.26643	110.9948	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL	2	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21958	107.5527	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2092	104.3783	SIOUX CITY - TWIN CHURCH 230KV CKT 1
FDNS	09ALL	2	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21421	103.6205	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	2	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21958	101.5748	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL	2	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.30627	100.2478	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL	2	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21416	99.5	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL	2	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.19007	97.9	BASE CASE
FDNS	09ALL	3	15SP	G14_055	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.03043	100.2686	BASE CASE
FDNS	01ALL	2	15G	G14_056	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.20349	102.8181	GRACEMONT - MINCO 345KV CKT 1
FDNS	01ALL	2	20WP	G14_056	FROM->TO	CIMARRON - DRAPER LAKE 345KV CKT 1	717	717	0.2052	101.0828	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15G	G14_058		Non-Converged Contingency	1195	1195	0.67214	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15SP	G14_058		Non-Converged Contingency	1195	1195	0.66623	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	20SP	G14_058		Non-Converged Contingency	1195	1195	0.66534	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	20WP	G14_058		Non-Converged Contingency	1195	1195	0.66858	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	123.3867	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	123.3844	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	122.7278	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	122.5126	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68381	114.2783	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68381	114.2783	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67546	110.7976	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68762	110.4895	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68762	110.4895	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67425	110.3701	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67425	110.3701	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68186	110.2367	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68186	110.2367	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67546	109.4796	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67353	109.1489	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67532	108.7062	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67546	108.608	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67532	108.1445	SPP-SWPS-05
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67532	108.0678	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67353	107.5264	FPL SWITCH - WOODWARD 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66944	107.4854	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66944	107.256	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67092	107.1935	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	107.1843	GEN509403 1-PIRKEY GENERATION
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67092	107.1279	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	107.1124	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	107.0548	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.9026	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67919	106.8477	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.8052	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67133	106.7963	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66226	106.7235	CIMARRON - MINCO 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67092	106.7139	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.6568	GEN509406 1-WELSH #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.6567	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.6129	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.5933	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.5652	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.5607	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.5484	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67833	106.5302	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67833	106.5302	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67028	106.5257	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.4883	GEN336821 1-GRAND GULF UNIT
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.4483	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.4277	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.4243	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.4125	GEN520947 1-HUGO1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.3913	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.3886	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.3634	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.3396	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.3271	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66933	106.3233	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67196	106.3097	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66946	106.2708	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.2679	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.2639	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66946	106.2338	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67088	106.2279	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.2207	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66938	106.1976	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66938	106.1858	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.1555	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.079	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	106.0466	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67028	106.0332	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67071	106.0061	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66949	105.9983	SPP-MKEC-08
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.9592	GEN501801 1-DOLET HILLS UNIT1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.9452	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.9372	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.9356	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66784	105.9211	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.8847	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.8847	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66909	105.8799	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.8692	GEN509409 1-WILKES #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.8592	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6723	105.8548	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6723	105.8548	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67058	105.8486	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66909	105.8398	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66968	105.8257	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66936	105.8171	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.8043	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66936	105.7863	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67028	105.7787	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.7635	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.7532	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67004	105.7518	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66823	105.7453	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66936	105.7434	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.7399	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.7062	GEN590010 1-ERCOT EQUIVALENCE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.7049	GEN509408 1-WILKES #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.6963	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66956	105.6874	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66956	105.6872	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.6828	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66968	105.6815	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.6765	GEN514998 1-MCCLAIN UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66813	105.6612	SPP-SWPS-03
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66913	105.6345	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67004	105.6085	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.6037	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.6037	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67919	105.5554	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.5323	GEN514900 1-REDBUD2S
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.5323	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.5322	GEN514899 1-REDBUD1S
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67614	105.5131	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66886	105.4765	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4641	GEN514905 1-REDBUD3S
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4632	GEN501813 1-RODEMACHER UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4616	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6692	105.4469	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66759	105.4386	SPSCONT-01
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4252	GEN338146 1-INDEPENDENCE UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4131	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.4011	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6692	105.3902	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.3829	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.3817	GEN334440 1-SABINE UNIT 4
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.3729	GEN335206 1-NELSON UNIT 6
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.364	GEN549893 2-SOUTHWEST 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66899	105.3464	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66864	105.3137	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.3041	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67321	105.3028	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6699	105.2981	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67303	105.2951	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2898	GEN335204 1-NELSON UNIT 4
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.283	GEN501812 1-RODEMACHER UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.28	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.28	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67852	105.2642	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.669	105.2642	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66883	105.2638	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2614	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2606	GEN562512 1-G14_020_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2483	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.248	GEN562426 1-G13-028ST 17.500
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66889	105.2448	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2413	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66898	105.2371	CHERJTAP 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66905	105.235	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2345	GEN505432 1-SIKESTON
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66878	105.2342	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2242	GEN520811 1-ANADRK4
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2091	GEN300015 1-1SGPDEL 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2081	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2079	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2075	GEN336191 1-LITTLE GYPSY UNIT#3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66803	105.2073	ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.206	GEN300010 1-ST FRANCIS UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2016	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.2013	GEN300011 1-ST FRANCIS UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6699	105.1919	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66899	105.1879	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1821	GEN334433 1-SABINE UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1804	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1804	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1802	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1802	GEN300033 1-CHOUTEAU STG 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1773	GEN336464 1-MICHOUD UNIT #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66897	105.167	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66904	105.156	CHERJTAP 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67163	105.1544	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67163	105.1544	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66902	105.1506	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66909	105.15	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1287	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66904	105.1272	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1097	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67028	105.1087	SPSCONT-02X
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1078	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1003	GEN515266 1-AES 1G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.1003	GEN515267 1-AES 2G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0977	GEN506754 1-LEBROCK STEAM 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0934	GEN503909 1-FULTONU1 1 16.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0923	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66986	105.0849	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0746	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0746	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66961	105.0691	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66961	105.0691	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66899	105.0589	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66986	105.0508	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0496	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0346	GEN336222 1-LITTLE GYPSY UNIT#2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66904	105.0303	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0252	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0252	GEN511940 1-OEC GAS # 1-2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.025	GEN300016 1-1G1GPDEL 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66875	105.0242	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6699	105.0087	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0016	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	105.0005	GEN303008 1-1BC2 U3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66901	104.9877	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66874	104.987	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66869	104.9828	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9774	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.973	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.965	GEN303007 1-1BC2 U2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9647	GEN303006 1-1BC2 U1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9612	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66867	104.9573	CHERRYC3 345.00 - GERALD GENTLEMAN STATION 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66916	104.9478	SPP-MKEC-05
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9446	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9446	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9438	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9438	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66913	104.9421	SPP-WR-418A
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66913	104.9421	SPP-WR-418B
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9301	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9272	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9259	GEN337757 1-DUKE HOTSPRINGS STG1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9257	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9249	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9222	GEN334071 1-LEWIS CREEK 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66913	104.9216	SPP-MKEC-03A
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66826	104.9137	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.912	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9105	GEN506753 1-LEBROCK GAS 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9082	GEN300017 1-1G2GPDEL 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66913	104.9025	SPP-MKEC-03B
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9015	GEN547657 1-STATE LINE UNIT #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9012	GEN547656 1-STATE LINE UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.9002	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66856	104.8887	MCADAMS - WOLF CREEK 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66912	104.8786	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8775	GEN520812 1-ANADRK5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8775	GEN520813 1-ANADRK6
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66864	104.8728	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66865	104.8632	CHERRYC3 345.00 - HOLT.CO3 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8616	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8606	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8601	GEN337766 1-TRACTEBEL UNIT S1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8596	GEN542957 1-IATAN UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8503	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66877	104.8485	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66874	104.8443	DARLINGTNRD4138.00 - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8434	GEN515000 1-MCCLAIN UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8407	GEN501910 1-ACADIA UNIT ST1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66905	104.837	BENTON - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8349	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8273	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8272	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.825	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8192	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8186	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66877	104.8156	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66874	104.815	MCCOOL - MOORE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8147	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6686	104.8131	MORISNT4 138.00 - STILLWATER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8128	GEN336831 1-BAXTER WILSON SES
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8126	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66841	104.8122	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66861	104.8102	3TERM2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8083	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8078	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66868	104.8059	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66841	104.8047	CHISHOLM7 345.00 () 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66944	104.8042	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8034	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.8034	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.795	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7877	GEN335370 1-1ACADIA_S26!16.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7857	GEN501823 1-TECHE UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7837	GEN336446 1-MICHOUD UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67008	104.7822	GERALD GENTLEMAN STATION - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66862	104.781	NUNDRWD - WAYSIDE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7776	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7776	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7772	GEN300001 1-THOMAS HILL UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66871	104.7764	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7762	GEN336801 1-BAXTER WILSON UNIT #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7749	GEN335178 5-RS Cogen R5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7747	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66868	104.7742	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7738	A222
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7735	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6686	104.7715	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7712	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7699	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66878	104.769	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.769	GEN337041 1-GERALD ANDRUS
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66909	104.7662	WOODWARD - WOODWARD 69KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7628	GEN501970 1-EVANGELINE UNIT 7
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66881	104.7576	SPP-MKEC-12
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.7515	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67919	104.6765	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67852	104.6365	SPP-SWPS-05
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67852	104.5924	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.4703	BASE CASE
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.4703	NO5_GEN-NORTH OMAHA 5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67088	104.2138	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1938	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66833	104.1876	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66838	104.1865	ARCADIA - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1863	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66805	104.1821	LYDIA - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66255	104.182	CIMARRON - MATHWSN7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66854	104.1797	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66788	104.1796	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1794	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1735	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66854	104.1715	AMRN_OUTS5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66859	104.1657	7MCCREDIE 345.00 - 7MONTGMRY 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1635	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66856	104.1626	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66856	104.1623	7MAYWOOD 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.668	104.1623	PANTHER - SILVER LAKE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66853	104.1612	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1596	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1579	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1569	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66843	104.1569	3TERM7
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66822	104.1559	4MEMORAL 138.00 - LUTHER 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1469	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1457	GEN560738 1-G13_016_2 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66991	104.1414	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6418	104.1324	CIMARRON - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.668	104.1301	NORTHWEST - PANTHER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66822	104.1299	4MEMORAL 138.00 - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6683	104.1285	BROOKLINE - FLINT CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66785	104.1248	KETCH TAP - NORTHWEST 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6679	104.12	SPP-AEPW-01
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1125	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6686	104.1105	KCPL-MSL#03
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6686	104.1104	MTGY-OVER-5
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66842	104.1088	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66855	104.1079	SPCK-SUBT-1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66855	104.1071	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66855	104.1063	908 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.1024	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0964	GEN562618 1-G14_068CT 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0953	GEN562617 1-G14_067CT 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0946	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0946	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66822	104.0933	AI24
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66842	104.0926	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66751	104.0901	3TERM11
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0838	GEN562269 1-G12-020-1 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66789	104.0788	3TERM14
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6679	104.0673	NORTHWEST (NORTWST4) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6679	104.0672	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66842	104.0658	GRDA-OPGD-05
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0592	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0518	GEN562495 1-G14_012_2 18.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66755	104.0459	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0396	GEN525493 1-PLANT X GEN #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66855	104.0316	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0266	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.0253	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66808	104.0142	G13-028T 345.00 - GRDA1 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.01	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	104.01	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66853	103.9928	KEO EHV - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67303	103.9911	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9842	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9657	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66784	103.9618	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9581	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9518	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9457	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9378	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.9164	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67614	103.9106	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66856	103.9069	8CHOCTAW MS 500.00 - 8CLAY 500.00 500KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.8889	GEN524022 1-NICHOLS GEN #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.8438	GEN562550 1-G14_040_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66834	103.8429	7SPORTSMAN - BLACKBERRY 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.8377	GEN562574 1-G14_052_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.8365	GEN636641 1-LOUISA UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.8281	GEN562042 1-G11_014_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66747	103.7901	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.7768	GEN635212 2-NEAL UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.7579	GEN524295 1-SPNSPUR_WND10.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.7463	GEN562608 1-G14_063_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.742	GEN520997 1-MORLND2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66666	103.7264	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.7168	GEN562074 1-G11_049_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6899	GEN520998 1-MORLND3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.6689	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6679	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6675	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6632	GEN562017 1-G11_022_3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.623	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6031	GEN527161 1-MUSTANG GEN #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6031	GEN527162 1-MUSTANG GEN #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6017	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6013	GEN523461 1-BLACKHAWK GEN #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.6012	GEN523462 1-BLACKHAWK GEN #2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66825	103.5891	CHAMBER SPRINGS - CLARKSVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5866	GEN560121 1-G08471419 0.5750
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5863	GEN562432 1-G13-030 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66791	103.5737	DELAWARE - NEOSHO 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5591	GEN525844 1-ELK_1 118.000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5585	GEN520922 1-SLEEPING BEAR
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5375	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5306	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.5155	GEN515389 1-TLGWND-WTG1 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.4938	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.4817	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66649	103.4771	CIMARRON - DRAPER LAKE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4739	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.4716	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.4681	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4379	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4213	SPSCONT-05AX
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.4181	GEN526333 1-JONES GEN #3 21 KV
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	103.4126	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.4077	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	103.3877	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.3794	SPSCONT-05AX
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.3762	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.3741	GEN509403 1-PIRKEY GENERATION
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66645	103.3519	PITTSBURG - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.2901	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66655	103.2858	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.2376	GEN526331 1-JONES GEN #1 22 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.2373	GEN526332 1-JONES GEN #2 21 KV
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67321	103.2128	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66789	103.1939	DELAWARE - NORTHEAST STATION 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.1859	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.1859	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	103.1809	GEN509403 1-PIRKEY GENERATION
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.1729	GEN520947 1-HUGO1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.65464	103.1715	ARCADIA - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67431	103.1539	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.1434	GEN560155 1-G10-11 0.7000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67303	103.1428	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.1179	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	103.1174	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	103.0951	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67431	103.0923	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	103.0871	GEN635214 4-NEAL UNIT 4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.048	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66417	103.0452	RENFROW7 345.00 - VIOLA 7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	103.032	GEN520947 1-HUGO1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.0307	SPSCONT-05AX
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67302	103.0133	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.9689	GEN635213 3-NEAL UNIT 3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66279	102.9594	REDBUD - RIVERSIDE STATION 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66485	102.9363	SPSCONT-01
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66476	102.9363	RANCHRD7 345.00 - SOONER 345KV CKT 1
FDNS	01ALL	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	102.9324	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	102.9244	SPSCONT-05AX
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.9139	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66278	102.9001	SPP-AEPW-42
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66448	102.851	HUNTERS7 345.00 - WOODRING 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.8208	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.8172	GEN509406 1-WELSH #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.8171	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.807	GEN515397 1-OUSPRT 1 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67302	102.8018	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.7996	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.7896	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.7883	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66698	102.7722	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.7649	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66857	102.7641	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66476	102.755	OPENSKY7 345.00 - RANCHRD7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.736	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.7281	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67302	102.716	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67088	102.7158	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66857	102.6974	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.6421	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67431	102.6339	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.6315	GEN515365 1-CENT 21 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.6289	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.6156	GEN509405 1-WELSH #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.5763	GEN509406 1-WELSH #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.5762	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.5611	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.561	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.561	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.5322	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.5313	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.5257	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.5168	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67397	102.4984	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.65249	102.488	NORTHWEST - SPRING CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.65249	102.4838	SOONER - SPRING CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66885	102.4764	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.4627	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67436	102.4531	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.4521	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67321	102.4408	SPP-SWPS-05
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66698	102.4308	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.4168	GEN336821 1-GRAND GULF UNIT
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.4053	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.3656	GEN511841 1-NORTHEASTERN STATION #4
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.3373	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66255	102.3286	MATHWSN7 345.00 - WOODRING 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66448	102.319	HUNTERS7 345.00 - RENFROW7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66476	102.3132	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2979	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2962	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2911	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2902	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2863	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.2855	GEN514939 1-HORSESHOE LAKE 8G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66857	102.2782	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66698	102.2706	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.269	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.2598	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.2584	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.2308	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	102.2087	GEN531447 1-HOLCOMB GENERATOR
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.1705	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.1619	GEN509405 1-WELSH #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67471	102.1606	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67057	102.1586	SPSCONT-01
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.1405	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.1375	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66791	102.114	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.0964	GEN511841 1-NORTHEASTERN STATION #4
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0947	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.0943	GEN336821 1-GRAND GULF UNIT
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0702	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.058	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0576	GEN501801 1-DOLET HILLS UNIT1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.0559	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67397	102.05	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66716	102.0465	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0458	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67336	102.044	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0334	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0334	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66498	102.0307	SPP-SWPS-01
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	102.0301	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66839	102.0242	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	102.0227	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67317	102.0119	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67408	101.998	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.9957	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67336	101.9952	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66716	101.9894	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67309	101.9496	SPP-MKEC-08
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.9369	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66707	101.9359	MOORELAND - NOEL_SW 138.00 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.9338	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.9338	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.9228	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67389	101.9093	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.9055	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.9043	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.9006	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66485	101.8663	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66226	101.8656	GRACEMONT - MINCO 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.8622	GEN590010 1-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.8616	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.8461	GEN514900 1-REDBUD2S
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.8461	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.8459	GEN514899 1-REDBUD1S
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	101.8404	GEN515393 1-OGEWND2G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.8149	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67477	101.8121	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67397	101.8065	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6683	101.7852	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.7627	GEN514905 1-REDBUD3S
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.7609	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66691	101.7608	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6729	101.7567	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66691	101.7473	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6672	101.7449	SPP-MKEC-08
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.7444	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.7233	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6729	101.7189	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6731	101.6981	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6731	101.698	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.6866	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.6769	GEN514936 1-HORSESHOE LAKE 7S
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.6762	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.674	GEN509409 1-WILKES #3
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	101.6699	GEN525561 1-TOLK GEN #1 24 KV
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66939	101.6683	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66791	101.667	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.6528	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.6493	GEN509398 1-KNOXLEE #5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66678	101.6486	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67325	101.6371	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67263	101.6287	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67341	101.6132	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66678	101.6096	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67133	101.608	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.6058	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67133	101.6054	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	101.6045	GEN525562 1-TOLK GEN #2 24 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67325	101.6024	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67289	101.5944	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.5913	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67232	101.5768	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66843	101.5768	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67289	101.5669	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.5601	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67325	101.5598	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.5575	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.5554	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.5554	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66705	101.547	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.5405	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.5402	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.5174	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.5023	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67341	101.4979	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66705	101.4926	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67295	101.489	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.4677	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6672	101.4664	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6672	101.4663	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.4638	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67314	101.4635	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.4553	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66791	101.4521	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.4286	GEN549893 2-SOUTHWEST 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.4267	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66705	101.4245	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.4117	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.408	GEN335206 1-NELSON UNIT 6
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.4042	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.403	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.403	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.4023	GEN590010 1-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3932	GEN338146 1-INDEPENDENCE UNIT #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3913	GEN562512 1-G14_020_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67249	101.382	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67234	101.3738	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.3713	GEN509408 1-WILKES #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.3699	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6727	101.3622	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67254	101.3562	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3544	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3534	GEN505432 1-SIKESTON
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67356	101.3526	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3515	GEN501812 1-RODEMACHER UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67314	101.3502	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.3439	GEN514859 1-MUSTANG 4G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3335	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3332	GEN562426 1-G13-028ST 17.500
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3291	GEN335204 1-NELSON UNIT 4
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3287	GEN515266 1-AES 1G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3287	GEN515267 1-AES 2G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67198	101.3283	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67175	101.3212	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67236	101.3181	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67264	101.318	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.3086	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67242	101.2921	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.2846	SPP-MKEC-03A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.2846	SPP-WR-418A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.2846	SPP-WR-418B
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.2825	SPP-MKEC-03B
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.2813	SPP-MKEC-05
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67284	101.2671	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2639	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2582	GEN515000 1-MCCLAIN UNIT 3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2574	GEN501813 1-RODEMACHER UNIT 3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67131	101.2572	SPP-SWPS-03
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66682	101.2483	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2457	GEN514899 1-REDBUD1S
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2457	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2456	GEN514900 1-REDBUD2S
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66629	101.2432	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.243	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.243	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66109	101.2423	CIMARRON - MINCO 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2409	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2409	GEN511940 1-OEC GAS # 1-2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2409	GEN511942 1-OEC GAS # 2-1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2409	GEN511943 1-OEC GAS # 2-2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2381	GEN514905 1-REDBUD3S
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67255	101.2374	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67508	101.2351	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67508	101.2351	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67284	101.2346	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67356	101.2317	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2245	GEN514999 1-MCCLAIN UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2169	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2169	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.2168	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	101.2093	GEN562078 1-G11_051_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.2089	GEN514998 1-MCCLAIN UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.207	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6707	101.2048	SPP-SWPS-01
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66652	101.2035	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67278	101.1994	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1959	GEN336191 1-LITTLE GYPSY UNIT#3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1909	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67349	101.1908	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67349	101.1878	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67284	101.1798	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6666	101.1781	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66554	101.1769	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66554	101.1744	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	101.1615	GEN562472 1-G13_035_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1588	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1588	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1559	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66756	101.1476	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1474	GEN334440 1-SABINE UNIT 4
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1466	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67397	101.1457	SPSCONT-02X
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1232	GEN334433 1-SABINE UNIT 3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.1219	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67313	101.1217	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67313	101.1217	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67256	101.1084	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0878	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67241	101.0877	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67057	101.0867	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.0832	GEN562426 1-G13-028ST 17.500
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67233	101.0717	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.0655	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66591	101.0576	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67133	101.054	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67261	101.0492	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0457	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66756	101.0435	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67266	101.0422	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67233	101.0369	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0307	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0307	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0299	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0299	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67235	101.0254	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	101.0252	GEN549893 2-SOUTHWEST 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.013	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67212	101.0064	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	101.0028	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66583	101.0021	SPP-SWPS-03
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.997	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67235	100.9952	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67223	100.9859	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9837	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9831	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9777	GEN303008 1-1BC2 U3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67356	100.9732	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.965	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67239	100.9547	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66682	100.9535	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9515	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9511	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.95	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9479	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9475	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9464	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66558	100.9459	ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66715	100.9405	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9401	GEN521103 1-BLUE CANYON WIND FARM
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66919	100.9359	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66919	100.9359	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9359	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67284	100.9357	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9345	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9335	GEN514935 1-HORSESHOE LAKE 6G
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9315	GEN509408 1-WILKES #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9258	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67239	100.9251	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67236	100.9231	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9213	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66666	100.9179	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67235	100.9177	MCCOOL - MOORE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67221	100.9174	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9143	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9095	GEN562512 1-G14_020_3 0.6900

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9092	GEN337766 1-TRACTEBEL UNIT S1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67249	100.9081	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.9077	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66682	100.9076	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67203	100.9045	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.9038	GEN336222 1-LITTLE GYPSY UNIT#2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67236	100.9036	SPP-MKEC-12
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67283	100.9021	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8989	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67236	100.898	BARBER 3 115.00 - SAWYER 3 115.00 115KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8978	GEN501910 1-ACADIA UNIT ST1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8938	GEN505432 1-SIKESTON
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67234	100.8933	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8931	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8931	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.892	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.892	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67226	100.8914	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6723	100.8898	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66653	100.8898	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6669	100.8896	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67228	100.8891	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67242	100.8883	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8881	GEN542957 1-IATAN UNIT #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67236	100.8867	ALEXANDER - SAWYER 3 115.00 115KV CKT 1
FDNSLock	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67223	100.8848	TRF-STEGALL
FDNSLock	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67223	100.8846	STEGALL () 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67299	100.8826	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67299	100.8826	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	100.8812	MCADAMS - WOLF CREEK 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67207	100.8784	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67207	100.8784	A222
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67207	100.8782	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.876	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.876	GEN511940 1-OEC GAS # 1-2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.876	GEN511942 1-OEC GAS # 2-1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.876	GEN511943 1-OEC GAS # 2-2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8739	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67223	100.8724	NUNDRWD - WAYSIDE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8665	GEN562590 1-G14_057_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8654	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8622	GEN336831 1-BAXTER WILSON SES
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8617	GEN549899 5-JAMES RIVER 5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8604	GEN300015 1-1SGPDEL 18.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67233	100.8588	PUTNAM - TALOGA 69KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6722	100.8585	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67246	100.8582	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8582	GEN303007 1-1BC2 U2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.858	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8569	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8569	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67233	100.8504	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8499	GEN335370 1-1ACADIA_S26!16.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8472	GEN511852 1-COMANCHE #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8464	GEN509407 1-WILKES #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67233	100.8463	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8416	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8408	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8408	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8376	GEN505616 1-BROKEN BOW
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.8372	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6721	100.8371	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66673	100.8365	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6669	100.8361	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66662	100.8301	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8285	GEN511858 1-TULSA POWER STATION # 4-1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66715	100.8274	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8236	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66791	100.8174	SPSCONT-02X
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66682	100.8172	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8163	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8161	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8116	GEN514883 1-SPRING CREEK UNIT 3 AND 4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8106	GEN514882 1-SPRING CREEK UNIT 1 AND 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.8004	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7996	GEN547658 1-STATE LINE COMBINED CYCLE
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66657	100.7958	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7898	GEN300010 1-ST FRANCIS UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7826	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7806	GEN515266 1-AES 1G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7806	GEN515267 1-AES 2G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7801	GEN503909 1-FULTONU1 1 16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6667	100.7688	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.767	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.767	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7668	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7668	GEN300033 1-CHOUTEAU STG 3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7641	GEN300011 1-ST FRANCIS UNIT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66657	100.7604	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66751	100.7534	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7503	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7503	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66629	100.7464	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66607	100.7454	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66669	100.7263	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7103	GEN520812 1-ANADRK5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7102	GEN520813 1-ANADRK6
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66722	100.7082	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66722	100.7082	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.7019	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6955	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66644	100.6845	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6765	GEN514858 1-MUSTANG 3G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66657	100.6727	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6716	GEN520811 1-ANADRK4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6698	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6652	GEN300016 1-1G1GPDEL 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66665	100.6596	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.652	GEN560221 1-G07-62-1 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.652	GEN560222 1-G07-62-2 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.652	GEN560223 1-G07-62-3 0.6900
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.652	GEN560224 1-G07-62-4 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6487	GEN511854 1-TULSA POWER STATION # 2-1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66666	100.64	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66751	100.629	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6239	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6216	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6192	GEN547657 1-STATE LINE UNIT #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6189	GEN547656 1-STATE LINE UNIT #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6161	GEN506750 1-EASTMAN GENERATION B
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66643	100.6126	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6063	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6063	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6053	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.6053	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66642	100.5967	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5848	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5844	GEN514890 1-SMITH 1G
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.57	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66764	100.5624	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.5547	BASE CASE
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.5547	NC1_GEN-NEBRASKA CITY 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.551	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.5497	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5458	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5456	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5454	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66644	100.5358	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.5355	SPP-MKEC-03B
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66764	100.5346	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5238	GEN337757 1-DUKE HOTSPRINGS STG1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5219	GEN547642 1-RIVERTON GEN #12
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5201	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5167	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.5042	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66682	100.5038	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4997	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66644	100.4921	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.4909	SPP-MKEC-03A
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.4909	SPP-WR-418A

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.4909	SPP-WR-418B
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.4883	SPP-MKEC-05
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4877	GEN506753 1-LEBROCK GAS 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4863	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6664	100.4862	RED WILLOW (RD.WILLOW T1) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4862	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4861	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4854	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66751	100.4822	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66644	100.4756	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66638	100.4754	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4651	GEN542957 1-IATAN UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.465	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4643	GEN300017 1-1G2GPDEL 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66637	100.464	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4587	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66688	100.4572	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66627	100.4556	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66652	100.4548	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66708	100.4532	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66708	100.4532	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66646	100.4507	SPP-MKEC-12
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66633	100.4497	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4486	GEN336222 1-LITTLE GYPSY UNIT#2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66646	100.4433	BARBER 3 115.00 - SAWYER 3 115.00 115KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4433	GEN501910 1-ACADIA UNIT ST1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.439	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.439	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4381	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6666	100.4378	BENTON - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.436	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66646	100.4285	ALEXANDER - SAWYER 3 115.00 115KV CKT 1
FDNSLock	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66628	100.4282	STEGALL () 345/230/13.8KV TRANSFORMER CKT 1
FDNSLock	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66628	100.428	TRF-STEGALL
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4272	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4272	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66703	100.4181	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66641	100.4161	PUTNAM - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4157	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66634	100.4147	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.413	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66624	100.4129	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.411	GEN549899 5-JAMES RIVER 5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66629	100.4063	MORISNT4 138.00 - STILLWATER 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4038	GEN514897 1-SMITH 1S
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.4026	MAIZE - MAIZEW 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66606	100.4025	CLINTON JUNCTION - CLINTON NATURAL GAS TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6663	100.4011	3TERM2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.4011	SPP-WR-403
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.4009	EVANS ENERGY CENTER NORTH - MAIZEW 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.4003	GEN511852 1-COMANCHE #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3999	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66641	100.3945	HAMON BUTLER - PUTNAM 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66641	100.3938	ARAPAHO - HAMON BUTLER 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3931	GEN335370 1-1ACADIA_S26!16.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66641	100.392	ARAPAHO - INDUSTRIAL PARK 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3917	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3917	A222
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3902	GEN562590 1-G14_057_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3899	GEN501823 1-TECHE UNIT 3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66633	100.3898	BUFFALO - WEST 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.385	GEN336446 1-MICHOUD UNIT #2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66703	100.3835	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3826	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3826	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3825	GEN335178 5-RS Cogen R5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3797	GEN521110 1-ORME1 13.800
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3797	GEN521111 1-ORME2 13.800
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3786	GEN505618 2-BROKEN BOW
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66621	100.3781	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3771	SPP-WR-402
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3769	CHISHOLM - MAIZEE 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66625	100.3768	MAIZE - MAIZEE 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3747	GEN300001 1-THOMAS HILL UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3725	GEN505616 1-BROKEN BOW

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3697	GEN501970 1-EVANGELINE UNIT 7
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66628	100.3688	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66641	100.361	CORDELL - INDUSTRIAL PARK 69KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3609	GEN336242 1-1NMIL ST1 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66644	100.3578	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3564	GEN337758 1-DUKE HOTSPRINGS CTG1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3564	GEN337759 1-DUKE HOTSPRINGS CTG2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3525	GEN337428 1-PERYVILLE UNIT #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.3525	GEN337430 1-PERYVILLE UNIT #3
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67198	100.2979	ARCADIA - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67212	100.2779	ARKANSAS NUCLEAR ONE - MABELVALE 500 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67208	100.2762	WR-B3-9
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67208	100.2753	COFFEYVILLE TAP - DEARING 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67172	100.2697	AI24
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2685	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2663	GEN560586 1-G06-44-4 4.1600
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67216	100.2662	KCPL-MSL#03
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67216	100.2662	MTGY-OVER-5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67213	100.2662	7PALM TAP 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67213	100.2635	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.2628	GEN515449 1-CRSRDW11 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2624	GEN562483 1-G13_027_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2621	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2558	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2558	SPCK-SUBT-1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2554	908 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67212	100.2509	WEBRE - WELLS 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67202	100.2466	GRDA-OPGD-05
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2414	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2403	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6722	100.2395	KILDARE4 - WHITE EAGLE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2373	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6718	100.2362	LYDIA - WELSH 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67139	100.2347	KETCH TAP - NORTHWEST 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67099	100.2323	3TERM11
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67159	100.2303	PANTHER - SILVER LAKE 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67159	100.2198	NORTHWEST - PANTHER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66858	100.2175	GEN515450 1-CRSRDW21 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67212	100.2091	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2069	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67188	100.2068	Canadian Pump Station - JENSEN ROAD 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67193	100.2065	GRACEMONT (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.2028	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1874	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67133	100.1825	SPP-SWPS-02A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	100.1796	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1771	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1745	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1745	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67148	100.1737	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67148	100.1668	NORTHWEST (NORTWST4) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.151	GEN562269 1-G12-020-1 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1479	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.672	100.1404	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67109	100.1403	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67199	100.1318	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67181	100.1297	3TERM10
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6715	100.1295	3TERM14
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1253	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67185	100.125	MIDLTNT4 138.00 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67185	100.1249	NEWKIRK4 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1163	GEN635212 2-NEAL UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67185	100.1022	NEWKIRK4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67185	100.102	KILDARE4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.1019	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	100.1009	8BHAM STEEL 500.00 - 8FREEPORT TN500.00 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67183	100.0982	BROOKLINE - FLINT CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0977	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6718	100.0942	JENSEN ROAD - JENSEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0835	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0835	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0818	GEN539767 1-GRAY COUNTY WIND FARM
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67185	100.0813	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6717	100.0805	LYDIA - VALLIANT 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.0762	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	100.0762	NO5_GEN-NORTH OMAHA 5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0755	GEN344225 1-1CAL G1 25.000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67142	100.0659	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	100.0612	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100.0589	GEN524021 1-NICHOLS GEN #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	100.0543	AMRN_OUTS5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN524022 1-NICHOLS GEN #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	100	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.672	100	3TERM7
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67172	100	G13-028T 345.00 - GRDA1 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67157	100	SPP-AEPW-01
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67154	100	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN527165 1-Mustang Gen #5
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN562042 1-G11_014_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN562550 1-G14_040_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN562574 1-G14_052_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.9	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67211	99.9	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67192	99.9	7SPORTSMAN - BLACKBERRY 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.65745	99.9	ARCADIA - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.8	GEN524295 1-SPNSPUR_WND10.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.8	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.8	GEN562074 1-G11_049_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.8	GEN562608 1-G14_063_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67209	99.8	KEO EHV - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6674	99.8	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66668	99.8	BENTON - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66636	99.8	BINGER NIJECT - SICKLES 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66636	99.8	CLINTON JUNCTION - G07-32T 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6663	99.8	CARNEGIE - SOUTHWESTERN STATION 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6663	99.8	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66626	99.8	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN344225 1-1CAL G1 25.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN527881 1-CUNNINGHAM GEN #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN531461 4-S4 GENERATOR
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN560586 1-G06-44-4 4.1600
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN560738 1-G13_016_2 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	GEN562616 1-G14_067S 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.8	LES0001
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.8	SPCK-SUBT-1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66617	99.8	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66613	99.8	KILDARE4 - WHITE EAGLE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66604	99.8	CIMARRON (CIMARON2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66593	99.8	HAMMETT TAP - HORSESHOE LAKE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66554	99.8	SPP-SWPS-02A
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN520922 1-SLEEPING BEAR
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN526332 1-JONES GEN #2 21 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN527161 1-MUSTANG GEN #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN527162 1-MUSTANG GEN #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN560121 1-G08471419 0.5750
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN562017 1-G11_022_3 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.7	GEN636641 1-LOUISA UNIT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67039	99.7	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66746	99.7	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66636	99.7	BINGER NIJECT - ONEY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66636	99.7	ONEY - WASHITA 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN531462 5-S5 GENERATOR
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562269 1-G12-020-1 0.6900

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562617 1-G14_067CT 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN562618 1-G14_068CT 18.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN635691 1-GREATER DES MOINES ENERGY CENTERGT1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN635692 2-GREATER DES MOINES ENERGY CENTERGT2
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.7	GEN635693 3-GREATER DES MOINES ENERGY CENTER ST
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.7	7MCCREDIE 345.00 - 7MONTGMRY 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.7	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.7	7PALM TAP 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.7	908 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66613	99.7	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66611	99.7	GRDA-OPGD-05
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66598	99.7	ARCADIA - COTTONWOOD CREEK 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66593	99.7	Canadian Pump Station - REDROCKRD4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66587	99.7	4MEMORAL 138.00 - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66587	99.7	4MEMORAL 138.00 - LUTHER 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66587	99.7	AI24
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66585	99.7	BROOKLINE - FLINT CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66582	99.7	MIDLTNT4 138.00 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66582	99.7	NEWKIRK4 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66566	99.7	3TERM14
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66533	99.7	3TERM11
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.65992	99.7	CIMARRON - MATHWSN7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.6	GEN515389 1-TLGWND-WTG1 0.7000
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.6	GEN523461 1-BLACKHAWK GEN #1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.6	GEN523462 1-BLACKHAWK GEN #2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.6	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.6	GEN562432 1-G13-030 0.6900
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67193	99.6	CHAMBER SPRINGS - CLARKSVILLE 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67114	99.6	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66993	99.6	CIMARRON - DRAPER LAKE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.6	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.6	KCPL-MSL#03
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6662	99.6	MTGY-OVER-5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66619	99.6	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66618	99.6	8BHAM STEEL 500.00 - 8FREEPORT TN500.00 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66618	99.6	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66618	99.6	AMRN_OUTS5
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66608	99.6	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66608	99.6	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66589	99.6	3TERM7
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66582	99.6	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66582	99.6	KILDARE4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66582	99.6	NEWKIRK4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66555	99.6	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66518	99.6	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6651	99.6	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68057	99.6	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.68057	99.6	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.5	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	01ALL	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67214	99.5	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN524021 1-NICHOLS GEN #1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN525493 1-PLANT X GEN #3
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN531459 2-S2 GENERATOR
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66623	99.5	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66593	99.5	Canadian Pump Station - JENSEN ROAD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.66428	99.5	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	09ALL	0	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.81758	135.9062	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.8186	127.5129	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09NR	0	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82043	125.8941	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82058	123.4445	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82056	123.2453	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.8356	122.4628	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83538	119.7054	KEYSTONE - SIDNEY 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83562	119.1404	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82054	117.9987	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	0	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83384	114.1709	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	0	15SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.19511	112.1994	BASE CASE
FDNS	09ALL	0	25SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.17553	111.9302	BASE CASE
FDNS	09ALL	0	20SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.17456	100.9743	BASE CASE
FDNS	09ALL	0	15G	G14_059	TO->FROM	GERALD GENTLEMAN STATION - OGALLALA 230KV CKT 1	320	320	0.66532	107.7347	GERALD GENTLEMAN STATION - KEYSTONE 345KV CKT 1
FDNS	09ALL	0	15SP	G14_059	FROM->TO	GGS	1627	1627	0.76581	105.7705	BASE CASE
FDNS	00NR	0	15SP	G14_059	FROM->TO	VICTORY HILL (VICTORYHL T1) 230/115/13.8KV TRANSFORMER CKT 1	187	187	0.03523	99.7	STEGALL - WAYSIDE 230KV CKT 1
FDNS	09ALL	2	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.81752	135.6534	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	2	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.81854	127.3666	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	2	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82053	123.2242	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	2	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82051	122.7972	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	2	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82049	117.7982	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL	2	15G	G14_059	TO->FROM	GERALD GENTLEMAN STATION - OGALLALA 230KV CKT 1	320	320	0.66526	107.5119	GERALD GENTLEMAN STATION - KEYSTONE 345KV CKT 1
FDNSLock	09NR	3	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82041	126.5652	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83558	122.0637	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83536	119.3876	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.8356	118.8264	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR	3	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83382	113.9679	KEYSTONE - SIDNEY 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15G	G14_061		Non-Converged Contingency	1195	1195	0.51793	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15G	G14_061		Non-Converged Contingency	1195	1195	0.51793	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15SP	G14_061		Non-Converged Contingency	1195	1195	0.51207	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	15SP	G14_061		Non-Converged Contingency	1195	1195	0.51207	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	01ALL	0	20SP	G14_061		Non-Converged Contingency	1195	1195	0.50885	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	20WP	G14_061		Non-Converged Contingency	1195	1195	0.51209	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL	0	20WP	G14_061		Non-Converged Contingency	1195	1195	0.51209	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.04346	112.4119	BASE CASE
FDNS	01ALL	0	15G	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04346	161.798	BASE CASE
FDNS	01ALL	0	20SP	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04696	115.9454	BASE CASE
FDNS	01ALL	0	20WP	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.04874	111.9192	BASE CASE
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	123.3867	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	123.3844	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	122.7278	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	122.5126	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.53394	114.2783	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.53394	114.2783	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52178	110.7976	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.54021	110.4895	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.54021	110.4895	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52098	110.3701	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52098	110.3701	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5345	110.2367	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5345	110.2367	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52178	109.4796	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52105	109.1489	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	108.7062	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52178	108.608	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	108.1445	SPP-SWPS-05
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	108.0678	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52105	107.5264	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5152	107.4854	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5152	107.256	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51504	107.1935	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	107.1843	GEN509403 1-PIRKEY GENERATION
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51504	107.1279	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	107.1124	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	107.0548	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.9026	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52778	106.8477	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.8052	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5155	106.7963	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50832	106.7235	CIMARRON - MINCO 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51504	106.7139	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.6568	GEN509406 1-WELSH #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.6567	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.6129	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.5933	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.5652	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.5607	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.5484	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52758	106.5302	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52758	106.5302	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51456	106.5257	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.4883	GEN336821 1-GRAND GULF UNIT

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.4483	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.4277	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.4243	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.4125	GEN520947 1-HUGO1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.3913	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.3886	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.3634	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.3396	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.3271	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51343	106.3233	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51622	106.3097	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51389	106.2708	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.2679	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.2639	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51389	106.2338	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51482	106.2279	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.2207	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51388	106.1976	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51388	106.1858	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.1555	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.079	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	106.0466	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51456	106.0332	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51473	106.0061	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51355	105.9983	SPP-MKEC-08
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.9592	GEN501801 1-DOLET HILLS UNIT1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.9452	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.9372	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.9356	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51363	105.9211	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.8847	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.8847	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51341	105.8799	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.8692	GEN509409 1-WILKES #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.8592	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52158	105.8548	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52158	105.8548	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51563	105.8486	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51341	105.8398	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51332	105.8257	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5138	105.8171	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.8043	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5138	105.7863	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51456	105.7787	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.7635	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.7532	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51531	105.7518	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5129	105.7453	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5138	105.7434	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.7399	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.7062	GEN590010 1-ERCOT EQUIVALENCE
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.7049	GEN509408 1-WILKES #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.6963	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51353	105.6874	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51353	105.6872	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.6828	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51332	105.6815	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.6765	GEN514998 1-MCCLAIN UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51308	105.6612	SPP-SWPS-03
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51347	105.6345	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51531	105.6085	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.6037	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.6037	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52778	105.5554	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.5323	GEN514900 1-REDBUD2S
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.5323	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.5322	GEN514899 1-REDBUD1S
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52574	105.5131	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51245	105.4765	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4641	GEN514905 1-REDBUD3S
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4632	GEN501813 1-RODEMACHER UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4616	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51274	105.4469	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51588	105.4386	SPSCONT-01
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4252	GEN338146 1-INDEPENDENCE UNIT #2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4131	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.4011	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51274	105.3902	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.3829	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.3817	GEN334440 1-SABINE UNIT 4
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.3729	GEN335206 1-NELSON UNIT 6
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.364	GEN549893 2-SOUTHWEST 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51301	105.3464	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51234	105.3137	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.3041	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52129	105.3028	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51369	105.2981	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52167	105.2951	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2898	GEN335204 1-NELSON UNIT 4
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.283	GEN501812 1-RODEMACHER UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.28	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.28	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52655	105.2642	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51266	105.2642	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	105.2638	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2614	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2606	GEN562512 1-G14_020_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2483	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.248	GEN562426 1-G13-028ST 17.500
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	105.2448	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2413	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51276	105.2371	CHERJTAP 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51268	105.235	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2345	GEN505432 1-SIKESTON
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	105.2342	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2242	GEN520811 1-ANADRK4
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2091	GEN300015 1-1SGPDEL 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2081	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2079	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2075	GEN336191 1-LITTLE GYPSY UNIT#3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51167	105.2073	ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.206	GEN300010 1-ST FRANCIS UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2016	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.2013	GEN300011 1-ST FRANCIS UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51369	105.1919	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51301	105.1879	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1821	GEN334433 1-SABINE UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1804	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1804	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1802	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1802	GEN300033 1-CHOUTEAU STG 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1773	GEN336464 1-MICHOUD UNIT #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5126	105.167	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5128	105.156	CHERJTAP 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51627	105.1544	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51627	105.1544	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51267	105.1506	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51304	105.15	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1287	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5128	105.1272	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1097	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51456	105.1087	SPSCONT-02X
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1078	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1003	GEN515266 1-AES 1G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.1003	GEN515267 1-AES 2G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0977	GEN506754 1-LEBROCK STEAM 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0934	GEN503909 1-FULTONU1 1 16.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0923	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51348	105.0849	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0746	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0746	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5135	105.0691	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5135	105.0691	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51301	105.0589	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51348	105.0508	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0496	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0346	GEN336222 1-LITTLE GYPSY UNIT#2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5128	105.0303	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0252	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0252	GEN511940 1-OEC GAS # 1-2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.025	GEN300016 1-1G1GPDEL 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5124	105.0242	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51369	105.0087	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0016	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	105.0005	GEN303008 1-1BC2 U3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51272	104.9877	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51231	104.987	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51278	104.9828	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9774	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.973	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.965	GEN303007 1-1BC2 U2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9647	GEN303006 1-1BC2 U1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9612	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51222	104.9573	CHERRYC3 345.00 - GERALD GENTLEMAN STATION 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51315	104.9478	SPP-MKEC-05
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9446	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9446	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9438	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9438	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51313	104.9421	SPP-WR-418A
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51313	104.9421	SPP-WR-418B
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9301	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9272	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9259	GEN337757 1-DUKE HOTSPRINGS STG1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9257	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9249	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9222	GEN334071 1-LEWIS CREEK 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51313	104.9216	SPP-MKEC-03A
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51278	104.9137	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5121	104.912	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9105	GEN506753 1-LEBROCK GAS 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9082	GEN300017 1-1G2GPDEL 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51313	104.9025	SPP-MKEC-03B
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9015	GEN547657 1-STATE LINE UNIT #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9012	GEN547656 1-STATE LINE UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.9002	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8887	MCADAMS - WOLF CREEK 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51272	104.8786	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8775	GEN520812 1-ANADRK5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8775	GEN520813 1-ANADRK6
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51234	104.8728	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5122	104.8632	CHERRYC3 345.00 - HOLT.CO3 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8616	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8606	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8601	GEN337766 1-TRACTEBEL UNIT S1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8596	GEN542957 1-IATAN UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8503	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	104.8485	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51249	104.8443	DARLINGTNRD4138.00 - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8434	GEN515000 1-MCCLAIN UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8407	GEN501910 1-ACADIA UNIT ST1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51353	104.837	BENTON - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8349	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8273	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8272	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.825	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8192	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8186	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	104.8156	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5123	104.815	MCCOOL - MOORE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8147	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51217	104.8131	MORISNT4 138.00 - STILLWATER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8128	GEN336831 1-BAXTER WILSON SES
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8126	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51349	104.8122	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51218	104.8102	3TERM2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8083	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8078	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51226	104.8059	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51349	104.8047	CHISHOLM7 345.00 () 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51365	104.8042	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8034	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.8034	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51213	104.795	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7877	GEN335370 1-1ACADIA_S26!16.000

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7857	GEN501823 1-TECHE UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7837	GEN336446 1-MICHOUD UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51392	104.7822	GERALD GENTLEMAN STATION - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51215	104.781	NUNDRWD - WAYSIDE 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7776	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7776	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7772	GEN300001 1-THOMAS HILL UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51232	104.7764	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7762	GEN336801 1-BAXTER WILSON UNIT #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7749	GEN335178 5-RS Cogen R5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	104.7747	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51225	104.7742	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	104.7738	A222
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	104.7735	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51217	104.7715	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	104.7712	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7699	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	104.769	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.769	GEN337041 1-GERALD ANDRUS
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51304	104.7662	WOODWARD - WOODWARD 69KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7628	GEN501970 1-EVANGELINE UNIT 7
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51238	104.7576	SPP-MKEC-12
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.7515	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52778	104.6765	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52655	104.6365	SPP-SWPS-05
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52655	104.5924	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.4703	BASE CASE
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.4703	NO5_GEN-NORTH OMAHA 5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52052	104.2138	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1938	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51204	104.1876	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51194	104.1865	ARCADIA - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1863	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51161	104.1821	LYDIA - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50836	104.182	CIMARRON - MATHWSN7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1797	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5115	104.1796	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1794	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1735	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1715	AMRN_OUTS5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51213	104.1657	7MCCREDIE 345.00 - 7MONTGMRY 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1635	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1626	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1623	7MAYWOOD 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51166	104.1623	PANTHER - SILVER LAKE 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51206	104.1612	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1596	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1579	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51222	104.1569	3TERM7
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1569	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5118	104.1559	4MEMORAL 138.00 - LUTHER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1469	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1457	GEN560738 1-G13_016_2 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51462	104.1414	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.49278	104.1324	CIMARRON - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51166	104.1301	NORTHWEST - PANTHER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5118	104.1299	4MEMORAL 138.00 - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51189	104.1285	BROOKLINE - FLINT CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51152	104.1248	KETCH TAP - NORTHWEST 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51147	104.12	SPP-AEPW-01
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1125	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51215	104.1105	KCPL-MSL#03
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51215	104.1104	MTGY-OVER-5
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51196	104.1088	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1079	SPCK-SUBT-1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	104.1071	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.1063	908 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.1024	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0964	GEN562618 1-G14_068CT 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0953	GEN562617 1-G14_067CT 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0946	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0946	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5118	104.0933	AI24
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51195	104.0926	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51131	104.0901	3TERM11

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0838	GEN562269 1-G12-020-1 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51159	104.0788	3TERM14
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51157	104.0673	NORTHWEST (NORTWST4) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51157	104.0672	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51195	104.0658	GRDA-OPGD-05
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0592	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0518	GEN562495 1-G14_012_2 18.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5111	104.0459	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0396	GEN525493 1-PLANT X GEN #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51208	104.0316	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0266	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.0253	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51166	104.0142	G13-028T 345.00 - GRDA1 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.01	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	104.01	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.9928	KEO EHV - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52167	103.9911	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9842	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9657	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51152	103.9618	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9581	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9518	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9457	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9378	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9164	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52574	103.9106	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.9069	8CHOCTAW MS 500.00 - 8CLAY 500.00 500KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.8889	GEN524022 1-NICHOLS GEN #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.8438	GEN562550 1-G14_040_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51201	103.8429	7SPORTSMAN - BLACKBERRY 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.8377	GEN562574 1-G14_052_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.8365	GEN636641 1-LOUISA UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.8281	GEN562042 1-G11_014_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51109	103.7901	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.7768	GEN635212 2-NEAL UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.7579	GEN524295 1-SPNSPUR_WND10.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.7463	GEN562608 1-G14_063_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.742	GEN520997 1-MORLND2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51054	103.7264	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.7168	GEN562074 1-G11_049_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6899	GEN520998 1-MORLND3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.6689	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6679	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6675	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6632	GEN562017 1-G11_022_3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.623	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6031	GEN527161 1-MUSTANG GEN #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6031	GEN527162 1-MUSTANG GEN #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6017	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6013	GEN523461 1-BLACKHAWK GEN #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.6012	GEN523462 1-BLACKHAWK GEN #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51185	103.5891	CHAMBER SPRINGS - CLARKSVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5866	GEN560121 1-G08471419 0.5750
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5863	GEN562432 1-G13-030 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51184	103.5737	DELAWARE - NEOSHO 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5591	GEN525844 1-ELK_1 118.000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5585	GEN520922 1-SLEEPING BEAR
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5375	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5306	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.5155	GEN515389 1-TLGWND-WTG1 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.4938	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.4817	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51021	103.4771	CIMARRON - DRAPER LAKE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4739	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.4716	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.4681	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4379	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.4213	SPSCONT-05AX
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.4181	GEN526333 1-JONES GEN #3 21 KV
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.4126	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.4077	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.3877	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.3794	SPSCONT-05AX
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.3762	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.3741	GEN509403 1-PIRKEY GENERATION

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51028	103.3519	PITTSBURG - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.2901	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51061	103.2858	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.2376	GEN526331 1-JONES GEN #1 22 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.2373	GEN526332 1-JONES GEN #2 21 KV
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52129	103.2128	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51184	103.1939	DELAWARE - NORTHEAST STATION 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.1859	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.1859	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.1809	GEN509403 1-PIRKEY GENERATION
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.1729	GEN520947 1-HUGO1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50043	103.1715	ARCADIA - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52073	103.1539	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.1434	GEN560155 1-G10-11 0.7000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52167	103.1428	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.1179	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	103.1174	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.0951	GEN509416 1-TURK GENERATION
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52073	103.0923	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	103.0871	GEN635214 4-NEAL UNIT 4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.048	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51041	103.0452	RENFROW7 345.00 - VIOLA 7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	103.032	GEN520947 1-HUGO1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	103.0307	SPSCONT-05AX
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.521	103.0133	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.9689	GEN635213 3-NEAL UNIT 3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50723	102.9594	REDBUD - RIVERSIDE STATION 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51656	102.9363	SPSCONT-01
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51053	102.9363	RANCHRD7 345.00 - SOONER 345KV CKT 1
FDNS	01ALL	0	20SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	102.9324	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	01ALL	0	20SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	102.9244	SPSCONT-05AX
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.9139	GEN514806 1-SOONER UNIT 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50724	102.9001	SPP-AEPW-42
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51098	102.851	HUNTERS7 345.00 - WOODRING 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.8208	GEN515040 1-SEMINOLE 1G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.8172	GEN509406 1-WELSH #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.8171	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.807	GEN515397 1-OUSPRT 1 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.521	102.8018	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.7996	GEN515225 1-MUSKOGEE 5G
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.7896	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.7883	GEN515226 1-MUSKOGEE 6G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51498	102.7722	DEWEY - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.7649	GEN515223 1-MUSKOGEE 4G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51505	102.7641	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51053	102.755	OPENSKY7 345.00 - RANCHRD7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.736	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.7281	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.521	102.716	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52052	102.7158	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51505	102.6974	G11-17T 345.00 - G13-010T 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.6421	GEN514805 1-SOONER UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52073	102.6339	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.6315	GEN515365 1-CENT 21 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.6289	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.6156	GEN509405 1-WELSH #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.5763	GEN509406 1-WELSH #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.5762	GEN509404 1-WELSH #1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.5611	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.561	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.561	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.5322	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.5313	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.5257	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.5168	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52036	102.4984	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50013	102.488	NORTHWEST - SPRING CREEK 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50013	102.4838	SOONER - SPRING CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51537	102.4764	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.4627	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	102.4531	MINGO - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.4521	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52129	102.4408	SPP-SWPS-05
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51498	102.4308	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.4168	GEN336821 1-GRAND GULF UNIT

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.4053	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.3656	GEN511841 1-NORTHEASTERN STATION #4
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.3373	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50836	102.3286	MATHWSN7 345.00 - WOODRING 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51098	102.319	HUNTERS7 345.00 - RENFROW7 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51053	102.3132	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2979	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2962	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2911	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2902	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2863	GEN515042 1-SEMINOLE 3G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.2855	GEN514939 1-HORSESHOE LAKE 8G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51505	102.2782	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51498	102.2706	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.269	GEN560687 1-G11-007 0.5750
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.2598	GEN562587 1-G14_056_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.2584	GEN509394 1-FLINT CREEK
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.2308	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	102.2087	GEN531447 1-HOLCOMB GENERATOR
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.1705	GEN512688 2-GRDA1 GSU2 22
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.1619	GEN509405 1-WELSH #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52219	102.1606	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52229	102.1586	SPSCONT-01
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.1405	GEN511840 1-NORTHEASTERN STATION #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.1375	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51435	102.114	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.0964	GEN511841 1-NORTHEASTERN STATION #4
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0947	GEN511843 1-RIVERSIDE STATION #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.0943	GEN336821 1-GRAND GULF UNIT
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0702	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.058	GEN515602 1-KNGFSR12 0.7000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0576	GEN501801 1-DOLET HILLS UNIT1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.0559	GEN562285 1-G12-031 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52036	102.05	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51406	102.0465	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0458	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52022	102.044	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0334	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0334	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51671	102.0307	SPP-SWPS-01
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	102.0301	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51589	102.0242	BENTON - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	102.0227	GEN511839 1-NORTHEASTERN STATION #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51965	102.0119	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5203	101.998	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.9957	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52022	101.9952	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51406	101.9894	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51934	101.9496	SPP-MKEC-08
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.9369	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5136	101.9359	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.9338	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.9338	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.9228	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5202	101.9093	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.9055	GEN300006 1-NEW MADRID UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.9043	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.9006	GEN300007 1-NEW MADRID UNIT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51656	101.8663	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50832	101.8656	GRACEMONT - MINCO 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.8622	GEN590010 1-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.8616	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.8461	GEN514900 1-REDBUD2S
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.8461	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.8459	GEN514899 1-REDBUD1S
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	101.8404	GEN515393 1-OGEWND2G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.8149	GEN515443 1-MNCOWND1 0.7000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52132	101.8121	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52036	101.8065	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51467	101.7852	HOLCOMB - SETAB 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.7627	GEN514905 1-REDBUD3S
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.7609	GEN336153 1-WATERFORD UNIT#3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51333	101.7608	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51964	101.7567	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51333	101.7473	MOREWOOD SW - NINE MILE 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5135	101.7449	SPP-MKEC-08
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.7444	GEN515041 1-SEMINOLE 2G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.7233	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51964	101.7189	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51927	101.6981	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51927	101.698	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.6866	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.6769	GEN514936 1-HORSESHOE LAKE 7S
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.6762	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.674	GEN509409 1-WILKES #3
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	101.6699	GEN525561 1-TOLK GEN #1 24 KV
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51599	101.6683	MINGO - RED WILLOW 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51435	101.667	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.6528	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.6493	GEN509398 1-KNOXLEE #5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51356	101.6486	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5201	101.6371	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51855	101.6287	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	101.6132	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51356	101.6096	CEDARDALE - OKEENE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	101.608	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.6058	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	101.6054	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	101.6045	GEN525562 1-TOLK GEN #2 24 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5201	101.6024	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51925	101.5944	MOORELAND - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5186	101.5913	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51819	101.5768	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51471	101.5768	AXTELL - POST ROCK 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51925	101.5669	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.5601	GEN515606 1-CANDN11 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5201	101.5598	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.5575	GEN335831 1-RIVERBEND UNIT#1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.5554	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.5554	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51394	101.547	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.5405	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.5402	GEN515607 1-CANDN12 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5186	101.5174	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.5023	GEN511842 1-RIVERSIDE STATION #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52083	101.4979	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51394	101.4926	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51967	101.489	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.4677	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51343	101.4664	FLATRDG3 - THISTLE4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51343	101.4663	THISTLE7 345.00 (THISTLE T1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.4638	GEN590011 2-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	101.4635	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.4553	GEN300003 1-THOMAS HILL UNIT 3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51435	101.4521	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.4286	GEN549893 2-SOUTHWEST 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.4267	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51394	101.4245	IMO TAP - MEN TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.4117	GEN514910 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.408	GEN335206 1-NELSON UNIT 6
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.4042	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.403	GEN514911 2-REDBUD GEN
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.403	GEN514942 2-REDBUD4G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.4023	GEN590010 1-ERCOT EQUIVALENCE
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3932	GEN338146 1-INDEPENDENCE UNIT #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3913	GEN562512 1-G14_020_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51855	101.382	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51838	101.3738	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.3713	GEN509408 1-WILKES #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.3699	GEN514912 2-REDBUD GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51864	101.3622	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51849	101.3562	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3544	GEN338143 1-INDEPENDENCE UNIT #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3534	GEN505432 1-SIKESTON
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51966	101.3526	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3515	GEN501812 1-RODEMACHER UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	101.3502	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.3439	GEN514859 1-MUSTANG 4G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3335	GEN562425 1-G13-028CT 20.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3332	GEN562426 1-G13-028ST 17.500

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3291	GEN335204 1-NELSON UNIT 4
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3287	GEN515266 1-AES 1G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3287	GEN515267 1-AES 2G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51862	101.3283	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51811	101.3212	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51823	101.3181	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51856	101.318	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.3086	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51836	101.2921	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.2846	SPP-MKEC-03A
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.2846	SPP-WR-418A
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.2846	SPP-WR-418B
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.2825	SPP-MKEC-03B
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.2813	SPP-MKEC-05
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	101.2671	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2639	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2582	GEN515000 1-MCCLAIN UNIT 3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2574	GEN501813 1-RODEMACHER UNIT 3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51823	101.2572	SPP-SWPS-03
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51359	101.2483	DOVER SW - OKEENE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2457	GEN514899 1-REDBUD1S
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2457	GEN514940 1-REDBUD GEN
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2456	GEN514900 1-REDBUD2S
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51237	101.2432	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.243	GEN511938 1-OEC STEAM # 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.243	GEN511941 1-OEC STEAM # 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5087	101.2423	CIMARRON - MINCO 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2409	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2409	GEN511940 1-OEC GAS # 1-2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2409	GEN511942 1-OEC GAS # 2-1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2409	GEN511943 1-OEC GAS # 2-2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2381	GEN514905 1-REDBUD3S
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5185	101.2374	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52187	101.2351	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52187	101.2351	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	101.2346	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51966	101.2317	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2245	GEN514999 1-MCCLAIN UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2169	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2169	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.2168	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	101.2093	GEN562078 1-G11_051_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.2089	GEN514998 1-MCCLAIN UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.207	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52244	101.2048	SPP-SWPS-01
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51244	101.2035	HOYT - JEFFREY ENERGY CENTER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51896	101.1994	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1959	GEN336191 1-LITTLE GYPSY UNIT#3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1909	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51939	101.1908	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51939	101.1878	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	101.1798	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51257	101.1781	GRAND ISLAND - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	101.1769	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	101.1744	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	101.1615	GEN562472 1-G13_035_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1588	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1588	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1559	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51503	101.1476	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1474	GEN334440 1-SABINE UNIT 4
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1466	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52036	101.1457	SPSCONT-02X
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1232	GEN334433 1-SABINE UNIT 3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.1219	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51925	101.1217	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51925	101.1217	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51877	101.1084	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0878	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51837	101.0877	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.52229	101.0867	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.0832	GEN562426 1-G13-028ST 17.500
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51858	101.0717	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.0655	GEN515601 1-KNGFSR11 0.7000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51231	101.0576	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	101.054	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51855	101.0492	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0457	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51503	101.0435	DEWEY - IODINE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51854	101.0422	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51858	101.0369	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0307	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0307	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0299	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0299	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5182	101.0254	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	101.0252	GEN549893 2-SOUTHWEST 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.013	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	101.0064	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	101.0028	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51235	101.0021	SPP-SWPS-03
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.997	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	100.9952	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51804	100.9859	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9837	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9831	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9777	GEN303008 1-1BC2 U3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51966	100.9732	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.965	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51842	100.9547	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51305	100.9535	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9515	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9511	GEN515550 1-MNCWND31 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.95	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9479	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9475	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9464	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51156	100.9459	ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51309	100.9405	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9401	GEN521103 1-BLUE CANYON WIND FARM
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51604	100.9359	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51604	100.9359	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9359	GEN301382 1-1OSAGEWINDG10.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51902	100.9357	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9345	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9335	GEN514935 1-HORSESHOE LAKE 6G
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9315	GEN509408 1-WILKES #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9258	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51842	100.9251	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51818	100.9231	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9213	GEN542955 1-LACYGNE UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51267	100.9179	MULLERGREN - SPEARVILLE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5182	100.9177	MCCOOL - MOORE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51807	100.9174	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9143	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9095	GEN562512 1-G14_020_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9092	GEN337766 1-TRACTEBEL UNIT S1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51855	100.9081	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.9077	GEN509393 S1-ARSENAL HILL GENS #4 (STALL)
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51305	100.9076	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51787	100.9045	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.9038	GEN336222 1-LITTLE GYPSY UNIT#2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	100.9036	SPP-MKEC-12
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51928	100.9021	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8989	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	100.898	BARBER 3 115.00 - SAWYER 3 115.00 115KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8978	GEN501910 1-ACADIA UNIT ST1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8938	GEN505432 1-SIKESTON
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51838	100.8933	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8931	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8931	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.892	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.892	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51813	100.8914	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51822	100.8898	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51245	100.8898	HOYT - STRANGER CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51278	100.8896	LACYGNE - WAVERLY7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51813	100.8891	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51836	100.8883	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8881	GEN542957 1-IATAN UNIT #1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	100.8867	ALEXANDER - SAWYER 3 115.00 115KV CKT 1
FDNSLock	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51805	100.8848	TRF-STEGALL
FDNSLock	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51805	100.8846	STEGALL () 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51906	100.8826	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51906	100.8826	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	100.8812	MCADAMS - WOLF CREEK 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51789	100.8784	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51789	100.8784	A222
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51789	100.8782	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.876	GEN511939 1-OEC GAS # 1-1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.876	GEN511940 1-OEC GAS # 1-2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.876	GEN511942 1-OEC GAS # 2-1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.876	GEN511943 1-OEC GAS # 2-2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8739	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51805	100.8724	NUNDRWD - WAYSIDE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8665	GEN562590 1-G14_057_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8654	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8622	GEN336831 1-BAXTER WILSON SES
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8617	GEN549899 5-JAMES RIVER 5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8604	GEN300015 1-1SGPDEL 18.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51829	100.8588	PUTNAM - TALOGA 69KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51801	100.8585	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51834	100.8582	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8582	GEN303007 1-1BC2 U2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.858	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8569	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8569	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51817	100.8504	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8499	GEN335370 1-1ACADIA_S26!16.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8472	GEN511852 1-COMANCHE #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8464	GEN509407 1-WILKES #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51817	100.8463	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8416	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8408	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8408	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8376	GEN505616 1-BROKEN BOW
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.8372	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51806	100.8371	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51272	100.8365	AXTELL - PAULINE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51278	100.8361	WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51262	100.8301	SWISSVALE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8285	GEN511858 1-TULSA POWER STATION # 4-1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51309	100.8274	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8236	GEN542956 2-LACYGNE UNIT #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51435	100.8174	SPSCONT-02X
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51305	100.8172	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8163	GEN300024 1-1CHOTST6 16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8161	GEN300031 1-CHOUTEAU CTG 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8116	GEN514883 1-SPRING CREEK UNIT 3 AND 4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8106	GEN514882 1-SPRING CREEK UNIT 1 AND 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.8004	GEN509392 G2-ARSENAL HILL GENS #3 (STALL)
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7996	GEN547658 1-STATE LINE COMBINED CYCLE
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5127	100.7958	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7898	GEN300010 1-ST FRANCIS UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7826	GEN509391 G1-ARSENAL HILL GENS #2 (STALL)
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7806	GEN515266 1-AES 1G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7806	GEN515267 1-AES 2G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7801	GEN503909 1-FULTONU1 1 16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51297	100.7688	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.767	GEN300020 1-1CHOTCT4 16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.767	GEN300021 1-1CHOTCT5 16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7668	GEN300032 1-CHOUTEAU CTG 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7668	GEN300033 1-CHOUTEAU STG 3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7641	GEN300011 1-ST FRANCIS UNIT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5127	100.7604	ELLIS 4 138.00 - MOREWOOD SW 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51366	100.7534	CANEYRV7 345.00 - NEOSHO 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7503	GEN511837 1-NORTHEASTERN STATION # 1-1A
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7503	GEN511838 1-NORTHEASTERN STATION # 1-1B
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51237	100.7464	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5128	100.7454	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51263	100.7263	EMPORIA ENERGY CENTER - SWISSVALE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7103	GEN520812 1-ANADRK5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7102	GEN520813 1-ANADRK6
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5134	100.7082	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5134	100.7082	BVRCNTY7 345.00 - OPTIMA 345.00 345KV CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.7019	GEN547649 1-ASBURY UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6955	GEN549890 1-SOUTHWEST 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51243	100.6845	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6765	GEN514858 1-MUSTANG 3G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5127	100.6727	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6716	GEN520811 1-ANADRK4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6698	GEN511955 G-COGENTRIX GAS # 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6652	GEN300016 1-1G1GPDEL 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51262	100.6596	MOORE - PAULINE 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.652	GEN560221 1-G07-62-1 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.652	GEN560222 1-G07-62-2 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.652	GEN560223 1-G07-62-3 0.6900
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.652	GEN560224 1-G07-62-4 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6487	GEN511854 1-TULSA POWER STATION # 2-1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51266	100.64	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51366	100.629	CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6239	GEN511836 1-NORTHEASTERN STATION #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6216	GEN506752 1-LEBROCK GAS 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6192	GEN547657 1-STATE LINE UNIT #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6189	GEN547656 1-STATE LINE UNIT #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6161	GEN506750 1-EASTMAN GENERATION B
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51234	100.6126	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6063	GEN511953 G-COGENTRIX GAS # 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6063	GEN511957 G-COGENTRIX GAS # 3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6053	GEN511954 S-COGENTRIX STEAM # 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.6053	GEN511956 S-COGENTRIX STEAM # 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51241	100.5967	CIRCLE - MULLERGREN 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5848	GEN542962 2-IATAN UNIT #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5844	GEN514890 1-SMITH 1G
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.57	GEN334441 1-SABINE UNIT 5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5136	100.5624	EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.5547	BASE CASE
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.5547	NC1_GEN-NEBRASKA CITY 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.551	GEN511851 1-COMANCHE #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51212	100.5497	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5458	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5456	GEN501811 1-RODEMACHER UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5454	GEN334070 1-LEWIS CREEK 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51253	100.5358	CANTON - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.5355	SPP-MKEC-03B
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5136	100.5346	G14_001T 345.00 - WICHITA 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5238	GEN337757 1-DUKE HOTSPRINGS STG1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5219	GEN547642 1-RIVERTON GEN #12
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5201	GEN503900 1-FITZHUGH CT1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.5167	DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.5042	GEN542951 5-HAWTHORN UNIT #5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51305	100.5038	SANDY_CN_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4997	GEN336170 1-GULF OXY U4
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51253	100.4921	CANTON - OKEENE 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.4909	SPP-MKEC-03A
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.4909	SPP-WR-418A
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.4909	SPP-WR-418B
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.4883	SPP-MKEC-05
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4877	GEN506753 1-LEBROCK GAS 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4863	8DANIEL8 500.00 500/230KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51228	100.4862	RED WILLOW (RD.WILLOW T1) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4862	8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4861	GEN506749 1-EASTMAN GENERATION A
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4854	GEN337764 1-TRACTEBEL UNIT C1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51366	100.4822	LATHAMS7 345.00 - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51243	100.4756	KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51228	100.4754	GRAND ISLAND - MCCOOL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4651	GEN542957 1-IATAN UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.465	GEN300002 1-THOMAS HILL UNIT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4643	GEN300017 1-1G2GPDEL 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51235	100.464	TALOGA (TALOGA) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4587	GEN659320 1-STEGALLWECCG230.00
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51311	100.4572	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51218	100.4556	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51246	100.4548	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51321	100.4532	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51321	100.4532	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51237	100.4507	SPP-MKEC-12
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51226	100.4497	BUFBEAR2 - BUFFALO 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4486	GEN336222 1-LITTLE GYPSY UNIT#2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51237	100.4433	BARBER 3 115.00 - SAWYER 3 115.00 115KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4433	GEN501910 1-ACADIA UNIT ST1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.439	GEN334431 1-SABINE UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.439	GEN334432 1-SABINE UNIT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4381	GEN337765 1-TRACTEBEL UNIT C2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51347	100.4378	BENTON - ROSE HILL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.436	GEN599951 1-PSCO LAMAR DC TIE
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51237	100.4285	ALEXANDER - SAWYER 3 115.00 115KV CKT 1
FDNSLock	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51215	100.4282	STEGALL () 345/230/13.8KV TRANSFORMER CKT 1
FDNSLock	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51215	100.428	TRF-STEGALL
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4272	GEN334030 1-FRONTIER UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4272	GEN334031 1-FRONTIER UNIT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51334	100.4181	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	100.4161	PUTNAM - TALOGA 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4157	GEN336221 1-LITTLE GYPSY UNIT#1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51225	100.4147	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.413	GEN511853 1-COMANCHE #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	100.4129	GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.411	GEN549899 5-JAMES RIVER 5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51218	100.4063	MORISNT4 138.00 - STILLWATER 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4038	GEN514897 1-SMITH 1S
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.4026	MAIZE - MAIZEW 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51211	100.4025	CLINTON JUNCTION - CLINTON NATURAL GAS TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51219	100.4011	3TERM2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.4011	SPP-WR-403
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.4009	EVANS ENERGY CENTER NORTH - MAIZEW 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.4003	GEN511852 1-COMANCHE #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51213	100.3999	ELDORADO EHV 500/345KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	100.3945	HAMON BUTLER - PUTNAM 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	100.3938	ARAPAHO - HAMON BUTLER 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3931	GEN335370 1-1ACADIA_S26I16.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	100.392	ARAPAHO - INDUSTRIAL PARK 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51213	100.3917	7SAREPT 345.00 - ELDORADO EHV 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51213	100.3917	A222
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3902	GEN562590 1-G14_057_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3899	GEN501823 1-TECHE UNIT 3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51226	100.3898	BUFFALO - WEST 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.385	GEN336446 1-MICHOUD UNIT #2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51354	100.3835	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3826	GEN335371 1-1G2-1ACAD 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3826	GEN335372 1-1G2-2ACAD 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3825	GEN335178 5-RS Cogen R5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3797	GEN521110 1-ORME1 13.800
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3797	GEN521111 1-ORME2 13.800
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3786	GEN505618 2-BROKEN BOW
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51221	100.3781	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.3771	SPP-WR-402
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.3769	CHISHOLM - MAIZEE 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51216	100.3768	MAIZE - MAIZEE 4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3747	GEN300001 1-THOMAS HILL UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3725	GEN505616 1-BROKEN BOW
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3697	GEN501970 1-EVANGELINE UNIT 7
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51218	100.3688	7SAREPT 345.00 - LONGWOOD 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	100.361	CORDELL - INDUSTRIAL PARK 69KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3609	GEN336242 1-1NMIL ST1 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51278	100.3578	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3564	GEN337758 1-DUKE HOTSPRINGS CTG1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3564	GEN337759 1-DUKE HOTSPRINGS CTG2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3525	GEN337428 1-PERYVILLE UNIT #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.3525	GEN337430 1-PERYVILLE UNIT #3
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51781	100.2979	ARCADIA - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	100.2779	ARKANSAS NUCLEAR ONE - MABELVALE 500 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51794	100.2762	WR-B3-9
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2753	COFFEYVILLE TAP - DEARING 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51759	100.2697	AI24
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2685	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2663	GEN560586 1-G06-44-4 4.1600
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.518	100.2662	KCPL-MSL#03
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.518	100.2662	MTGY-OVER-5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51794	100.2662	7PALM TAP 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51794	100.2635	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.2628	GEN515449 1-CRSRDW11 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2624	GEN562483 1-G13_027_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2621	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51795	100.2558	SPCK-SUBT-1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2558	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51795	100.2554	908 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	100.2509	WEBRE - WELLS 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51782	100.2466	GRDA-OPGD-05
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2414	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2403	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51822	100.2395	KILDARE4 - WHITE EAGLE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2373	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51762	100.2362	LYDIA - WELSH 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51734	100.2347	KETCH TAP - NORTHWEST 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5171	100.2323	3TERM11
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51752	100.2303	PANTHER - SILVER LAKE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51752	100.2198	NORTHWEST - PANTHER 138KV CKT 1
FDNS	01ALL	0	20WP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	100.2175	GEN515450 1-CRSRDW21 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51796	100.2091	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2069	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51802	100.2068	Canadian Pump Station - JENSEN ROAD 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51782	100.2065	GRACEMONT (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.2028	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1874	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51821	100.1825	SPP-SWPS-02A
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51791	100.1796	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1771	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1745	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1745	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51742	100.1737	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51742	100.1668	NORTHWEST (NORTWST4) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.151	GEN562269 1-G12-020-1 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1479	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5178	100.1404	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51692	100.1403	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51782	100.1318	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51801	100.1297	3TERM10
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51747	100.1295	3TERM14
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1253	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51784	100.125	MIDLTNT4 138.00 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51784	100.1249	NEWKIRK4 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1163	GEN635212 2-NEAL UNIT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51784	100.1022	NEWKIRK4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51784	100.102	KILDARE4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1019	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.1009	8BHAM STEEL 500.00 - 8FREEPORT TN500.00 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51771	100.0982	BROOKLINE - FLINT CREEK 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0977	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	100.0942	JENSEN ROAD - JENSEN TAP 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0835	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0835	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0818	GEN539767 1-GRAY COUNTY WIND FARM
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51784	100.0813	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51753	100.0805	LYDIA - VALLIANT 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.0762	BASE CASE
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	100.0762	NO5_GEN-NORTH OMAHA 5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0755	GEN344225 1-1CAL G1 25.000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51738	100.0659	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0612	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0589	GEN524021 1-NICHOLS GEN #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100.0543	AMRN_OUTS5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51808	100	3TERM7
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN524022 1-NICHOLS GEN #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	100	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51758	100	G13-028T 345.00 - GRDA1 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51744	100	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51742	100	SPP-AEPW-01
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN527165 1-Mustang Gen #5
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN562042 1-G11_014_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN562550 1-G14_040_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN562574 1-G14_052_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.9	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51788	99.9	7SPORTSMAN - BLACKBERRY 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5055	99.9	ARCADIA - NORTHWEST 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.8	GEN524295 1-SPNSPUR_WND10.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.8	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.8	GEN562074 1-G11_049_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.8	GEN562608 1-G14_063_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51792	99.8	KEO EHV - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51432	99.8	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51258	99.8	BENTON - WOLF CREEK 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51248	99.8	SPP-SWPS-02A
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51242	99.8	CARNEGIE - SOUTHWESTERN STATION 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5124	99.8	BINGER NIJECT - SICKLES 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5124	99.8	CLINTON JUNCTION - G07-32T 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51223	99.8	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5122	99.8	KILDARE4 - WHITE EAGLE 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51218	99.8	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN344225 1-1CAL G1 25.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN527881 1-CUNNINGHAM GEN #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN531461 4-S4 GENERATOR
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN531503 1-CIMRRN 1 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN531601 1-SPVLW4-7 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN539677 3-A. M. MULLERGREN GENERATOR
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN560329 1-G10-45 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN560432 1-G08-124 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN560585 1-G06-44-3 4.1600
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN560586 1-G06-44-4 4.1600
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN560738 1-G13_016_2 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN562565 1-G14_049_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	GEN562616 1-G14_067S 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	LES0001
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.8	SPCK-SUBT-1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51203	99.8	ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51194	99.8	CIMARRON (CIMARON2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51183	99.8	HAMMETT TAP - HORSESHOE LAKE 138KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN515787 1-OKLA WIND ENERGY CENTER
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN520922 1-SLEEPING BEAR
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN526332 1-JONES GEN #2 21 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN527161 1-MUSTANG GEN #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN527162 1-MUSTANG GEN #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN560121 1-G08471419 0.5750
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN562017 1-G11_022_3 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.7	GEN636641 1-LOUISA UNIT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51653	99.7	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51443	99.7	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5124	99.7	BINGER NIJECT - ONEY 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5124	99.7	ONEY - WASHITA 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51214	99.7	Canadian Pump Station - REDROCKRD4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51209	99.7	7MCCREDIE 345.00 - 7MONTGMRY 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	908 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN524285 1-WILDORADO WIND GEN
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN528361 1-MADDOX GEN #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN531462 5-S5 GENERATOR
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562032 1-G11_017_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562269 1-G12-020-1 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562270 1-G12-020-2 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562490 1-G14_007_4 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562492 1-G14_007_5 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562605 1-G14_062_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562617 1-G14_067CT 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN562618 1-G14_068CT 18.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN635211 1-NEAL UNIT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN635691 1-GREATER DES MOINES ENERGY CENTERGT1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN635692 2-GREATER DES MOINES ENERGY CENTERGT2
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.7	GEN635693 3-GREATER DES MOINES ENERGY CENTER ST
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51206	99.7	7MONTGMRY 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51206	99.7	7PALM TAP 345.00 - 7SPENCER 345.00 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51204	99.7	ARCADIA - COTTONWOOD CREEK 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51203	99.7	CLARKSVILLE - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51197	99.7	GRDA-OPGD-05
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51186	99.7	MIDLTNT4 138.00 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51186	99.7	NEWKIRK4 - PECKHAM TAP 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51179	99.7	4MEMORAL 138.00 - KAMO MEMORIAL 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51179	99.7	4MEMORAL 138.00 - LUTHER 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51179	99.7	AI24
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51179	99.7	BROOKLINE - FLINT CREEK 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51164	99.7	3TERM14
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51144	99.7	3TERM11
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.50832	99.7	CIMARRON - MATHWSN7 345.00 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.6	GEN515389 1-TLGWND-WTG1 0.7000
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.6	GEN523461 1-BLACKHAWK GEN #1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.6	GEN523462 1-BLACKHAWK GEN #2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.6	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.6	GEN562432 1-G13-030 0.6900
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51782	99.6	CHAMBER SPRINGS - CLARKSVILLE 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51704	99.6	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51595	99.6	CIMARRON - DRAPER LAKE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5121	99.6	KCPL-MSL#03
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5121	99.6	MTGY-OVER-5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN531610 1-WDCTWF-7 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN560256 1-G10-14-1 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN560257 1-G10-14-2 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN560286 1-G10-01-1WTG 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN560287 1-G10-01-2WTG 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.6	GEN562524 1-G14_026_3 12.000
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51206	99.6	DELL 500 - INDEPENDENCE 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51205	99.6	8BHAM STEEL 500.00 - 8FREEPORT TN500.00 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51205	99.6	8BHAM STEEL 500.00 - WEST MEMPHIS 500 500KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51205	99.6	AMRN_OUTS5
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51203	99.6	3TERM7
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51195	99.6	LACYGNE - WEST GARDNER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51194	99.6	LACYGNE - STILWELL 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51186	99.6	CRESWELL - MIDLTNT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51186	99.6	KILDARE4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51186	99.6	NEWKIRK4 - NWKRKAT4 138.00 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5115	99.6	FT SMITH - MUSKOGEE 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51107	99.6	CLEVELAND - SOONER 345KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51105	99.6	PITTSBURG - VALLIANT 345KV CKT 1
FDNS	01ALL	0	20SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5307	99.6	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL	0	20SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.5307	99.6	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.5	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	01ALL	0	15G	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51793	99.5	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51214	99.5	Canadian Pump Station - JENSEN ROAD 138KV CKT 1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN524021 1-NICHOLS GEN #1
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN525493 1-PLANT X GEN #3
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN531459 2-S2 GENERATOR
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN560105 1-G08-22 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN562544 1-G14_038_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51207	99.5	GEN562648 1-G14_037_3 0.6900
FDNS	01ALL	0	15SP	G14_061	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.51048	99.5	ARCADIA - SEMINOLE 345KV CKT 1
FDNS	01ALL	2	15G	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03285	130.8733	BASE CASE
FDNS	01ALL	3	15G	G14_061	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.03673	107.4103	BASE CASE
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	560	560	0.69304	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.40787	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.3613	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.32015	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	956	994	0.20394	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.19003	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	560	560	0.16007	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	560	560	0.15737	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.13084	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.12475	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	0	0	0.12314	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	478	502	0.06726	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	319	351	0.05886	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_062		Non-Converged Contingency	287	316	0.05741	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	0	0	0.41872	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	0	0	0.36995	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	0	0	0.33151	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	560	560	0.16575	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	0	0	0.1314	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_062		Non-Converged Contingency	0	0	0.11981	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	0	0	0.51096	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	0	0	0.39342	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	0	0	0.3446	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	956	994	0.25548	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	1420	1775	0.19443	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_062		Non-Converged Contingency	1792	1792	0.19443	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.42055	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.37011	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.3289	-	SPSCONT-02X

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1420	1775	0.29063	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1033	1071	0.21028	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.19113	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1195	1195	0.17124	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	987	1083	0.16445	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	987	1083	0.16445	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	560	560	0.16445	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1584	2098	0.15382	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1792	1792	0.14845	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.14824	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	478	502	0.14677	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1420	1775	0.14532	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	329	361	0.13594	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	329	361	0.13594	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	987	1083	0.13284	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	956	1052	0.13284	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.13284	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	329	361	0.12989	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	0	0	0.12043	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	557	557	0.11256	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	557	557	0.11256	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1420	1775	0.09556	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1420	1775	0.09556	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1195	1195	0.09556	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1195	1195	0.09556	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	329	361	0.08632	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	421	439	0.07412	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	435	470	0.07412	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	396	441	0.07412	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	1532	1793	0.07339	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	439	439	0.06249	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	287	316	0.06249	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_062		Non-Converged Contingency	329	361	0.06178	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	717	926	0.69301	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	560	560	0.69301	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.40808	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.36151	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.32034	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1420	1775	0.28368	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	956	994	0.20404	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	2302	2532	0.19303	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.19013	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	478	502	0.17371	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	956	1052	0.16017	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	956	1052	0.16017	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	560	560	0.16017	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1330	1940	0.14769	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1420	1775	0.14184	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1420	1775	0.14184	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	319	351	0.14028	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	319	351	0.14028	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.13091	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	956	1052	0.12482	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	956	1052	0.12482	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.12482	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	0	0	0.12321	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1420	1775	0.09506	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1420	1775	0.09506	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1195	1195	0.09506	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	1195	1195	0.09506	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	439	439	0.06546	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	349	395	0.06546	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	396	441	0.06546	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	319	351	0.05775	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_062		Non-Converged Contingency	319	351	0.04925	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	0	0	0.41897	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	0	0	0.37019	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	0	0	0.33173	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	1420	1775	0.29054	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	956	994	0.20948	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	956	1052	0.16586	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	956	1052	0.16586	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	560	560	0.16586	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_062		Non-Converged Contingency	956	1052	0.13149	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	0	0	0.40853	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	0	0	0.36195	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	0	0	0.32074	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	1420	1775	0.28402	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	956	994	0.20426	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	956	1052	0.16037	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	956	1052	0.16037	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	560	560	0.16037	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	1330	1940	0.14784	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	1420	1775	0.14201	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	1420	1775	0.14201	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	956	1052	0.12499	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	956	1052	0.12499	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	0	0	0.12499	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	439	439	0.06553	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_062		Non-Converged Contingency	319	351	0.04921	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_062		Non-Converged Contingency	0	0	0.41915	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_062		Non-Converged Contingency	0	0	0.37037	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_062		Non-Converged Contingency	0	0	0.3319	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_062		Non-Converged Contingency	1420	1775	0.29068	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_062		Non-Converged Contingency	956	994	0.20958	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	0	0	0.42124	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	0	0	0.37078	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	0	0	0.32952	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	1420	1775	0.29113	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	1033	1071	0.21062	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	987	1083	0.16476	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	987	1083	0.16476	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	560	560	0.16476	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	1420	1775	0.14557	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	1420	1775	0.14557	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	987	1083	0.1331	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	956	1052	0.1331	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	0	0	0.1331	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_062		Non-Converged Contingency	421	439	0.07425	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	717	926	0.76673	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	0	0	0.42722	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	0	0	0.26675	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	0	0	0.2386	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	956	994	0.21361	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	1420	1775	0.17383	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	1420	1775	0.17383	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	956	1052	0.13338	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_062		Non-Converged Contingency	956	1052	0.13338	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_062		Non-Converged Contingency	0	0	0.43745	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_062		Non-Converged Contingency	0	0	0.2468	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_062		Non-Converged Contingency	956	994	0.21873	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	0	0	0.43855	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	0	0	0.27881	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	0	0	0.24922	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	1033	1071	0.21927	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	1420	1775	0.17719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	1420	1775	0.17719	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_062		Non-Converged Contingency	987	1083	0.13941	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_062		Non-Converged Contingency	0	0	0.41822	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_062		Non-Converged Contingency	0	0	0.36974	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_062		Non-Converged Contingency	0	0	0.22234	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_062		Non-Converged Contingency	956	994	0.18487	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_062		Non-Converged Contingency	0	0	0.3792	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_062		Non-Converged Contingency	0	0	0.23002	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_062		Non-Converged Contingency	956	994	0.1896	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_062		Non-Converged Contingency	1033	1071	0.19098	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_062		Non-Converged Contingency	0	0	0.20478	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_062	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.12989	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22949	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22949	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03293	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03248	109.8457	BASE CASE
FDNS	06ALL	0	25SP	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03259	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03278	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15105	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.13594	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14057	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.15175	121.8496	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	G14_062	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.0322	100	BASE CASE
FDNS	06ALL	0	15SP	G14_062	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03293	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06249	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05741	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03443	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15105	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.13594	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14057	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.15175	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.08668	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.25548	100.5636	BASE CASE
FDNS	06ALL	0	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38725	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38788	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.38898	125.3709	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22274	103.0857	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22274	103.0855	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.25213	102.0323	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.4136	101.3835	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39074	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39138	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.4867	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23299	107.4157	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23299	107.4155	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.26214	106.3195	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23292	101.792	SPP-SWPS-T59
FDNS	06ALL	0	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22663	101.3272	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27208	101.1844	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22093	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22791	99.8	HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2747	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2747	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06188	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03295	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0328	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14067	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13989	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14033	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_062	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03295	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06188	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14067	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_062	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21808	112.3462	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21808	106.2692	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38772	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38583	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.3768	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37647	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40753	123.6888	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27059	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.2128	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.2125	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22292	101.1524	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.39105	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38918	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49231	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38021	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37989	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.48013	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28106	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.4642	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.464	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23318	105.4014	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23877	102.8649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	102.5611	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	2	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49731	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22177	101.9674	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22569	101.9357	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	101.2494	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	100.9651	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	99.8	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23311	99.7	SPP-SWPS-T59
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22111	99.7	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27227	99.5	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27227	99.5	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_062	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.59005	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_062	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	478	610	0.47671	114.3892	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26943	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26943	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2749	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2749	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2623	127.0814	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2623	116.8364	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0619	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2299	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2299	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_062	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03296	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.13622	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14075	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.13991	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.14033	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_062	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03296	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06259	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06228	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.13622	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_062	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.14075	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_062	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21821	104.9966	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	478	502	0.21821	100.849	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	NEWHART 230 - PLANT X STATION 230KV CKT 1	557	557	0.20809	100.3948	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38797	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.36226	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.38645	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37685	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.37647	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.38996	119.1408	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.40826	117.8059	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27076	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21679	100.9992	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21679	100.9916	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.2527	99.5	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3913	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.36559	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49226	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.3898	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.38026	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37989	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.48012	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.28124	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22652	105.2413	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22652	105.2333	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.26272	103.6901	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2739	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2672	SPP-SWPS-K37
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23333	103.2671	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.49721	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23891	100.9789	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23325	100.1136	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22583	99.7	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_062	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.5899	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_062	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	478	610	0.47758	108.8395	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1	579	664	0.45789	107.3102	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2698	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27336	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2698	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27336	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24499	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24499	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25201	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27505	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_062	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.27505	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25201	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.26266	124.5596	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.26266	117.4955	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.26595	112.1754	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_062	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.26595	107.0115	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06406	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24176	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24176	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10236	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09962	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10294	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_062	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10268	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06406	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06489	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06446	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05992	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05992	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22788	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.21074	118.9896	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22216	107.9918	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22289	103.0762	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22717	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23008	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20WP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.2129	120.0441	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	25SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2244	109.113	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22513	104.0126	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22938	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06172	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22099	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22099	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06172	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06172	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06263	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06263	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.062	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.062	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05748	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05748	111.0916	BASE CASE
FDNS	06ALL	5	15G	G14_062	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26263	101.1506	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	6	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06665	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22971	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22971	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06665	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06665	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	116.9672	BASE CASE
FDNS	06ALL	6	15G	G14_062	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26335	101.6123	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	06ALL	7	15SP	G14_062	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06666	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22972	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_062	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22972	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06666	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06666	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0677	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06692	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_062	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06255	116.8051	BASE CASE
FDNS	06ALL	7	15G	G14_062	TO->FROM	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1	319	351	0.26335	101.5711	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.43775	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.30359	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.28687	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	956	994	0.21887	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.18172	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	560	560	0.14488	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	560	560	0.14344	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.11743	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.10649	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	0	0	0.10079	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	560	560	0.08472	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	478	502	0.06035	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	287	316	0.05752	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_063		Non-Converged Contingency	319	351	0.05258	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	0	0	0.44869	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	0	0	0.31244	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	0	0	0.29874	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	560	560	0.14937	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	0	0	0.12417	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_063		Non-Converged Contingency	0	0	0.09933	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	0	0	0.54905	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	0	0	0.34154	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	0	0	0.31459	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	956	994	0.27453	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	1420	1775	0.21281	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_063		Non-Converged Contingency	1792	1792	0.21281	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.44988	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1420	1775	0.31837	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.31601	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.29723	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1033	1071	0.22494	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.18313	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1195	1195	0.178	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1792	1792	0.16232	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1420	1775	0.15919	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1420	1775	0.15919	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1584	2098	0.15503	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	987	1083	0.14862	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	987	1083	0.14862	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	560	560	0.14862	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	987	1083	0.12572	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	956	1052	0.12572	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.12572	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.1229	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	478	502	0.11964	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	329	361	0.10695	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	329	361	0.10654	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	329	361	0.10654	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	557	557	0.1019	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	557	557	0.1019	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	0	0	0.10053	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1420	1775	0.09157	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1420	1775	0.09157	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1195	1195	0.09157	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1195	1195	0.09157	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	329	361	0.08793	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	1532	1793	0.07148	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	421	439	0.06145	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	435	470	0.06145	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	396	441	0.06145	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_063		Non-Converged Contingency	329	361	0.0518	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.43796	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	2302	2532	0.37209	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1420	1775	0.31184	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.3038	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.28706	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	956	994	0.21898	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.18181	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1420	1775	0.15592	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1420	1775	0.15592	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1330	1940	0.14905	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	717	926	0.14484	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	560	560	0.14484	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	956	1052	0.14353	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	956	1052	0.14353	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	560	560	0.14353	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	478	502	0.12044	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	956	1052	0.1175	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	956	1052	0.1175	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.1175	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	319	351	0.11064	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	319	351	0.11064	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.10656	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	0	0	0.10086	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1420	1775	0.09091	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1420	1775	0.09091	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1195	1195	0.09091	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	1195	1195	0.09091	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	319	351	0.07532	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	439	439	0.05328	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	349	395	0.05328	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	396	441	0.05328	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_063		Non-Converged Contingency	319	351	0.04758	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	0	0	0.44894	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	1420	1775	0.31893	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	0	0	0.31268	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	0	0	0.29896	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	956	994	0.22447	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	956	1052	0.14948	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	956	1052	0.14948	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	560	560	0.14948	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_063		Non-Converged Contingency	956	1052	0.12426	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	0	0	0.43841	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	1420	1775	0.31217	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	0	0	0.30424	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	0	0	0.28746	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	956	994	0.2192	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	1420	1775	0.15609	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	1420	1775	0.15609	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	1330	1940	0.1492	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	956	1052	0.14373	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	956	1052	0.14373	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	560	560	0.14373	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	956	1052	0.11767	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	956	1052	0.11767	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	0	0	0.11767	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	319	351	0.07529	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_063		Non-Converged Contingency	439	439	0.05336	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_063		Non-Converged Contingency	0	0	0.44913	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_063		Non-Converged Contingency	1420	1775	0.31906	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_063		Non-Converged Contingency	0	0	0.31286	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_063		Non-Converged Contingency	0	0	0.29914	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_063		Non-Converged Contingency	956	994	0.22456	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	0	0	0.45057	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	1420	1775	0.31887	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	0	0	0.31667	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	0	0	0.29785	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	1033	1071	0.22529	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	1420	1775	0.15943	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	1420	1775	0.15943	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	987	1083	0.14892	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	987	1083	0.14892	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	560	560	0.14892	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	987	1083	0.12598	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	956	1052	0.12598	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	0	0	0.12598	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_063		Non-Converged Contingency	421	439	0.06158	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	0	0	0.43103	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	0	0	0.26281	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	0	0	0.25923	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	956	994	0.21552	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	1420	1775	0.17535	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	1420	1775	0.17535	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	717	926	0.1696	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	956	1052	0.1314	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_063		Non-Converged Contingency	956	1052	0.1314	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_063		Non-Converged Contingency	0	0	0.44127	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_063		Non-Converged Contingency	0	0	0.26742	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_063		Non-Converged Contingency	956	994	0.22064	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	0	0	0.44243	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	0	0	0.27489	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	0	0	0.27349	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	1033	1071	0.22122	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	1420	1775	0.17876	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	1420	1775	0.17876	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_063		Non-Converged Contingency	987	1083	0.13745	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_063		Non-Converged Contingency	0	0	0.39168	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_063		Non-Converged Contingency	0	0	0.36738	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_063		Non-Converged Contingency	0	0	0.24821	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_063		Non-Converged Contingency	956	994	0.19584	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_063		Non-Converged Contingency	0	0	0.40121	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_063		Non-Converged Contingency	0	0	0.25597	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_063		Non-Converged Contingency	956	994	0.2006	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_063		Non-Converged Contingency	1033	1071	0.20194	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_063		Non-Converged Contingency	0	0	0.23438	-	SPP-SWPS-01
FDNS	00NR	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	114.7741	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	112.233	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03097	100	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	114.6046	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	112.0555	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03092	99.8	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	20WP	G14_063	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10695	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23833	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23833	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.05865	129.1006	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	0	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.0647	101.7637	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	0	20SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1228	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10654	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1109	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12349	121.8496	BASE CASE
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04592	118.1013	SPSCONT-01
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04613	118.0981	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04592	117.9229	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05164	112.0417	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05728	111.2849	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0459	108.4595	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04965	106.981	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0459	105.9206	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04524	105.4592	SPP-SWPS-T04
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04374	104.7078	BASE CASE
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0512	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04725	102.6116	PLANT X STATION (WH ALM20171) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05038	102.2167	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0459	101.5313	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0512	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0512	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04448	100.1741	SPSCONT-02X
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0535	100.0806	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04374	99.6	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04374	99.6	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04374	99.6	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	06ALL	0	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_063	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1228	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10654	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1109	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12349	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_063	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07924	116.7703	BASE CASE
FDNS	00NR	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE - MILLEN SUB 115KV CKT 1	141	141	0.05254	104.5057	OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE - MILLEN SUB 115KV CKT 1	141	141	0.05254	104.5042	MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21395	109.5601	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21395	108.1094	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20SP	G14_063	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27453	100.5636	BASE CASE
FDNS	00NR	0	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.03439	104.3371	OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.03439	104.3367	MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1
FDNS	06NR	0	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.08415	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	20SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20997	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	0	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.08512	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.10133	100.8711	BASE CASE
FDNS	00NR	0	15SP	G14_063	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.03446	103.1411	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_063	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.03446	100.7501	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_063	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.28119	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	00NR	2	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	114.8372	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	2	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	112.307	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03098	100.127	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	114.6676	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	2	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	112.1294	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	2	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06182	110.2266	BASE CASE
FDNS	00NR	2	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03843	120.7952	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	2	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06447	101.5823	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11101	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11049	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11089	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06182	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06182	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05755	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05755	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11101	115.7639	BASE CASE
FDNS	06NR	2	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.08459	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20831	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	2	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.08556	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21323	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_063	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.24509	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	G14_063	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.27641	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_063	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.2812	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	00NR	3	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	114.8298	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	112.2985	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03098	100.1201	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	114.6602	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	3	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	112.121	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	3	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06185	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23874	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23874	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	3	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03843	120.7881	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	3	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06447	101.5796	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10681	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11109	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11051	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11089	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10681	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_063	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11109	112.1124	BASE CASE
FDNS	06NR	3	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.0848	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20826	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	3	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.08578	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15G	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21312	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_063	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.24494	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	G14_063	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25325	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_063	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25325	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_063	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26104	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_063	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26104	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	00NR	4	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	114.8323	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03146	112.3001	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03098	100.1182	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	114.6627	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	4	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03142	112.1226	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	4	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	4	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06404	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24287	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24287	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	4	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03843	120.8965	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	4	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06577	101.645	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	4	15SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09579	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09259	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0959	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_063	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09564	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06404	138.1648	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06404	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05991	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05991	112.6698	BASE CASE
FDNS	00NR	5	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	114.8339	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	112.3022	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03097	100.1146	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	114.6644	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	5	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	112.1247	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	5	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	5	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06245	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22869	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22869	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	5	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.0384	120.8484	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	5	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06686	101.4173	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	5	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06245	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06245	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06338	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06275	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06275	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05827	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05827	111.0916	BASE CASE
FDNS	00NR	6	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	114.8357	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	112.3039	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03097	100.1151	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	114.6661	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	6	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	112.1264	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	6	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	6	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06642	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2358	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2358	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	6	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03838	120.9036	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR	6	25SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06677	101.4902	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	6	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06642	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06642	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06234	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06234	116.9672	BASE CASE
FDNS	00NR	7	25SP	G14_063	TO->FROM	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1	421.9	421.9	0.03602	106.4785	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_063	TO->FROM	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1	421.9	421.9	0.03602	105.6087	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	117.9735	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	117.9735	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03145	113.9124	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	20WP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03073	101.117	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03097	100.9932	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	117.8016	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	117.8016	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	7	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0314	113.7287	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	7	20WP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03069	100.9669	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	7	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03093	100.8435	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	7	15SP	G14_063	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06642	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2358	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_063	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2358	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	7	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03838	120.9038	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	06ALL	7	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06642	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06642	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06234	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_063	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06234	116.8051	BASE CASE
FDNS	00NR	8	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03155	114.1154	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03155	111.7096	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03107	99.5	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0315	113.9462	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	8	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0315	111.5329	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	8	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.03838	120.9123	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	9	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03156	113.7867	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	9	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03156	111.4143	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	9	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03151	113.6179	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	9	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03151	111.238	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.3925	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.36658	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.33719	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	956	994	0.19625	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.1943	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	560	560	0.17033	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	560	560	0.16859	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.14337	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.13458	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	0	0	0.12851	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	478	502	0.07081	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	319	351	0.06204	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_066		Non-Converged Contingency	287	316	0.05735	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	0	0	0.40329	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	0	0	0.37516	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	0	0	0.34832	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	560	560	0.17416	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	0	0	0.13511	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_066		Non-Converged Contingency	0	0	0.13029	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	0	0	0.4898	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	0	0	0.39987	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	0	0	0.36114	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	956	994	0.2449	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	1420	1775	0.18423	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_066		Non-Converged Contingency	1792	1792	0.18423	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.40427	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.3778	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.34636	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1420	1775	0.27524	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1033	1071	0.20213	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.19556	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	987	1083	0.17318	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	987	1083	0.17318	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	560	560	0.17318	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	478	502	0.17116	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1195	1195	0.16748	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.16237	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1584	2098	0.15315	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	329	361	0.15081	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1792	1792	0.14077	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1420	1775	0.13762	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1420	1775	0.13762	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	987	1083	0.13678	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	956	1052	0.13678	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.13678	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	0	0	0.13147	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	557	557	0.10908	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	557	557	0.10908	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	329	361	0.09811	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	329	361	0.09811	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1420	1775	0.09778	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1420	1775	0.09778	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1195	1195	0.09778	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1195	1195	0.09778	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	421	439	0.08119	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	435	470	0.08119	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	396	441	0.08119	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	329	361	0.07932	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	1532	1793	0.07445	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	329	361	0.0673	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	439	439	0.0625	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_066		Non-Converged Contingency	287	316	0.0625	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.39272	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.36679	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.33737	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1420	1775	0.2692	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	956	994	0.19636	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.1944	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	478	502	0.17034	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	956	1052	0.16869	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	956	1052	0.16869	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	560	560	0.16869	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1330	1940	0.147	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	2302	2532	0.1466	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.14344	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.13465	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1420	1775	0.1346	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1420	1775	0.1346	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	956	1052	0.12859	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	956	1052	0.12859	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	0	0	0.12859	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	319	351	0.09959	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	319	351	0.09959	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1420	1775	0.0972	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1420	1775	0.0972	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1195	1195	0.0972	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	1195	1195	0.0972	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	439	439	0.07172	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	349	395	0.07172	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	396	441	0.07172	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_066		Non-Converged Contingency	319	351	0.06292	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	0	0	0.40354	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	0	0	0.3754	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	0	0	0.34854	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	1420	1775	0.27594	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	956	994	0.20177	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	956	1052	0.17427	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	956	1052	0.17427	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	560	560	0.17427	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_066		Non-Converged Contingency	956	1052	0.1352	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	0	0	0.39316	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	0	0	0.36723	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	0	0	0.33778	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	1420	1775	0.26953	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	956	994	0.19658	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	956	1052	0.16889	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	956	1052	0.16889	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	560	560	0.16889	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	1330	1940	0.14714	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	1420	1775	0.13477	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	1420	1775	0.13477	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	956	1052	0.12875	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	956	1052	0.12875	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	0	0	0.12875	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_066		Non-Converged Contingency	439	439	0.0718	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_066		Non-Converged Contingency	0	0	0.40373	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_066		Non-Converged Contingency	0	0	0.37558	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_066		Non-Converged Contingency	0	0	0.34872	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_066		Non-Converged Contingency	1420	1775	0.27608	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_066		Non-Converged Contingency	956	994	0.20186	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	0	0	0.40496	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	0	0	0.37847	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	0	0	0.34698	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	1420	1775	0.27573	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	1033	1071	0.20248	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	987	1083	0.17349	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	987	1083	0.17349	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	560	560	0.17349	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	1420	1775	0.13787	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	1420	1775	0.13787	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	987	1083	0.13704	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	956	1052	0.13704	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	0	0	0.13704	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_066		Non-Converged Contingency	421	439	0.08132	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	0	0	0.39734	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	0	0	0.30355	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	0	0	0.2945	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	956	994	0.19867	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	1420	1775	0.15732	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	1420	1775	0.15732	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	956	1052	0.15178	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	956	1052	0.15178	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_066		Non-Converged Contingency	717	926	0.03352	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_066		Non-Converged Contingency	0	0	0.40746	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_066		Non-Converged Contingency	0	0	0.3025	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_066		Non-Converged Contingency	956	994	0.20373	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	0	0	0.40763	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	0	0	0.31568	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	0	0	0.30938	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	1033	1071	0.20381	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	1420	1775	0.16005	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	1420	1775	0.16005	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_066		Non-Converged Contingency	987	1083	0.15784	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_066		Non-Converged Contingency	0	0	0.4018	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_066		Non-Converged Contingency	0	0	0.36043	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_066		Non-Converged Contingency	0	0	0.28419	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_066		Non-Converged Contingency	956	994	0.18022	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_066		Non-Converged Contingency	0	0	0.36981	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_066		Non-Converged Contingency	0	0	0.29177	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_066		Non-Converged Contingency	956	994	0.1849	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_066		Non-Converged Contingency	1033	1071	0.18612	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_066		Non-Converged Contingency	0	0	0.26693	-	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_066	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.04451	104.8374	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20WP	G14_066	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.15081	101.5534	BASE CASE
FDNS	00NR	0	15SP	G14_066	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04451	104.4554	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_066	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.04451	101.3328	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_066	TO->FROM	CANYON WEST SUB - DAWN SUB 115KV CKT 1	96	96	0.04227	107.5383	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06187	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22459	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22459	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.135	117.459	BASE CASE
FDNS	06ALL	0	20SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.11945	109.8457	BASE CASE
FDNS	06NR	0	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.1314	109.0104	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.1314	108.9614	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	00NR	0	15SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.11942	108.6137	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	25SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.11955	102.7859	BASE CASE
FDNS	06ALL	0	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13485	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	108.2089	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	0	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	102.9513	SPP-SWPS-W65
FDNS	06ALL	0	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41339	102.3635	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	0	25SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41345	102.025	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	00NR	0	15SP	G14_066	TO->FROM	DAWN SUB - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.04227	111.8364	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11258	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09811	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09996	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11329	121.8496	BASE CASE
FDNS	00NR	0	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0687	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0687	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0687	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_066	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	96	96	0.04227	117.6819	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20WP	G14_066	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - Panda Energy Substation Hereford 115KV CKT 1	106	106	0.0433	100	BASE CASE
FDNS	06ALL	0	15SP	G14_066	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.135	104.9103	BASE CASE
FDNS	06NR	0	15G	G14_066	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.1314	100.4285	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	0	15G	G14_066	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.1314	100.3774	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	0	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06187	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0625	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05735	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05735	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_066	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03457	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11258	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.09811	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.09996	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11329	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_066	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.09078	116.7703	BASE CASE
FDNS	06ALL	0	20SP	G14_066	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.2449	100.5636	BASE CASE
FDNS	06ALL	0	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.3499	BASE CASE
FDNS	06ALL	0	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.2566	BASE CASE
FDNS	06ALL	0	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.2136	BASE CASE
FDNS	06ALL	0	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.6534	BASE CASE
FDNS	06ALL	0	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.0343	BASE CASE
FDNS	06ALL	0	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.699	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0276	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0154	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.3448	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6777	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	0	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4136	GEN562414 1-G13-022 0.4800
FDNS	06ALL	0	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.9203	GEN562414 1-G13-022 0.4800
FDNS	06ALL	0	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5615	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	0	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	0	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.8	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	0	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.32702	156.2126	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	0	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.32765	139.7383	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27577	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.11591	114.0341	SPP-SWPS-06X
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21336	103.0857	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21336	103.0855	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.22197	102.0323	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06NR	0	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.10016	101.8966	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32999	157.4066	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.33064	140.8416	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21488	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	0	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2782	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2231	107.4157	SPP-SWPS-K37
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2231	107.4155	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.23067	106.3195	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25928	101.792	SPP-SWPS-T59
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21121	101.1844	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2101	100.8711	BASE CASE
FDNS	06ALL	0	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21407	99.8	HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	0	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2968	107.1891	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	0	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05809	105.0789	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	0	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05809	102.256	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	0	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2968	100.9699	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0619	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13502	115.5826	BASE CASE
FDNS	06NR	2	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13145	107.6989	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	2	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13145	107.6528	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	2	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13487	100.3254	BASE CASE
FDNS	06ALL	2	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	106.4206	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	25SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41287	102.362	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	101.2246	SPP-SWPS-W65
FDNS	06ALL	2	15SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.38443	100.8693	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	2	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41282	100.6868	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10006	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10206	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10252	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.13502	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0619	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05738	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05738	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.10006	115.7639	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.0944	BASE CASE
FDNS	06ALL	2	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.0895	BASE CASE
FDNS	06ALL	2	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.2744	BASE CASE
FDNS	06ALL	2	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.1012	BASE CASE
FDNS	06ALL	2	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.4464	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8475	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6381	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9624	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9331	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2195	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	2	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.8973	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.6123	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	2	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4921	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4848	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.8423	GEN562414 1-G13-022 0.4800
FDNS	06ALL	2	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.6304	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36883	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36693	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31727	131.4964	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31696	126.9293	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27621	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.11655	113.2991	SPP-SWPS-06X
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.26418	107.1281	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.2128	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.2125	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21355	101.1524	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.10073	101.0932	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37198	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37009	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23363	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32017	132.5652	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31987	128.0584	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20862	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27865	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27415	111.6282	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.4642	SPP-SWPS-K37
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.464	LAMB COUNTY INTERCHANGE (WH_ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22329	105.4014	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22382	102.8649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	102.5611	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	2	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23858	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20797	101.9674	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21006	101.9357	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	101.2494	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	100.9651	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	99.8	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25946	99.7	SPP-SWPS-T59
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21027	99.7	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21139	99.5	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21139	99.5	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_066	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.21941	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29161	149.4878	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29161	138.8163	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05819	106.2146	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.297	105.0126	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06NR	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05819	103.6813	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.297	100.2108	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2839	127.0814	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15G	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.2839	116.8364	TUCO INTERCHANGE (GE_M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06193	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.225	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.225	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13504	113.3005	BASE CASE
FDNS	06NR	3	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13147	106.3758	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNS	06NR	3	15G	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.13147	106.3334	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNS	06ALL	3	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	106.4204	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	25SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41287	101.8749	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	101.2191	SPP-SWPS-W65
FDNS	06ALL	3	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41283	100.6818	FARMERS ELECTRIC REC-CLOVIS - FARMERS ELECTRIC REC-HOLLAND 115KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.38443	99.9	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	3	20WP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09838	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10014	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10208	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.10252	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_066	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.13504	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06193	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06193	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0626	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0626	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06229	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05744	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.09838	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_066	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.10014	112.1124	BASE CASE
FDNS	06ALL	3	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.2248	BASE CASE
FDNS	06ALL	3	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.2071	BASE CASE
FDNS	06ALL	3	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1969	BASE CASE
FDNS	06ALL	3	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.3549	BASE CASE
FDNS	06ALL	3	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.7716	BASE CASE
FDNS	06ALL	3	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.508	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8245	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6891	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	108.0034	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9614	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2201	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.7756	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6571	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.6459	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	3	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4024	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.3936	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	3	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.7712	GEN562414 1-G13-022 0.4800
FDNS	06ALL	3	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5534	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	3	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	99.9	GEN562614 1-G14_066_3 0.8000

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36907	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.30273	155.2367	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36754	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31732	130.4115	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.31696	126.9811	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27642	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.11686	112.5797	SPP-SWPS-06X
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.26436	105.4398	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06NR	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.101	100.0647	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.22254	99.5	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37223	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.30556	156.4384	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23358	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.37071	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.32022	131.4744	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.31987	128.11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.20861	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27886	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27432	109.8691	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21542	105.2413	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21542	105.2333	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.23126	103.6901	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2739	LAMB COUNTY INTERCHANGE - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2672	SPP-SWPS-K37
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22344	103.2671	LAMB COUNTY INTERCHANGE (WH ALM20172) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23848	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22396	100.9789	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25961	100.1136	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.2102	99.7	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	3	15SP	G14_066	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.21926	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29198	146.7037	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30038	145.0217	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29198	139.2368	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.30038	137.5333	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNSLock	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23697	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23697	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06NR	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05823	106.2473	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24367	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06NR	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.05823	104.3792	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29715	104.2305	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	15SP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.29715	100.7272	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24367	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.28426	124.5596	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15G	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	560	644	0.28426	117.4955	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.29224	112.1754	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	20WP	G14_066	FROM->TO	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2	616	700	0.29224	107.0115	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0639	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23177	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23177	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_066	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.12955	102.0025	BASE CASE
FDNS	06ALL	4	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41064	104.2816	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	4	25SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.41067	100.3758	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	4	15SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.07687	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.07697	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08033	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_066	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.08003	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0639	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0639	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06468	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06468	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06425	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06425	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05958	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05958	112.6698	BASE CASE
FDNS	06ALL	4	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.0957	BASE CASE
FDNS	06ALL	4	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.1308	BASE CASE
FDNS	06ALL	4	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1537	BASE CASE
FDNS	06ALL	4	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.3341	BASE CASE
FDNS	06ALL	4	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.3796	BASE CASE
FDNS	06ALL	4	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.4474	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.8561	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6692	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9763	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9487	GEN560759 1-ASGI13_02_3 0.6900

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	4	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.2037	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.9066	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6267	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4898	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.3752	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.2918	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	4	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.7553	GEN562414 1-G13-022 0.4800
FDNS	06ALL	4	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5369	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	99.9	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	4	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	4	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27316	124.6539	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	557	557	0.21596	118.9896	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	4	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.12129	111.4462	SPP-SWPS-06X
FDNS	06ALL	4	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22744	107.9918	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22812	103.0762	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.27239	100.7495	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	4	15SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27578	125.7484	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20WP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	557	557	0.21823	120.0441	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	25SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22978	109.113	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	20SP	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.23045	104.0126	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	4	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.27503	101.7137	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	5	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06241	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.21876	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.21876	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	20SP	G14_066	TO->FROM	CURRY COUNTY INTERCHANGE - EAST CLOVIS 115KV CKT 1	123	123	0.40877	101.3669	FARMERS ELECTRIC REC-HOLLAND - PLEASANT HILL 115KV CKT 1
FDNS	06ALL	5	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06241	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06241	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06333	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06333	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0627	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0627	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05804	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05804	111.0916	BASE CASE
FDNS	06ALL	5	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	125.2291	BASE CASE
FDNS	06ALL	5	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	124.1117	BASE CASE
FDNS	06ALL	5	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	123.1093	BASE CASE
FDNS	06ALL	5	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	121.4221	BASE CASE
FDNS	06ALL	5	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1105	BASE CASE
FDNS	06ALL	5	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	111.5152	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.7372	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	109.6487	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9482	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	107.9229	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	106.1818	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	5	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.7914	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	103.6172	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4311	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.4023	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.979	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	5	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.811	GEN562414 1-G13-022 0.4800
FDNS	06ALL	5	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.5203	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100	GEN562614 1-G14_066_3 0.8000
FDNS	06ALL	5	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	99.7	GEN524471 1-QUAY_CNTY 113.800
FDNS	06NR	5	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.1223	109.4086	SPP-SWPS-06X
FDNS	06ALL	6	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06726	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06753	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06753	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	116.9672	BASE CASE
FDNS	06ALL	6	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.2735	BASE CASE
FDNS	06ALL	6	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	118.1874	BASE CASE
FDNS	06ALL	6	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1102	BASE CASE
FDNS	06ALL	6	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	116.239	BASE CASE
FDNS	06ALL	6	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	113.2066	BASE CASE
FDNS	06ALL	6	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	105.9931	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.6477	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.0852	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	6	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.3178	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	6	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.4558	GEN562414 1-G13-022 0.4800

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	6	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.9921	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	6	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.0949	GEN562414 1-G13-022 0.4800
FDNS	06NR	6	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.12773	109.0158	SPP-SWPS-06X
FDNS	06ALL	7	15SP	G14_066	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06726	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_066	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22733	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06726	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06831	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06752	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06752	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_066	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06303	116.8051	BASE CASE
FDNS	06ALL	7	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	119.2718	BASE CASE
FDNS	06ALL	7	20WP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	165	177	1	118.1872	BASE CASE
FDNS	06ALL	7	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	118.1111	BASE CASE
FDNS	06ALL	7	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	116.2418	BASE CASE
FDNS	06ALL	7	15G	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	113.142	BASE CASE
FDNS	06ALL	7	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	105.9947	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	104.648	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	25SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	103.086	GEN560759 1-ASGI13_02_3 0.6900
FDNS	06ALL	7	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	102.3198	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	7	15SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	101.4557	GEN562414 1-G13-022 0.4800
FDNS	06ALL	7	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.9924	GEN524471 1-QUAY_CNTY 113.800
FDNS	06ALL	7	20SP	G14_066	FROM->TO	Norton Switching Station - PLEASANT HILL 115KV CKT 1	159	160	1	100.0951	GEN562414 1-G13-022 0.4800
FDNS	06NR	7	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.12773	109.0158	SPP-SWPS-06X
FDNS	06NR	8	15G	G14_066	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.14517	107.1469	SPP-SWPS-06X
FDNS	05ALL	0	15SP	G14_068	FROM->TO	BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1	159	160	0.21683	100.2133	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	05ALL	0	15SP	G14_068	FROM->TO	BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.21683	99.9	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.43068	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.31822	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.29474	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	560	560	0.21613	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	956	994	0.21534	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.18368	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	560	560	0.14737	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.11916	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.11226	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	0	0	0.10608	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	560	560	0.10288	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	478	502	0.06198	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	287	316	0.0575	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_069		Non-Converged Contingency	319	351	0.05406	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	0	0	0.44158	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	0	0	0.32705	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	0	0	0.30651	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	560	560	0.15325	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	0	0	0.12589	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_069		Non-Converged Contingency	0	0	0.10419	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	0	0	0.548	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	0	0	0.34001	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	0	0	0.31543	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	956	994	0.274	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	1420	1775	0.21231	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_069		Non-Converged Contingency	1792	1792	0.21231	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.44908	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1420	1775	0.31761	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.31454	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.29811	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1033	1071	0.22454	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.18335	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1195	1195	0.17782	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1792	1792	0.16193	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1420	1775	0.1588	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1420	1775	0.1588	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1584	2098	0.15499	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	987	1083	0.14906	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	987	1083	0.14906	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	560	560	0.14906	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	987	1083	0.12592	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	956	1052	0.12592	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.12592	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.12359	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	478	502	0.12066	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	329	361	0.10781	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	329	361	0.1071	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	329	361	0.1071	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	557	557	0.10208	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	557	557	0.10208	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	0	0	0.10107	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1420	1775	0.09168	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1420	1775	0.09168	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1195	1195	0.09168	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1195	1195	0.09168	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	329	361	0.08768	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	1532	1793	0.07153	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	421	439	0.06179	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	435	470	0.06179	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	396	441	0.06179	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_069		Non-Converged Contingency	329	361	0.05207	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.43089	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	2302	2532	0.32791	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.31842	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1420	1775	0.30518	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.29492	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	717	926	0.21609	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	560	560	0.21609	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	956	994	0.21545	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.18378	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1420	1775	0.15259	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1420	1775	0.15259	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1330	1940	0.14873	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	956	1052	0.14746	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	956	1052	0.14746	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	560	560	0.14746	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	478	502	0.1317	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	956	1052	0.11923	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	956	1052	0.11923	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.11923	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	319	351	0.11575	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	319	351	0.11575	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	319	351	0.11382	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.11233	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	0	0	0.10615	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1420	1775	0.09189	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1420	1775	0.09189	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1195	1195	0.09189	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	1195	1195	0.09189	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	439	439	0.05616	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	349	395	0.05616	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	396	441	0.05616	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_069		Non-Converged Contingency	319	351	0.04998	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	0	0	0.44183	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	0	0	0.32729	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	1420	1775	0.31219	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	0	0	0.30673	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	956	994	0.22091	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	956	1052	0.15337	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	956	1052	0.15337	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	560	560	0.15337	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_069		Non-Converged Contingency	956	1052	0.12598	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	0	0	0.43134	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	0	0	0.31886	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	1420	1775	0.30551	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	0	0	0.29533	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	956	994	0.21567	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	1420	1775	0.15276	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	1420	1775	0.15276	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	1330	1940	0.14888	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	956	1052	0.14766	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	956	1052	0.14766	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	560	560	0.14766	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	956	1052	0.1194	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	956	1052	0.1194	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	0	0	0.1194	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	319	351	0.11378	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_069		Non-Converged Contingency	439	439	0.05624	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	3	15SP	G14_069		Non-Converged Contingency	0	0	0.44202	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_069		Non-Converged Contingency	0	0	0.32748	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_069		Non-Converged Contingency	1420	1775	0.31233	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_069		Non-Converged Contingency	0	0	0.3069	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_069		Non-Converged Contingency	956	994	0.22101	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	0	0	0.44977	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	1420	1775	0.3181	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	0	0	0.31521	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	0	0	0.29873	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	1033	1071	0.22488	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	1420	1775	0.15905	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	1420	1775	0.15905	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	987	1083	0.14936	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	987	1083	0.14936	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	560	560	0.14936	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	987	1083	0.12618	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	956	1052	0.12618	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	0	0	0.12618	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_069		Non-Converged Contingency	421	439	0.06193	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	0	0	0.42854	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	0	0	0.26572	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	0	0	0.26051	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	717	926	0.24922	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	956	994	0.21427	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	1420	1775	0.17409	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	1420	1775	0.17409	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	956	1052	0.13286	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_069		Non-Converged Contingency	956	1052	0.13286	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_069		Non-Converged Contingency	0	0	0.43877	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_069		Non-Converged Contingency	0	0	0.26866	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_069		Non-Converged Contingency	956	994	0.21938	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	0	0	0.44251	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	0	0	0.27478	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	0	0	0.26925	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	1033	1071	0.22126	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	1420	1775	0.17883	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	1420	1775	0.17883	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_069		Non-Converged Contingency	987	1083	0.13739	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_069		Non-Converged Contingency	0	0	0.38661	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_069		Non-Converged Contingency	0	0	0.37698	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_069		Non-Converged Contingency	0	0	0.24874	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_069		Non-Converged Contingency	956	994	0.1933	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_069		Non-Converged Contingency	0	0	0.39609	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_069		Non-Converged Contingency	0	0	0.25646	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_069		Non-Converged Contingency	956	994	0.19805	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_069		Non-Converged Contingency	1033	1071	0.20163	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_069		Non-Converged Contingency	0	0	0.23416	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_069	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10781	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.0618	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23809	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23809	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	0	15SP	G14_069	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03078	117.459	BASE CASE
FDNS	06ALL	0	15G	G14_069	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03064	101.5217	BASE CASE
FDNS	06ALL	0	20SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12333	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.1071	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11604	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12402	121.8496	BASE CASE
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04692	118.1013	SPSCONT-01
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04711	118.0981	SPP-SWPS-01
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04692	117.9229	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05287	112.0417	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05954	111.2849	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0469	108.4595	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05233	106.981	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0469	105.9206	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04599	105.4592	SPP-SWPS-T04
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04491	104.7078	BASE CASE
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05386	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04893	102.6116	PLANT X STATION (WH ALM20171) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05141	102.2167	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.0469	101.5313	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05386	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05386	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04557	100.1741	SPSCONT-02X
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05353	100.0806	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04491	99.6	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04491	99.6	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04491	99.6	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	06ALL	0	15SP	G14_069	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03078	104.9103	BASE CASE
FDNS	06ALL	0	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.0618	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0575	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_069	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03417	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12333	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.1071	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11604	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12402	108.0411	BASE CASE
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1567	141.9917	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1567	141.9572	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14662	123.6123	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14662	119.282	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15624	118.8929	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15624	118.7016	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1287	117.2615	SPP-SWPS-T85
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13221	113.4187	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	0	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.1559	108.6936	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.1559	108.6889	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16418	108.4244	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16418	108.4189	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14642	103.3556	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13221	99.6	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	06ALL	0	20SP	G14_069	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07945	116.7703	BASE CASE
FDNS	00NR	0	15SP	G14_069	FROM->TO	HOBBS INTERCHANGE - MILLEN SUB 115KV CKT 1	141	141	0.03945	104.5057	OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	15SP	G14_069	FROM->TO	HOBBS INTERCHANGE - MILLEN SUB 115KV CKT 1	141	141	0.03945	104.5042	MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1567	131.9154	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1567	131.8739	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14662	113.1394	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	0	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15624	109.014	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14662	108.878	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	0	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15624	108.8057	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1287	106.854	SPP-SWPS-T85
FDNS	00NR	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13221	102.9667	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	06ALL	0	20SP	G14_069	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.274	100.5636	BASE CASE
FDNS	00NR	0	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08613	108.7759	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08613	108.4795	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06NR	0	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.12604	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06889	101.8966	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	0	20SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21982	120.7402	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	0	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.12734	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.12522	100.8711	BASE CASE
FDNS	00NR	0	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08613	100.7969	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	0	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08613	100.5694	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_069	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23896	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06184	110.2266	BASE CASE
FDNS	06ALL	2	15SP	G14_069	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.0308	115.5826	BASE CASE
FDNS	06ALL	2	15G	G14_069	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03065	100.3254	BASE CASE
FDNS	06ALL	2	15SP	G14_069	FROM->TO	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11614	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11105	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11145	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_069	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.0308	103.0789	BASE CASE
FDNS	06ALL	2	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06184	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11614	115.7639	BASE CASE
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15671	142.0183	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15671	141.9639	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14664	123.704	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14664	119.3669	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	2	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15628	118.9006	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15628	118.8621	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12872	117.3597	SPP-SWPS-T85
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13223	113.4865	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	2	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15601	108.7132	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15601	108.703	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1642	108.4974	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1642	108.492	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	2	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14645	103.4586	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13223	99.6	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15671	131.9451	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15671	131.8835	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14664	113.2323	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	2	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15628	109.0333	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15628	108.9756	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14664	108.9654	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12872	106.9525	SPP-SWPS-T85
FDNS	00NR	2	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13223	103.0345	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08614	109.0071	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08614	108.6882	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21924	167.4425	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.2172	147.1529	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.12648	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06946	101.0932	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	2	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22126	168.6602	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21923	148.1503	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25226	143.4432	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	2	20SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21267	119.3834	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.12779	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25696	102.5096	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	00NR	2	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08614	100.9793	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	2	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08614	100.732	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	2	15SP	G14_069	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29538	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	G14_069	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23429	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_069	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.23897	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06186	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23849	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23849	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	3	15SP	G14_069	FROM->TO	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1	96	96	0.03082	113.3005	BASE CASE
FDNS	06ALL	3	20WP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10738	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11623	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11107	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11146	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_069	FROM->TO	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1	96	96	0.03082	100.8686	BASE CASE
FDNS	06ALL	3	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06186	134.7743	BASE CASE
FDNS	06ALL	3	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05758	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10738	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_069	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11623	112.1124	BASE CASE
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15671	142.0166	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15671	141.9627	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14664	123.6976	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14664	119.3607	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	3	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15628	118.904	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15628	118.8584	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12872	117.3526	SPP-SWPS-T85
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13223	113.4824	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	3	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15601	108.7154	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15601	108.7053	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1642	108.4888	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1642	108.4854	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	3	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14645	103.4601	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13223	99.6	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15671	131.9431	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15671	131.882	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14664	113.2258	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	3	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15628	109.0363	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15628	108.9715	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14664	108.959	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12872	106.9453	SPP-SWPS-T85
FDNS	00NR	3	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13223	103.0303	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08614	108.9866	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08614	108.6681	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21949	163.5461	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.21782	140.3847	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.1267	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06NR	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06973	100.0647	TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1
FDNS	06ALL	3	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22151	164.7587	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25221	142.5992	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06ALL	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21985	141.5533	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	20SP	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.21266	119.0966	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	06NR	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.128	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15G	G14_069	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.25685	101.569	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1
FDNS	00NR	3	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08614	100.9632	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	3	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08614	100.7164	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	3	15SP	G14_069	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.29523	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25145	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25145	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26035	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26035	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	4	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2429	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.2429	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	4	15SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09699	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09236	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09567	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_069	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09542	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06444	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15659	141.9251	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15659	141.8747	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1465	123.6025	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1465	119.2658	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	4	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15619	118.5332	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15619	118.4956	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12859	117.2848	SPP-SWPS-T85
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1321	113.3964	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16404	108.378	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16404	108.3747	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	4	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15595	108.3382	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15595	108.3307	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14634	103.0445	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1321	99.5	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15659	131.8507	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15659	131.7937	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1465	113.1301	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1465	108.8635	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	4	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15619	108.663	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15619	108.6061	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12859	106.8771	SPP-SWPS-T85
FDNS	00NR	4	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1321	102.9438	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08607	108.9333	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08607	108.6193	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08607	100.9107	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	4	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08607	100.6681	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	5	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06234	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22847	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22847	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	5	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06234	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06234	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06335	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06335	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06272	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06272	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05814	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05814	111.0916	BASE CASE
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1565	141.9611	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1565	141.9104	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	123.6367	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	119.3003	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	5	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15609	118.4869	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15609	118.4494	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12851	117.316	SPP-SWPS-T85
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	113.4279	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16393	108.4193	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16393	108.4161	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	5	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15587	108.2926	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15587	108.2854	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14625	103.0005	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	99.6	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1565	131.8869	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1565	131.8295	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	113.1645	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	108.8983	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	5	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15609	108.6163	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15609	108.5596	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12851	106.9085	SPP-SWPS-T85
FDNS	00NR	5	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13202	102.9756	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	108.951	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	108.6369	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	100.9282	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	5	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	100.6856	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	6	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23562	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23562	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	6	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	116.9672	BASE CASE
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1565	141.9496	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.1565	141.8989	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	123.6214	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	119.2849	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	6	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15611	118.4488	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15611	118.4106	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12852	117.302	SPP-SWPS-T85
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	113.4137	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16394	108.4028	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16394	108.3996	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	6	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15591	108.2413	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15591	108.2345	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14626	102.9473	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	99.6	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1565	131.8753	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.1565	131.818	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	113.1491	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	108.8828	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	6	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15611	108.5779	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15611	108.5203	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12852	106.8944	SPP-SWPS-T85
FDNS	00NR	6	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13202	102.9612	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	108.9446	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	108.6306	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	100.9217	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	6	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	100.6791	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	15SP	G14_069	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06651	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23562	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_069	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23562	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06651	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06749	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.7054	BASE CASE
FDNS	06ALL	7	20SP	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06671	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_069	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06241	116.8051	BASE CASE
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15649	207.4052	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15649	203.4761	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	157.4025	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14641	143.4096	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15611	136.1339	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15611	136.0864	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12851	131.9766	SPP-SWPS-T85
FDNS	00NR	7	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15591	124.2594	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	124.0858	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	7	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15591	123.2773	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16393	121.1816	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16393	121.1783	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.17081	119.4477	KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14626	111.674	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13202	106.924	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	106.4441	BYRD SUB - MONUMENT TAP 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	106.4165	CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.17018	106.215	CHINA_DRAW 7345.00 - NLOV_PLT 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.17018	105.6424	CHINA_DRAW 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14626	105.3836	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16718	104.1635	CHINA_DRAW 3115.00 - WOOD_DRAW 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	103.9392	COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	103.6633	LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	102.9704	BYRD SUB - COOPER RANCH SUB 115KV CKT 1
FDNS	00NR	7	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.14616	101.9602	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12843	101.4045	SPP-SWPS-T85
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16757	99.8	PNDEROSATP 3115.00 - WHITTEN SUB 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16613	99.6	LEA ROAD SUB - WARD SUB 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15649	193.0644	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15649	189.6773	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	144.8887	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14641	131.4442	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15611	124.6946	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15611	124.652	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12851	120.5237	SPP-SWPS-T85
FDNS	00NR	7	20WP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	165	177	0.15591	113.6292	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13202	112.8279	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR	7	20WP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	165	177	0.15591	112.6527	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.16393	109.8075	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.16393	109.8037	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.17081	107.5545	KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14626	100.6168	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	151.6572	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08603	151.2515	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	20SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08588	99.5	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.05728	143.6001	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.05728	142.7495	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	20SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.0569	106.7615	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	20SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.0569	106.3678	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	RED_BLUFF 3115.00 - SAND DUNES SUB 115KV CKT 1	159	160	0.08603	118.2839	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	RED_BLUFF 3115.00 - SAND DUNES SUB 115KV CKT 1	159	160	0.08603	117.8227	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	147.2695	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	7	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08603	147.2058	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08434	107.6599	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	8	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08434	107.381	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08434	100.4673	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR	8	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08434	100.2727	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.43831	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.30919	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.28623	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	956	994	0.21915	-	OKLAUNION 345KV SWITCHED SHUNT
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.18156	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	560	560	0.14312	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.11729	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.10605	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	0	0	0.10039	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	560	560	0.0971	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	560	560	0.09003	-	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	478	502	0.06022	-	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	287	316	0.05752	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15G	G14_070		Non-Converged Contingency	319	351	0.05245	-	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	0	0	0.44925	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	0	0	0.31803	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	0	0	0.29811	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	560	560	0.14906	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	0	0	0.12404	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	15SP	G14_070		Non-Converged Contingency	0	0	0.09896	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	0	0	0.54963	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	0	0	0.34867	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	0	0	0.31411	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	956	994	0.27481	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	1420	1775	0.21309	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20SP	G14_070		Non-Converged Contingency	1792	1792	0.21309	-	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.45033	-	SPSCONT-01
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.32311	-	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1420	1775	0.31879	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.29673	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1033	1071	0.22516	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.18301	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1195	1195	0.17811	-	GRACEMONT - MINCO 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1792	1792	0.16253	-	CHISHOLM7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1420	1775	0.15939	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1420	1775	0.15939	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1584	2098	0.15505	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	987	1083	0.14836	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	987	1083	0.14836	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	560	560	0.14836	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	987	1083	0.12561	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	956	1052	0.12561	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.12561	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.12253	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	478	502	0.11855	-	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	329	361	0.10643	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	329	361	0.10643	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	329	361	0.10604	-	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	557	557	0.10196	-	G14-067T 230.00 - NEWHART 230 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	557	557	0.10196	-	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	0	0	0.10024	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1420	1775	0.0915	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1420	1775	0.0915	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1195	1195	0.0915	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1195	1195	0.0915	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	329	361	0.08847	-	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	1532	1793	0.07145	-	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	439	439	0.06248	-	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	287	316	0.06248	-	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	421	439	0.06126	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	435	470	0.06126	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	396	441	0.06126	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	0	20WP	G14_070		Non-Converged Contingency	329	361	0.05166	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.43852	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	2302	2532	0.36294	-	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1420	1775	0.31237	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.30939	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.28642	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	956	994	0.21926	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.18166	-	SPSCONT-05AX
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1420	1775	0.15618	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1420	1775	0.15618	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1330	1940	0.14908	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	956	1052	0.14321	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	956	1052	0.14321	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	560	560	0.14321	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	478	502	0.1187	-	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	956	1052	0.11736	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	956	1052	0.11736	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.11736	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	319	351	0.11061	-	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	319	351	0.11061	-	G14-068T 230.00 - PLANT X STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.10613	-	SPP-SWPS-02
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	0	0	0.10046	-	SPP-SWPS-03
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	717	926	0.09706	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	560	560	0.09706	-	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1420	1775	0.09083	-	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1420	1775	0.09083	-	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1195	1195	0.09083	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	1195	1195	0.09083	-	G14-058T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	439	439	0.05306	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	349	395	0.05306	-	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	396	441	0.05306	-	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	319	351	0.05138	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15G	G14_070		Non-Converged Contingency	319	351	0.04739	-	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	0	0	0.4495	-	SPSCONT-01
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	1420	1775	0.31945	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	0	0	0.31828	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	0	0	0.29833	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	956	994	0.22475	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	956	1052	0.14917	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	956	1052	0.14917	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	560	560	0.14917	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	06ALL	2	15SP	G14_070		Non-Converged Contingency	956	1052	0.12413	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	0	0	0.43896	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	1420	1775	0.3127	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	0	0	0.30983	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	0	0	0.28682	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	956	994	0.21948	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	1420	1775	0.15635	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	1420	1775	0.15635	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	1330	1940	0.14922	-	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	956	1052	0.14341	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	956	1052	0.14341	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	560	560	0.14341	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	956	1052	0.11753	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	956	1052	0.11753	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	0	0	0.11753	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	439	439	0.05314	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15G	G14_070		Non-Converged Contingency	319	351	0.05134	-	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_070		Non-Converged Contingency	0	0	0.44969	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	15SP	G14_070		Non-Converged Contingency	1420	1775	0.31959	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	15SP	G14_070		Non-Converged Contingency	0	0	0.31846	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	15SP	G14_070		Non-Converged Contingency	0	0	0.29851	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	15SP	G14_070		Non-Converged Contingency	956	994	0.22484	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	0	0	0.45102	-	SPSCONT-01
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	0	0	0.32378	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	1420	1775	0.31929	-	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	0	0	0.29734	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	1033	1071	0.22551	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	1420	1775	0.15964	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	1420	1775	0.15964	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	987	1083	0.14867	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	987	1083	0.14867	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	560	560	0.14867	-	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	987	1083	0.12587	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	956	1052	0.12587	-	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	0	0	0.12587	-	SPP-SWPS-05
FDNSLock-Blown up	06ALL	3	20WP	G14_070		Non-Converged Contingency	421	439	0.0614	-	CHISHOLM6 230.00 - SWEETWATER 230KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	0	0	0.43001	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	0	0	0.26986	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	0	0	0.26408	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	956	994	0.215	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	1420	1775	0.17476	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	1420	1775	0.17476	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	956	1052	0.13204	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	956	1052	0.13204	-	G14_038T 345.00 - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15G	G14_070		Non-Converged Contingency	717	926	0.1187	-	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNSLock-Blown up	06ALL	4	15SP	G14_070		Non-Converged Contingency	0	0	0.44024	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	15SP	G14_070		Non-Converged Contingency	0	0	0.27804	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	15SP	G14_070		Non-Converged Contingency	956	994	0.22012	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	0	0	0.4414	-	SPSCONT-01
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	0	0	0.28542	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	0	0	0.27613	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	1033	1071	0.2207	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	1420	1775	0.17817	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	1420	1775	0.17817	-	BORDER 7345.00 - G14_007T 345.00 345KV CKT 2
FDNSLock-Blown up	06ALL	4	20WP	G14_070		Non-Converged Contingency	987	1083	0.13806	-	G14_038T 345.00 - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15G	G14_070		Non-Converged Contingency	0	0	0.39217	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15G	G14_070		Non-Converged Contingency	0	0	0.36474	-	SPSCONT-02X
FDNSLock-Blown up	06ALL	5	15G	G14_070		Non-Converged Contingency	0	0	0.25928	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15G	G14_070		Non-Converged Contingency	956	994	0.19608	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	15SP	G14_070		Non-Converged Contingency	0	0	0.40169	-	SPSCONT-01
FDNSLock-Blown up	06ALL	5	15SP	G14_070		Non-Converged Contingency	0	0	0.26704	-	SPP-SWPS-01
FDNSLock-Blown up	06ALL	5	15SP	G14_070		Non-Converged Contingency	956	994	0.20085	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	5	20WP	G14_070		Non-Converged Contingency	1033	1071	0.20216	-	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNSLock-Blown up	06ALL	6	15G	G14_070		Non-Converged Contingency	0	0	0.24561	-	SPP-SWPS-01
FDNS	06ALL	0	20WP	G14_070	FROM->TO	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	329	361	0.10604	101.5534	BASE CASE
FDNS	06ALL	0	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06179	113.4735	BASE CASE
FDNS	06ALL	0	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23847	115.9031	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	0	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23847	113.5343	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	0	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03698	101.7637	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	0	20SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.12271	136.6421	BASE CASE
FDNS	06ALL	0	20WP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10643	132.2163	BASE CASE
FDNS	06ALL	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11087	131.4305	BASE CASE
FDNS	06ALL	0	25SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1234	121.8496	BASE CASE
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04496	118.1013	SPSCONT-01
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04519	118.0981	SPP-SWPS-01

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04496	117.9229	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05042	112.0417	G14-067T 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05489	111.2849	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04494	108.4595	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04671	106.981	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04494	105.9206	BORDER 7345.00 - G14_007T 345.00 345KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04459	105.4592	SPP-SWPS-T04
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04259	104.7078	BASE CASE
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04818	103.2353	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04553	102.6116	PLANT X STATION (WH ALM20171) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04939	102.2167	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04494	101.5313	G14_007T 345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04818	100.9413	DEAF SMITH REC-#20 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04818	100.5793	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04342	100.1741	SPSCONT-02X
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.05423	100.0806	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04259	99.6	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04259	99.6	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	00NR	0	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.04259	99.6	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	06ALL	0	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	138.4188	BASE CASE
FDNS	06ALL	0	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06179	134.8226	BASE CASE
FDNS	06ALL	0	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	124.3952	BASE CASE
FDNS	06ALL	0	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06248	121.3474	BASE CASE
FDNS	06ALL	0	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	116.7294	BASE CASE
FDNS	06ALL	0	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05752	113.7162	BASE CASE
FDNS	06ALL	0	20SP	G14_070	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03416	129.1657	BASE CASE
FDNS	06ALL	0	20SP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.12271	123.6909	BASE CASE
FDNS	06ALL	0	20WP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10643	119.8727	BASE CASE
FDNS	06ALL	0	15SP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11087	119.1784	BASE CASE
FDNS	06ALL	0	25SP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.1234	108.0411	BASE CASE
FDNS	06ALL	0	20SP	G14_070	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	319	351	0.07914	116.7703	BASE CASE
FDNS	00NR	0	15SP	G14_070	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.10796	109.5601	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.10796	108.1094	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL	0	20SP	G14_070	TO->FROM	LAWTON EASTSIDE - OKLAUNION 345KV CKT 1	1011	1176	0.27481	100.5636	BASE CASE
FDNS	06NR	0	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06057	118.3414	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	0	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.06139	119.2495	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	0	15SP	G14_070	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.08802	100.8711	BASE CASE
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.06468	113.2416	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.06468	107.9974	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.06705	116.3784	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.06705	111.5314	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.07392	103.1411	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.04029	101.3901	DENVER CITY INTERCHANGE N. - EL PASO SUB 115KV CKT 1
FDNS	00NR	0	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.07392	100.7501	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL	2	15SP	G14_070	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.31845	99.5	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06182	110.2266	BASE CASE
FDNS	00NR	2	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03674	101.5823	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	2	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11097	128.0393	BASE CASE
FDNS	06ALL	2	20SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11038	111.3743	BASE CASE
FDNS	06ALL	2	25SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11078	108.102	BASE CASE
FDNS	06ALL	2	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06182	138.6585	BASE CASE
FDNS	06ALL	2	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06182	136.1816	BASE CASE
FDNS	06ALL	2	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	116.2184	BASE CASE
FDNS	06ALL	2	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05755	115.7248	BASE CASE
FDNS	06ALL	2	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06226	115.5957	BASE CASE
FDNS	06ALL	2	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05755	113.3374	BASE CASE
FDNS	06ALL	2	15SP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11097	115.7639	BASE CASE
FDNS	06NR	2	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06101	117.4025	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	2	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.06184	118.311	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	2	15SP	G14_070	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.22559	127.1624	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	00NR	2	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05299	101.2509	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	2	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	105.0201	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	2	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	101.6039	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNSLock	06ALL	3	15G	G14_070	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.31366	114.837	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_070	TO->FROM	AMOCO SWITCHING STATION - YOAKUM COUNTY INTERCHANGE 230KV CKT 1	319	351	0.31846	99.6	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06185	107.2905	BASE CASE
FDNS	06ALL	3	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23887	115.2259	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	3	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23887	112.7112	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	3	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03674	101.5796	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.10671	125.527	BASE CASE
FDNS	06ALL	3	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11105	124.4638	BASE CASE
FDNS	06ALL	3	20SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.1104	110.1288	BASE CASE
FDNS	06ALL	3	25SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.11078	108.1359	BASE CASE
FDNS	06ALL	3	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	136.7044	BASE CASE
FDNS	06ALL	3	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06185	134.7743	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	3	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	120.9984	BASE CASE
FDNS	06ALL	3	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06258	118.7916	BASE CASE
FDNS	06ALL	3	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	115.3873	BASE CASE
FDNS	06ALL	3	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06227	114.9816	BASE CASE
FDNS	06ALL	3	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	113.0082	BASE CASE
FDNS	06ALL	3	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05761	111.2724	BASE CASE
FDNS	06ALL	3	20WP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	329	361	0.10671	113.1656	BASE CASE
FDNS	06ALL	3	15SP	G14_070	TO->FROM	G14-068T 230.00 - PLANT X STATION 230KV CKT 1	319	351	0.11105	112.1124	BASE CASE
FDNS	06NR	3	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.06122	116.3114	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06NR	3	15G	G14_070	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.06205	117.2147	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL	3	15SP	G14_070	TO->FROM	TOLK STATION EAST - TOLK STATION TAP 230KV CKT @1	478	610	0.22544	127.2266	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNSLock	06ALL	3	15G	G14_070	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25444	119.5672	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNSLock	06ALL	3	15G	G14_070	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.25444	116.7718	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_070	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26236	104.9649	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06ALL	3	20WP	G14_070	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.26236	100.6759	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	00NR	3	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05299	101.2643	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	3	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	105.0365	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	3	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	101.6147	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	4	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06403	108.5972	BASE CASE
FDNS	06ALL	4	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24253	116.15	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	4	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.24253	113.6421	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	4	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03708	101.645	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	4	15SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09725	109.2433	BASE CASE
FDNS	06ALL	4	20WP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	329	361	0.09387	109.2302	BASE CASE
FDNS	06ALL	4	25SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09718	101.1465	BASE CASE
FDNS	06ALL	4	20SP	G14_070	TO->FROM	DEAF SMITH COUNTY INTERCHANGE - G14-068T 230.00 230KV CKT 1	319	351	0.09692	99.6	BASE CASE
FDNS	06ALL	4	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	138.1648	BASE CASE
FDNS	06ALL	4	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06403	136.1088	BASE CASE
FDNS	06ALL	4	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	122.2498	BASE CASE
FDNS	06ALL	4	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06487	120.0503	BASE CASE
FDNS	06ALL	4	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06443	116.5062	BASE CASE
FDNS	06ALL	4	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06443	116.0464	BASE CASE
FDNS	06ALL	4	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	114.4046	BASE CASE
FDNS	06ALL	4	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.0599	112.6698	BASE CASE
FDNS	00NR	4	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05303	101.349	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	4	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05501	104.1084	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	4	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05501	101.0437	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	5	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06251	106.0807	BASE CASE
FDNS	06ALL	5	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22889	112.2477	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	5	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.22889	109.7363	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	5	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03806	101.4173	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	5	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06251	136.1751	BASE CASE
FDNS	06ALL	5	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06251	134.6159	BASE CASE
FDNS	06ALL	5	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06344	119.424	BASE CASE
FDNS	06ALL	5	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06344	117.8253	BASE CASE
FDNS	06ALL	5	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06281	115.4889	BASE CASE
FDNS	06ALL	5	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06281	115.1366	BASE CASE
FDNS	06ALL	5	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05832	112.4843	BASE CASE
FDNS	06ALL	5	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.05832	111.0916	BASE CASE
FDNS	00NR	5	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05293	101.1326	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	5	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05489	103.8783	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	5	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05489	100.816	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	6	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06644	109.9464	BASE CASE
FDNS	06ALL	6	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23593	114.5186	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	6	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23593	111.9393	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	00NR	6	25SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.03796	101.4902	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL	6	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06644	141.4774	BASE CASE
FDNS	06ALL	6	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06644	139.9872	BASE CASE
FDNS	06ALL	6	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06751	124.4983	BASE CASE
FDNS	06ALL	6	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06751	123.054	BASE CASE
FDNS	06ALL	6	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06673	119.6548	BASE CASE
FDNS	06ALL	6	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06673	119.2714	BASE CASE
FDNS	06ALL	6	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06235	118.2226	BASE CASE
FDNS	06ALL	6	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06235	116.9672	BASE CASE
FDNS	00NR	6	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05295	101.3065	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	6	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05492	104.0412	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	6	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05492	100.959	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL	7	15SP	G14_070	FROM->TO	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1	353	353	0.06644	109.6725	BASE CASE
FDNS	06ALL	7	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23593	114.4728	G14-057T 345.00 - SUNNYSIDE 345KV CKT 1
FDNS	06ALL	7	20WP	G14_070	TO->FROM	CIMARRON - MINCO 345KV CKT 1	956	956	0.23593	111.8958	G14-057T 345.00 - LAWTON EASTSIDE 345KV CKT 1
FDNS	06ALL	7	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06644	141.4917	BASE CASE
FDNS	06ALL	7	15SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06644	140.1546	BASE CASE
FDNS	06ALL	7	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06751	124.5089	BASE CASE
FDNS	06ALL	7	20WP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06751	123.1834	BASE CASE
FDNS	06ALL	7	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.7054	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	06ALL	7	20SP	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	272	316	0.06672	119.3517	BASE CASE
FDNS	06ALL	7	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06235	117.8707	BASE CASE
FDNS	06ALL	7	15G	G14_070	FROM->TO	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	316	0.06235	116.8051	BASE CASE
FDNS	00NR	7	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05295	101.3065	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	7	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05492	104.0596	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	7	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05492	100.9868	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05299	101.4196	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR	8	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	104.1479	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR	8	15SP	G14_070	FROM->TO	YOAKUM COUNTY INTERCHANGE (PENN C010585) 230/115/13.2KV TRANSFORMER CKT 2	150	150	0.05496	101.016	YOAKUM COUNTY INTERCHANGE (GE M100899) 230/115/13.2KV TRANSFORMER CKT 1

G1: Stand Alone Power Flow Analysis (Constraints Used For Mitigation)

See next page.

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	04ALL_G10_048	0	15SP	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21346	103.5562	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL_G10_048	0	20WP	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21088	102.9835	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL_G10_048	0	15G	G10_048	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	330	330	0.21836	100.9707	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
FDNS	04ALL_G10_048	0	25SP	G10_048	FROM->TO	SPPSPSTIES	1011	1011	0.12823	115.4214	BASE CASE
FDNSLock-Blown up	03ALL_G13_010	0	15G	G13_010		Non-Converged Contingency	1505	1793	0.487	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	15G	G13_010		Non-Converged Contingency	726.6	726.6	0.14475	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	15G	G13_010		Non-Converged Contingency	956	1052	0.12314	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	15SP	G13_010		Non-Converged Contingency	1505	1793	0.48979	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	15SP	G13_010		Non-Converged Contingency	956	1052	0.12109	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	20SP	G13_010		Non-Converged Contingency	956	1052	0.12042	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	20WP	G13_010		Non-Converged Contingency	1793	1793	0.49182	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	20WP	G13_010		Non-Converged Contingency	726.6	726.6	0.14846	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	20WP	G13_010		Non-Converged Contingency	987	1083	0.11773	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	25SP	G13_010		Non-Converged Contingency	1505	1793	0.48977	-	G13-010T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G13_010	0	25SP	G13_010		Non-Converged Contingency	956	1052	0.12343	-	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	03ALL_G13_010	0	15SP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20545	104.1652	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL_G13_010	0	20WP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20483	102.2051	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL_G13_010	0	20SP	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.20508	100.1382	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL_G13_010	0	15G	G13_010	TO->FROM	KNOLL 230 - POSTROCK6 230.00 230KV CKT 1	328	398	0.206	100.0744	AXTELL - POST ROCK 345KV CKT 1
FDNS	03ALL_G13_010	0	25SP	G13_010	FROM->TO	SPPSPSTIES	1011	1011	0.10794	138.5746	BASE CASE
FDNS	06ALL_G13_027	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.43236	104.4955	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL_G13_027	0	15SP	G13_027	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.43714	105.3041	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06ALL_G14_007	0	15G	G14_007	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03483	127.4027	BASE CASE
FDNS	06ALL_G14_007	0	20WP	G14_007	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.05637	100.9665	BASE CASE
FDNS	02ALL_G14_019	0	25SP	G14_019	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.03387	124.0668	BASE CASE
FDNS	00NR_G14_019	0	25SP	G14_019	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.0339	100.0000	NEWHART 230 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.1061	107.2717	NORTHWEST - TATONGA7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.1061	105.3136	SPSCONT-05B
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.1061	105.0808	SPSCONT-04
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.1061	100.0000	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	190.6103	NORTHWEST - TATONGA7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	186.9380	SPSCONT-05B
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	186.4894	SPSCONT-04
FDNS	02ALL_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05767	177.6558	BASE CASE
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	177.0324	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	173.4178	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.1061	170.0977	SPSCONT-05AX
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07887	167.7735	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08339	162.7876	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.08339	160.9188	DEWEY - IODINE 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	156.6162	BASE CASE
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	155.7340	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	155.7326	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07887	153.7063	WOODWARD - WOODWARD 69KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07979	153.4474	SPP-SWPS-03
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	152.8337	SPP-SWPS-02A
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	152.5422	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07752	148.5069	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07752	148.5069	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07443	147.6360	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	147.3135	STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	147.3106	SPP-SWPS-02
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07964	147.3028	STLN-DEMARC6 - SWEETWATER 230KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07858	147.1370	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07521	146.9243	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07521	146.9243	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0702	146.0993	RENFROW7 345.00 (BANK 1) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07858	146.0038	SPP-SWPS-05
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07858	145.9507	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07213	145.7401	DEWEY - TALOGA 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06433	145.1150	RENFROW4 138.00 - SAND RDG_138138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07806	144.6784	SPSCONT-01
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07081	143.4574	BORDER 7345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	143.4318	GEN514805 1-SOONER UNIT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07358	143.1007	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	142.7448	GEN520443 1-REDHIL-WTG1 12.000
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07798	142.3764	SPP-SWPS-01
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07806	142.2603	OKLAUNION - TUCO INTERCHANGE 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06433	141.7130	SAND RDG_138138.00 - WAKITA_138 138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07358	141.5558	Hitchland Interchange - POTTER COUNTY INTERCHANGE 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07081	141.3886	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07358	141.3690	SPP-SWPS-04
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06967	141.1432	WOODRING (WOODRNG2) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	140.9847	GEN514806 1-SOONER UNIT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	140.9113	GEN515787 1-OKLA WIND ENERGY CENTER

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07613	140.5160	RENFROW7 345.00 - VIOLA 7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07116	140.4554	G11-17T 345.00 - POST ROCK 345KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	140.0860	GEN520922 1-SLEEPING BEAR
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07016	139.8661	CIMARRON - NORTHWEST 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	139.8521	GEN509416 1-TURK GENERATION
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	139.8411	GEN509403 1-PIRKEY GENERATION
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07195	139.7287	FARGO JCT - WOODWARD 69KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07116	139.6121	G11-17T 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0717	139.5835	MINGO - SETAB 345KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	139.3618	GEN336821 1-GRAND GULF UNIT
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	139.2722	GEN515226 1-MUSKOGEE 6G
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	139.2009	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.9614	GEN515225 1-MUSKOGEE 5G
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.9611	GEN515223 1-MUSKOGEE 4G
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.9189	GEN509406 1-WELSH #3
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.9187	GEN509404 1-WELSH #1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07145	138.8790	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.8674	GEN336153 1-WATERFORD UNIT#3
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07271	138.8647	CARTER JCT - WOODWARD 69KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07195	138.8270	FARGO JCT - FT SUPPLY 69KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07069	138.7623	SPP-MKEC-08
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.7073	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07138	138.7045	HOLCOMB - SETAB 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.6591	GEN501801 1-DOLET HILLS UNIT1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.6043	GEN511840 1-NORTHEASTERN STATION #3
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.6005	GEN511839 1-NORTHEASTERN STATION #2
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.5917	GEN509394 1-FLINT CREEK
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.5527	GEN511841 1-NORTHEASTERN STATION #4
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.5224	GEN335831 1-RIVERBEND UNIT#1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.4707	GEN512688 2-GRDA1 GSU2 22
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.4624	GEN509405 1-WELSH #2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06998	138.4407	ELK CITY - FALCON ROAD 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0691	138.4376	ELLIS 4 138.00 - RED HILLS WIND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06864	138.2530	SOONER - WOODRING 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07271	138.2239	CARTER JCT - MOORELAND 69KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07271	138.2237	MOORELAND (MOORELND) 138/69/13.8KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.1801	GEN511843 1-RIVERSIDE STATION #2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	138.1677	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	136.1435	NC1_GEN-NEBRASKA CITY 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	134.2493	GEN532652 1-JEFFREY ENERGY CENTER UNIT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	134.2309	GEN532651 1-JEFFREY ENERGY CENTER UNIT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0726	134.1567	OPENSKY7 345.00 - ROSE HILL 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	134.0986	GEN640009 1-COOPER NUCLEAR STATION
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	134.0624	GEN645012 2-NEBRASKA CITY 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06945	134.0479	KNOBHILL (KNOBHIL4) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	134.0290	GEN523171 1-GOODWELL_2 10.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06945	134.0246	KNOBHILL - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07062	133.9529	DELAWARE - NORTHEAST STATION 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.9054	GEN527162 1-MUSTANG GEN #2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.9053	GEN527161 1-MUSTANG GEN #1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06976	133.8980	CIMARRON - MATHWSN7 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.8364	GEN526332 1-JONES GEN #2 21 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06768	133.6942	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06768	133.6942	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.6596	GEN560586 1-G06-44-4 4.1600
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.6112	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.5689	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.5491	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.5278	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.5157	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.4606	GEN515393 1-OGEWND2G
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.4598	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.4598	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.4430	GEN515365 1-CENT 21 0.7000
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.4102	GEN560585 1-G06-44-3 4.1600
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.3273	GEN635214 4-NEAL UNIT 4
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.2662	GEN562023 1-G11_020_3 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.2662	GEN562026 1-G11_019_3 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.1617	GEN527166 1-MUSTANG_6 118.000
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	133.1034	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06842	132.8554	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	132.8399	GEN635213 3-NEAL UNIT 3
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	132.5602	GEN526331 1-JONES GEN #1 22 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	132.2833	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06803	132.2380	CLINTON AIR FORCE BASE TAP - HOBART JUNCTION 138KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06803	132.0251	CLINTON AIR FORCE BASE TAP - ELK CITY 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.9488	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.9488	GEN560287 1-G10-01-2WTG 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06723	131.9305	EL RENO - ROMAN NOSE 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.9238	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.7367	GEN560256 1-G10-14-1 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.7010	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.7009	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.7007	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06723	131.6436	ROMAN NOSE - SOUTHARD 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.6170	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	131.6132	GEN560257 1-G10-14-2 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06554	131.2230	BYRON_138 138.00 - SANDY_CN_138138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06723	131.0275	DEWEY - SOUTHARD 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06742	130.6914	CLINTON JUNCTION - ELK CITY 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	130.2893	GEN531447 1-HOLCOMB GENERATOR
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	130.1341	GEN562042 1-G11_014_3 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06554	130.0497	BYRON_138 138.00 - C_CITY_138 138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06392	129.5990	DOVER SW - OKEENE 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06554	129.4196	C_CITY_138 138.00 - NOEL_SW 138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06112	128.3642	IMO TAP - MEN TAP 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06801	128.3158	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06801	127.9469	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	127.8725	GEN560121 1-G08471419 0.5750
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	127.8489	GEN562432 1-G13-030 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06112	127.7382	CLEOPLT4 138.00 - MEN TAP 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	127.3142	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06112	127.2231	CLEO CORNER - CLEOPLT4 138.00 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07007	126.8401	GEN562017 1-G11_022_3 0.6900
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06175	126.3019	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06175	126.3019	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0637	125.4383	WOODWARD DISTRICT EHV (WWDEHV) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06338	124.8940	WOODWARD DISTRICT EHV (WWDEHV-T2) 345/138/13.8KV TRANSFORMER CKT 2
FDNS	02ALL_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06167	124.2213	BASE CASE
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0691	123.3902	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06188	123.1293	CEDARDALE - OKEENE 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06188	122.4140	CEDARDALE - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06038	122.3623	CLEO CORNER - GLASS MOUNTAIN 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06038	121.5929	GLASS MOUNTAIN - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06249	121.0968	WOODWARD - WOODWARD EHV 138KV CKT 1
FDNSLock	02NR_G14_019	0	15G	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06238	118.3860	MOORELAND - NOEL_SW 138.00 138KV CKT 1
FDNS	00NR_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10768	113.8387	NORTHWEST - TATONGA7 345.00 345KV CKT 1
FDNS	00NR_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10768	111.4335	SPSCONT-05B
FDNS	00NR_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10768	110.5901	SPSCONT-04
FDNS	00NR_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10712	110.4845	NORTHWEST - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL_G14_019	0	20SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06337	108.5233	BASE CASE
FDNS	00NR_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10712	107.7723	SPSCONT-05B
FDNS	00NR_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.10712	106.6532	SPSCONT-04
FDNS	02ALL_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06484	105.3465	BASE CASE
FDNS	00NR_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07913	104.4976	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.10768	102.7091	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	00NR_G14_019	0	15SP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.07027	100.8405	GEN520998 1-MORLND3
FDNS	00NR_G14_019	0	20WP	G14_019	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.08159	100.2251	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_019	0	15SP	G14_019	FROM->TO	NORTHWEST (NORTWST2) 345/138/13.8KV TRANSFORMER CKT 1	493	493	0.04299	100.1727	NORTHWEST (NORTWST3) 345/138/13.8KV TRANSFORMER CKT 1
FDNS	02ALL_G14_019	0	25SP	G14_019	FROM->TO	SPSNORTH_STH	980	980	0.1041	111.8738	BASE CASE
FDNS	02ALL_G14_019	0	25SP	G14_019	FROM->TO	SPSNORTH_STX	980	980	0.10973	123.4375	BASE CASE
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03238	106.4255	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03238	105.9762	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03238	103.1314	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02NR_G14_019	0	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03238	102.5208	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.11758	121.8156	NORTHWEST - TATONGA7 345.00 345KV CKT 1
FDNSLock	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.11758	113.4854	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.11758	111.2278	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.09173	103.6466	IODINE - WOODWARD EHV 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.09173	102.4328	DEWEY - IODINE 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.08864	100.9938	ELK CITY 230KV - SWEETWATER 230KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	TO->FROM	WOODWARD - WOODWARD EHV 138KV CKT 1	287	287	0.0887	100.2078	WOODWARD - WOODWARD EHV 138KV CKT 2
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03223	106.1574	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03223	105.7168	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03223	102.8311	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	02NR_G14_019	2	15G	G14_019	FROM->TO	WOODWARD (WOODWRD2) 138/69/13.2KV TRANSFORMER CKT 1	123	134	0.03223	102.2256	FPL SWITCH - WOODWARD 138KV CKT 1
FDNS	08ALL_G14_022	0	20SP	G14_022	FROM->TO	KAYWIND7 345.00 (KAYWINDB1) 345/34.5/13.8KV TRANSFORMER CKT 2	140	140	0.66667	148.6861	BASE CASE
FDNS	08ALL_G14_022	0	15SP	G14_022	FROM->TO	KAYWIND7 345.00 (KAYWINDB1) 345/34.5/13.8KV TRANSFORMER CKT 2	140	140	0.66667	148.6799	BASE CASE
FDNS	08ALL_G14_022	0	15G	G14_022	FROM->TO	KAYWIND7 345.00 (KAYWINDB1) 345/34.5/13.8KV TRANSFORMER CKT 2	140	140	0.66667	148.6764	BASE CASE
FDNS	08ALL_G14_022	0	25SP	G14_022	FROM->TO	KAYWIND7 345.00 (KAYWINDB1) 345/34.5/13.8KV TRANSFORMER CKT 2	140	140	0.66667	148.6398	BASE CASE

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	08ALL_G14_022	0	20WP	G14_022	FROM->TO	KAYWIND7 345.00 (KAYWINDB1) 345/34.5/13.8KV TRANSFORMER CKT 2	140	140	0.66667	148.6226	BASE CASE
FDNS	08ALL_G14_022	0	25SP	G14_022	FROM->TO	SPPSPSTIES	1011	1011	0.03106	106.3756	BASE CASE
FDNS	09ALL_G14_023	0	15G	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	106.9897	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL_G14_023	0	25SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	106.5846	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL_G14_023	0	15SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	106.5732	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL_G14_023	0	20WP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	106.5073	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	09ALL_G14_023	0	20SP	G14_023	TO->FROM	FT RANDAL - G14_023T 230.00 230KV CKT 1	320	320	1	106.4816	KELLY - MEADOWGROVE4230.00 230KV CKT 1
FDNS	00NR_G14_023	0	25SP	G14_023	FROM->TO	FT RANDAL - SPENCER 115KV CKT 1	120	120	0.03409	102.3504	AINSWORTH - AINSWORTH 115KV CKT 1
FDNS	09ALL_G14_023	0	25SP	G14_023	FROM->TO	SPPSPSTIES	1011	1011	0.08187	107.9454	BASE CASE
FDNS	09NR_G14_023	2	15G	G14_023	TO->FROM	ALBION - PETERSBURG 115KV CKT 1	137	137	0.0235	104.6715	COUNTY LINE - NELIGH 115KV CKT 1
FDNS	09NR_G14_023	2	15G	G14_023	TO->FROM	ALBION - PETERSBURG 115KV CKT 1	137	137	0.0235	104.4848	BATTLE CREEK - COUNTY LINE 115KV CKT 1
FDNS	09NR_G14_023	2	15G	G14_023	TO->FROM	ALBION - PETERSBURG 115KV CKT 1	137	137	0.0235	102.5216	BATTLE CREEK - NORTH NORFOLK 115KV CKT 1
FDNS	09NR_G14_023	2	15G	G14_023	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.0235	105.2785	COUNTY LINE - NELIGH 115KV CKT 1
FDNS	09NR_G14_023	2	15G	G14_023	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.0235	105.0917	BATTLE CREEK - COUNTY LINE 115KV CKT 1
FDNS	09NR_G14_023	2	15G	G14_023	FROM->TO	PETERSBRG.N7115.00 - PETERSBURG 115KV CKT Z1	137	137	0.0235	103.1277	BATTLE CREEK - NORTH NORFOLK 115KV CKT 1
FDNS	04ALL_G14_025	0	25SP	G14_025	FROM->TO	SPPSPSTIES	1011	1011	0.11705	114.4087	BASE CASE
FDNS	02ALL_G14_026	0	25SP	G14_026	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.03389	125.7088	BASE CASE
FDNS	02ALL_G14_026	0	15G	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0577	182.9137	BASE CASE
FDNS	02ALL_G14_026	0	15SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.0617	130.3555	BASE CASE
FDNS	02ALL_G14_026	0	20SP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06337	114.9096	BASE CASE
FDNS	02ALL_G14_026	0	20WP	G14_026	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06479	111.2315	BASE CASE
FDNS	02ALL_G14_026	0	25SP	G14_026	FROM->TO	SPSNORTH_STH	980	980	0.10417	112.9729	BASE CASE
FDNS	02ALL_G14_026	0	25SP	G14_026	FROM->TO	SPSNORTH_STX	980	980	0.10981	124.7176	BASE CASE
FDNS	08ALL_G14_028	0	25SP	G14_028	FROM->TO	SPPSPSTIES	1011	1011	0.04482	106.5463	BASE CASE
FDNS	09ALL_G14_031	0	25SP	G14_031	FROM->TO	SPPSPSTIES	1011	1011	0.08258	107.3773	BASE CASE
FDNS	09ALL_G14_032	0	25SP	G14_032	FROM->TO	SPPSPSTIES	1011	1011	0.0826	107.0853	BASE CASE
FDNS	07ALL_G14_036	0	25SP	G14_036	FROM->TO	SPPSPSTIES	1011	1011	0.22603	106.2955	BASE CASE
FDNS	02ALL_G14_037	0	25SP	G14_037	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.03885	126.5747	BASE CASE
FDNS	02ALL_G14_037	0	15G	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05286	187.5435	BASE CASE
FDNS	02ALL_G14_037	0	15SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05684	131.8821	BASE CASE
FDNS	02ALL_G14_037	0	20SP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05869	116.6759	BASE CASE
FDNS	02ALL_G14_037	0	20WP	G14_037	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06008	112.7709	BASE CASE
FDNS	02ALL_G14_037	0	25SP	G14_037	FROM->TO	SPSNORTH_STH	980	980	0.12064	113.5449	BASE CASE
FDNS	02ALL_G14_037	0	25SP	G14_037	FROM->TO	SPSNORTH_STX	980	980	0.12711	125.3863	BASE CASE
FDNS	02ALL_G14_038	0	25SP	G14_038	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.04858	127.3023	BASE CASE
FDNS	02ALL_G14_038	0	15G	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04869	186.9275	BASE CASE
FDNS	02ALL_G14_038	0	15SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05249	131.2209	BASE CASE
FDNS	02ALL_G14_038	0	20SP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.05478	116.0111	BASE CASE
FDNS	02ALL_G14_038	0	20WP	G14_038	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.05617	112.3762	BASE CASE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22191	130.5930	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22191	130.5930	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22191	126.5906	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22191	126.5906	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	123.5122	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	123.5102	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	123.4864	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	120.9990	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	120.9976	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	120.9819	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21693	119.9435	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21693	119.9435	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	119.2631	Hansford County Switch Station - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	118.5805	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23121	118.2988	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23121	118.2988	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21272	117.6265	DWS FRISCO - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	117.6206	GEN526332 1-JONES GEN #2 21 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	117.6189	GEN526331 1-JONES GEN #1 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21346	117.4468	Hitchland Interchange (SIEM 8743067) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21693	116.8852	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21693	116.8852	MOORE COUNTY INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21272	116.8109	DWS FRISCO - HITCHLAND INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.6941	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.4984	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.3922	GEN523462 1-BLACKHAWK GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.3914	GEN523461 1-BLACKHAWK GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.3351	GEN562495 1-G14_012_2 18.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	116.3191	Hansford County Switch Station - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21277	116.3159	Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	116.3146	HITCHLAND INTERCHANGE - Hansford County Switch Station 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.2613	GEN525844 1-ELK_1 118.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	116.1151	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	116.0798	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.9839	GEN526333 1-JONES GEN #3 21 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	115.9712	SPP-SWPS-05

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.9412	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.9135	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.9135	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.8391	GEN527166 1-MUSTANG_6 118.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	115.8170	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.7858	GEN527161 1-MUSTANG GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.7858	GEN527162 1-MUSTANG GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.7324	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.7134	GEN527165 1-Mustang Gen #5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21736	115.6922	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.5215	GEN523942 1-MAJSTC-WTG210.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.5092	GEN523941 1-MAJSTC-WTG110.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23121	115.4974	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23121	115.4974	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.4704	GEN526332 1-JONES GEN #2 21 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.4687	GEN526331 1-JONES GEN #1 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.3097	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.1167	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.0914	GEN524022 1-NICHOLS GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.0704	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	115.0517	GEN526334 1-JONES_4 116.500
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	114.8341	HITCHLAND INTERCHANGE - OCHILTREE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21736	114.8334	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21272	114.8218	DWS FRISCO - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	114.7983	OCHILTREE (H TP80219401) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.7476	GEN527903 1-HOBBS PLANT #3 (ST)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21346	114.6864	Hitchland Interchange (SIEM 8743067) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20828	114.6603	GRACEMONT - MINCO 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.5808	GEN528361 1-MADDOX GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.4769	GEN525493 1-PLANT X GEN #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	114.4012	PRINGLE INTERCHANGE (WH_ALM12301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.3808	GEN562495 1-G14_012_2 18.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.3473	GEN527882 1-CUNNINGHAM GEN #2 20 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	114.2455	Harrington Station East Bus - PRINGLE INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	114.2451	SPP-SWPS-K43
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.2353	GEN560105 1-G08-22 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20828	114.0781	CIMARRON - MINCO 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21272	114.0722	DWS FRISCO - HITCHLAND INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.0446	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	114.0414	GEN525844 1-ELK_1 118.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21646	113.9984	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21646	113.9984	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.9286	GEN524021 1-NICHOLS GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21125	113.8478	RB-SPURLOCK3115.00 - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21226	113.7786	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.7095	GEN527901 1-HOBBS PLANT #1 (CT)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.7095	GEN527902 1-HOBBS PLANT #2 (CT)
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.7015	GEN523462 1-BLACKHAWK GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.7012	GEN526333 1-JONES GEN #3 21 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.7008	GEN523461 1-BLACKHAWK GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21358	113.6865	MATHWSN7 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21358	113.6865	MATHWSN7 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21363	113.6758	MINGO - SETAB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.6717	GEN527163 1-MUSTANG GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21125	113.6676	MOORE COUNTY INTERCHANGE EAST BUS - RB-SPURLOCK3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.6639	GEN562270 1-G12-020-2 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.6599	GEN524285 1-WILDORADO WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21277	113.6413	Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21395	113.6359	HITCHLAND INTERCHANGE - Hansford County Switch Station 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	113.6343	SPP-SWPS-V92
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	113.6074	OCHILTREE - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.5858	GEN562269 1-G12-020-1 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20405	113.5609	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21134	113.5497	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21134	113.5497	HITCHLAND INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.5342	GEN527166 1-MUSTANG_6 118.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21067	113.5320	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21067	113.5312	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20405	113.5270	CHISHOLM7 345.00 () 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2109	113.5091	DALLAM COUNTY INTERCHANGE - SHERMAN COUNTY SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.5075	GEN525494 1-PLANT X GEN #4 20 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.5071	GEN522814 1-LUBBOCK POWER & LIGHT-MACKENZIE GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.4839	GEN527162 1-MUSTANG GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.4838	GEN527161 1-MUSTANG GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	113.4493	SPEARMAN SUB - TEXAS FARMS SUB 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.4431	GEN336821 1-GRAND GULF UNIT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2109	113.3962	SHERMAN COUNTY SUB - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3920	GEN336153 1-WATERFORD UNIT#3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3695	GEN527164 1-MUSTANG GEN #4 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	113.3550	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3518	GEN527165 1-Mustang Gen #5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3502	GEN560738 1-G13_016_2 18.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3426	GEN527881 1-CUNNINGHAM GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21311	113.3418	HOLCOMB - SETAB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.3404	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20925	113.3403	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21154	113.2382	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21094	113.2354	HUTCHINSON COUNTY INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.2321	GEN501801 1-DOLET HILLS UNIT1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23937	113.2213	SPP-SWPS-05
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.2155	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21317	113.1601	SPSCONT-05AX
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.1429	GEN335831 1-RIVERBEND UNIT#1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	113.1364	SPEARMAN INTERCHANGE - SPEARMAN SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.1208	GEN522866 1-LUBBOCK POWER & LIGHT-HOLLY GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20952	113.1188	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20927	113.1083	STATELINE INTERCHANGE (H TP80154301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.0934	GEN524471 1-QUAY_CNTY 113.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21127	113.0910	MOORE COUNTY INTERCHANGE W. - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21736	113.0892	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.0860	GEN524287 1-GS-PHWD_GEN10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.0644	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21055	113.0557	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21044	113.0509	HOBBS - YOAKUM_345 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21127	113.0185	DUMAS SUB - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	113.0005	GEN523815 1-LLANO ESTACADO WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21008	112.9991	JOHNSON COUNTY - PITTSBURG 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.9469	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.9461	GEN522875 1-LUBBOCK POWER & LIGHT-BRANDON GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21113	112.9460	PRINGLE INTERCHANGE - RIVERVIEW INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20927	112.9434	Graves Sub - STATELINE INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.9277	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	112.9245	G11-17T 345.00 - POST ROCK 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.9149	GEN523942 1-MAJSTC-WTG210.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.9033	GEN523941 1-MAJSTC-WTG110.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.8867	GEN524485 1-CAPROCK WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21057	112.8831	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21163	112.8789	FPL SWITCH - MOORELAND 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21058	112.8731	HIGHLAND PARK TAP - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.8721	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21058	112.8676	PANTEX NORTH SUB - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21375	112.8674	MINGO - RED WILLOW 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.8670	GEN501813 1-RODEMACHER UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.8601	GEN336251 1-NINEMILE POINT UNIT#4
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.8588	GEN524022 1-NICHOLS GEN #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21194	112.8575	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21194	112.8572	G11_051T 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21164	112.8424	THISTLE7 345.00 - WICHITA 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21164	112.8424	THISTLE7 345.00 - WICHITA 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21194	112.8361	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21194	112.8359	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.7319	GEN527884 1-CUNNINGHAM GEN #4 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.6875	GEN527883 1-CUNNINGHAM GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.6595	GEN526334 1-JONES_4 116.500
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	112.3250	HITCHLAND INTERCHANGE - OCHILTREE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	112.3054	OCHILTREE (H TP80219401) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21736	112.2967	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.2946	BASE CASE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.1847	GEN525493 1-PLANT X GEN #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	112.1809	GEN528361 1-MADDOX GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20828	112.1660	GRACEMONT - MINCO 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.8378	GEN560105 1-G08-22 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.7890	GEN524021 1-NICHOLS GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21036	111.7576	OASIS INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.7500	GEN512688 2-GRDA1 GSU2 22
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	111.7497	PRINGLE INTERCHANGE (WH ALM12301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.7495	GEN509394 1-FLINT CREEK
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.7394	GEN531610 1-WDCTWF-7 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21045	111.7215	SPP-SWPS-T70
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.7165	CARGILL SUB - DEAF SMITH REC-#24 115KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.7161	SPP-SWPS-T59
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.7152	DEAF SMITH REC-#6 - FRIONA SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.7116	GEN300002 1-THOMAS HILL UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.7068	SPP-SWPS-T58
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	111.7034	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	111.7012	CANYON WEST SUB - DAWN SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	111.6989	MCLEAN RURAL SUB - SHAMROCK 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.6870	DEAF SMITH REC-#6 - HEREFORD INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21013	111.6814	KINGSMILL INTERCHANGE - LLANO ESTACADO WIND GEN 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	111.6750	SPP-SWPS-W40
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.6586	GEN645025 5-NORTH OMAHA 5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.6513	DEAF SMITH REC-#24 - PARMER COUNTY SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	111.6499	SPP-SWPS-T54
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2104	111.6488	EAST PLANT INTERCHANGE - HARRINGTON STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21036	111.6462	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.6384	GEN635213 3-NEAL UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	111.6320	Harrington Station East Bus - PRINGLE INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21208	111.6309	SPP-SWPS-K43
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.6200	GEN523171 1-GOODWELL_2 10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	111.6180	CONWAY SUB - KIRBY SWITCHING STATION 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20828	111.6110	CIMARRON - MINCO 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.6015	GEN546702 1-NM GEN N1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	111.5895	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	111.5642	GRAY COUNTY INTERCHANGE (WH RHP17221) 115/69/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21016	111.5543	TOLK STATION WEST - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	111.5497	GRAY COUNTY INTERCHANGE - HUTCHINSON COUNTY INTERCHANGE S. 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.5494	SPP-SWPS-V44
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	111.5321	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21098	111.5078	CHAN/TASCOS6230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.5053	NORTHWEST INTERCHANGE - ROLLHILLS 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	111.4832	KRESS INTERCHANGE - TULIA TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21646	111.4773	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21646	111.4773	BVRCNTY7 345.00 - G11-14T 345.00 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4716	GEN641089 2-ENERGY CENTER 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	111.4695	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	111.4407	CANYON E_TP3115.00 - CANYON WEST SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4374	GEN541151 3-SIBLEY GENERATING UNIT #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4358	GEN523170 1-GOODWELL_1 10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4309	GEN590010 1-ERCOT EQUIVALENCE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	111.4146	SPP-SWPS-T67
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4141	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.4069	GEN590011 2-ERCOT EQUIVALENCE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3997	GEN300006 1-NEW MADRID UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	111.3976	HAPPY INTERCHANGE - TULIA TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3969	GEN300007 1-NEW MADRID UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3769	GEN531459 2-S2 GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3659	GEN635214 4-NEAL UNIT 4
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21125	111.3618	RB-SPURLOCK3115.00 - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3557	GEN532663 1-LAWRENCE ENERGY CENTER UNIT 5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.3462	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	111.3196	SPP-SWPS-T53
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20027	111.3049	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2965	GEN532722 1-EVANS ENERGY CENTER UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21038	111.2905	NICHOLS STATION (ENRCO 136731) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21038	111.2904	NICHOLS STATION (ENRCO 136732) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21226	111.2831	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2787	GEN635023 3-WALTER SCOTT UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2778	GEN562270 1-G12-020-2 0.6900
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2745	GEN659328 1-WATFRDCMBC1X13.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2681	GEN524285 1-WILDORADO WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20674	111.2634	Harrington Station East Bus - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2621	GEN659382 1X-MANITOU G1X13.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	111.2473	CONWAY SUB - NICHOLS STATION 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21358	111.2449	MATHWSN7 345.00 - TATONGA7 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21358	111.2449	MATHWSN7 345.00 - TATONGA7 345.00 345KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	111.2237	SPP-SWPS-V92
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21363	111.2147	MINGO - SETAB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.2010	GEN562269 1-G12-020-1 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21125	111.1925	MOORE COUNTY INTERCHANGE EAST BUS - RB-SPURLOCK3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	111.1813	OCHILTREE - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	111.1806	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	111.1803	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.1323	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21134	111.1218	HITCHLAND INTERCHANGE (H TP80148301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21134	111.1218	HITCHLAND INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.1211	GEN522814 1-LUBBOCK POWER & LIGHT-MACKENZIE GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20405	111.1186	CHISHOLM7 345.00 - GRACEMONT 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21067	111.0899	MOREWOOD SW - NINE MILE 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21067	111.0897	MOORELAND - NINE MILE 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20405	111.0858	CHISHOLM7 345.00 () 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2109	111.0784	DALLAM COUNTY INTERCHANGE - SHERMAN COUNTY SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	111.0730	CANYON E_TP3115.00 - RANDALL COUNTY INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	111.0312	GEN336821 1-GRAND GULF UNIT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	111.0297	SPEARMAN SUB - TEXAS FARMS SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21029	111.0206	SPP-SWPS-06X
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20642	110.9971	CHERRY1 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21022	110.9851	AMARILLO SOUTH INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.9829	GEN336153 1-WATERFORD UNIT#3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.9745	GEN560738 1-G13_016_2 18.000
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2109	110.9725	SHERMAN COUNTY SUB - SHERMAN COUNTY TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20984	110.9697	PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.9603	GEN527881 1-CUNNINGHAM GEN #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20925	110.9503	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	110.9377	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	110.9329	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.9293	GEN511848 1-SOUTHWESTERN STATION #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2087	110.9268	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2087	110.9239	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21311	110.8984	HOLCOMB - SETAB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.8824	GEN542951 5-HAWTHORN UNIT #5
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.8535	GEN659111 2-LELAND OLDS UNIT2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.8320	GEN501801 1-DOLET HILLS UNIT1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.8142	GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21154	110.8002	PRINGLE INTERCHANGE - SPEARMAN INTERCHANGE 115KV CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7957	GEN542956 2-LACYGNE UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	110.7551	HAPPY INTERCHANGE - PALO DURO SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7464	GEN335831 1-RIVERBEND UNIT#1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7415	GEN522866 1-LUBBOCK POWER & LIGHT-HOLLY GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21317	110.7378	SPSCONT-05AX
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21195	110.7375	SPEARMAN INTERCHANGE - SPEARMAN SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20952	110.7345	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7314	GEN523122 1-NBLWND-WTG210.6900
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7306	GEN659103 1-ANTELOPE VALLEY UNIT1
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7306	GEN659107 2-ANTELOPE VALLEY UNIT2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	110.7205	SPP-SWPS-T66
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21094	110.7203	HUTCHINSON COUNTY INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21127	110.7187	MOORE COUNTY INTERCHANGE W. - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	110.7137	PALO DURO SUB - RANDALL COUNTY INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7128	GEN524471 1-QUAY_CNTY 113.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21055	110.7028	GRACEMONT - LAWTON EASTSIDE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20927	110.7018	STATELINE INTERCHANGE (H TP80154301) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.7009	GEN523121 1-NBLWND-WTG110.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21044	110.6976	HOBBS - YOAKUM_345 345.00 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6830	GEN300003 1-THOMAS HILL UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6817	GEN524287 1-GS-PHWD_GEN10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6707	GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6680	GEN560584 1-G06-44-2 4.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6610	GEN523107 1-NOVUS_WND 14.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6382	GEN523123 1-NBLWND-WTG310.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21127	110.6374	DUMAS SUB - RB-S&S 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.6202	GEN645001 1-FORT CALHOUN 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21008	110.6076	JOHNSON COUNTY - PITTSBURG 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5988	GEN523815 1-LLANO ESTACADO WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5861	GEN542955 1-LACYGNE UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5692	GEN522875 1-LUBBOCK POWER & LIGHT-BRANDON GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20927	110.5601	Graves Sub - STATELINE INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5594	GEN337653 1-WHITE BLUFF UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21113	110.5500	PRINGLE INTERCHANGE - RIVERVIEW INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5411	GEN337652 1-WHITE BLUFF UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21142	110.5286	G11-17T 345.00 - POST ROCK 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.5102	GEN524485 1-CAPROCK WIND GEN
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21058	110.5021	HIGHLAND PARK TAP - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21058	110.4983	PANTEX NORTH SUB - PANTEX SOUTH SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21057	110.4895	ELK CITY - RED HILLS WIND 138KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.4888	GEN336252 1-NINEMILE POINT UNIT#5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.4841	GEN501813 1-RODEMACHER UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.4175	GEN542957 1-IATAN UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.3768	GEN645011 1-NEBRASKA CITY 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.3066	GEN532653 1-JEFFREY ENERGY CENTER UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.3065	GEN532652 1-JEFFREY ENERGY CENTER UNIT 2

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.3012	GEN532651 1-JEFFREY ENERGY CENTER UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.2796	GEN645012 2-NEBRASKA CITY 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.2557	GEN560586 1-G06-44-4 4.1600
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.2235	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.1977	GEN640009 1-COOPER NUCLEAR STATION
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21009	110.1930	Harrington Station Mid Bus - RANDALL COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21009	110.0596	SPP-SWPS-K19
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.0568	GEN542962 2-IATAN UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	110.0534	GEN560585 1-G06-44-3 4.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.9828	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.9452	BASE CASE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2082	109.8339	Harrington Station East Bus - Harrington Station Mid Bus 230KV CKT @1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.6927	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.6927	GEN560287 1-G10-01-2WTG 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.4704	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	109.4026	DEAF SMITH REC-#6 - FRIONA SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.4005	GEN300002 1-THOMAS HILL UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	109.3997	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	109.3963	CURRY COUNTY INTERCHANGE - DEAF SMITH REC-#20 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	109.3960	MCLEAN RURAL SUB - SHAMROCK 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	109.3926	SPP-SWPS-W40
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3906	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2104	109.3841	EAST PLANT INTERCHANGE - HARRINGTON STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21013	109.3822	KINGSMILL INTERCHANGE - LLANO ESTACADO WIND GEN 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	109.3814	SPP-SWPS-T58
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21014	109.3673	DEAF SMITH REC-#6 - HEREFORD INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	109.3577	SPP-SWPS-T54
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	109.3545	GRAY COUNTY INTERCHANGE (WH RHP17221) 115/69/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3517	GEN645025 5-NORTH OMAHA 5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21041	109.3446	GRAY COUNTY INTERCHANGE - HUTCHINSON COUNTY INTERCHANGE S. 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3410	GEN562042 1-G11_014_3 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3343	GEN635213 3-NEAL UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21036	109.3300	CHAVES COUNTY INTERCHANGE - SAN JUAN MESA TAP 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3286	NORTHWEST INTERCHANGE - ROLLHILLS 3115.00 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.3278	GEN523171 1-GOODWELL_2 10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	109.3238	CONWAY SUB - KIRBY SWITCHING STATION 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.2976	GEN546702 1-NM GEN N1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.2975	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.2617	SPP-SWPS-V44
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21016	109.2442	TOLK STATION WEST - YOAKUM COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	109.2420	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20674	109.2413	Harrington Station East Bus - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	109.2121	KRESS INTERCHANGE - TULIA TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21098	109.2052	CHAN/TASCOS6230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	109.2037	CANYON E_TP3115.00 - CANYON WEST SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1881	GEN523170 1-GOODWELL_1 10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20937	109.1839	KIRBY SWITCHING STATION - MCCLELLAN SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1775	GEN641089 2-ENERGY CENTER 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1772	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	109.1612	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	109.1451	SPP-SWPS-T67
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1439	GEN541151 3-SIBLEY GENERATING UNIT #3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21038	109.1387	NICHOLS STATION (ENRCO 136731) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21038	109.1386	NICHOLS STATION (ENRCO 136732) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1363	GEN590010 1-ERCOT EQUIVALENCE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	109.1320	HAPPY INTERCHANGE - TULIA TAP 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1138	GEN590011 2-ERCOT EQUIVALENCE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1130	FINNEY SWITCHING STATION - PSCO LAMAR DC TIE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1070	GEN300006 1-NEW MADRID UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.1045	GEN300007 1-NEW MADRID UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.0941	GEN531459 2-S2 GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20027	109.0929	GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.0799	GEN635214 4-NEAL UNIT 4
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.0673	GEN532663 1-LAWRENCE ENERGY CENTER UNIT 5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	109.0607	SPP-SWPS-T53
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.0566	GEN539670 4-JUDSON LARGE GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	109.0099	GEN532722 1-EVANS ENERGY CENTER UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.9983	GEN635023 3-WALTER SCOTT UNIT 3
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.9927	GEN659328 1-WATFRDCMBC1X13.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20885	108.9816	CONWAY SUB - NICHOLS STATION 115KV CKT 1
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.9811	GEN659382 1X-MANITOU G1X13.800
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20934	108.9797	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20642	108.9353	CHERRY1 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21027	108.9012	CANYON E_TP3115.00 - RANDALL COUNTY INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	108.9010	TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	108.9008	CROSSROADS 345.00 - TOLK STATION 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20574	108.8936	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.8614	GEN635024 4-WALTER SCOTT UNIT 4
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21022	108.8276	AMARILLO SOUTH INTERCHANGE - NICHOLS STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21029	108.7533	SPP-SWPS-06X
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.7056	GEN560256 1-G10-14-1 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20984	108.6971	PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.6908	GEN531447 1-HOLCOMB GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	108.6729	EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2103	108.6689	CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2087	108.6668	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2087	108.6650	CHISHOLM6 230.00 - ELK CITY 230KV 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.6237	GEN542951 5-HAWTHORN UNIT #5
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.6124	GEN560257 1-G10-14-2 0.6900
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.5985	GEN659111 2-LELAND OLDS UNIT2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	108.5506	HAPPY INTERCHANGE - PALO DURO SUB 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.5415	GEN542956 2-LACYGNE UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.5275	GEN523122 1-NBLWND-WTG210.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	108.5198	SPP-SWPS-T66
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2098	108.5134	PALO DURO SUB - RANDALL COUNTY INTERCHANGE 115KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.5068	GEN523121 1-NBLWND-WTG110.6900
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4834	GEN659103 1-ANTELOPE VALLEY UNIT1
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4834	GEN659107 2-ANTELOPE VALLEY UNIT2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4714	GEN560584 1-G06-44-2 4.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4696	GEN523107 1-NOVUS_WND 14.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4414	GEN523123 1-NBLWND-WTG310.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.4364	GEN300003 1-THOMAS HILL UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.3795	GEN645001 1-FORT CALHOUN 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.3448	GEN542955 1-LACYGNE UNIT #1
FDNSLock	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.3386	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.1881	GEN542957 1-IATAN UNIT #1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21009	108.1627	Harrington Station Mid Bus - RANDALL COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.1614	BUSHLAND INTERCHANGE 230KV SWITCHED SHUNT
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.1513	GEN645011 1-NEBRASKA CITY 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.1043	GEN560586 1-G06-44-4 4.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.0838	GEN532653 1-JEFFREY ENERGY CENTER UNIT 3
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.0837	GEN532652 1-JEFFREY ENERGY CENTER UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.0788	GEN532651 1-JEFFREY ENERGY CENTER UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	108.0602	GEN645012 2-NEBRASKA CITY 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21009	108.0506	SPP-SWPS-K19
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.9832	GEN640009 1-COOPER NUCLEAR STATION
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.9202	GEN560585 1-G06-44-3 4.1600
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.8496	GEN542962 2-IATAN UNIT #2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.2082	107.7522	Harrington Station East Bus - Harrington Station Mid Bus 230KV CKT @1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.5879	GEN560286 1-G10-01-1WTG 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.5879	GEN560287 1-G10-01-2WTG 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.3195	GEN560121 1-G08-47 0.5750
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.3029	GEN640010 1-GERALD GENTLEMAN STATION UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.2396	GEN562042 1-G11_014_3 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20934	107.2306	NEWHART 230 - PLANT X STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.2285	GEN659118 1-LARAMIE RIVER UNIT1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.1713	GEN562432 1-G13-030 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.1407	GEN640011 2-GERALD GENTLEMAN STATION UNIT 2
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	107.0199	GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20574	106.9315	SWISHER COUNTY INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20738	106.8841	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	106.8241	GEN525561 1-TOLK GEN #1 24 KV
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	106.7993	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20724	106.7826	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	106.6968	GEN560256 1-G10-14-1 0.6900
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22797	106.6784	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22797	106.6784	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	106.6129	GEN560257 1-G10-14-2 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	106.5904	GEN531447 1-HOLCOMB GENERATOR
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	106.2941	GEN562017 1-G11_022_3 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	106.2766	GEN524295 1-SPNSPUR_WND10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20724	105.3918	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24683	105.3753	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	105.3444	GEN562544 1-G14_038_3 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	105.2870	GEN560121 1-G08-47 0.5750
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	105.2637	GEN562432 1-G13-030 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20738	105.1270	AMARILLO SOUTH INTERCHANGE - SWISHER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	104.6057	GEN525562 1-TOLK GEN #2 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	104.3913	GEN562017 1-G11_022_3 0.6900
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22797	104.3110	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.22797	104.3110	HITCHLAND INTERCHANGE - MOORE COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	103.9374	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	103.9369	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	103.9365	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	103.6369	GEN524295 1-SPNSPUR_WND10.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21046	103.3363	GEN562544 1-G14_038_3 0.6900
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20531	103.2285	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20462	103.1735	NEWHART 230 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20621	103.1008	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	102.9040	BORDER 7345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24683	102.8513	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20621	101.9196	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	101.8419	GEN523972 1-HARRINGTON GEN #2 24 KV
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	101.8414	GEN523973 1-HARRINGTON GEN #3 24 KV
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	101.8410	GEN523971 1-HARRINGTON GEN #1 24 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20462	101.7526	NEWHART 230 - POTTER COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24683	101.6769	FINNEY SWITCHING STATION - Hitchland Interchange 345KV CKT 1
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.20531	101.6354	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.24683	101.4299	SPP-SWPS-05
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23509	101.2661	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.23509	101.2661	G11-14T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	100.9134	BORDER 7345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	100.7184	BORDER 7345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	02ALL_G14_038	0	20SP	G14_038	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.21559	100.0778	GEN524023 1-NICHOLS GEN #3 22 KV
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	SPSNORTH_STH	980	980	0.14713	114.1982	BASE CASE
FDNS	02ALL_G14_038	0	25SP	G14_038	FROM->TO	SPSNORTH_STX	980	980	0.15452	126.0670	BASE CASE
FDNS	09ALL_G14_039	0	25SP	G14_039	FROM->TO	SPPSPSTIES	1011	1011	0.08393	107.8886	BASE CASE
FDNS	05ALL_G14_040	0	15G	G14_040	TO->FROM	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	159	160	0.48345	104.5643	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
FDNS	05NR_G14_040	0	15G	G14_040	TO->FROM	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	159	160	0.49584	103.7109	CASTRO COUNTY INTERCHANGE - NEWHART 115KV CKT 1
FDNS	00NR_G14_040	0	25SP	G14_040	TO->FROM	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	319	351	0.05943	100.4930	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	147.9516	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	147.6745	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	147.3235	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL_G14_041	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	146.8375	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	145.5312	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	145.1647	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL_G14_041	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	144.6003	ARNOLD - GOVE 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	144.5458	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL_G14_041	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	143.1951	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	142.0872	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL_G14_041	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	140.5136	GOVE - GRINNELL 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	140.3719	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	139.9437	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL_G14_041	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	136.2929	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL_G14_041	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	1	131.3915	GRINNELL - PHEASANT RUN 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49264	106.2808	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63309	104.7307	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63309	104.6660	MIDW-CATB01B
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63323	104.6404	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63323	104.5636	MIDW-CATB01B
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61129	104.4465	HOXIE - SEGNTP 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60599	104.4035	HOLCOMB - SETAB 345KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.67844	104.0501	MINGO (MINGO) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63309	103.8832	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63323	103.7321	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61115	103.3361	HOXIE - SEGNTP 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60599	103.1645	HOLCOMB - SETAB 345KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61129	102.6882	MIDW-CATB01
FDNS	04ALL_G14_041	0	20SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49216	102.5844	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49264	102.5701	DIGHTON TAP - MANNING TAP 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61115	102.2228	MIDW-CATB01
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60686	101.9738	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60648	101.6223	MINGO - RED WILLOW 345KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59838	101.2926	GEN560309 1-G09-20 0.6900
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61129	101.1959	BEACH STATION - HOXIE 115KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60019	101.1817	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.61115	101.1086	BEACH STATION - HOXIE 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.67835	101.0919	MINGO (MINGO) 345/115/13.8KV TRANSFORMER CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59852	100.9068	GEN560309 1-G09-20 0.6900
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.5958	100.7519	MULLERGREN - SOUTH HAYS 230KV CKT 1
FDNS	04ALL_G14_041	0	15SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.59606	100.5944	MULLERGREN - SOUTH HAYS 230KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63274	100.5021	PHEASANT RUN - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63274	100.4848	MIDW-CATB01B
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49205	100.3029	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60685	100.0000	MINGO - RED WILLOW 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	04ALL_G14_041	0	25SP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.49216	100.0000	MANNING TAP - SCOTT CITY 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.60007	99.8000	BUCKNER7 345.00 - SPEARVILLE 345KV CKT 1
FDNS	04ALL_G14_041	0	20WP	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.63274	99.7000	SEGNTP 3 115.00 - SEGUIN 3 115.00 115KV CKT 1
FDNS	04ALL_G14_041	0	15G	G14_041	FROM->TO	ARNOLD - RANSOM 115KV CKT 1	79.7	79.7	0.57299	99.6000	SCOTT CITY - SETAB 115KV CKT 1
FDNS	04ALL_G14_041	0	25SP	G14_041	FROM->TO	SPPSPSTIES	1011	1011	0.16545	116.5321	BASE CASE
FDNS	00NR_G14_046	0	25SP	G14_046	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.07358	119.5129	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06NR_G14_046	0	15G	G14_046	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.08335	109.8497	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_046	0	15SP	G14_046	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.08141	101.5584	POTASH JUNCTION INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06ALL_G14_046	0	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.36374	100.9615	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL_G14_046	0	15SP	G14_046	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.36696	101.7435	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06NR_G14_046	0	15G	G14_046	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05585	118.6314	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1
FDNS	06NR_G14_046	0	15G	G14_046	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05585	111.9250	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1
FDNS	06NR_G14_046	2	15G	G14_046	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.08313	109.7011	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_046	2	15SP	G14_046	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.0812	101.4495	POTASH JUNCTION INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06NR_G14_046	2	15G	G14_046	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05569	118.5323	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1
FDNS	06NR_G14_046	2	15G	G14_046	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05569	111.8281	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1
FDNSLock-Blown up	03ALL_G14_049	0	15SP	G14_049		Non-Converged Contingency	1505	1793	0.07892	-	G11-17T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G14_049	0	20WP	G14_049		Non-Converged Contingency	1793	1793	0.07909	-	G11-17T 345.00 - POST ROCK 345KV CKT 1
FDNSLock-Blown up	03ALL_G14_049	0	20WP	G14_049		Non-Converged Contingency	726.6	726.6	0.07677	-	BUCKNER7 345.00 - HOLCOMB 345KV CKT 1
FDNS	03ALL_G14_049	0	15G	G14_049	TO->FROM	CLEARWATER - MILAN TAP 138KV CKT 1	110	110	0.03103	112.1165	BASE CASE
FDNS	03ALL_G14_049	0	15G	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03502	158.0655	BASE CASE
FDNS	03ALL_G14_049	0	15SP	G14_049	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.03954	108.9043	BASE CASE
FDNS	03ALL_G14_049	0	25SP	G14_049	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.03825	106.8201	BASE CASE
FDNS	03ALL_G14_049	0	25SP	G14_049	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.03825	103.5710	BASE CASE
FDNS	02ALL_G14_052	0	25SP	G14_052	TO->FROM	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1	319	351	0.02969	126.1711	BASE CASE
FDNS	02ALL_G14_052	0	15G	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06174	186.4771	BASE CASE
FDNS	02ALL_G14_052	0	15SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06584	133.0647	BASE CASE
FDNS	02ALL_G14_052	0	20SP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.06735	117.8788	BASE CASE
FDNS	02ALL_G14_052	0	20WP	G14_052	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	171	185	0.06875	113.7079	BASE CASE
FDNS	02ALL_G14_052	0	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.09398	108.3513	BASE CASE
FDNS	02ALL_G14_052	0	25SP	G14_052	FROM->TO	POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.09398	106.0614	BASE CASE
FDNS	02ALL_G14_052	0	25SP	G14_052	FROM->TO	SPSNORTH_STH	980	980	0.09019	113.2562	BASE CASE
FDNS	02ALL_G14_052	0	25SP	G14_052	FROM->TO	SPSNORTH_STX	980	980	0.09512	125.0468	BASE CASE
FDNS	06ALL_G14_054	0	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24146	103.0455	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_054	0	25SP	G14_054	FROM->TO	CARLISLE INTERCHANGE (WH XHS70711) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.24146	99.8000	CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21539	147.8113	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21539	142.6617	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22061	130.2847	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21539	129.2137	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2182	128.2725	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22061	125.8113	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.261	121.0467	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.30637	120.6655	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21798	117.6945	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.2182	116.6730	CREIGHTON - NELIGH.EAST7115.00 115KV CKT 1
FDNS	09ALL_G14_055	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21823	115.3828	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22061	114.5362	BERSFORD - SIOUX FALLS 115KV CKT 1
FDNS	09ALL_G14_055	0	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22068	114.0273	GAVINS POINT - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21542	113.4968	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21819	113.0934	BLOOMFIELD - CREIGHTON 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.20757	110.7449	SIOUX CITY - TWIN CHURCH 230KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.31394	110.2532	BELDEN - HOSKINS 115KV CKT 1
FDNS	09ALL_G14_055	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21538	110.1081	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	20SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21542	109.0947	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL_G14_055	0	15SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.26749	107.3733	BELDEN - TWIN CHURCH 115KV CKT 1
FDNS	09ALL_G14_055	0	20WP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.18726	106.4338	BASE CASE
FDNS	09ALL_G14_055	0	25SP	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.21538	105.6398	BERSFORD - MANNING 115KV CKT 1
FDNS	09ALL_G14_055	0	15G	G14_055	FROM->TO	GAVINS POINT - YANKON JCT 115KV CKT 1	120	120	0.22068	103.3523	MANNING - SPIRIT MOUND 115KV CKT 1
FDNS	09ALL_G14_055	0	25SP	G14_055	FROM->TO	SPPSPSTIES	1011	1011	0.07877	108.7081	BASE CASE
FDNSLock-Blown up	01ALL_G14_058	0	20SP	G14_058		Non-Converged Contingency	1195	1195	0.66417	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNSLock-Blown up	01ALL_G14_058	0	20WP	G14_058		Non-Converged Contingency	1195	1195	0.66652	-	G14-058T 345.00 - NORTHWEST 345KV CKT 1
FDNS	01ALL_G14_058	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	107.6246	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL_G14_058	0	15G	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	107.6004	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL_G14_058	0	15SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	107.1840	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL_G14_058	0	20SP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	1	107.0792	G11_051T 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL_G14_058	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6817	102.1172	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 1
FDNS	01ALL_G14_058	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.6817	102.1172	THISTLE7 345.00 - WOODWARD DISTRICT EHV 345KV CKT 2
FDNS	01ALL_G14_058	0	20WP	G14_058	FROM->TO	G14-058T 345.00 - NORTHWEST 345KV CKT 1	1195	1195	0.67366	99.7000	BORDER 7345.00 - TUCO INTERCHANGE 345KV CKT 1
FDNS	09ALL_G14_059	0	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.81782	135.8075	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL_G14_059	0	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.81881	126.7187	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09NR_G14_059	0	15G	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82218	125.7475	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR_G14_059	0	15SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83663	123.0824	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL_G14_059	0	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82064	122.4515	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL_G14_059	0	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82062	121.9723	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR_G14_059	0	25SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83614	119.7902	KEYSTONE - SIDNEY 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR_G14_059	0	20SP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.8365	119.3945	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL_G14_059	0	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.82062	117.0868	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	00NR_G14_059	0	20WP	G14_059	FROM->TO	G14-059T 230.00 - OGALLALA 230KV CKT 1	320	320	0.83527	114.4534	KEYSTONE - SIDNEY 345KV CKT 1
FDNS	09ALL_G14_059	0	15SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.19855	115.3955	BASE CASE
FDNS	09ALL_G14_059	0	25SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.17611	110.7739	BASE CASE
FDNS	09ALL_G14_059	0	20SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.17505	101.4382	BASE CASE
FDNS	09ALL_G14_059	0	15SP	G14_059	FROM->TO	GENTLMREDWIL	349.7	349.7	0.20062	100.5283	BASE CASE
FDNS	09ALL_G14_059	0	15G	G14_059	TO->FROM	GERALD GENTLEMAN STATION - OGALLALA 230KV CKT 1	320	320	0.66549	107.1276	GERALD GENTLEMAN STATION - KEYSTONE 345KV CKT 1
FDNS	09ALL_G14_059	0	15SP	G14_059	FROM->TO	GGS	1627	1627	0.76812	105.7727	BASE CASE
FDNS	09ALL_G14_059	0	25SP	G14_059	FROM->TO	SPPSPSTIES	1011	1011	0.11804	109.3472	BASE CASE
FDNS	09ALL_G14_060	0	25SP	G14_060	FROM->TO	SPPSPSTIES	1011	1011	0.09638	108.6308	BASE CASE
FDNS	01ALL_G14_061	0	15G	G14_061	FROM->TO	FPL SWITCH - MOORELAND 138KV CKT 1	268	287	0.04288	103.6505	BASE CASE
FDNS	01ALL_G14_061	0	15G	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04288	143.8495	BASE CASE
FDNS	01ALL_G14_061	0	15SP	G14_061	TO->FROM	FPL SWITCH - WOODWARD 138KV CKT 1	133	153	0.04673	100.0000	BASE CASE
FDNS	06ALL_G14_062	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.43148	108.7750	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL_G14_062	0	15SP	G14_062	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.4352	109.6157	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	00NR_G14_063	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03125	118.6651	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_063	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03125	115.8081	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_063	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03088	103.8607	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_063	0	20WP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03028	101.5517	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_063	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2	168	168	0.03088	100.9136	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_063	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0312	118.4901	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_063	0	25SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.0312	115.6244	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_063	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03084	103.7056	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_063	0	20WP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03024	101.4013	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_063	0	20SP	G14_063	FROM->TO	ANDREWS 6230.00 (FROM MIDLAND) 230/115/13.2KV TRANSFORMER CKT 1	168	168	0.03084	100.7507	ANDREWS 6230.00 (FROM BORDEN) 230/115/13.2KV TRANSFORMER CKT 2
FDNS	06NR_G14_063	0	15G	G14_063	TO->FROM	CUNNINGHAM STATION - HOBBS INTERCHANGE 115KV CKT 1	160	160	0.10808	108.9453	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	TO->FROM	CUNNINGHAM STATION - HOBBS INTERCHANGE 115KV CKT 1	160	160	0.10742	103.4046	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.0596	127.0220	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR_G14_063	0	20SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.06767	107.2380	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.1829	103.1460	CUNNINGHAM STATION - EDDY COUNTY INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	0	20WP	G14_063	TO->FROM	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	329	361	0.07752	102.7258	BASE CASE
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21436	123.5942	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21436	121.9553	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21568	115.0892	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	0	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21568	113.5644	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	0	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21552	112.8676	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	0	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21552	112.3605	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	0	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21538	110.0389	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	0	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21538	109.5455	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.03493	100.1108	OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR_G14_063	0	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.03493	100.1089	MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1
FDNS	06ALL_G14_063	0	15SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.26112	111.2897	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL_G14_063	0	15SP	G14_063	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.26365	112.1688	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	06NR_G14_063	0	15G	G14_063	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05543	107.4718	PECOS INTERCHANGE - POTASH JUNCTION INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	0	15G	G14_063	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05543	103.9967	PECOS INTERCHANGE - POTASH JUNCTION INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	2	15G	G14_063	TO->FROM	CUNNINGHAM STATION - HOBBS INTERCHANGE 115KV CKT 1	160	160	0.10822	109.2542	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	TO->FROM	CUNNINGHAM STATION - HOBBS INTERCHANGE 115KV CKT 1	160	160	0.10754	103.6438	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - MADDOX STATION 115KV CKT 1	160	160	0.05957	126.9731	HOBBS INTERCHANGE - MADDOX STATION 115KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.18316	103.3594	CUNNINGHAM STATION - EDDY COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21443	123.7399	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21443	122.0990	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	2	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21587	115.3897	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	2	15SP	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21587	113.8608	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	2	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21559	113.0423	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	2	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21559	112.5345	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	2	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21557	110.2359	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	06ALL_G14_063	2	15G	G14_063	FROM->TO	HOBBS INTERCHANGE (ME C0482951) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.21557	109.7416	CUNNINGHAM STATION - HOBBS INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.0349	100.0565	OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1
FDNS	00NR_G14_063	2	15SP	G14_063	FROM->TO	MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1	141	141	0.0349	100.0545	MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1
FDNS	06NR_G14_063	2	15G	G14_063	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05551	107.6077	PECOS INTERCHANGE - POTASH JUNCTION INTERCHANGE 230KV CKT 1
FDNS	06NR_G14_063	2	15G	G14_063	FROM->TO	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1	150	150	0.05551	104.1293	PECOS INTERCHANGE - POTASH JUNCTION INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_066	0	25SP	G14_066	TO->FROM	CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1	319	351	0.03024	103.7480	TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1
FDNS	06NR_G14_066	0	15G	G14_066	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.03378	105.6461	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	06NR_G14_066	2	15G	G14_066	TO->FROM	CARLSBAD INTERCHANGE - PECOS INTERCHANGE 115KV CKT 1	141	141	0.03352	105.5204	POTASH JUNCTION INTERCHANGE (GE M100747) 230/115/13.2KV TRANSFORMER CKT 1
FDNS	05ALL_G14_067	0	25SP	G14_067	FROM->TO	G14-067T 230.00 - NEWHART 230 230KV CKT 1	478	502	0.50622	103.3171	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15603	149.2190	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15603	149.1517	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14633	127.0695	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15588	125.6588	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.15588	125.6343	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14633	122.6566	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12852	120.5509	SPP-SWPS-T85
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13201	116.6353	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR_G14_069	0	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15534	111.4224	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR_G14_069	0	20WP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	165	177	0.15534	111.4146	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16368	110.8413	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.16368	110.8369	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14629	106.3092	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.13201	102.6528	LAGARTO 3115.00 - SAGE_BRUSH 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.17058	102.0061	KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.14629	101.9867	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.12851	100.2022	SPP-SWPS-T85
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.166	99.6000	BYRD SUB - MONUMENT TAP 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	G14-069T 115.00 - IMC_#1_TP 3115.00 115KV CKT 1	159	160	0.166	99.6000	CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15603	139.0992	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15603	139.0271	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14633	116.5470	National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15588	115.7435	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	20SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.15588	115.7034	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.14633	112.2063	National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.12852	110.0958	SPP-SWPS-T85
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.13201	106.1374	LAGARTO 3115.00 - National Enrichment Plant Tap 115KV CKT 1
FDNS	00NR_G14_069	0	20WP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	165	177	0.15534	102.1258	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	20WP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	165	177	0.15534	102.1051	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.16368	100.4643	ANDREWS 6230.00 - G14_012T 230.00 230KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1	159	160	0.16368	100.4595	ANDREWS 3115.00 - National Enrichment Plant Sub 115KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08589	112.2332	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1	159	160	0.08589	111.8973	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.05679	102.0591	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	TO->FROM	RDRUNNER 3115.00 - RED_BLUFF 3115.00 115KV CKT 1	159	176	0.05679	101.7229	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08589	104.0100	KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	TO->FROM	SAND DUNES SUB - WIPP SUB 115KV CKT 1	159	160	0.08589	103.7382	RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.11208	101.1583	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_069	0	25SP	G14_069	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.11208	99.6000	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2
FDNS	00NR_G14_070	0	20SP	G14_070	FROM->TO	CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1	319	351	0.04021	100.7042	HOBBS - KIOWA 7345.00 345KV CKT 1
FDNS	06ALL_G14_070	0	15SP	G14_070	TO->FROM	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	478	502	0.22184	109.5112	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
FDNS	06ALL_G14_070	0	15SP	G14_070	TO->FROM	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	478	502	0.22411	110.3550	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
FDNS	00NR_G14_070	0	25SP	G14_070	FROM->TO	TUCO INTERCHANGE (GE M1022338) 345/230/13.2KV TRANSFORMER CKT 1	560	560	0.09874	100.3393	TUCO INTERCHANGE (SIEM 8743066) 345/230/13.2KV TRANSFORMER CKT 2

H: Power Flow Analysis (Other Constraints Not Requiring Mitigation)

Available upon request. Contact SPP Generation Interconnection Studies for details.

H1: Stand Alone Power Flow Analysis (Other Constraints Not Requiring Mitigation)

Available upon request. Contact SPP Generation Interconnection Studies for details.

I: Power Flow Analysis (Constraints from Multi-Contingencies)

Available upon request. Contact SPP Generation Interconnection Studies for details.

I1: Stand Alone Power Flow Analysis (Constraints from Multi-Contingencies)

Available upon request. Contact SPP Generation Interconnection Studies for details.

J: Group 1 Dynamic Stability Analysis Report

See S&C report on next page.

S&C ELECTRIC COMPANY
Excellence Through Innovation

DISIS-2014-002 (GROUP 1)

LITTLE ROCK, AR

SOUTHWEST POWER POOL

DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY

S&C PROJECT NUMBER: 8893

DOCUMENT NUMBER: E-857

REVISION: 0

FINAL REPORT

CONFIDENTIAL

JANUARY 22, 2015

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TABLE OF CONTENTS

1. Executive Summary 5
2. Introduction 7
3. Transmission System and Study Area 9
4. Power Flow Base Cases 10
5. Power Flow Model 11
6. Dynamic Stability Analysis 12
6.1. Stability Criteria 12
6.2. Dynamic Stability Results 13
7. Power Factor Analysis 14
7.1. Power Factor Requirements at the Point of Interconnection 14
7.2. Power Factor Analysis Results 14
7.3. No Wind or Low Wind Conditions Analysis 27
8. Short-Circuit Study 28
9. Conclusions and Recommendations 29

LIST OF FIGURES

Figure 1. Simplified one-line diagram of the interconnection requests a) GEN-2012-031, b) GEN-2014-020, c) GEN-2014-056, d) GEN-2014-058, and e) GEN-2014-061 11

LIST OF TABLES

Table 1: Generation Interconnection Requests in Group 1 7
Table 2: Prior Queued Projects 7
Table 3: Base Case Voltages at the POI of the Generation Interconnection Request 14
Table 4: Power Factor Requirements for GEN-2012-031 Interconnection Request 17
Table 5: Power Factor Requirements for GEN-2014-020 Interconnection Request 19
Table 6: Power Factor Requirements for GEN-2014-056 Interconnection Request 21
Table 7: Power Factor Requirements for GEN-2014-058 Interconnection Request 23
Table 8: Power Factor Requirements for GEN-2014-061 Interconnection Request 25
Table 9: Inductive Reactive Power (i.e. Shunt Reactor) Required at the High-Voltage Side Main Transformer of the Wind Farm to Offset the Capacitive Reactive Power Injected by the Project (Mvar) 27
Table 10 – Fault Definitions (Group 1) Specified by SPP ..... Appendix A

LIST OF APPENDICES

Appendix A
SPP's Fault Definitions for Group 1
Appendix B
Southwest Power Pool Disturbance Performance Requirements
Appendix C
Dynamic Stability Plots for Cluster Scenario
Appendix D
Dynamic Stability Plots For Stand-Alone Cases
Appendix E
Short-Circuit Analysis Results

1. EXECUTIVE SUMMARY

S&C Electric Company (S&C) has performed a Definitive Interconnection System Impact Study, DISIS-2014-002 (Group 1), in response to a request through Southwest Power Pool (SPP) tariff studies. Group 1 consists of five (5) generation interconnection study projects. The interconnection request projects include GEN-2012-031, GEN-2014-020, GEN-2014-056, GEN-2014-058, and GEN-2014-061 wind farm projects.

S&C has performed dynamic stability analyses for Group 1 under Cluster and Stand-Alone scenarios. In the Cluster scenario the aforementioned five interconnection requests and prior-queued projects specified in the scope of work were studied at 100% output power using 2015 Summer and Winter Peak Cases and 2025 Summer Peak Case provided by SPP. S&C added a single interconnection request generator to the base case of each Stand-Alone scenario, dispatched in accordance with SPP's supplied dispatch, and performed dynamic stability analyses. There are five (5) Stand-Alone models for each season (i.e. one for each interconnection request). The results of dynamic stability analysis under Cluster and Stand-Alone scenarios indicated that Group 1 is expected to successfully ride through each N-1 and N-2 fault contingency specified by SPP and the nearby areas will retain angular, frequency and voltage stability. Group 1 is expected to successfully interconnect into the transmission system at the desired location without a required reduction in power output. Furthermore, the study project and nearby generators in the study area meet transient voltage recovery requirements as specified in Appendix A.

SPP requires that interconnection request projects meet a voltage schedule at the point of interconnection (POI) consistent with the voltage in the SPP base case or nominal voltage, whichever is higher. The power factor requirements for renewable energy interconnection projects are specified by SPP for N-1 or N-2 contingencies (if applicable). Power factor analysis revealed that the wind farms represented by GEN-2012-031, GEN-2014-020, GEN-2014-056, GEN-2014-058, and GEN-2014-061 are required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's requirements.

An analysis on the projects for no wind power production due to no or low wind conditions indicated that for GEN-2012-031, GEN-2014-056, GEN-2014-058, and GEN-2014-061, which

are connected to SPP's 345-kV system, applying respectively 7.9, 7.6, 9.1, and 6.6 Mvar, 345-kV shunt reactor can reduce the Mvar flow into the POI to approximately zero in all three Peak Cases.

S&C also performed a short-circuit analysis on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. A 3-phase fault is applied on buses up to 5 levels away from the POI of each interconnection request project and the results of the study have been presented.

2. INTRODUCTION

S&C has performed a Definitive Interconnection System Impact Study, DISIS-2014-002, for Group 1 in response to a request through the SPP Tariff studies. Group 1 consist of five (5) new interconnection request listed in Table 1. The prior-queued projects of Group 1 are listed in Table 2.

Group 1 and prior-queued projects were studied at 100% output power using 2015 Summer and Winter Peak Cases and 2025 Summer Peak Case provided by SPP.

Table 1: Generation Interconnection Requests in Group 1

Project	Size (MW)	Generator Model	Generator Bus	Point of Interconnection (POI)	POI Bus
GEN-2012-031	200.1	Siemens 2.3 MW (SWTVS4)	583423	Cimarron 345 kV	514901
GEN-2014-020	100.0	Vestas V110 2.0 MW	583903	Tuttle 138 kV	511501
GEN-2014-056	250.0	GE 2.0 MW	584063	Minco 345 kV	514801
GEN-2014-058	300.0	GE 2.0 MW	584083	Tap Tatonga – Mathewson 345 kV	560019
GEN-2014-061	161.0	GE 2.3 MW	584203	Tatonga 345 kV	515407

Table 2: Prior Queued Projects

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2001-014	94.5	Suzlon 2.1 MW	Fort Supply 138 kV (520920)
GEN-2001-037	102	GE 1.5 MW	Moorland – Woodward 138 kV (515785)
GEN-2005-008	120	GE 1.5 MW	Woodward 138 kV (514785)
GEN-2006-024S	18.9	Suzlon 2.1 MW	Buffalo Bear 69 kV (521120)
GEN-2006-046	132	Mitsubishi 2.4 MW	Dewey 138 kV (514787)
GEN-2007-021	200	GE 1.6 MW	Tatonga 345 kV (515407)
GEN-2007-043	200	GE 1.6 MW	Minco 345 kV (514801)
GEN-2007-044	299.2	GE 1.6 MW	Tatonga 345 kV (515407)
GEN-2007-050	170.2	Siemens 2.3 MW	Woodward 138 kV (515376)
GEN-2007-062	765	GE 1.5 MW	Woodward 345 kV (515375)
GEN-2008-003	101.2	Siemens 2.3 MW	Woodward 138 kV (515376)
GEN-2008-044	197.8	Siemens SWT 2.3 MW	Tatonga 345 kV (515407)
GEN-2010-011	29.7	Siemens SWT 2.3 MW	Tatonga 345 kV (515407) (Addition to Gen-2008-044 34.5 kV bus (515450)
GEN-2010-040	298.5	RePower 2.05 MW	Cimarron 345 kV (514901)
GEN-2011-007	250.2	RePower 2.05 MW	Mathewson 345 kV (515497)
GEN-2011-010	100.8	GE 1.6 MW	Minco 345 kV (514801)

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2011-019	299	Siemens 2.3 MW	Woodward 345 kV (515375)
GEN-2011-020	299	Siemens 2.3 MW	Woodward 345 kV (515375)
GEN-2011-051	104.4	Vestas V90 1.8 MW	Tap on the Woodward - Tatonga 345 kV line (G11_051-TAP, 562075)
GEN-2011-054	299	Siemens 2.3 MW	Cimarron 345 kV (514901)
GEN-2013-035	105.6	GE 97.4 m 1.79 MW (583823)	Tap Woodward to Tatonga 345kV (1. 562075/2.)
GEN-2014-002	10.53 increase (Pmax=209.4)	GE 97.4 m 1.79 MW (579256)	Tatonga 345kV (515407)
GEN-2014-003	15.84 increase (Pmax=315)	GE 97.4 m 1.79 MW (579271,579275)	Tatonga 345kV (515407)
GEN-2014-005	5.67 increase (Pmax=106.5)	GE 97.4 m 1.79 MW (514113)	Minco 345kV (514801)

3. TRANSMISSION SYSTEM AND STUDY AREA

The interconnection requests in Group 1 will interconnect into Oklahoma Gas & Electric (OKGE, Area #524) and American Electric Power West (AEPW, Area #520).

In addition to these areas, the following areas were also monitored:

- Western Farmers Electric Cooperative (WFEC, Area #525)
- Southwestern Public Service (SPS, Area #526)
- Midwest Energy (MIDW, Area #531)
- Sunflower Electric Power Corporation (SUNC, Area #534)
- Westar Energy, Inc. (WERE, Area #536)

4. POWER FLOW BASE CASES

DISIS-2014-002 (Group 1) and prior-queued projects were modeled as aggregates of generating units. The aggregate models were part of the base case supplied by SPP. The following power flow base cases were provided by SPP:

Cluster Scenario

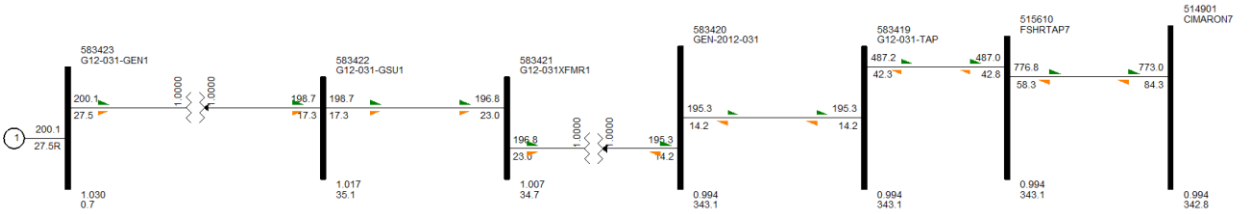
- **MDWG14-15SP_DIS1402_G01** – 2015 Summer Peak Case, which includes aggregate representation of all new interconnect requests with DISIS-2014-002 (Group 1) and prior queued projects at 100% power output.
- **MDWG14-15WP_DIS1402_G01.SAV** – 2015 Winter Peak Case, which includes aggregate representation of all new interconnect requests with DISIS-2014-002 (Group 1) and prior queued projects at 100% power output.
- **MDWG14-25SP_DIS1402_G01.SAV** – 2025 Summer Peak Case, which includes aggregate representation of all new interconnect requests with DISIS-2014-002 (Group 1) and prior queued projects at 100% power output.

Stand-Alone Scenario

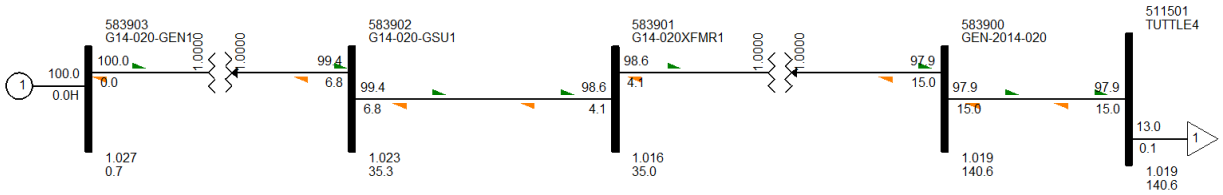
- **MDWG14-15SP_DIS1402_G01-SA.SAV** – 2015 Summer Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.
- **MDWG14-15WP_DIS1402_G01-SA.SAV** – 2015 Winter Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.
- **MDWG14-25SP_DIS1402_G01-SA.SAV** – 2025 Summer Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.

5. POWER FLOW MODEL

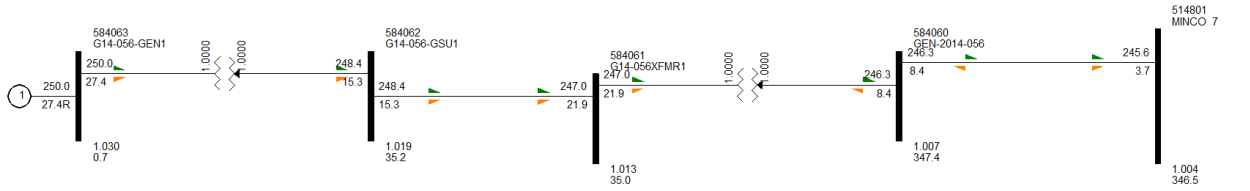
Power flow models for the study projects have been created in PSS/E 32.2.2 and provided by SPP. Figure 1 depicts simplified one-line diagrams of the interconnection request projects.



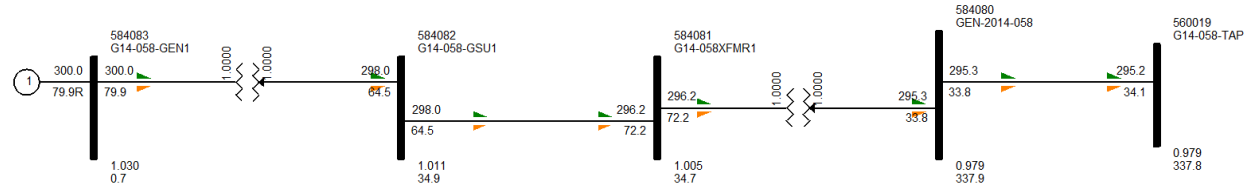
(a)



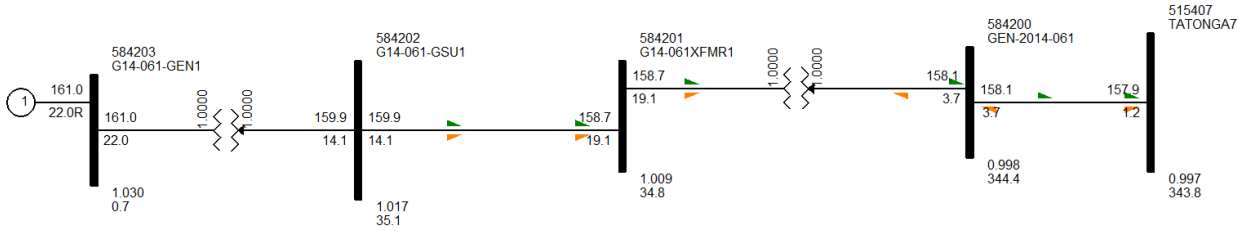
(b)



(c)



(d)



(e)

Figure 1. Simplified one-line diagrams of the interconnection requests a) GEN-2012-031, b) GEN-2014-020, c) GEN-2014-056, d) GEN-2014-058, and e) GEN-2014-061.

6. DYNAMIC STABILITY ANALYSIS

Dynamic stability analysis was performed for the N-1 and N-2 fault contingencies listed in Appendix A, which are specified by SPP.

Single line-to-ground faults were simulated in a manner consistent with currently accepted practices, i.e. to assume that a single line-to-ground fault will cause a positive-sequence voltage drop at the fault location to 60% of nominal.

6.1. STABILITY CRITERIA

Disturbances, including three-phase and single-phase to ground faults, should not cause synchronous and asynchronous plants to become unstable or disconnect from the transmission grid. The criterion for synchronous generator stability as defined by NERC is: "power system stability is defined as that condition in which the difference of the angular positions of synchronous machine rotor becomes constant following an aperiodic system disturbance."

Voltage magnitudes and frequencies at terminals of asynchronous generators should not exceed magnitudes and durations that will cause protection elements to operate. Furthermore, the response after the disturbance needs to be studied at the terminals of the machine to insure that there are no sustained oscillations in power output, speed, frequency, etc.

Voltage magnitudes and angles after the disturbance should settle to a constant and acceptable operating level. Frequencies should settle to the acceptable range within nominal 60 Hz power frequency.

SPP has two specific transient stability requirements as summarized below. These requirements are elaborated in more detail in the SPP Disturbance Performance Requirements provided in Appendix B. This document provides a basis for evaluating the system response during the initial transient period following a disturbance on the bulk electric system by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

- **Angular Oscillations**: for study projects that include synchronous machines, rotor angle oscillations should meet the damping requirements described in Appendix B. For other projects that do not include synchronous machines, but based on engineering judgment

have questionable rotor angle oscillation, damping should also meet the requirements described in Appendix B.

- **Transient Voltage Recovery**: for the transient voltage recovery requirement in Appendix B, the bus voltages to be included are those at the point of interconnection for each study generator. Other voltages in the area should be checked for this requirement if the terminal voltage of other machines in the monitored area appears to have voltage recovery issues.

Note that the study projects in Group 1 consist of only wind turbine generators and are excluded from the above rotor angular oscillation requirement. Group 1 interconnection requests are expected to meet SPP's transient voltage recovery requirement.

6.2. DYNAMIC STABILITY RESULTS

Undisturbed runs of 20 seconds were performed with the Summer and Winter Peak Cases to verify proper initialization of dynamic models.

Results of dynamic stability analyses under Cluster and Stand-Alone scenarios indicated that Group 1 is expected to successfully ride through each fault contingency specified by SPP and the nearby areas will retain angular, frequency and voltage stability. Group 1 is expected to successfully interconnect into the transmission system at the desired location without a required reduction in output power. See Appendix C for detailed dynamic stability plots of various peak season cases of the Group 1 under Cluster scenario. Dynamic stability plots for Stand-Alone scenarios are provided in Appendix D.

7. POWER FACTOR ANALYSIS

7.1. POWER FACTOR REQUIREMENTS AT THE POINT OF INTERCONNECTION

SPP has specific voltage requirements for interconnecting renewable energy projects, including wind and solar generation. These projects must maintain a power factor required to hold a voltage schedule at the POI consistent with the voltage schedule in the provided base case or 1.0 p.u. voltage, whichever is higher. The voltage requirements must also be met during single (or N-2, if applicable) transmission facility outage contingencies specified by SPP. The base case voltages at the POI for the three Peak cases (i.e. 2015 Summer, 2015 Winter, and 2025 Summer Peak Cases) are listed in Table 3. The power factor requirements are applied to Group 1 and thus the interconnection request projects must keep the power factor required to hold the voltage at the POI according to the voltage schedule shown in Table 3.

Table 3: Base Case Voltages at the POI of the Generation Interconnection Request

Request	POI	2015 Summer Peak (p.u.)	2015 Winter Peak (p.u.)	2025 Summer Peak (p.u.)
GEN-2012-031	Cimarron 345 kV (514901)	0.994	0.989	0.997
GEN-2014-020	Tuttle 138 kV (511501)	1.019	1.018	1.019
GEN-2014-056	Minco 345 kV (514801)	1.004	1.002	1.010
GEN-2014-058	Tap Tatonga – Mathewson 345 kV (560019)	0.979	0.975	1.003
GEN-2014-061	Tatonga 345 kV (515407)	0.997	0.994	1.013

7.2. POWER FACTOR ANALYSIS RESULTS

The transmission facility outage contingencies considered in Power Factor Analysis were specified by SPP and listed in **Error! Reference source not found.** Table 4through Table 8 show the power factor required to maintain the aforementioned voltage schedules at the POI during the occurrence of the N-1 or N-2 outages involved in the contingencies listed in Table 10 in Appendix A.

According to FERC Order No. 661-A, interconnection projects are not typically required to operate beyond a power factor range of 0.95 leading/lagging at the POI for voltages from 0.95 to 1.05 p.u. of nominal. Based on the results of the power factor analysis interconnection requests should meet the following requirements to maintain nominal voltage at the POI:

- **GEN-2012-031**: The lowest identified lagging power factor is about 0.52 and was registered for outage no. 34 of the 2015 Winter Peak Case. There was no leading power factor requirement observed for this interconnection request. The wind farm represented by GEN-2012-031 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

- **GEN-2014-020**: The lowest identified lagging power factor is about 0.99 and was registered for outage no. 48 of the 2025 Summer Peak Case. Similarly, the lowest identified leading power factor is 0.94 and occurred in outage no. 65 of the 2015 Winter and 2025 Summer Peak Cases. Thus, the wind farm represented by GEN-2014-020 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

- **GEN-2014-056**: The lowest identified lagging power factor is about 0.98 and was registered for outage no. 7 of the 2025 Summer Peak Case. Similarly, the lowest identified leading power factor is 0.93 and occurred in several outages of the 2015 Winter Peak Case. Thus, the wind farm represented by GEN-2014-056 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

- **GEN-2014-058**: The lowest identified lagging power factor is about 0.50 and was registered for outage no. 34 of the 2015 Winter Peak Case. Similarly, the lowest identified leading power factor is 0.99 and occurred in several outages of the 2025 Summer Peak Case. Thus, the wind farm represented by GEN-2014-058 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

- **GEN-2014-061**: The lowest identified lagging power factor is about 0.58 and was registered for outages no. 41 and no. 68 of the 2015 Winter Peak Case. Similarly, the

lowest identified leading power factor is 0.85 and occurred in several outages of the 2015 Summer Peak Case. Thus, the wind farm represented by GEN-2014-061 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

Table 4: Power Factor Requirements for GEN-2012-031 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Outage No.	**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**	
0	200.1	101.5	0.89	lagging	200.1	202.6	0.70	lagging	200.1	55.9	0.96	lagging
1	200.1	126.0	0.85	lagging	200.1	217.5	0.68	lagging	200.1	145.5	0.81	lagging
2	200.1	36.7	0.98	lagging	200.1	93.1	0.91	lagging	200.1	59.1	0.96	lagging
3	200.1	140.2	0.82	lagging	200.1	221.4	0.67	lagging	200.1	85.2	0.92	lagging
4	200.1	181.2	0.74	lagging	200.1	282.6	0.58	lagging	200.1	71.6	0.94	lagging
5	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	80.2	0.93	lagging
6	200.1	68.1	0.95	lagging	200.1	156.0	0.79	lagging	200.1	30.0	0.99	lagging
7	200.1	145.2	0.81	lagging	200.1	254.0	0.62	lagging	200.1	111.0	0.87	lagging
8	200.1	179.5	0.74	lagging	200.1	249.4	0.63	lagging	200.1	140.8	0.82	lagging
9	200.1	142.2	0.82	lagging	200.1	261.1	0.61	lagging	200.1	70.3	0.94	lagging
10	200.1	111.2	0.87	lagging	200.1	199.8	0.71	lagging	200.1	44.4	0.98	lagging
11	200.1	122.8	0.85	lagging	200.1	228.9	0.66	lagging	200.1	81.5	0.93	lagging
12	200.1	119.0	0.86	lagging	200.1	223.0	0.67	lagging	200.1	75.8	0.94	lagging
13	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	46.7	0.97	lagging
14	200.1	166.2	0.77	lagging	200.1	266.5	0.60	lagging	200.1	118.5	0.86	lagging
15	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	110.3	0.88	lagging
16	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	55.9	0.96	lagging
17	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	55.9	0.96	lagging
18	200.1	91.0	0.91	lagging	200.1	191.4	0.72	lagging	200.1	52.4	0.97	lagging
19	200.1	116.7	0.86	lagging	200.1	217.6	0.68	lagging	200.1	75.5	0.94	lagging
20	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	57.9	0.96	lagging
21	200.1	106.9	0.88	lagging	200.1	210.6	0.69	lagging	200.1	56.5	0.96	lagging
22	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	57.7	0.96	lagging
23	200.1	138.5	0.82	lagging	200.1	246.3	0.63	lagging	200.1	86.2	0.92	lagging
24	200.1	108.2	0.88	lagging	200.1	213.9	0.68	lagging	200.1	58.6	0.96	lagging
25	200.1	105.7	0.88	lagging	200.1	206.5	0.70	lagging	200.1	67.6	0.95	lagging
26	200.1	119.2	0.86	lagging	200.1	214.1	0.68	lagging	200.1	65.4	0.95	lagging
27	200.1	95.1	0.90	lagging	200.1	200.5	0.71	lagging	200.1	53.8	0.97	lagging
28	200.1	115.4	0.87	lagging	200.1	213.6	0.68	lagging	200.1	54.6	0.96	lagging
29	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	43.1	0.98	lagging
30	200.1	103.5	0.89	lagging	200.1	207.1	0.69	lagging	200.1	60.4	0.96	lagging
31	200.1	102.9	0.89	lagging	200.1	204.1	0.70	lagging	200.1	57.4	0.96	lagging
32	200.1	107.1	0.88	lagging	200.1	207.4	0.69	lagging	200.1	62.2	0.95	lagging
33	200.1	130.2	0.84	lagging	200.1	232.2	0.65	lagging	200.1	82.1	0.93	lagging
34	200.1	228.8	0.66	lagging	200.1	329.5	0.52	lagging	200.1	161.2	0.78	lagging

Outage No.	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
35	200.1	101.5	0.89	lagging	200.1	202.8	0.70	lagging	200.1	56.1	0.96	lagging
36	200.1	103.8	0.89	lagging	200.1	207.5	0.69	lagging	200.1	61.4	0.96	lagging
37	200.1	118.2	0.86	lagging	200.1	220.1	0.67	lagging	200.1	71.8	0.94	lagging
38	200.1	175.0	0.75	lagging	200.1	276.1	0.59	lagging	200.1	124.3	0.85	lagging
39	200.1	65.6	0.95	lagging	200.1	172.8	0.76	lagging	200.1	41.4	0.98	lagging
40 & 41	200.1	93.2	0.91	lagging	200.1	212.4	0.69	lagging	***Not Applicable to 2025 Case***			
42	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				200.1	103.6	0.89	lagging
43	200.1	101.5	0.89	lagging	200.1	202.6	0.70	lagging	200.1	55.9	0.96	lagging
44	200.1	99.1	0.90	lagging	200.1	201.0	0.71	lagging	200.1	54.0	0.97	lagging
45	200.1	102.2	0.89	lagging	200.1	203.0	0.70	lagging	200.1	56.9	0.96	lagging
46	200.1	100.7	0.89	lagging	200.1	201.8	0.70	lagging	200.1	54.4	0.96	lagging
47	200.1	102.6	0.89	lagging	200.1	203.2	0.70	lagging	200.1	57.3	0.96	lagging
48	200.1	102.4	0.89	lagging	200.1	203.7	0.70	lagging	200.1	56.2	0.96	lagging
49	200.1	101.6	0.89	lagging	200.1	202.7	0.70	lagging	200.1	56.0	0.96	lagging
50	200.1	91.4	0.91	lagging	200.1	191.6	0.72	lagging	200.1	44.9	0.98	lagging
51	200.1	95.7	0.90	lagging	200.1	198.1	0.71	lagging	200.1	51.0	0.97	lagging
52	200.1	96.4	0.90	lagging	200.1	198.6	0.71	lagging	200.1	51.2	0.97	lagging
53	200.1	98.1	0.90	lagging	200.1	202.0	0.70	lagging	200.1	53.2	0.97	lagging
54	200.1	91.6	0.91	lagging	200.1	198.8	0.71	lagging	200.1	47.9	0.97	lagging
55	200.1	91.6	0.91	lagging	200.1	197.9	0.71	lagging	200.1	46.9	0.97	lagging
56	200.1	103.1	0.89	lagging	200.1	203.7	0.70	lagging	200.1	57.5	0.96	lagging
57	200.1	104.8	0.89	lagging	200.1	206.0	0.70	lagging	200.1	59.7	0.96	lagging
58	200.1	190.3	0.72	lagging	200.1	292.1	0.57	lagging	200.1	111.7	0.87	lagging
59	200.1	190.3	0.72	lagging	200.1	292.1	0.57	lagging	200.1	111.7	0.87	lagging
60	200.1	84.7	0.92	lagging	200.1	120.4	0.86	lagging	200.1	90.1	0.91	lagging
61	200.1	117.4	0.86	lagging	200.1	222.2	0.67	lagging	200.1	62.3	0.95	lagging
62	200.1	139.8	0.82	lagging	200.1	245.5	0.63	lagging	200.1	81.5	0.93	lagging
63	200.1	117.9	0.86	lagging	200.1	222.5	0.67	lagging	200.1	62.9	0.95	lagging
64	200.1	91.6	0.91	lagging	200.1	198.8	0.71	lagging	200.1	47.9	0.97	lagging
65	200.1	99.1	0.90	lagging	200.1	201.0	0.71	lagging	200.1	54.0	0.97	lagging
66	200.1	88.9	0.91	lagging	200.1	199.6	0.71	lagging	200.1	48.2	0.97	lagging
67	200.1	104.1	0.89	lagging	200.1	204.1	0.70	lagging	200.1	59.3	0.96	lagging
68	200.1	93.2	0.91	lagging	200.1	212.4	0.69	lagging	***Not Applicable to 2025 Case***			
69	200.1	142.2	0.82	lagging	200.1	261.1	0.61	lagging	200.1	70.3	0.94	lagging
70	200.1	132.9	0.83	lagging	200.1	235.0	0.65	lagging	200.1	84.4	0.92	lagging

Table 5: Power Factor Requirements for GEN-2014-020 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Outage No.	**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**	
0	100.0	-20.3	0.98	lagging	100.0	-25.4	0.97	leading	100.0	-17.2	0.99	leading
1	100.0	-17.8	0.98	lagging	100.0	-24.1	0.97	leading	100.0	-16.1	0.99	leading
2	100.0	-19.9	0.98	lagging	100.0	-24.4	0.97	leading	100.0	-17.1	0.99	leading
3	100.0	-18.9	0.98	lagging	100.0	-22.4	0.98	leading	100.0	-16.4	0.99	leading
4	100.0	-20.4	0.98	lagging	100.0	-25.4	0.97	leading	100.0	-17.2	0.99	leading
5	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.0	98.59%	leading
6	100.0	-11.3	0.99	lagging	100.0	-19.9	0.98	leading	100.0	-7.9	1.00	leading
7	100.0	-20.8	0.98	lagging	100.0	-25.7	0.97	leading	100.0	-17.7	0.98	leading
8	100.0	-19.9	0.98	lagging	100.0	-24.9	0.97	leading	100.0	-16.9	0.99	leading
9	100.0	-19.8	0.98	lagging	100.0	-24.2	0.97	leading	100.0	-17.1	0.99	leading
10	100.0	-19.3	0.98	lagging	100.0	-24.4	0.97	leading	100.0	-16.8	0.99	leading
11	100.0	-20.2	0.98	lagging	100.0	-25.0	0.97	leading	100.0	-17.0	0.99	leading
12	100.0	-20.2	0.98	lagging	100.0	-25.1	0.97	leading	100.0	-17.1	0.99	leading
13	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.0	98.59%	leading
14	100.0	-20.5	0.98	lagging	100.0	-25.5	0.97	leading	100.0	-17.1	0.99	leading
15	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-16.7	98.63%	leading
16	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.2	98.55%	leading
17	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.2	98.55%	leading
18	100.0	-20.0	0.98	lagging	100.0	-24.9	0.97	leading	100.0	-17.2	0.99	leading
19	100.0	-20.4	0.98	lagging	100.0	-25.1	0.97	leading	100.0	-16.9	0.99	leading
20	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.0	98.59%	leading
21	100.0	-20.9	0.98	lagging	100.0	-26.7	0.97	leading	100.0	-17.3	0.99	leading
22	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.2	98.55%	leading
23	100.0	-20.2	0.98	leading	100.0	-24.9	0.97	leading	100.0	-17.1	0.99	leading
24	100.0	-20.1	0.98	leading	100.0	-24.7	0.97	leading	100.0	-17.2	0.99	leading
25	100.0	-20.3	0.98	leading	100.0	-25.3	0.97	leading	100.0	-17.2	0.99	leading
26	100.0	-20.4	0.98	leading	100.0	-25.4	0.97	leading	100.0	-17.3	0.99	leading
27	100.0	-20.2	0.98	leading	100.0	-25.3	0.97	leading	100.0	-17.1	0.99	leading
28	100.0	-20.8	0.98	leading	100.0	-25.9	0.97	leading	100.0	-17.2	0.99	leading
29	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				100.0	-17.0	98.59%	leading
30	100.0	-20.3	0.98	leading	100.0	-25.3	0.97	leading	100.0	-17.3	0.99	leading
31	100.0	-20.2	0.98	leading	100.0	-25.3	0.97	leading	100.0	-17.2	0.99	leading
32	100.0	-20.1	0.98	leading	100.0	-25.1	0.97	leading	100.0	-17.1	0.99	leading
33	100.0	-18.9	0.98	leading	100.0	-23.4	0.97	leading	100.0	-16.6	0.99	leading
34	100.0	-14.7	0.99	leading	100.0	-17.4	0.99	leading	100.0	-15.0	0.99	leading

Outage No.	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
35	100.0	-20.3	0.98	leading	100.0	-25.3	0.97	leading	100.0	-17.1	0.99	leading
36	100.0	-20.3	0.98	leading	100.0	-25.4	0.97	leading	100.0	-17.3	0.99	leading
37	100.0	-19.6	0.98	leading	100.0	-24.3	0.97	leading	100.0	-16.9	0.99	leading
38	100.0	-17.2	0.99	leading	100.0	-20.9	0.98	leading	100.0	-15.9	0.99	leading
39	100.0	-14.8	0.99	leading	100.0	-18.0	0.98	leading	100.0	-16.8	0.99	leading
40 & 41	100.0	-12.1	0.99	leading	100.0	-15.8	0.99	leading	*Not Applicable to 2025 Case*			
42	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				100.0	-16.7	0.99	lagging
43	100.0	-20.3	0.98	leading	100.0	-25.4	0.97	leading	100.0	-17.2	0.99	lagging
44	100.0	-35.6	0.94	leading	100.0	-33.1	0.95	leading	100.0	-37.7	0.94	lagging
45	100.0	-20.6	0.98	leading	100.0	-25.8	0.97	leading	100.0	-16.8	0.99	lagging
46	100.0	-24.4	0.97	leading	100.0	-30.3	0.96	leading	100.0	-23.4	0.97	lagging
47	100.0	-15.8	0.99	leading	100.0	-23.1	0.97	leading	100.0	-11.5	0.99	lagging
48	100.0	-18.3	0.98	leading	100.0	-22.5	0.98	leading	100.0	15.9	0.99	lagging
49	100.0	-21.2	0.98	leading	100.0	-25.6	0.97	leading	100.0	-18.0	0.98	lagging
50	100.0	6.1	1.00	lagging	100.0	-2.8	1.00	leading	100.0	11.2	0.99	lagging
51	100.0	-21.7	0.98	leading	100.0	-26.5	0.97	leading	100.0	-18.2	0.98	lagging
52	100.0	-21.3	0.98	leading	100.0	-26.2	0.97	leading	100.0	-18.0	0.98	lagging
53	100.0	-20.0	0.98	leading	100.0	-24.3	0.97	leading	100.0	-17.4	0.99	lagging
54	100.0	-21.3	0.98	leading	100.0	-25.0	0.97	leading	100.0	-18.6	0.98	lagging
55	100.0	-21.8	0.98	leading	100.0	-25.7	0.97	leading	100.0	-18.7	0.98	lagging
56	100.0	-16.4	0.99	lagging	100.0	-22.1	0.98	leading	100.0	-12.4	0.99	leading
57	100.0	-24.1	0.97	lagging	100.0	-28.1	0.96	leading	100.0	-21.7	0.98	leading
58	100.0	-17.3	0.99	lagging	100.0	-18.4	0.98	leading	100.0	-15.3	0.99	leading
59	100.0	-17.3	0.99	lagging	100.0	-18.4	0.98	leading	100.0	-15.3	0.99	leading
60	100.0	-18.4	0.98	lagging	100.0	-20.7	0.98	leading	100.0	-15.7	0.99	leading
61	100.0	-19.3	0.98	lagging	100.0	-22.5	0.98	leading	100.0	-16.9	0.99	leading
62	100.0	-16.5	0.99	lagging	100.0	-21.2	0.98	leading	100.0	15.0	0.99	lagging
63	100.0	-19.3	0.98	lagging	100.0	-22.4	0.98	leading	100.0	-16.9	0.99	leading
64	100.0	-21.3	0.98	lagging	100.0	-25.0	0.97	leading	100.0	-18.6	0.98	leading
65	100.0	-35.6	0.94	lagging	100.0	-33.1	0.95	leading	100.0	-37.7	0.94	leading
66	100.0	-20.5	0.98	lagging	100.0	-22.9	0.97	leading	100.0	-18.7	0.98	leading
67	100.0	-15.2	0.99	lagging	100.0	-23.0	0.97	leading	100.0	-9.6	1.00	leading
68	100.0	-12.1	0.99	lagging	100.0	-15.8	0.99	leading	*Not Applicable to 2025 Case*			
69	100.0	-19.8	0.98	lagging	100.0	-24.2	0.97	leading	100.0	-17.1	0.99	leading
70	100.0	-18.8	0.98	lagging	100.0	-23.2	0.97	leading	100.0	-16.6	0.99	leading

Table 6: Power Factor Requirements for GEN-2014-056 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Outage No.	**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**	
0	250.0	-63.4	0.97	leading	250.0	-96.2	0.93	leading	250.0	-26.6	0.99	leading
1	250.0	-60.3	0.97	leading	250.0	-82.1	0.95	leading	250.0	-93.3	0.94	leading
2	250.0	-64.5	0.97	leading	250.0	-97.5	0.93	leading	250.0	-24.7	1.00	leading
3	250.0	-51.9	0.98	leading	250.0	-78.7	0.95	leading	250.0	-17.1	1.00	leading
4	250.0	-63.3	0.97	leading	250.0	-96.7	0.93	leading	250.0	-27.3	0.99	leading
5	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-29.6	0.99	leading
6	250.0	-61.1	0.97	leading	250.0	-93.7	0.94	leading	250.0	-23.6	1.00	leading
7	250.0	-11.2	1.00	leading	250.0	-30.4	0.99	leading	250.0	56.9	0.98	lagging
8	250.0	-63.0	0.97	leading	250.0	-95.2	0.93	leading	250.0	-25.9	0.99	lagging
9	250.0	-60.6	0.97	leading	250.0	-91.9	0.94	leading	250.0	-24.9	1.00	lagging
10	250.0	-62.2	0.97	leading	250.0	-95.0	0.93	leading	250.0	-25.9	0.99	lagging
11	250.0	-63.3	0.97	leading	250.0	-95.4	0.93	leading	250.0	-26.7	0.99	lagging
12	250.0	-63.3	0.97	leading	250.0	-95.7	0.93	leading	250.0	-26.6	0.99	lagging
13	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-26.1	0.99	lagging
14	250.0	-61.2	0.97	leading	250.0	-94.0	0.94	leading	250.0	-22.2	1.00	lagging
15	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-24.5	1.00	lagging
16	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-26.6	0.99	lagging
17	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-26.6	0.99	lagging
18	250.0	-62.8	0.97	leading	250.0	-95.7	0.93	leading	250.0	-26.9	0.99	lagging
19	250.0	-51.9	0.98	leading	250.0	-67.0	0.97	leading	250.0	-20.5	1.00	lagging
20	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	12.0	1.00	lagging
21	250.0	-43.1	0.99	leading	250.0	-79.4	0.95	leading	250.0	-23.2	1.00	leading
22	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-41.2	0.99	leading
23	250.0	-62.4	0.97	leading	250.0	-95.2	0.93	leading	250.0	-24.7	1.00	leading
24	250.0	-61.8	0.97	leading	250.0	-93.3	0.94	leading	250.0	-26.1	0.99	leading
25	250.0	-63.2	0.97	leading	250.0	-95.9	0.93	leading	250.0	-26.1	0.99	leading
26	250.0	-63.3	0.97	leading	250.0	-96.1	0.93	leading	250.0	-25.6	0.99	leading
27	250.0	-63.0	0.97	leading	250.0	-95.9	0.93	leading	250.0	-26.0	0.99	leading
28	250.0	-64.2	0.97	leading	250.0	-96.8	0.93	leading	250.0	-26.7	0.99	leading
29	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-27.6	0.99	leading
30	250.0	-65.1	0.97	leading	250.0	-99.5	0.93	leading	250.0	-24.6	1.00	leading
31	250.0	-63.4	0.97	leading	250.0	-96.1	0.93	leading	250.0	-26.3	0.99	leading
32	250.0	-63.5	0.97	leading	250.0	-96.1	0.93	leading	250.0	-25.2	0.99	leading
33	250.0	-59.6	0.97	leading	250.0	-92.2	0.94	leading	250.0	-25.2	0.99	leading
34	250.0	-46.6	0.98	leading	250.0	-79.3	0.95	leading	250.0	-21.2	1.00	leading

Outage No.	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
35	250.0	-63.4	0.97	leading	250.0	-96.3	0.93	leading	250.0	-26.5	0.99	leading
36	250.0	-66.1	0.97	leading	250.0	-99.8	0.93	leading	250.0	-22.8	1.00	leading
37	250.0	-61.3	0.97	leading	250.0	-94.2	0.94	leading	250.0	-26.2	0.99	leading
38	250.0	-53.8	0.98	leading	250.0	-86.9	0.94	leading	250.0	-24.4	1.00	leading
39	250.0	-49.2	0.98	leading	250.0	-82.9	0.95	leading	250.0	-27.7	0.99	leading
40 & 41	250.0	-39.6	0.99	leading	250.0	-77.9	0.95	leading	***Not Applicable to 2025 Case***			
42	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				250.0	-28.0	0.99	lagging
43	250.0	-63.4	0.97	leading	250.0	-96.2	0.93	leading	250.0	-26.6	0.99	lagging
44	250.0	-61.3	0.97	leading	250.0	-91.4	0.94	leading	250.0	-24.5	1.00	lagging
45	250.0	-63.7	0.97	leading	250.0	-96.1	0.93	leading	250.0	-26.9	0.99	lagging
46	250.0	-61.9	0.97	leading	250.0	-95.5	0.93	leading	250.0	-23.6	1.00	lagging
47	250.0	-63.5	0.97	leading	250.0	-97.0	0.93	leading	250.0	-26.7	0.99	lagging
48	250.0	-63.6	0.97	leading	250.0	-95.6	0.93	leading	250.0	-26.6	0.99	lagging
49	250.0	-63.3	0.97	leading	250.0	-96.2	0.93	leading	250.0	-26.5	0.99	lagging
50	250.0	-64.1	0.97	leading	250.0	-96.6	0.93	leading	250.0	-27.5	0.99	lagging
51	250.0	-63.3	0.97	leading	250.0	-96.0	0.93	leading	250.0	-26.2	0.99	lagging
52	250.0	-63.1	0.97	leading	250.0	-95.9	0.93	leading	250.0	-25.8	0.99	lagging
53	250.0	-63.2	0.97	leading	250.0	-95.9	0.93	leading	250.0	-26.5	0.99	lagging
54	250.0	-62.7	0.97	leading	250.0	-95.2	0.93	leading	250.0	-26.0	0.99	lagging
55	250.0	-62.7	0.97	leading	250.0	-95.3	0.93	leading	250.0	-26.0	0.99	lagging
56	250.0	-64.1	0.97	leading	250.0	-96.6	0.93	leading	250.0	-27.4	0.99	leading
57	250.0	-63.6	0.97	leading	250.0	-96.8	0.93	leading	250.0	-27.0	0.99	leading
58	250.0	-43.2	0.99	leading	250.0	-65.2	0.97	leading	250.0	-11.5	1.00	leading
59	250.0	-43.2	0.99	leading	250.0	-65.2	0.97	leading	250.0	-11.5	1.00	leading
60	250.0	-49.1	0.98	leading	250.0	-73.1	0.96	leading	250.0	-12.4	1.00	leading
61	250.0	-48.1	0.98	leading	250.0	-72.3	0.96	leading	250.0	-1.3	1.00	leading
62	250.0	-64.0	0.97	leading	250.0	-99.1	0.93	leading	250.0	-33.9	0.99	leading
63	250.0	-51.7	0.98	leading	250.0	-74.6	0.96	leading	250.0	-8.2	1.00	leading
64	250.0	-62.7	0.97	leading	250.0	-95.2	0.93	leading	250.0	-26.0	0.99	leading
65	250.0	-61.3	0.97	leading	250.0	-91.4	0.94	leading	250.0	-24.5	1.00	leading
66	250.0	-61.9	0.97	leading	250.0	-94.1	0.94	leading	250.0	-25.5	0.99	leading
67	250.0	-64.0	0.97	leading	250.0	-97.1	0.93	leading	250.0	-27.2	0.99	leading
68	250.0	-39.6	0.99	leading	250.0	-77.9	0.95	leading	***Not Applicable to 2025 Case***			
69	250.0	-60.6	0.97	leading	250.0	-91.9	0.94	leading	250.0	-24.9	1.00	leading
70	250.0	-59.7	0.97	leading	250.0	-92.2	0.94	leading	250.0	-24.9	1.00	leading

Table 7: Power Factor Requirements for GEN-2014-058 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Outage No.	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
0	300.0	219.7	0.81	lagging	300.0	245.0	0.77	lagging	300.0	-24.7	1.00	leading
1	300.0	228.9	0.80	lagging	300.0	251.9	0.77	lagging	300.0	-19.4	1.00	leading
2	300.0	233.9	0.79	lagging	300.0	273.3	0.74	lagging	300.0	-20.6	1.00	leading
3	300.0	217.7	0.81	lagging	300.0	243.1	0.78	lagging	300.0	-26.9	1.00	leading
4	300.0	218.4	0.81	lagging	300.0	246.4	0.77	lagging	300.0	-23.9	1.00	leading
5	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-18.4	1.00	leading
6	300.0	220.4	0.81	lagging	300.0	245.4	0.77	lagging	300.0	-24.6	1.00	leading
7	300.0	208.5	0.82	lagging	300.0	231.5	0.79	lagging	300.0	-38.0	0.99	leading
8	300.0	244.0	0.78	lagging	300.0	251.9	0.77	lagging	300.0	-10.5	1.00	leading
9	300.0	220.8	0.81	lagging	300.0	248.6	0.77	lagging	300.0	-25.1	1.00	leading
10	300.0	210.5	0.82	lagging	300.0	233.1	0.79	lagging	300.0	-29.6	1.00	leading
11	300.0	219.7	0.81	lagging	300.0	244.9	0.77	lagging	300.0	-24.5	1.00	leading
12	300.0	219.7	0.81	lagging	300.0	245.0	0.77	lagging	300.0	-24.6	1.00	leading
13	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-24.6	1.00	leading
14	300.0	209.1	0.82	lagging	300.0	236.6	0.79	lagging	300.0	-27.7	1.00	leading
15	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-39.5	0.99	leading
16	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-24.7	1.00	leading
17	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-24.7	1.00	leading
18	300.0	178.7	0.86	lagging	300.0	197.5	0.84	lagging	300.0	-32.0	0.99	leading
19	300.0	213.2	0.82	lagging	300.0	238.0	0.78	lagging	300.0	-30.1	1.00	leading
20	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-27.1	1.00	leading
21	300.0	219.0	0.81	lagging	300.0	243.9	0.78	lagging	300.0	-24.7	1.00	leading
22	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-27.1	1.00	leading
23	300.0	217.8	0.81	lagging	300.0	250.8	0.77	lagging	300.0	-24.9	1.00	leading
24	300.0	217.9	0.81	lagging	300.0	241.9	0.78	lagging	300.0	-24.6	1.00	leading
25	300.0	220.2	0.81	lagging	300.0	245.5	0.77	lagging	300.0	-21.7	1.00	leading
26	300.0	216.1	0.81	lagging	300.0	241.9	0.78	lagging	300.0	-30.0	1.00	leading
27	300.0	218.9	0.81	lagging	300.0	244.3	0.78	lagging	300.0	-30.3	0.99	leading
28	300.0	274.8	0.74	lagging	300.0	293.0	0.72	lagging	300.0	-27.3	1.00	leading
29	*Not Applicable to 2015 Case*				*Not Applicable to 2015 Case*				300.0	-51.2	0.99	leading
30	300.0	224.9	0.80	lagging	300.0	256.9	0.76	lagging	300.0	-11.9	1.00	leading
31	300.0	222.0	0.80	lagging	300.0	246.8	0.77	lagging	300.0	-22.4	1.00	leading
32	300.0	230.4	0.79	lagging	300.0	252.5	0.77	lagging	300.0	-13.1	1.00	leading
33	300.0	282.8	0.73	lagging	300.0	308.2	0.70	lagging	300.0	15.1	1.00	lagging
34	300.0	492.6	0.52	lagging	300.0	516.5	0.50	lagging	300.0	135.9	0.91	lagging

Outage No.	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
35	300.0	219.5	0.81	lagging	300.0	244.3	0.78	lagging	300.0	-25.9	1.00	leading
36	300.0	228.5	0.80	lagging	300.0	260.6	0.75	lagging	300.0	-8.5	1.00	leading
37	300.0	252.7	0.76	lagging	300.0	277.5	0.73	lagging	300.0	-2.0	1.00	leading
38	300.0	368.1	0.63	lagging	300.0	389.2	0.61	lagging	300.0	73.6	0.97	lagging
39	300.0	-28.9	1.00	leading	300.0	-9.6	1.00	leading	300.0	65.2	0.98	lagging
40 & 41	300.0	-23.3	1.00	leading	300.0	-23.3	1.00	lagging	***Not Applicable to 2025 Case***			
42	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				300.0	17.5	1.00	lagging
43	300.0	219.7	0.81	lagging	300.0	245.0	0.77	lagging	300.0	-24.7	1.00	leading
44	300.0	218.8	0.81	lagging	300.0	243.9	0.78	lagging	300.0	-25.3	1.00	leading
45	300.0	219.9	0.81	lagging	300.0	245.1	0.77	lagging	300.0	-24.5	1.00	leading
46	300.0	219.4	0.81	lagging	300.0	244.7	0.77	lagging	300.0	-25.1	1.00	leading
47	300.0	220.0	0.81	lagging	300.0	245.2	0.77	lagging	300.0	-24.5	1.00	leading
48	300.0	220.0	0.81	lagging	300.0	245.3	0.77	lagging	300.0	-24.6	1.00	leading
49	300.0	219.7	0.81	lagging	300.0	245.0	0.77	lagging	300.0	-24.7	1.00	leading
50	300.0	219.9	0.81	lagging	300.0	244.9	0.77	lagging	300.0	-24.5	1.00	leading
51	300.0	219.8	0.81	lagging	300.0	245.4	0.77	lagging	300.0	-25.0	1.00	leading
52	300.0	219.2	0.81	lagging	300.0	244.9	0.77	lagging	300.0	-25.2	1.00	leading
53	300.0	223.0	0.80	lagging	300.0	247.4	0.77	lagging	300.0	-22.6	1.00	leading
54	300.0	222.5	0.80	lagging	300.0	247.7	0.77	lagging	300.0	-22.9	1.00	leading
55	300.0	219.7	0.81	lagging	300.0	245.1	0.77	lagging	300.0	-24.8	1.00	leading
56	300.0	220.0	0.81	lagging	300.0	245.3	0.77	lagging	300.0	-24.5	1.00	leading
57	300.0	220.3	0.81	lagging	300.0	245.6	0.77	lagging	300.0	-24.2	1.00	leading
58	300.0	215.3	0.81	lagging	300.0	242.8	0.78	lagging	300.0	-28.2	1.00	leading
59	300.0	215.3	0.81	lagging	300.0	242.8	0.78	lagging	300.0	-28.2	1.00	leading
60	300.0	240.9	0.78	lagging	300.0	283.4	0.73	lagging	300.0	-19.8	1.00	leading
61	300.0	287.9	0.72	lagging	300.0	305.8	0.70	lagging	300.0	-4.8	1.00	leading
62	300.0	226.6	0.80	lagging	300.0	252.8	0.76	lagging	300.0	-20.3	1.00	leading
63	300.0	287.6	0.72	lagging	300.0	305.7	0.70	lagging	300.0	-4.9	1.00	leading
64	300.0	222.5	0.80	lagging	300.0	247.7	0.77	lagging	300.0	-22.9	1.00	leading
65	300.0	218.8	0.81	lagging	300.0	243.9	0.78	lagging	300.0	-25.3	1.00	leading
66	300.0	229.4	0.79	lagging	300.0	253.2	0.76	lagging	300.0	-18.4	1.00	leading
67	300.0	220.4	0.81	lagging	300.0	245.4	0.77	lagging	300.0	-24.1	1.00	leading
68	300.0	-23.3	1.00	leading	300.0	-23.3	1.00	lagging	***Not Applicable to 2025 Case***			
69	300.0	220.8	0.81	lagging	300.0	248.6	0.77	lagging	300.0	-25.1	1.00	leading
70	300.0	288.4	0.72	lagging	300.0	313.3	0.69	lagging	300.0	19.1	1.00	lagging

Table 8: Power Factor Requirements for GEN-2014-061 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Outage No.	**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**		**MW**	**Mvar**	**Power Factor**	
0	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
1	161.0	-91.0	0.87	leading	161.0	-85.1	0.88	leading	161.0	-6.1	1.00	leading
2	161.0	-96.9	0.86	leading	161.0	-89.8	0.87	leading	161.0	-8.4	1.00	leading
3	161.0	-96.0	0.86	leading	161.0	-89.0	0.88	leading	161.0	-9.3	1.00	leading
4	161.0	-95.9	0.86	leading	161.0	-88.6	0.88	leading	161.0	-9.4	1.00	leading
5	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-11.3	1.00	leading
6	161.0	-96.0	0.86	leading	161.0	-88.9	0.88	leading	161.0	-9.7	1.00	leading
7	161.0	-100.6	0.85	leading	161.0	-94.3	0.86	leading	161.0	-14.9	1.00	leading
8	161.0	-95.8	0.86	leading	161.0	-89.0	0.88	leading	161.0	-8.5	1.00	leading
9	161.0	-96.9	0.86	leading	161.0	-90.2	0.87	leading	161.0	-9.1	1.00	leading
10	161.0	-96.7	0.86	leading	161.0	-89.4	0.87	leading	161.0	-9.2	1.00	leading
11	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
12	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
13	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-9.0	1.00	leading
14	161.0	-95.6	0.86	leading	161.0	-88.7	0.88	leading	161.0	-8.3	1.00	leading
15	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-10.3	1.00	leading
16	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-8.8	1.00	leading
17	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-8.8	1.00	leading
18	161.0	-2.0	1.00	leading	161.0	-4.4	1.00	leading	161.0	44.4	0.96	lagging
19	161.0	-98.3	0.85	leading	161.0	-91.3	0.87	leading	161.0	-10.1	1.00	leading
20	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-10.2	1.00	leading
21	161.0	-95.8	0.86	leading	161.0	-89.0	0.88	leading	161.0	-8.8	1.00	leading
22	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-10.2	1.00	leading
23	161.0	-96.1	0.86	leading	161.0	-89.0	0.88	leading	161.0	-8.2	1.00	leading
24	161.0	-96.0	0.86	leading	161.0	-89.2	0.87	leading	161.0	-8.9	1.00	leading
25	161.0	-95.1	0.86	leading	161.0	-88.0	0.88	leading	161.0	-8.3	1.00	leading
26	161.0	-95.6	0.86	leading	161.0	-88.5	0.88	leading	161.0	-8.0	1.00	leading
27	161.0	-96.5	0.86	leading	161.0	-89.2	0.87	leading	161.0	-11.3	1.00	leading
28	161.0	9.7	1.00	lagging	161.0	7.4	1.00	lagging	161.0	26.4	0.99	lagging
29	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	100.4	0.85	lagging
30	161.0	-70.8	0.92	leading	161.0	-61.0	0.94	leading	161.0	30.4	0.98	lagging
31	161.0	-72.1	0.91	leading	161.0	-65.6	0.93	leading	161.0	26.7	0.99	lagging
32	161.0	-32.4	0.98	leading	161.0	-29.9	0.98	leading	161.0	81.5	0.89	lagging
33	161.0	-46.8	0.96	leading	161.0	-41.1	0.97	leading	161.0	47.1	0.96	lagging
34	161.0	37.6	0.97	lagging	161.0	40.8	0.97	lagging	161.0	118.5	0.81	lagging

Outage No.	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
	MW	Mvar	Power Factor		MW	Mvar	Power Factor		MW	Mvar	Power Factor	
35	161.0	-95.3	0.86	leading	161.0	-88.3	0.88	leading	161.0	-12.5	1.00	leading
36	161.0	-88.2	0.88	leading	161.0	-78.2	0.90	leading	161.0	2.3	1.00	lagging
37	161.0	-90.3	0.87	leading	161.0	-84.5	0.89	leading	161.0	-9.2	1.00	leading
38	161.0	-76.2	0.90	leading	161.0	-74.2	0.91	leading	161.0	-12.7	1.00	leading
39	161.0	77.2	0.90	lagging	161.0	83.3	0.89	lagging	161.0	-19.7	0.99	leading
40 & 41	161.0	219.2	0.59	lagging	161.0	225.8	0.58	lagging	***Not Applicable to 2025 Case***			
42	***Not Applicable to 2015 Case***				***Not Applicable to 2015 Case***				161.0	-11.8	1.00	leading
43	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
44	161.0	-95.7	0.86	leading	161.0	-88.8	0.88	leading	161.0	-9.0	1.00	leading
45	161.0	-95.3	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.7	1.00	leading
46	161.0	-95.5	0.86	leading	161.0	-88.4	0.88	leading	161.0	-8.9	1.00	leading
47	161.0	-95.3	0.86	leading	161.0	-88.2	0.88	leading	161.0	-8.7	1.00	leading
48	161.0	-95.2	0.86	leading	161.0	-88.1	0.88	leading	161.0	-8.8	1.00	leading
49	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
50	161.0	-95.3	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
51	161.0	-94.9	0.86	leading	161.0	-87.7	0.88	leading	161.0	-8.4	1.00	leading
52	161.0	-95.3	0.86	leading	161.0	-88.2	0.88	leading	161.0	-8.9	1.00	leading
53	161.0	-94.9	0.86	leading	161.0	-87.8	0.88	leading	161.0	-8.4	1.00	leading
54	161.0	-94.9	0.86	leading	161.0	-87.8	0.88	leading	161.0	-8.5	1.00	leading
55	161.0	-95.4	0.86	leading	161.0	-88.3	0.88	leading	161.0	-8.8	1.00	leading
56	161.0	-95.2	0.86	leading	161.0	-88.2	0.88	leading	161.0	-8.7	1.00	leading
57	161.0	-95.0	0.86	leading	161.0	-87.9	0.88	leading	161.0	-8.0	1.00	leading
58	161.0	-98.1	0.85	leading	161.0	-91.5	0.87	leading	161.0	-9.6	1.00	leading
59	161.0	-98.1	0.85	leading	161.0	-91.5	0.87	leading	161.0	-9.6	1.00	leading
60	161.0	-94.8	0.86	leading	161.0	-87.0	0.88	leading	161.0	-8.8	1.00	leading
61	161.0	-49.3	0.96	leading	161.0	-50.1	0.95	leading	161.0	1.6	1.00	lagging
62	161.0	-89.4	0.87	leading	161.0	-82.0	0.89	leading	161.0	-5.0	1.00	leading
63	161.0	-49.6	0.96	leading	161.0	-50.6	0.95	leading	161.0	1.4	1.00	lagging
64	161.0	-94.9	0.86	leading	161.0	-87.8	0.88	leading	161.0	-8.5	1.00	leading
65	161.0	-95.7	0.86	leading	161.0	-88.8	0.88	leading	161.0	-9.0	1.00	leading
66	161.0	-93.8	0.86	leading	161.0	-86.7	0.88	leading	161.0	-7.6	1.00	leading
67	161.0	-95.1	0.86	leading	161.0	-88.1	0.88	leading	161.0	-8.5	1.00	leading
68	161.0	219.2	0.59	lagging	161.0	225.8	0.58	lagging	***Not Applicable to 2025 Case***			
69	161.0	-96.9	0.86	leading	161.0	-90.2	0.87	leading	161.0	-9.1	1.00	leading
70	161.0	-18.6	0.99	leading	161.0	-13.6	1.00	leading	161.0	87.1	0.88	lagging

7.3. NO WIND OR LOW WIND CONDITIONS ANALYSIS

For the wind farm interconnection requests that interconnect to a 345-kV bus, an analysis of the project for no power production due to no or low wind conditions was performed. The analysis consists of determining the amount of reactive power required to offset the reactive power injected by the project into the transmission network. The size of a shunt reactor placed at the interconnection request project's substation high side bus to reduce the Mvar flow into the POI to approximately zero was determined. As shown in Table 9, installation of a 345-kV shunt reactor can reduce the Mvar flow into the POI to practically zero in all three Peak cases.

Table 9: Inductive Reactive Power (i.e. Shunt Reactor) Required at the High-Voltage Side Main Transformer of the Wind Farm to Offset the Capacitive Reactive Power Injected by the Project (Mvar)

Request	POI	2015 Summer Peak	2015 Winter Peak	2025 Summer Peak
GEN-2012-031	514901	7.9	7.9	7.9
GEN-2014-056	511501	7.6	7.6	7.6
GEN-2014-058	514801	9.1	9.1	9.1
GEN-2014-061	560019	6.6	6.6	6.6

8. SHORT-CIRCUIT STUDY

A short-circuit study has been performed on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. Short-circuit analysis includes applying a 3-phase fault on buses up to 5 levels away from the POI of each interconnection request project. PSS/E "Automatic Sequence Fault Calculation (ASCC)" fault analysis module was used for the purpose of short-circuit analysis. The results of the short-circuit analysis have been recorded for all the buses up to five buses away from the point of interconnection of each interconnection request project. Detailed results of the short-circuit analysis are provided in Appendix E.

9. CONCLUSIONS AND RECOMMENDATIONS

- Dynamic analysis results under Cluster and Stand-Alone Scenarios indicate that DISIS-2014-002 (Group 1) interconnection request projects are expected to successfully interconnect into the transmission system at 100% output power and at the desired location. Dynamic stability analysis also indicates that Group 1 is expected to ride through each N-1 and N-2 fault contingency specified by SPP and the nearby areas will retain angular, frequency and voltage stability. Thus, Group 1 is expected to meet SPP's transient voltage recovery requirement.

- The results of power factor analysis indicate that the wind farms represented by GEN-2012-031, GEN-2014-020, GEN-2014-056, GEN-2014-058, and GEN-2014-061 are required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's requirements.

- An analysis on the project for no wind power production due to no or low wind conditions indicated that for GEN-2012-031, GEN-2014-056, GEN-2014-058, and GEN-2014-061, which are connected to SPP's 345-kV system, applying respectively 7.9, 7.6, 9.1, and 6.6 Mvar, 345-kV shunt reactors can reduce the Mvar flow into the POI to approximately zero in all three Peak Cases.

- A short-circuit study has been performed on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. A 3-phase fault is applied on buses up to 5 levels away from the POI of each interconnection request project and the results of the study have been presented.

APPENDIX A

SPP'S FAULT DEFINITIONS FOR GROUP 1

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
1	FLT01-3PH	3 phase fault on Cimarron 345 kV (514901) to Minco 345 kV (514801) CKT 1, near Cimarron. a. Apply fault at the Cimarron 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
2	FLT02-3PH	3 phase fault on Cimarron 345 kV (514901) to Northwest 345 kV (514880) CKT 1, near Cimarron. a. Apply fault at the Cimarron 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X	X	X
3	FLT03-3PH	3 phase fault on Cimarron 345 kV (514901) to Draper 345 kV (514934) CKT 1, near Cimarron. a. Apply fault at the Cimarron 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X	X	X
4	FLT04-3PH	3 phase fault on Cimarron 345 kV (514901) to Mathewson 345 kV (515497) CKT 1, near Mathewson. a. Apply fault at the Mathewson 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X	X	X
5	FLT05-3PH 2025SP ONLY	3 phase fault on the on Cimarron 345 kV (514901) to Mathewson 345 kV (515497) CKT 1 and 2, near Cimarron. a. Apply fault at the Cimarron 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	X		X	X	X
6	FLT06-3PH	3 phase fault on the Cimarron 345 kV (514901) to Cimarron 138 kV (514898) to Cimarron 13.8 kV (515714) XFMR CKT 1, near Cimarron 345 kV. a. Apply fault at the Cimarron 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X	X	X	X	X

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
7	FLT07-3PH	3 phase fault on Minco 345 kV (514801) to Gracemont 345 kV (515800) CKT 1, near Minco. a. Apply fault at the Minco 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X		
8	FLT08-3PH	3 phase fault on Northwest 345 kV (514880) to Spring Creek 345 kV (514881) CKT 1, near Northwest. a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
9	FLT09-3PH	3 phase fault on Northwest 345 kV (514880) to Arcadia 345 kV (514908) CKT 1, near Northwest. a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
10	FLT10-3PH	3 phase fault on Northwest 345 kV (514880 to Northwest 138 kV (514879) to Northwest 13.8 kV (515742) XFMR CKT 1, near Northwest 345 kV. a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X			X	X
11	FLT11-3PH	3 phase fault on Draper 345 kV (514934) to Seminole 345 kV (515045) CKT 1, near Draper. a. Apply fault at the Draper 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X				
12	FLT12-3PH	3 phase fault on Draper 345 kV (514934) to Seminole 345 kV (515045) CKT 3, near Draper. a. Apply fault at the Draper 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X				

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
13	FLT13-3PH 2025SP Only	3 phase fault on the Draper 345 kV (514934) to Draper 138 kV (514933) to Draper 13.8 kV (515720) XFMR CKT 1, near Draper 345 kV. a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X				
14	FLT14-3PH	3 phase fault on Mathewson 345 kV (515497) to Woodwring 345 kV (514715) CKT1, near Mathewson. a. Apply fault at the Mathewson 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
15	FLT15-3PH 2025SP Only	3 phase fault on Mathewson 345 kV (515497) to Northwest 345 kV (514880) CKT1, near Mathewson. a. Apply fault at the Mathewson 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
16	FLT16-3PH 2025SP only	3 phase fault on G14-058-Tap 345 kV (560019) to Tatonga 345 kV (515407) CKT1 and 2, near G14-058-Tap. a. Apply fault at the G14-058-Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line (CKT1 and 2).	X			X	X
17	FLT17-3PH 2025SP only	3 phase fault on Mathewson 345 kV (515497) to G14-058-Tap 345 kV (560019) CKT 1 and 2, near Mathewson. a. Apply fault at the Mathewson 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	X			X	X
18	FLT18-3PH	3 phase fault on Tatonga 345 kV (515407) to G11-051 Tap 345 kV (562075) CKT1, near Tatonga. a. Apply fault at the Tatonga 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
19	FLT19-3PH	3 phase fault on Gracemont 345 kV (515800) to LES 345 kV (511468) CKT1, near Gracemont. a. Apply fault at the Gracemont 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X		
20	FLT20-3PH 2025SP Only	3 phase fault on Gracemont 345 kV (515800) to Chisholm 345 kV (511553) CKT1, near Gracemont. a. Apply fault at the Gracemont 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X		
21	FLT21-3PH	3 phase fault on the Gracemont 345 kV (515800) to Gracemont 138 kV (515802) to Gracemont 13.8 kV (515801) XFMR CKT 1, near Gracemont 345 kV. a. Apply fault at the Gracemont 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X	X	X		
22	FLT22-3PH 2025SP Only	3 phase fault on the Chisholm 345 kV (511553) to LES 230 kV (511557) to Chisholm 13.2kV (511558) XFMR CKT 2, near Chisholm 345 kV. a. Apply fault at the Chisholm 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X		X		
23	FLT23-3PH	3 phase fault on Spring Creek 345 kV (514881) to Sooner 345 kV (514803) CKT1, near Spring Creek. a. Apply fault at the Spring Creek 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
24	FLT24-3PH	3 phase fault on Arcadia 345 kV (514908) to Seminole 345 kV (515045) CKT2, near Arcadia. a. Apply fault at the Arcadia 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
25	FLT25-3PH	3 phase fault on Woodring 345 kV (514715) to Sooner 345 kV (514803) CKT1, near Woodring. a. Apply fault at the Woodring 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
26	FLT26-3PH	3 phase fault on Woodring 345 kV (514715) to Hunter 345 kV (515476) CKT1, near Woodring. a. Apply fault at the Woodring 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
27	FLT27-3PH	3 phase fault on the Woodring 345 kV (514715) to Woodring 138 kV (514714) to Woodring 13.8 kV (515770) XFMR CKT 1, near Woodring 345 kV. a. Apply fault at the Woodring 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	X			X	X
28	FLT28-3PH	3 phase fault on G11-051 Tap 345 kV (562075) to Woodward 345 kV (515375) CKT1, near G11-051 Tap. a. Apply fault at the G11-051 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
29	FLT29-3PH 2025SP Only	3 phase fault on G11-051 Tap 345 kV (562075) to Woodward 345 kV (515375) CKT 1 and 2, near G11-051 Tap. a. Apply fault at the G11-051 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT1 and 2).	X			X	X
30	FLT30-3PH	3 phase fault on Woodward 345 kV (515375) to Border 345 kV (515458) CKT1, near Woodward. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X	X	X

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
31	FLT31-3PH	3 phase fault on Woodward 345 kV (515375) to G11-14-TAP (560000) CKT1, near Woodward. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.				X	X
32	FLT32-3PH	3 phase fault on Woodward 345 kV (515375) to G11-14-TAP (560000) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT1 and 2).				X	X
33	FLT33-3PH	3 phase fault on Woodward 345 kV (515375) to Thistle 345 kV (539801) CKT1, near Woodward. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X	X	X
34	FLT34-3PH	3 phase fault on Woodward 345 kV (515375) to Thistle 345 kV (539801) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT1 and 2).	X		X	X	X
35	FLT35-3PH	3 phase fault on the Woodward 345 kV (515375) to Woodward 138 kV (515376) to Woodward 13.8 kV (515795) XFMR CKT 1, near Woodward 345 kV. a. Apply fault at the Woodward 345 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.					X
36	FLT36-3PH	3 phase fault on Border 345 kV (515458) to G14_007-TAP (562487) CKT1, near Border. a. Apply fault at the Border 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.				X	X

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
37	FLT37-3PH	3 phase fault on the Thistle 345 kV (539801) to Wichita 345 kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.					X
38	FLT38-3PH	3 phase fault on the Thistle 345 kV (539801) to Wichita 345 kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345 kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).					X
39	FLT39-3PH	3 phase fault G14-058 Tap (560019) to Tatonga 345 kV (515407) CKT 1, near G14-058 Tap. a. Apply fault at the G14-058 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.				X	
40	FLT40-3PH	3 phase fault G14-058 Tap (560019) to Northwest 345 kV (514880) CKT 1, near G14-058 Tap. a. Apply fault at the G14-058 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.				X	
41	FLT41-3PH 2015WP & 2015SP Only	3 phase fault G14-058 Tap (560019) to Northwest 345 kV (514880) CKT 1, near G14-058 Tap. a. Apply fault at the G14-058 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	
42	FLT2423PH 2025SP	3 phase fault G14-058 Tap (560019) to Mathewson 345 kV (515497) CKT 1, near G14-058 Tap. a. Apply fault at the G14-058 Tap 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
43	FLT43-3PH	3 phase fault on the Tuttle 138 kV (511425) to Tuttle Conoco Tap 138 kV (511424) CKT 1, near Tuttle. a. Apply fault at the Tuttle 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
44	FLT44-3PH	3 phase fault on the Tuttle 138 kV (511501) to Cornville 138 kV (511449) CKT 1, near Tuttle. a. Apply fault at the Tuttle 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
45	FLT45-3PH	3 phase fault on the Cornville 138 kV (511449) to Norge 138 kV (511483) CKT 1, near Cornville. a. Apply fault at the Cornville 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
46	FLT46-3PH	3 phase fault on the Cornville 138 kV (511449) to Rush Springs N. Tap 138 kV (511492) CKT 1, near Cornville. a. Apply fault at the Cornville 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
47	FLT47-3PH	3 phase fault on the Cornville 138 kV (511449) to N29Chik 138 kV (511502) CKT 1, near Cornville. a. Apply fault at the Cornville 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
48	FLT48-3PH	3 phase fault on the Cornville 138 kV (511449) to Blanchard 138 kV (511508) CKT 1, near Cornville. a. Apply fault at the Cornville 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
49	FLT49-3PH	3 phase fault on the Cornville 138 kV (511449) to Corn Tap 138 kV (520867) CKT 1, near Cornville. a. Apply fault at the Cornville 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
50	FLT50-3PH	3 phase fault on the Tuttle Conoco Tap 138 kV (511425) to Cimarron 138 kV (514898) CKT 1, near Tuttle Conoco Tap. a. Apply fault at the Tuttle Conoco Tap 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
51	FLT51-3PH	3 phase fault on the Cimarron 138 kV (514898) to El Reno 138 kV (514819) CKT 1, near Cimarron. a. Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
52	FLT52-3PH	3 phase fault on the Cimarron 138 kV (514898) to Jensen Tap 138 kV (514820) CKT 1, near Cimarron. a. Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
53	FLT53-3PH	3 phase fault on the Cimarron 138 kV (514898) to Haymaker 138 kV (514863) CKT 1, near Cimarron. a. Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
54	FLT54-3PH	3 phase fault on the Cimarron 138 kV (514898) to Czech Hall 138 kV (514863) CKT 1, near Cimarron. a. Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
55	FLT55-3PH	3 phase fault on the Cimarron 138 kV (514898) to Sara 138 kV (514895) CKT 1, near Cimarron. a. Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
56	FLT56-3PH	3 phase fault on the Cornville Tap 138 kV (520867) to Anadarko 138 kV (520814) CKT 1, near Cornville Tap. a. Apply fault at the Cornville Tap 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			
57	FLT57-3PH	3 phase fault on the Cornville Tap 138 kV (520867) to Payne 138 kV (520888) CKT 1, near Cornville Tap. a. Apply fault at the Cornville Tap 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X			

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
58	FLT58-PO	**Prior Outage of Cimarron (514901) – Draper (514934) 345 kV;** 3 phase fault on the Northwest (514880) - Arcadia (514908) 345 kV near Northwest a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
59	FLT59-PO	**Prior Outage of Northwest (514880) – Arcadia (514908) 345 kV;** 3 phase fault on the Cimarron (514901) – Draper (514934) 345 kV line near Cimarron a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X			X	X
60	FLT60-SB	**Stuck Breaker at Cimarron (514901)** Apply single phase fault at Cimarron 345 kV bus. b. Clear fault after 16 cycles and trip the following elements c. Cimarron(514901)-Draper(514934) 345 kV line d. Cimarron(514901)-Northwest(514880) 345 kV line.	X		X	X	X
61	FLT61-PO	**Prior Outage of Cimarron (514901) – Minco (514801) 345 kV;** 3 phase fault on the LES (511468) - Oklaunion (5114568) 345 kV near LES a. Apply fault at the LES 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X		

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
62	FLT62-PO	**Prior Outage of Cimarron (514901) – Minco (514801) 345 kV;** 3 phase fault on the LES (511468) - G14-057T (560013) 345 kV near LES a. Apply fault at the LES 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X		
63	FLT63-SB	**Stuck Breaker at LES (511468)** Apply single phase fault at LES 345 kV bus. b. Clear fault after 16 cycles and trip the following elements c. LES (511468) - Oklaunion (511456)345 kV line d. LES 345/138 kV transformer (511468-511467).		X			
64	FLT64-PO	**Prior Outage of Tuttle (511501) – Cornville (511449) 138 kV;** 3 phase fault on the Cimarron (514898) – Czech Hall (514894) 138 kV line near Cimarron **a.** Apply fault at the Cimarron 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line.		X			
65	FLT65-PO	**Prior Outage of Cimarron (514898) – Czech Hall (514894):** 3 phase fault on Tuttle (511501) – Cornville (511449) 138 kV**; near Tuttle** a. Apply fault at the Tuttle 138 kV bus. b. Clear fault after 5 cycles and trip the faulted line.		X			
66	FLT66-PO	**Stuck Breaker at Cimarron (514898)** Apply single phase fault at Cimarron 138 kV bus. b. Clear fault after 16 cycles and trip the following elements c. Cimarron (514898)- Czech Hall (514894)138 kV d. Cimarron (514898) –Haymaker (514863) 138 kV		X			

Table 10 – Fault Definitions (Group 1) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2012-031	GEN-2014-020	GEN-2014-056	GEN-2014-058	GEN-2014-061
67	FLT67-SB	**Stuck Breaker at Cornville (511449)** Apply single phase fault at Cornville 138 kV bus. b. Clear fault after 16 cycles and trip the following elements c. Cornville (511449) -Norge (511483)138 kV d. Cornville (511549) -N29Chick (511502) 138 kV		X			
68	FLT68-PO 2015WP & 2015SP Only	**Prior Outage of Woodward (515375)-Thistle (539801)** **345 kV:** 3 phase fault on GEN-2014-058 (560019) – Northwest (514880) 345 kV line near GEN-2014-058 a. Apply fault at the GEN-2014-058 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line.				X	X
69	FLT69-PO	**Prior Outage of Woodward (515375)-GEN-2011-051 (562075) 345 kV:** 3 phase fault on the Northwest (514880) – Arcadia (514908) near Northwest a. Apply fault at the Northwest 345 kV bus. b. Clear fault after 5 cycles and trip the faulted line.				X	X
70	FLT70-SB	**Stuck Breaker at Woodward (515375)** Apply single phase fault at Woodward 345 kV bus. b. Clear fault after 16 cycles and trip the following elements c. Woodward (515375) – G11-14-TAP (560000) 345 kV line d. Woodward (515375) – Thistle (539801) 345 kV line				X	X

APPENDIX B

SOUTHWEST POWER POOL DISTURBANCE PERFORMANCE REQUIREMENTS

OVERVIEW

These Disturbance Performance Requirements ("Requirements") shall be applicable to the Bulk Electric System within the Southwest Power Pool Planning Area. Utilization of these Requirements applies to all registered entities within the Southwest Power Pool Planning Area. These Requirements shall not be applicable to facilities that are not part of Bulk Electric System. More stringent Requirements are at the sole discretion of each Transmission Owner.

Transient and dynamic stability assessments are generally performed to assure adequate avoidance of loss of generator synchronism and prevention of system voltage collapse within the first 20 seconds after a system disturbance. These Requirements provide a basis for evaluating the system response during the initial transient period following a disturbance on the Bulk Electric System by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

ROTOR ANGLE DAMPING REQUIREMENT

Machine Rotor Angles shall exhibit well damped angular oscillations [as defined below] and acceptable power swings following a disturbance on the Bulk Electric System for all NERC Category A, B and C events.

Well damped angular oscillations shall meet one of the following two requirements when calculated directly from the rotor angle:

1. Successive Positive Peak Ratio (SPPR) must be less than or equal to 0.95 where SPPR is calculated as follows:

$$SPPR = \frac{\text{Peak Rotor Angle of } 2^{nd} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.95$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 5%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

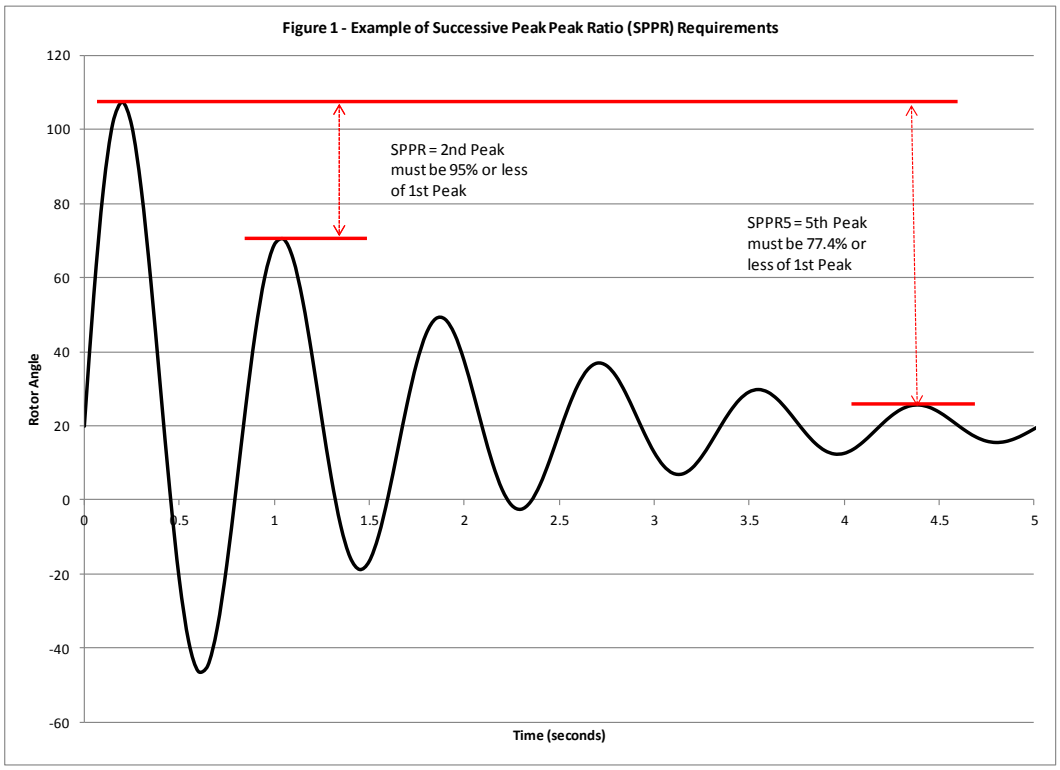
$$SPPR5 = \frac{\text{Peak Rotor Angle of } 5^{th} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.774$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 22.6%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

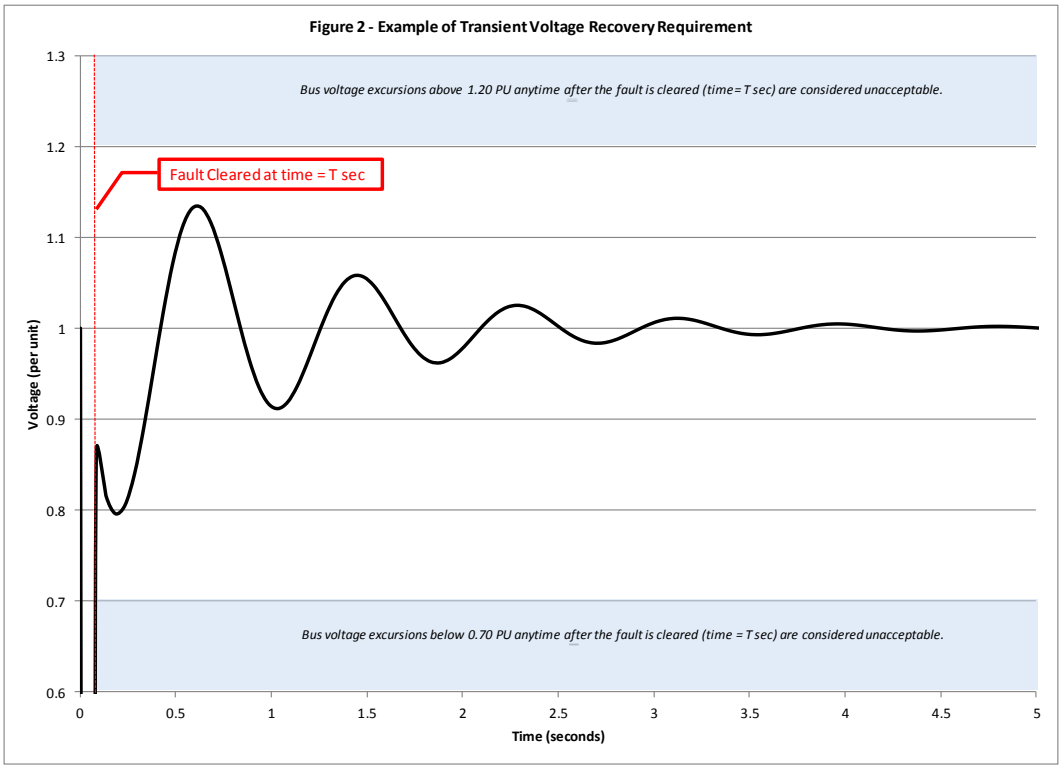
Qualitatively, these Requirements are shown below:



TRANSIENT VOLTAGE RECOVERY REQUIREMENT

Any time after a disturbance is cleared; bus voltages on the Bulk Electric System shall not swing outside of the bandwidth of 0.70 per unit to 1.20 per unit.

Qualitatively, this Requirement is shown below:



APPENDIX C

DYNAMIC STABILITY PLOTS FOR CLUSTER SCENARIO

1)

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX C-1 SUBMITTED IN A SEPARATE FILE)

2)

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX C-2 SUBMITTED IN A SEPARATE FILE)

3)

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX C-3 SUBMITTED IN A SEPARATE FILE)

APPENDIX D

DYNAMIC STABILITY PLOTS FOR STAND-ALONE CASES

1)

"GEN-2012-031"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-1 SUBMITTED IN A SEPARATE FILE)

2)

"GEN-2012-031"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-2 SUBMITTED IN A SEPARATE FILE)

3)

"GEN-2012-031"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-3 SUBMITTED IN A SEPARATE FILE)

4)

"GEN-2014-020"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-4 SUBMITTED IN A SEPARATE FILE)

5)

"GEN-2014-020"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-5 SUBMITTED IN A SEPARATE FILE)

6)

"GEN-2014-020"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-6 SUBMITTED IN A SEPARATE FILE)

7)

"GEN-2014-056"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-7 SUBMITTED IN A SEPARATE FILE)

8)

"GEN-2014-056"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-8 SUBMITTED IN A SEPARATE FILE)

9)

"GEN-2014-056"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-9 SUBMITTED IN A SEPARATE FILE)

10)

"GEN-2014-058"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-10 SUBMITTED IN A SEPARATE FILE)

11)

"GEN-2014-058"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-11 SUBMITTED IN A SEPARATE FILE)

12)

"GEN-2014-058"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-12 SUBMITTED IN A SEPARATE FILE)

13)

"GEN-2014-061"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-13 SUBMITTED IN A SEPARATE FILE)

14)

"GEN-2014-061"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-14 SUBMITTED IN A SEPARATE FILE)

15)

"GEN-2014-061"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-15 SUBMITTED IN A SEPARATE FILE)

APPENDIX E

SHORT-CIRCUIT ANALYSIS RESULTS

(SEE APPENDIX E SUBMITTED IN SEPARATE FILES)

K: Group 2 Dynamic Stability Analysis Report

See POWER-tek report on next page.

Southwestern Power Pool Inc. (SPP)

Definitive Impact Study

DISIS-2014-002 (Group 02)

POWER-tek
green inspiration since 1994

Final Report Submitted to
Southwest Power Pool Inc.
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TABLE OF CONTENTS

1. Executive Summary 1
2. Introduction 3
2.1. Project Overview and Assumptions 3
2.2. Objectives 7
2.3. Models and Simulations Tools Used 7
3. Power Factor Analysis 8
3.1. Methodology 8
3.2. Analysis 8
3.3. Conclusions 20
4. Inductive Reactive Support Analysis 20
5. Short Circuit Analysis 25
5.1. Short Circuit Result for POI Beaver County 345kV (515554) 25
5.2. Short Circuit Result for POI Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010) 31
5.3. Short Circuit Result for POI Tap on Hitchland to Potter County 345kV (560011) 38
5.4. Short Circuit Result for POI Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000) 44
6. Stability Analysis for Cluster Scenario 53
6.1. Faults Simulated 53
6.2. Simulation Results for Cluster Scenario 64
7. Stability Analysis for Stand-Alone Scenarios 65
7.1. Fault Simulated for GEN-2014-019 Request 65
7.2. Fault Simulated for GEN-2014-026 Request 75
7.3. Fault Simulated for GEN-2014-037 Request 85
7.4. Fault Simulated for GEN-2014-038 Request 95
7.5. Fault Simulated for GEN-2014-052 Request 102
7.6. Simulation Results for Stand-Alone Scenario 110
8. Conclusions 111
9. Appendix A: 2015 Winter Peak Case Stability Run Plots – Cluster 113
10. Appendix B: 2015 Summer Peak Case Stability Run Plots – Cluster 113
11. Appendix C: 2025 Summer Peak Case Stability Run Plots – Cluster 113
12. Appendix D: Project Model Data 113
13. Appendix E1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-019 Stand Alone Scenario 113
14. Appendix E2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-019 Stand-Alone Scenario 113
15. Appendix E3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-019 Stand-Alone Scenario 113
16. Appendix F1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-026 Stand-Alone Scenario 113
17. Appendix F2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-026 Stand-Alone Scenario 113
18. Appendix F3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-026 Stand Alone Scenario 113
19. Appendix G1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario 113
20. Appendix G2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario 113
21. Appendix G3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario 113
22. Appendix H1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario 113
23. Appendix H2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario 113
24. Appendix H3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario 113
25. Appendix I1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario 113
26. Appendix I2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario 113
27. Appendix I3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario 113

1. Executive Summary

The DISIS-2014-002 (Group 02) Impact Study is a generation interconnection study performed by POWER-tek Global Inc. for Southwest Power Pool (SPP). This report presents the results of impact study comprising of power factor, short circuit, and stability analyses for both cluster and standalone scenarios of the proposed interconnection projects under DISIS-2014-002 (Group 02) ("The Projects") as described in Table 1.1 below:

Table 1.1: Interconnection request

Request	Size (MW)	Generator Model	Point of Interconnection (POI)
GEN-2014-019	15.04[1]	GE 1.79MW	Beaver County 345kV (515554)
GEN-2014-026	150.0[2]	Acciona AW3000 109M, 3.0MW	Beaver County 345kV (515554)
GEN-2014-037	200.0	Vestas V110 2.0MW	Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010)
GEN-2014-038	200.0	Vestas V110 VCSS 2.0MW	Tap on Hitchland to Potter County 345kV (560011)
GEN-2014-052	200.0	GE 2.0MW	Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000)

Notes: *1. 15.04MW uprate to GEN-2008-047 (300MW)*
2. Shares the same generator lead as GEN-2010-001 (300MW)

Power factor analysis, short circuit analysis up to 5 buses away from each POI, and transient stability simulations were performed for the Projects in service at its full output. SPP provided three base cases for Winter-2015, Summer-2015, and Summer-2025, each comprising of a power flow and sequence data, and corresponding dynamics database. The previous queued request projects were already modeled in the base cases.
The power factor analysis consists of running all N-1, three phase contingencies shown in the Fault Definitions table (Table 3 in the RFP) in power flow to advise the necessary power factor at the point of interconnection (POI) for each contingency.

The power factor analysis indicates that interconnection requests i.e., GEN-2014-019, GEN-2014-026, GEN-2014-037, GEN-2014-038, and GEN-2014-052 are required to provide reactive power as indicated in Tables 3.2.2 through 3.2.4.

Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI.

To offset the capacitive effects of the collector system and transmission line of the wind farm under low wind or no wind conditions, the inductive reactive support analysis for GEN-2014-019, which is an uprate to the existing GEN-2008-047 generator for winter-2015 requires an additional 0.6 Mvar of reactors on the GEN-2008-047/GEN-2014-019 345kV bus to maintain zero MVar flow at the POI from the combined GEN-2008-047/GEN2014-019 generator lead. The inductive reactive support analysis for GEN-2014-026 for winter-2015 scenario requires an additional 14 Mvar reactor on the GEN-2014-026 345kV bus to maintain zero MVAR flow on the GEN-2010-001/GEN-2014-026 generator lead.

The inductive reactive support analysis for GEN-2014-037 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Beaver County 345kV) 13.7 MVAR reactor is required at Bus 560010 to maintain zero MVAR flow at POI.

The inductive reactive support analysis for GEN-2014-038 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Potter County 345kV) 12.3 MVAR reactor is required at Bus 560011 to maintain zero MVAR flow at POI.

Similarly, the inductive reactive support analysis for GEN-2014-052 performed for winter-2015 scenario indicates that at POI (Tap on Beaver County to Woodward 345kV) 25 MVAR reactor is required at Bus 560000 to maintain zero MVAR flow at POI.

Maintaining zero MVar flow at the POI at all times is not possible with static reactor banks. It will be determined on a case by case basis for each generator as to whether additional reactor banks are required for low wind conditions.

All N-1 and N-2 contingencies except in few cases, for both cluster as well as stand-alone scenarios there are no impacts on the stability performance of the SPP system for the contingencies tested on the SPP provided base cases.

For stability analysis in cluster scenario, it has been observed that few N-2 contingencies are resulting in continuous oscillating behavior in stability performance especially FLT04-3PH, FLT06-3PH, and FLT08-3PH etc. Similarly for stand-alone scenario contingencies FLT04-3PH and FLT08-3PH leads to continuous oscillations.
The reason is that the transmission corridor at/around POI Beaver Country 345kV does not appear to have sufficient capacity to transfer combined power dispatch of the nearby generators. The system is having transmission constraints that the N-2 contingencies on circuits Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375) leads to power system load flow solution diverging and oscillatory system behavior in dynamic analysis. It is therefore recommended to SPP to determine solution for these N-2 conditions. This solution could be obtained either by:

1. Considering another circuit on this link to maintain N-2 contingency OR
2. Curtailing some generation at POI Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375)

2. Introduction

2.1. Project Overview and Assumptions

The DISIS-2014-002 (Group 02) Impact Study is a generation interconnection study performed by POWER-tek Global Inc. for Southwest Power Pool (SPP). This report presents the results of impact study comprising of power factor, short circuit analysis, and stability analyses for both cluster and stand-alone scenarios of the proposed interconnection projects under DISIS-2014-002 (Group 02) ("The Projects") as described in Table 2.1.1 below:

Table 2.1.1: Interconnection requests

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2014-019	15.04[1]	GE 1.79MW	Beaver County 345kV (515554)
GEN-2014-026	150.0	Acciona AW3000 109M, 3.0MW	Beaver County 345kV (515554)
GEN-2014-037	200.0	Vestas V110 2.0MW	Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010)
GEN-2014-038	200.0	Vestas V110 VCSS 2.0MW	Tap on Hitchland to Potter County 345kV (560011)
GEN-2014-052	200.0	GE 2.0MW	Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000)

Notes: 1. 15.04MW uprate to GEN-2008-047 (300MW)

Figure 2.1.1, Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4 respectively show the single line diagram for the interconnection of the Projects to present and planned system of SPP. This arrangement was modeled and studied in power flow cases for these projects.

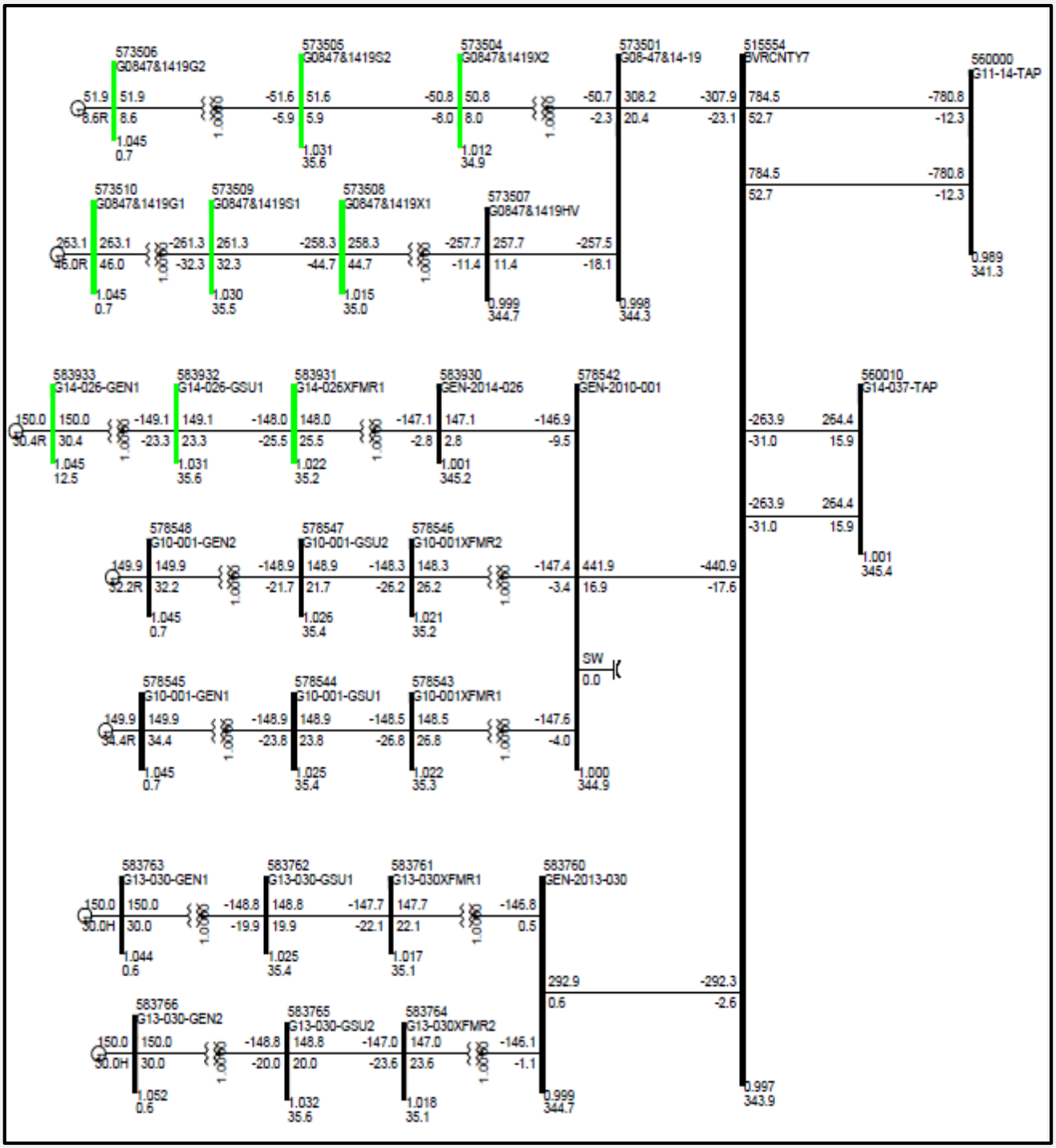

Figure 2.1.1: Power flow single line diagram for GEN-2014-019 and GEN-2014-026 and surrounding system components

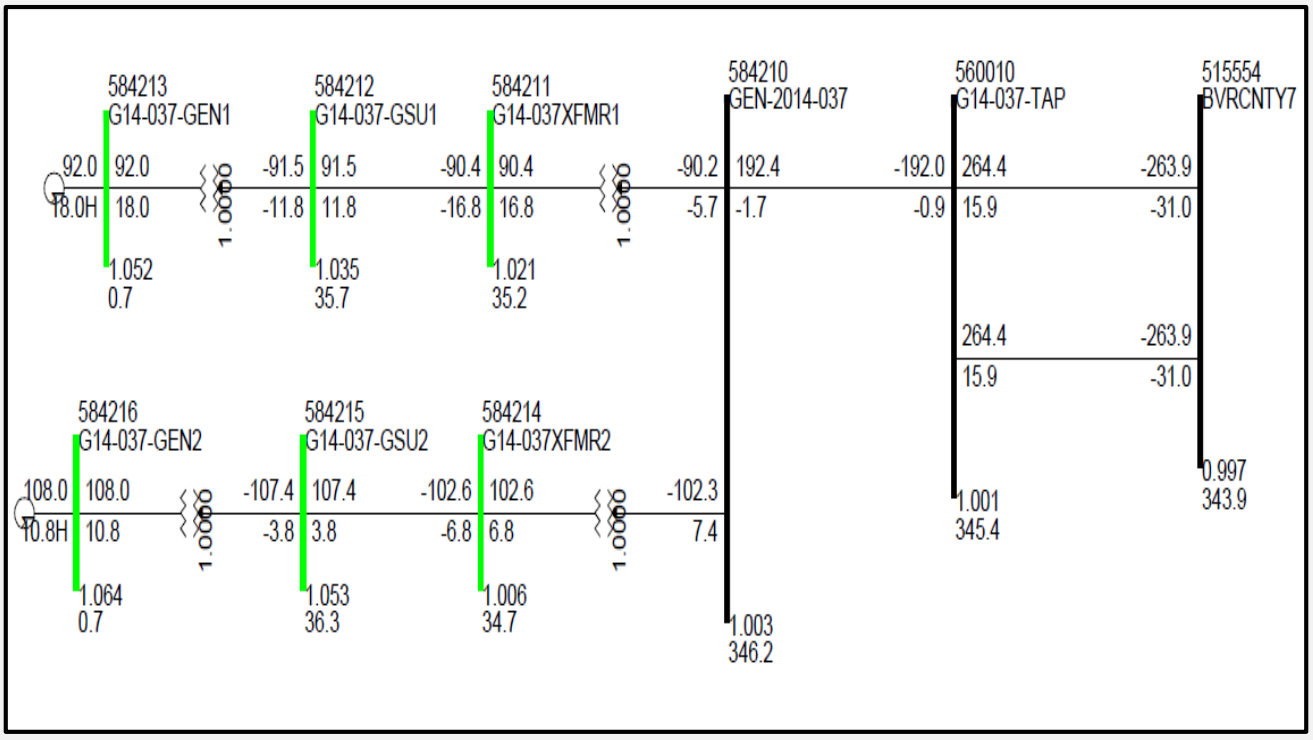

Figure 2.1.2: Power flow single line diagram for GEN-2014-037 and surrounding system components

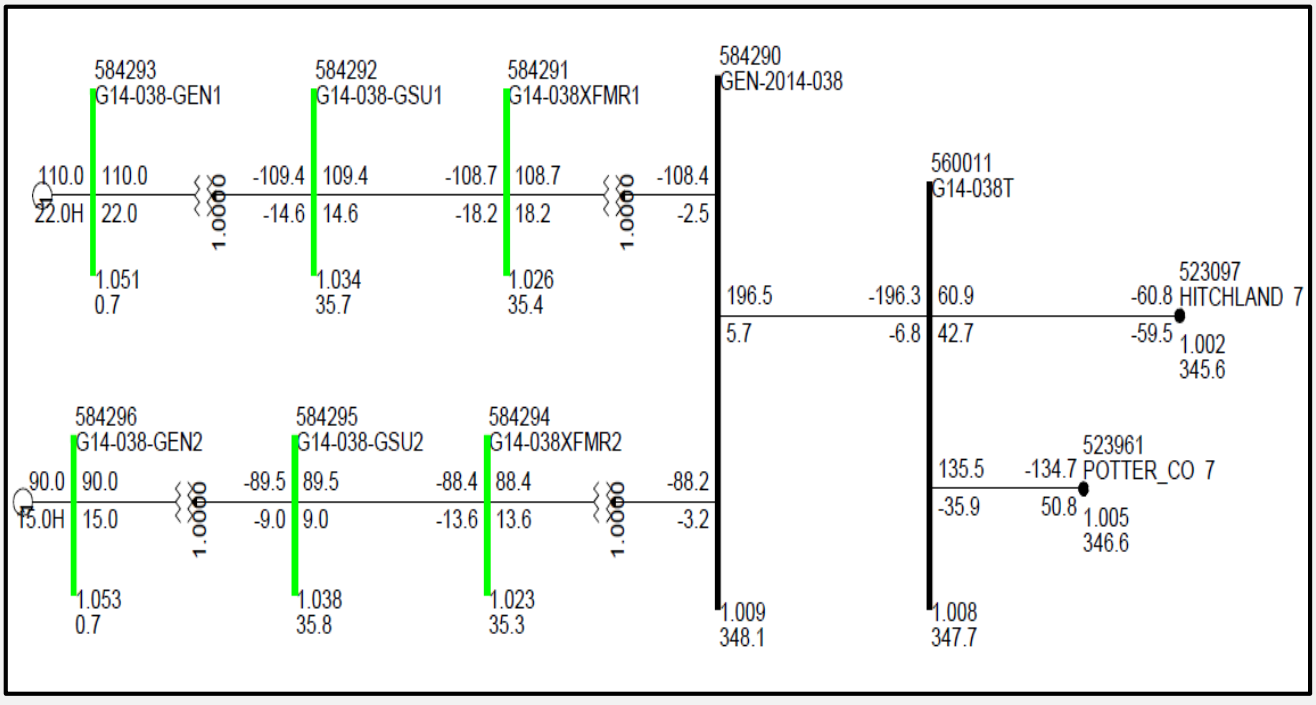

Figure 2.1.3: Power flow single line diagram for GEN-2014-038 and surrounding system components

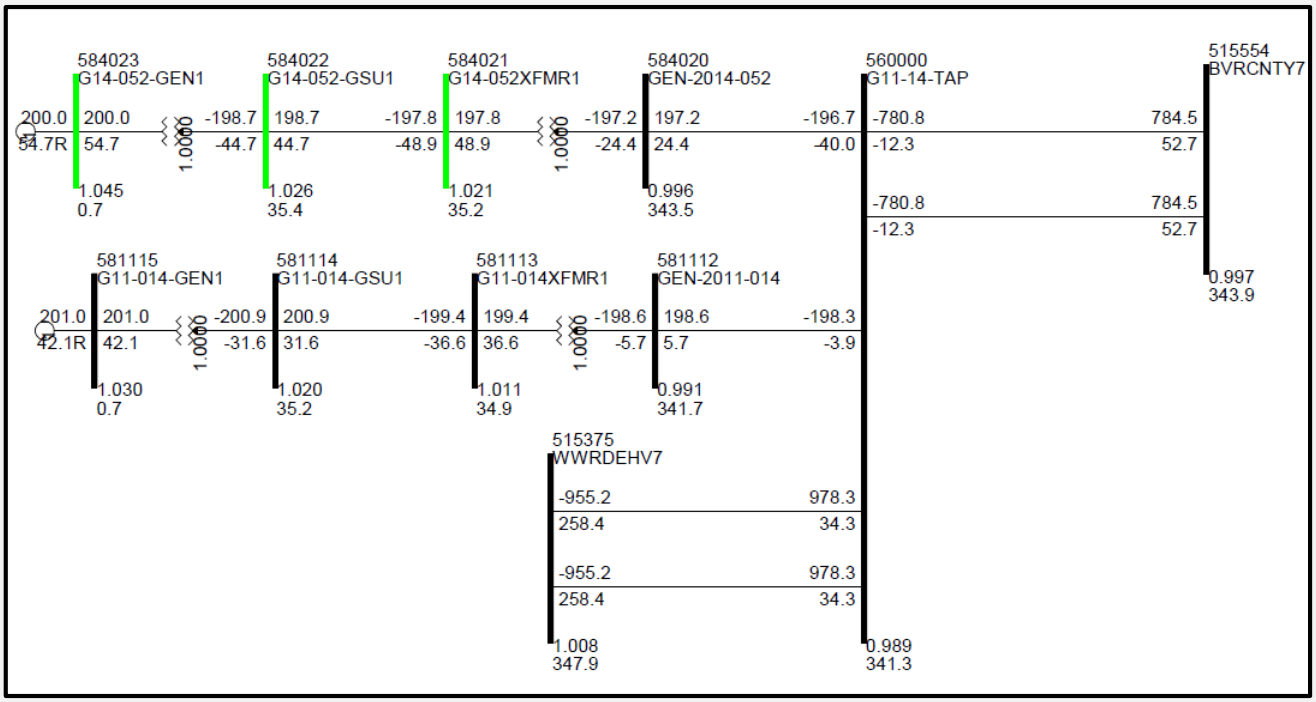

Figure 2.1.4: Power flow single line diagram for GEN-2014-052 and surrounding system components

Appendix-D contains the machines, interconnection, and machines user model parameters.

Table 2.1.2 below shows the list of prior queued projects modeled in the base case.

Table 2.1.2: List of previous queued request projects

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2002-008	240	GE 1.5MW	Hitchland 345kV (523097)
GEN-2002-009	79.8	Suzlon 2.1MW	Hansford 115kV (523195)
GEN-2003-020	159.1	GE 1.5/1.6 MW	Carson Co. 115kV (523928)
GEN-2006-020S	20	D8.2 2.0MW	Frisco Wind 115kV (523160)
GEN-2006-044	370	DeWind D9.2 2.0MW	Hitchland 345kV (523097)
GEN-2007-046	200.0	Vestas V100/V110 2.0MW	Hitchland 115kV (523093)
GEN-2008-047	300	GE 1.7MW	Beaver County 345kV (515554)
GEN-2010-001	300	GE 1.85MW	Beaver County 345kV (515554)
GEN-2010-014	358.8	Siemens SWT 2.3MW	Hitchland 345kV (523097)
ASGI-2011-002	20	DeWind D8.2 2.0MW	Herring 115kV (523359)

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2011-014	201	Siemens 3.0MW	Beaver County 345kV (515554)
GEN-2011-022	299	Siemens 2.3MW	Hitchland 345kV (523097)
GEN-2013-030	300	Vestas 2.0 MW VCSS (583763, 583766)	Beaver County 345kV (515554)

ATC (Available Transfer Capability) studies were not performed as part of this study. These studies will be required at the time transmission service is actually requested. Additional transmission upgrades may be required based on that analysis.

Study assumptions in general have been based on the specific information and data provided by SPP. The accuracy of the conclusions contained within this study is dependent on the assumptions made with respect to other generation additions and transmission improvements planned by other entities. Changes in the assumptions of the timing of other generation additions or transmission improvements may affect this study's conclusions.

2.2. Objectives

The objectives of the study are to conduct power factor analysis and to determine the impact on system stability of interconnecting the proposed wind farms to SPP's transmission system.

2.3. Models and Simulations Tools Used

Version 32 of the Siemens, PSS/E™ power system simulation program was used in this study.

SPP provided its latest stability database cases for winter-2015, summer-2015, and summer-2025 peak seasons. The Project's PSS/E model had been developed prior to this study and was included in the power flow case and the dynamics database. Machines, interconnection and dynamic model data for the Project plants is provided in Appendix D.

Power flow single line diagram of the projects in winter 2015 peak condition are shown in Figure 2.1.1, Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4 respectively. These Figures show that wind farms model includes representation of the radial transmission line, the substation transformer from transmission voltage (138kV and 345kV) to 34.5V. The remainder of each wind farm is represented by lumped equivalents including a generator, a step-up transformer, and collector system impedance.

No special modeling is required of line relays in these cases, except for the special modeling related to the wind-turbine tripping.

All generators in Areas 520, 524, 525, 526, 531, 534, 536, were monitored.

3. Power Factor Analysis

3.1. Methodology

Power factor analysis was conducted for the Project using the following methodology:

1. Replace the wind farm by a generator at the high side bus 345 kV, 138 kV, 115kV, or 69 kV bus, as applicable, with the MW of the wind farms at that point of interconnection.
2. Turn off the wind farm as modeled (as well as previous queued projects at the same point of interconnection).
3. Model a var generator at the Project's high voltage side, 345 kV, 138 kV, 115kV, or 69kV bus, as applicable. The var generator is set to hold a voltage schedule at the POI consistent with the voltage schedule in the provided power flow cases for summer and winter or 1.0 pu voltage, whichever is higher.
4. Perform the steady state contingency analysis to determine the power factor necessary at the POI for each contingency.
5. If the required power factor at the POI is beyond the capability of the studied wind turbines to meet (at the POI) capacitor banks may be considered for the stability analysis. The preference is to locate the capacitance banks on the 34.5 kV customer side. Factors to sizing capacitor banks include:
    5.1. The ability of the wind farm to meet FERC Order 661A (low voltage ride through) with and without capacitor banks.
    5.2. The ability of the wind farm to meet FERC Order 661A (wind farm recovery to pre-fault voltage).
    5.3. If wind farms trips on high voltage, power factor lower than unity may be required.

3.2. Analysis

Analysis was performed for the proposed Projects with all prior queued projects in service. A var generator was modeled at the point of interconnection and was set to hold a voltage schedule at the POI consistent with the voltage schedule in the provided power flow cases OR 1 p.u. whichever is higher. The voltages for these Projects are summarized in Table 3.2.1. All upgrades and instructions were made in the base cases. No other changes were made in the base cases provided, other than the addition of the var generators. Contingency analysis was run for provided list of contingencies.

Table 3.2.1: POI voltages for the summer and winter peak cases

Request	Point of Interconnection	Size (MW)	Base Case Voltage (p.u.)		
			Winter 2015 Peak	Summer 2015 Peak	Summer 2025 Peak
GEN-2014-019 & GEN-2014-026	Beaver County 345kV (515554)	15.04[1] & 150	1.00	1.00	1.01
GEN-2014-037	Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010)	200.0	1.00	1.00	1.01
GEN-2014-038	Tap on Hitchland to Potter County 345kV (560011)	200.0	1.01	1.01	1.01
GEN-2014-052	Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000)	200.0	1.00	1.00	1.00

The details of the var requirement during contingencies are highlighted in Table 3.2.2, 3.2.3 and 3.2.4. The highest and the lowest values obtained are highlighted in these tables.

1. For 2015 winter case (GEN-2014-019 and 026 analysis): The maximum var generator supply is 418.8 MVARs at 0.93 (lagging power factor) for the outage of 523097 [HITCHLAND 7345.00] TO BUS 523853 [FINNEY 7345.00] CKT outage. The minimum var requirement is 24.7 MVAR at 1.0 (lagging power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
2. For 2015 winter case (GEN-2014-037 analysis): The maximum var generator supply is 302.6 MVARs at 0.55 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is -11.1 MVAR at 1.0 (leading power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
3. For 2015 winter case (GEN-2014-038 analysis): The maximum var generator supply is 197.2 MVARs at 0.71 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var generator supply is -35.5 MVARs at 0.98 (leading power factor) for the outage of 560011 [G14-038T 345.00] TO BUS 523097 [HITCHLAND 7345.00] CKT outage.
4. For 2015 winter case (GEN-2014-052 analysis): The maximum var generator supply is 580.3 MVARs at 0.57 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage . The minimum var requirement is 114.3 MVAR at 0.96 (lagging power factor) for outage of 515407 [TATONGA7 345.00] TO BUS 560019 [G14-058-TAP 345.00] CKT outage.

Table 3.2.2: Var generator output in 2015 winter peak case for DISIS-2014-002 (Group 02)

2015 Winter Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-019and026** MW at POI **1065** MVAR at POI **348.6**		**GEN-2014-037** MW at POI **200** MVAR at POI **28.8**		**GEN-2014-038** MW at POI **200** MVAR at POI **37**		**GEN-2014-052** MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	31.3	1.00	-2.3	1.00	6.6	1.00	126.9	0.95
FLT01-3PH	560010	G14-037-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	59.1	1.00	9.7	1.00	13.4	1.00	138.7	0.95
FLT02-3PH	560010	G14-037-TAP 345.00	523097	HITCHLAND 7345.00	CKT 1	35.2	1.00	4.0	1.00	8.5	1.00	128.2	0.95
FLT03-3PH	515554	BVRCNTY7 345.00	560000	G11-14-TAP 345.00	CKT 1	80.8	1.00	45.8	0.97	32.9	0.99	200.3	0.89

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019and026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT05-3PH	560000	G11-14-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	80.8	1.00	45.8	0.97	32.9	0.99	200.3	0.89
FLT07-3PH	560000	G11-14-TAP 345.00	515375	WWRDEHV7 345.00	CKT 1	270.0	0.97	249.5	0.63	154.5	0.79	377.3	0.73
FLT11-3PH	539801	THISTLE7 345.00	515375	WWRDEHV7 345.00	CKT 1	58.9	1.00	43.1	0.98	32.4	0.99	144.9	0.94
FLT13-3PH	515375	WWRDEHV7 345.00	515458	BORDER 7345.00	CKT 1	67.6	1.00	30.1	0.99	21.5	0.99	169.4	0.92
FLT14-3PH	515375	WWRDEHV7 345.00	562075	G11-051-TAP 345.00	CKT 1	51.9	1.00	45.3	0.98	36.8	0.98	144.0	0.94
FLT16-3PH	515375	WWRDEHV7 345.00	515376	WWRDEHV4 138.00	T/F	39.2	1.00	4.9	1.00	10.3	1.00	136.4	0.95
FLT17-3PH	515458	BORDER 7345.00	562487	G14_007-TAP 345.00	CKT 1	32.4	1.00	-1.3	1.00	7.2	1.00	128.0	0.95
FLT18-3PH	525832	TUCO_INT 7345.00	511456	O.K.U.-7 345.00	CKT 1	155.0	0.99	132.3	0.83	73.3	0.94	270.6	0.83
FLT19-3PH	525832	TUCO_INT 7345.00	525830	TUCO_INT 6230.00	T/F	33.5	1.00	-0.3	1.00	7.4	1.00	129.5	0.95
FLT20-3PH	515407	TATONGA7 345.00	560019	G14-058-TAP 345.00	CKT 1	32.0	1.00	33.6	0.99	32.9	0.99	114.3	0.96
FLT21-3PH	539801	THISTLE7 345.00	532796	WICHITA7 345.00	CKT 1	26.2	1.00	-5.5	1.00	5.9	1.00	120.2	0.96
FLT23-3PH	539801	THISTLE7 345.00	539800	CLARKCOUNTY7345.00	CKT 1	43.8	1.00	4.0	1.00	9.3	1.00	144.4	0.94
FLT25-3PH	539801	THISTLE7 345.00	539804	THISTLE4 138.00	T/F	29.6	1.00	-1.1	1.00	7.6	1.00	123.5	0.96
FLT26-3PH	523097	HITCHLAND 7345.00	523853	FINNEY 7345.00	CKT 1	418.8	0.93	224.8	0.66	115.6	0.87	579.8	0.57
FLT27-3PH	523097	HITCHLAND 7345.00	560011	G14-038T 345.00	CKT 1	65.0	1.00	48.3	0.97	-35.5	0.98	149.7	0.94

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019and026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT28-3PH	523097	HITCHLAND 7345.00	523095	HITCHLAND 6230.00	T/F	34.6	1.00	1.9	1.00	9.0	1.00	130.2	0.95
FLT29-3PH	523961	POTTER_CO 7345.00	523959	POTTER_CO 6230.00	T/F	87.4	1.00	54.9	0.96	25.0	0.99	187.9	0.91
FLT30-3PH	523095	HITCHLAND 6230.00	523155	OCHILTREE 6230.00	CKT 1	43.9	1.00	12.9	1.00	15.2	1.00	138.1	0.95
FLT31-3PH	523095	HITCHLAND 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	48.1	1.00	16.5	1.00	19.6	1.00	143.4	0.94
FLT32-3PH	523853	FINNEY 7345.00	531449	HOLCOMB7 345.00	CKT 1	408.4	0.93	302.6	0.55	197.2	0.71	580.3	0.57
FLT33-3PH	531449	HOLCOMB7 345.00	531501	BUCKNER7 345.00	CKT 1	115.1	0.99	49.4	0.97	31.6	0.99	237.1	0.86
FLT34-3PH	560011	G14-038T 345.00	523961	POTTER_CO 7345.00	CKT 1	94.5	1.00	69.6	0.94	54.9	0.96	187.5	0.91
FLT35-3PH	560011	G14-038T 345.00	523097	HITCHLAND 7345.00	CKT 1	65.0	1.00	48.3	0.97	-35.5	0.98	149.7	0.94
FLT36-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	40.9	1.00	10.1	1.00	13.4	1.00	134.9	0.95
FLT37-3PH	523853	FINNEY 7345.00	599950	LAMAR7 345.00	CKT 1	31.3	1.00	-2.3	1.00	6.6	1.00	126.9	0.95
FLT46-3PH	531449	HOLCOMB7 345.00	531465	SETAB 7 345.00	CKT 1	68.1	1.00	30.4	0.99	23.7	0.99	173.5	0.92
FLT47-3PH	531449	HOLCOMB7 345.00	531448	HOLCOMB3 115.00	T/F	24.7	1.00	-11.1	1.00	1.9	1.00	122.2	0.96
FLT48-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	40.9	1.00	10.1	1.00	13.4	1.00	134.9	0.95
FLT50-3PH	523959	POTTER_CO 6230.00	523979	HARRNG_EST 6230.00	CKT 1	29.1	1.00	-4.7	1.00	4.2	1.00	125.1	0.95
FLT51-3PH	523959	POTTER_CO 6230.00	524267	BUSHLAND 6230.00	CKT 1	41.1	1.00	7.0	1.00	11.5	1.00	137.3	0.95

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019and026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT55-3PH	523959	POTTER_CO 6230.00	524010	ROLLHILLS 6230.00	CKT 1	26.0	1.00	-8.8	1.00	-0.2	1.00	122.8	0.96

5. For 2015 summer case (GEN-2014-019 and 026 analysis): The maximum var generator supply is 465.3 MVARs at 0.92 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is 10.7 MVAR at 1.0 (lagging power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
6. For 2015 summer r case (GEN-2014-037 analysis): The maximum var generator supply is 360.5 MVARs at 0.49 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is -7.5 MVAR at 1.0 (leading power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
7. For 2015 summer case (GEN-2014-038 analysis): The maximum var generator supply is 250.3 MVARs at 0.62 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var generator supply is -32.0 MVARs at 0.99 (leading power factor) for the outage of 560011 [G14-038T 345.00] TO BUS 523097 [HITCHLAND 7345.00] CKT outage.
8. For 2015 summer case (GEN-2014-052 analysis): The maximum var generator supply is 596.5 MVARs at 0.56 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is 98.2 MVAR at 0.97 (lagging power factor) for outage of 515407 [TATONGA7 345.00] TO BUS 560019 [G14-058-TAP 345.00] CKT outage.

Table 3.2.3: Var generator output in 2015 summer peak case for DISIS-2014-002 (Group 02)

2015 Summer Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-019and026** MW at POI **1065** MVAR at POI **348.6**		**GEN-2014-037** MW at POI **200** MVAR at POI **28.8**		**GEN-2014-038** MW at POI **200** MVAR at POI **37**		**GEN-2014-052** MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	15.7	1.00	-2.2	1.00	4.1	1.00	107.6	0.97
FLT01-3PH	560010	G14-037-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	42.7	1.00	10.7	1.00	11.3	1.00	119.3	0.96
FLT02-3PH	560010	G14-037-TAP 345.00	523097	HITCHLAND 7345.00	CKT 1	19.4	1.00	3.4	1.00	6.2	1.00	108.8	0.97
FLT03-3PH	515554	BVRCNTY7 345.00	560000	G11-14-TAP 345.00	CKT 1	65.0	1.00	44.9	0.98	29.6	0.99	179.6	0.91
FLT05-3PH	560000	G11-14-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	65.0	1.00	44.9	0.98	29.6	0.99	179.6	0.91
FLT07-3PH	560000	G11-14-TAP 345.00	515375	WWRDEHV7 345.00	CKT 1	248.4	0.97	239.5	0.64	145.1	0.81	355.2	0.75
FLT11-3PH	539801	THISTLE7 345.00	515375	WWRDEHV7 345.00	CKT 1	38.2	1.00	38.9	0.98	27.4	0.99	124.5	0.96
FLT13-3PH	515375	WWRDEHV7 345.00	515458	BORDER 7345.00	CKT 1	64.4	1.00	37.9	0.98	21.2	0.99	164.4	0.93
FLT14-3PH	515375	WWRDEHV7 345.00	562075	G11-051-TAP 345.00	CKT 1	34.7	1.00	40.4	0.98	31.0	0.99	123.7	0.96
FLT16-3PH	515375	WWRDEHV7 345.00	515376	WWRDEHV4 138.00	T/F	24.3	1.00	5.6	1.00	8.2	1.00	118.1	0.96
FLT17-3PH	515458	BORDER 7345.00	562487	G14_007-TAP 345.00	CKT 1	30.2	1.00	9.3	1.00	8.0	1.00	123.8	0.96
FLT18-3PH	525832	TUCO_INT 7345.00	511456	O.K.U.-7 345.00	CKT 1	158.6	0.99	144.4	0.81	76.5	0.93	271.9	0.83
FLT19-3PH	525832	TUCO_INT 7345.00	525830	TUCO_INT 6230.00	T/F	19.2	1.00	0.9	1.00	5.2	1.00	111.7	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019and026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT20-3PH	515407	TATONGA7 345.00	560019	G14-058-TAP 345.00	CKT 1	17.4	1.00	31.5	0.99	28.4	0.99	98.2	0.97
FLT21-3PH	539801	THISTLE7 345.00	532796	WICHITA7 345.00	CKT 1	12.5	1.00	-3.0	1.00	4.6	1.00	103.7	0.97
FLT23-3PH	539801	THISTLE7 345.00	539800	CLARKCOUNTY7345.0	CKT 1	27.5	1.00	3.1	1.00	6.3	1.00	124.0	0.96
FLT25-3PH	539801	THISTLE7 345.00	539804	THISTLE4 138.00	T/F	13.0	1.00	-1.7	1.00	4.7	1.00	103.1	0.97
FLT26-3PH	523097	HITCHLAND 7345.00	523853	FINNEY 7345.00	CKT 1	385.7	0.94	313.0	0.54	169.5	0.76	514.8	0.61
FLT27-3PH	523097	HITCHLAND 7345.00	560011	G14-038T 345.00	CKT 1	47.6	1.00	44.7	0.98	-32.0	0.99	129.4	0.95
FLT28-3PH	523097	HITCHLAND 7345.00	523095	HITCHLAND 6230.00	T/F	20.5	1.00	3.1	1.00	7.4	1.00	112.6	0.96
FLT29-3PH	523961	POTTER_CO 7345.00	523959	POTTER_CO 6230.00	T/F	71.9	1.00	54.9	0.96	20.3	0.99	168.5	0.92
FLT30-3PH	523095	HITCHLAND 6230.00	523155	OCHILTREE 6230.00	CKT 1	27.2	1.00	10.7	1.00	11.8	1.00	119.8	0.96
FLT31-3PH	523095	HITCHLAND 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	25.9	1.00	7.2	1.00	13.0	1.00	119.7	0.96
FLT32-3PH	523853	FINNEY 7345.00	531449	HOLCOMB7 345.00	CKT 1	465.3	0.92	360.5	0.49	250.3	0.62	596.5	0.56
FLT33-3PH	531449	HOLCOMB7 345.00	531501	BUCKNER7 345.00	CKT 1	126.2	0.99	72.7	0.94	41.5	0.98	250.7	0.85
FLT34-3PH	560011	G14-038T 345.00	523961	POTTER_CO 7345.00	CKT 1	78.4	1.00	68.4	0.95	50.0	0.97	167.8	0.92
FLT35-3PH	560011	G14-038T 345.00	523097	HITCHLAND 7345.00	CKT 1	47.6	1.00	44.7	0.98	-32.0	0.99	129.4	0.95
FLT36-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	30.5	1.00	17.6	1.00	13.4	1.00	118.9	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019and026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT37-3PH	523853	FINNEY 7345.00	599950	LAMAR7 345.00	CKT 1	18.0	1.00	7.6	1.00	9.5	1.00	104.9	0.97
FLT46-3PH	531449	HOLCOMB7 345.00	531465	SETAB 7 345.00	CKT 1	51.4	1.00	24.7	0.99	17.8	1.00	151.2	0.94
FLT47-3PH	531449	HOLCOMB7 345.00	531448	HOLCOMB3 115.00	T/F	10.7	1.00	-7.5	1.00	1.2	1.00	102.9	0.97
FLT48-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	30.5	1.00	17.6	1.00	13.4	1.00	118.9	0.96
FLT50-3PH	523959	POTTER_CO 6230.00	523979	HARRNG_EST 6230.00	CKT 1	15.8	1.00	-1.9	1.00	4.0	1.00	107.8	0.97
FLT51-3PH	523959	POTTER_CO 6230.00	524267	BUSHLAND 6230.00	CKT 1	22.8	1.00	4.9	1.00	8.4	1.00	114.9	0.96
FLT55-3PH	523959	POTTER_CO 6230.00	524010	ROLLHILLS 6230.00	CKT 1	12.9	1.00	-5.8	1.00	-0.4	1.00	105.8	0.97

9. For 2025 summer case (GEN-2014-019 and 026 analysis): The maximum var generator supply is 260.6 MVARs at 0.97 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is -32.4 MVAR at 1.0 (leading power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
10. For 2025 summer case (GEN-2014-037 analysis): The maximum var generator supply is 241.5 MVARs at 0.64 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is -5.4 MVAR at 1.0 (leading power factor) for outage of 531449 [HOLCOMB7 345.00] TO BUS 531448 [HOLCOMB3 115.00] T/F outage.
11. For 2025 summer case (GEN-2014-038 analysis): The maximum var generator supply is 127.6 MVARs at 0.84 (lagging power factor) for the outage of 523097 [HITCHLAND 7345.00] TO BUS 523853 [FINNEY 7345.00] CKT outage. The minimum var generator supply is -21.9 MVARs at 0.99 (leading power factor) for the outage of 560011 [G14-038T 345.00] TO BUS 523097 [HITCHLAND 7345.00] CKT outage.

12. For 2025 summer case (GEN-2014-052 analysis): The maximum var generator supply is 358.7 MVARs at 0.75 (lagging power factor) for the outage of 523853 [FINNEY 7345.00] TO BUS 531449 [HOLCOMB7 345.00] CKT outage. The minimum var requirement is 14.6 MVAR at 1.0 (lagging power factor) for outage of 515407 [TATONGA7 345.00] TO BUS 560019 [G14-058-TAP 345.00] CKT outage.

Table 3.2.4: Var generator output in 2025 summer peak case for DISIS-2014-002 (Group 02)

2025 Summer Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-019&026** MW at POI **1065** MVAR at POI **348.6**		**GEN-2014-037** MW at POI **200** MVAR at POI **28.8**		**GEN-2014-038** MW at POI **200** MVAR at POI **37**		**GEN-2014-052** MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	20.3	1.00	1.9	1.00	7.1	1.00	21.4	1.00
FLT01-3PH	560010	G14-037-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	5.7	1.00	13.8	1.00	13.9	1.00	36.4	1.00
FLT02-3PH	560010	G14-037-TAP 345.00	523097	HITCHLAND 7345.00	CKT 1	-16.7	1.00	6.7	1.00	9.3	1.00	23.5	1.00
FLT03-3PH	515554	BVRCNTY7 345.00	560000	G11-14-TAP 345.00	CKT 1	26.6	1.00	44.1	0.98	30.4	0.99	91.8	0.97
FLT05-3PH	560000	G11-14-TAP 345.00	515554	BVRCNTY7 345.00	CKT 1	26.6	1.00	44.1	0.98	30.4	0.99	91.8	0.97
FLT07-3PH	560000	G11-14-TAP 345.00	515375	WWRDEHV7 345.00	CKT 1	182.8	0.99	202.3	0.70	121.5	0.85	249.7	0.85
FLT11-3PH	539801	THISTLE7 345.00	515375	WWRDEHV7 345.00	CKT 1	-9.4	1.00	18.0	1.00	16.0	1.00	31.1	1.00
FLT13-3PH	515375	WWRDEHV7 345.00	515458	BORDER 7345.00	CKT 1	-3.1	1.00	17.1	1.00	14.2	1.00	46.2	0.99
FLT14-3PH	515375	WWRDEHV7 345.00	562075	G11-051-TAP 345.00	CKT 1	-15.1	1.00	7.8	1.00	10.9	1.00	27.3	1.00
FLT16-3PH	515375	WWRDEHV7 345.00	515376	WWRDEHV4 138.00	T/F	-16.6	1.00	5.2	1.00	8.9	1.00	26.2	1.00
FLT17-3PH	515458	BORDER 7345.00	562487	G14_007-TAP 345.00	CKT 1	-25.6	1.00	-0.9	1.00	7.6	1.00	14.8	1.00

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019&026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT18-3PH	525832	TUCO_INT 7345.00	511456	O.K.U.-7 345.00	CKT 1	6.1	1.00	22.2	0.99	11.9	1.00	54.8	0.99
FLT19-3PH	525832	TUCO_INT 7345.00	525830	TUCO_INT 6230.00	T/F	-20.8	1.00	1.6	1.00	7.0	1.00	21.0	1.00
FLT20-3PH	515407	TATONGA7 345.00	560019	G14-058-TAP 345.00	CKT 1	-25.0	1.00	1.1	1.00	8.2	1.00	14.6	1.00
FLT21-3PH	539801	THISTLE7 345.00	532796	WICHITA7 345.00	CKT 1	-22.4	1.00	0.9	1.00	7.5	1.00	18.8	1.00
FLT23-3PH	539801	THISTLE7 345.00	539800	CLARKCOUNTY7345.00	CKT 1	-7.2	1.00	9.1	1.00	8.9	1.00	38.3	1.00
FLT25-3PH	539801	THISTLE7 345.00	539804	THISTLE4 138.00	T/F	-23.6	1.00	0.4	1.00	6.6	1.00	16.9	1.00
FLT26-3PH	523097	HITCHLAND 7345.00	523853	FINNEY 7345.00	CKT 1	226.4	0.98	215.6	0.68	127.6	0.84	304.2	0.80
FLT27-3PH	523097	HITCHLAND 7345.00	560011	G14-038T 345.00	CKT 1	26.3	1.00	56.5	0.96	-21.9	0.99	64.6	0.99
FLT28-3PH	523097	HITCHLAND 7345.00	523095	HITCHLAND 6230.00	T/F	-11.4	1.00	11.3	1.00	12.3	1.00	27.7	1.00
FLT29-3PH	523961	POTTER_CO 7345.00	523959	POTTER_CO 6230.00	T/F	61.1	1.00	82.7	0.92	20.4	0.99	112.5	0.96
FLT30-3PH	523095	HITCHLAND 6230.00	523155	OCHILTREE 6230.00	CKT 1	-11.9	1.00	10.0	1.00	12.9	1.00	30.6	1.00
FLT31-3PH	523095	HITCHLAND 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	6.0	1.00	28.7	0.99	29.2	0.99	48.6	0.99
FLT32-3PH	523853	FINNEY 7345.00	531449	HOLCOMB7 345.00	CKT 1	260.6	0.97	241.5	0.64	119.8	0.86	358.7	0.75
FLT33-3PH	531449	HOLCOMB7 345.00	531501	BUCKNER7 345.00	CKT 1	83.5	1.00	69.7	0.94	41.9	0.98	145.5	0.94
FLT34-3PH	560011	G14-038T 345.00	523961	POTTER_CO 7345.00	CKT 1	63.3	1.00	86.8	0.92	44.6	0.98	108.8	0.97

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-019&026 MW at POI **1065** MVAR at POI **348.6**		GEN-2014-037 MW at POI **200** MVAR at POI **28.8**		GEN-2014-038 MW at POI **200** MVAR at POI **37**		GEN-2014-052 MW at POI **401** MVAR at POI **163**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT35-3PH	560011	G14-038T 345.00	523097	HITCHLAND 7345.00	CKT 1	26.3	1.00	56.5	0.96	-21.9	0.99	64.6	0.99
FLT36-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	-13.4	1.00	10.4	1.00	12.1	1.00	27.5	1.00
FLT37-3PH	523853	FINNEY 7345.00	599950	LAMAR7 345.00	CKT 1	-20.3	1.00	5.6	1.00	8.9	1.00	15.5	1.00
FLT46-3PH	531449	HOLCOMB7 345.00	531465	SETAB 7 345.00	CKT 1	12.6	1.00	18.4	1.00	15.9	1.00	58.9	0.99
FLT47-3PH	531449	HOLCOMB7 345.00	531448	HOLCOMB3 115.00	T/F	-32.4	1.00	-5.4	1.00	3.2	1.00	18.3	1.00
FLT48-3PH	523959	POTTER_CO 6230.00	523309	MOORE_CNTY 6230.00	CKT 1	-13.4	1.00	10.4	1.00	12.1	1.00	27.5	1.00
FLT50-3PH	523959	POTTER_CO 6230.00	523979	HARRNG_EST 6230.00	CKT 1	-20.3	1.00	1.8	1.00	6.4	1.00	21.9	1.00
FLT51-3PH	523959	POTTER_CO 6230.00	524267	BUSHLAND 6230.00	CKT 1	-16.3	1.00	8.8	1.00	10.7	1.00	30.0	1.00
FLT55-3PH	523959	POTTER_CO 6230.00	524010	ROLLHILLS 6230.00	CKT 1	-20.7	1.00	-3.2	1.00	1.1	1.00	21.7	1.00

3.3. Conclusions

The power factor analysis indicates the DISIS-2014-002 (Group 02) interconnection requests i.e., GEN-2014-019, GEN-2014-026, GEN-2014-037, GEN-2014-038, GEN-2014-052 are required to maintain the SPP standard power factor at the point of interconnection i.e., (Beaver County 345kV – 515554), (Tap on Hitchland to Beaver County 345kV, Optima 345kV – 560010), (Tap on Hitchland to Potter County 345kV – 560011), and (Tap on Beaver County to Woodward 345kV, GEN 2011-014 tap – 560000) based on the contingencies studied.

Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI.

4. Inductive Reactive Support Analysis

To offset the capacitive effects of the collector system and transmission line of the wind farm under low wind or no wind conditions, analysis was performed for winter-2015 scenario to calculate the Inductive Reactive Support at point of interconnection for each interconnection request under project DISIS-2014-002 (Group 02) .

Following methodology was adopted as communicated by SPP:

1. Switch the generator and capacitor bank (if installed) out of service with the collector system as modeled remaining in service.
2. Calculate the amount of inductive reactive support required at the 34.5kV collector buses which would result in zero VAR flow at the POI."

The inductive reactive support analysis for GEN-2014-019, which is an uprate to the existing GEN-2008-047 generator for winter-2015 requires an additional 0.6 Mvar of reactors on the GEN-2008-047/GEN-2014-019 345kV bus[1] to maintain zero MVar flow at the POI from the combined GEN-2008-047/GEN2014-019 generator lead [2]. The inductive reactive support analysis for GEN-2014-026 for winter-2015 scenario requires an additional 14 Mvar reactor[3] on the GEN-2014-026 345kV bus to maintain zero MVAR flow on the GEN-2010-001/GEN-2014-026 generator lead[4].

The inductive reactive support analysis for GEN-2014-037 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Beaver County 345kV) 13.7 MVAR reactor is required at Bus 560010 to maintain zero MVAR flow at POI.

[1] It may be preferable to install separate reactors at 34.5kV.
[2] SPP noted that GEN-2008-047 has a 35Mvar reactor requirement and currently meets its requirements with the manufacturer's (GE) option for providing vars under no wind conditions (GE WindFree).
[3] It may be preferable to install the reactor at 34.5kV.
[4] SPP noted that currently GEN-2010-001 has a 12Mvar reactor requirement and GEN-2013-030 currently has a 14.2Mvar reactor requirement.

The inductive reactive support analysis for GEN-2014-038 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Potter County 345kV) 12.3 MVAR reactor is required at Bus 560011 to maintain zero MVAR flow at POI.

Similarly, the inductive reactive support analysis for GEN-2014-052 performed for winter-2015 scenario indicates that at POI (Tap on Beaver County to Woodward 345kV) 25 MVAR reactor is required at Bus 560000 to maintain zero MVAR flow at POI[5].

Maintaining zero MVar flow at the POI at all times is not possible with static reactor banks. It will be determined on a case by case basis for each generator as to whether additional reactor banks are required for low wind conditions.

The single line diagram showing the inductive reactive requirement for Gen-2014-022 and Gen-2014-064 are respectively shown in Figures 4.1.1, 4.1.2, 4.1.3, and 4.1.4:

[5] SPP noted GEN-2014-052 is not responsible for the reactive requirements of GEN-2011-014.

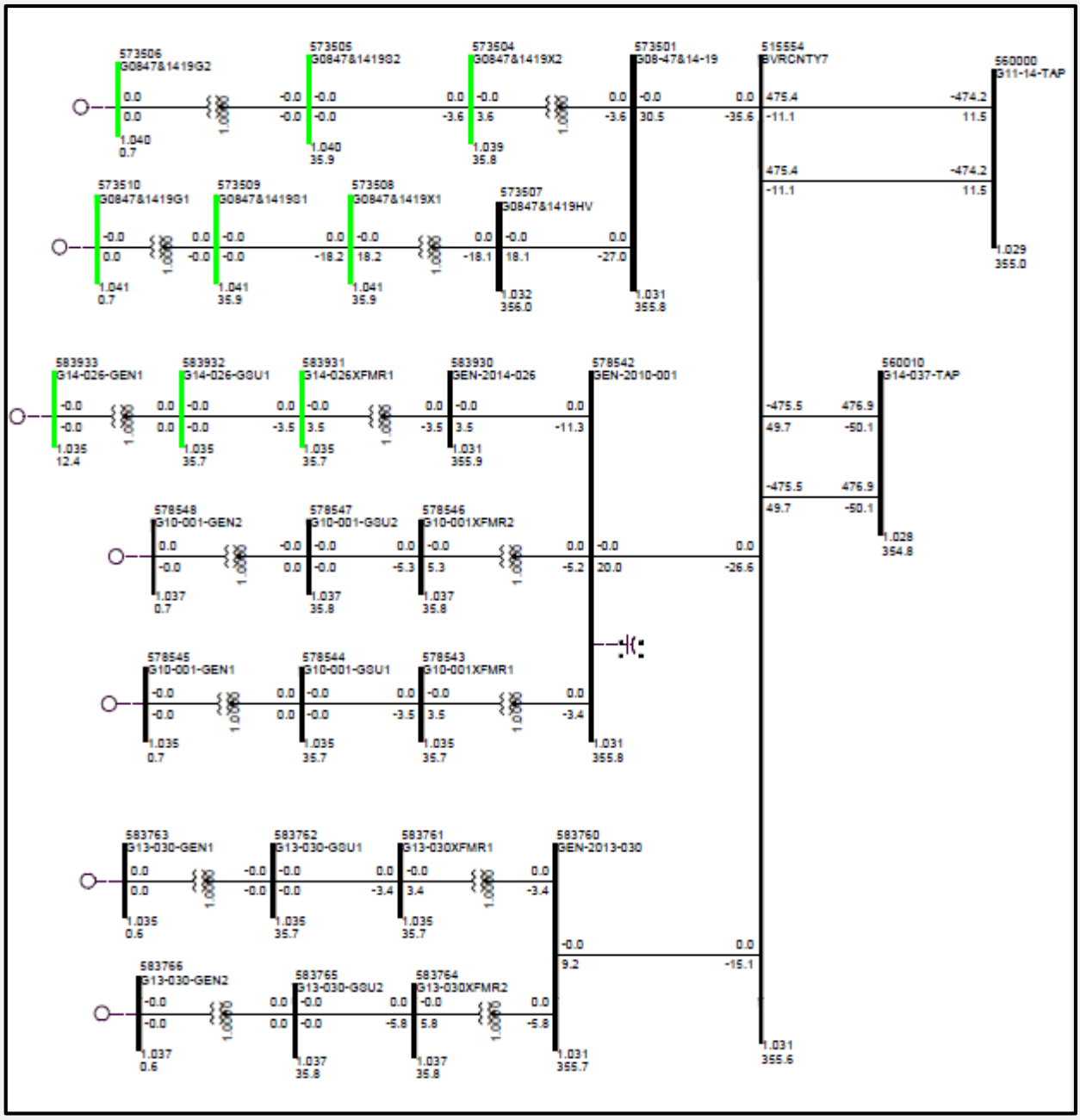

Figure 4.1.1: Inductive reactive requirement for GEN-2014-019 & GEN-2014-026

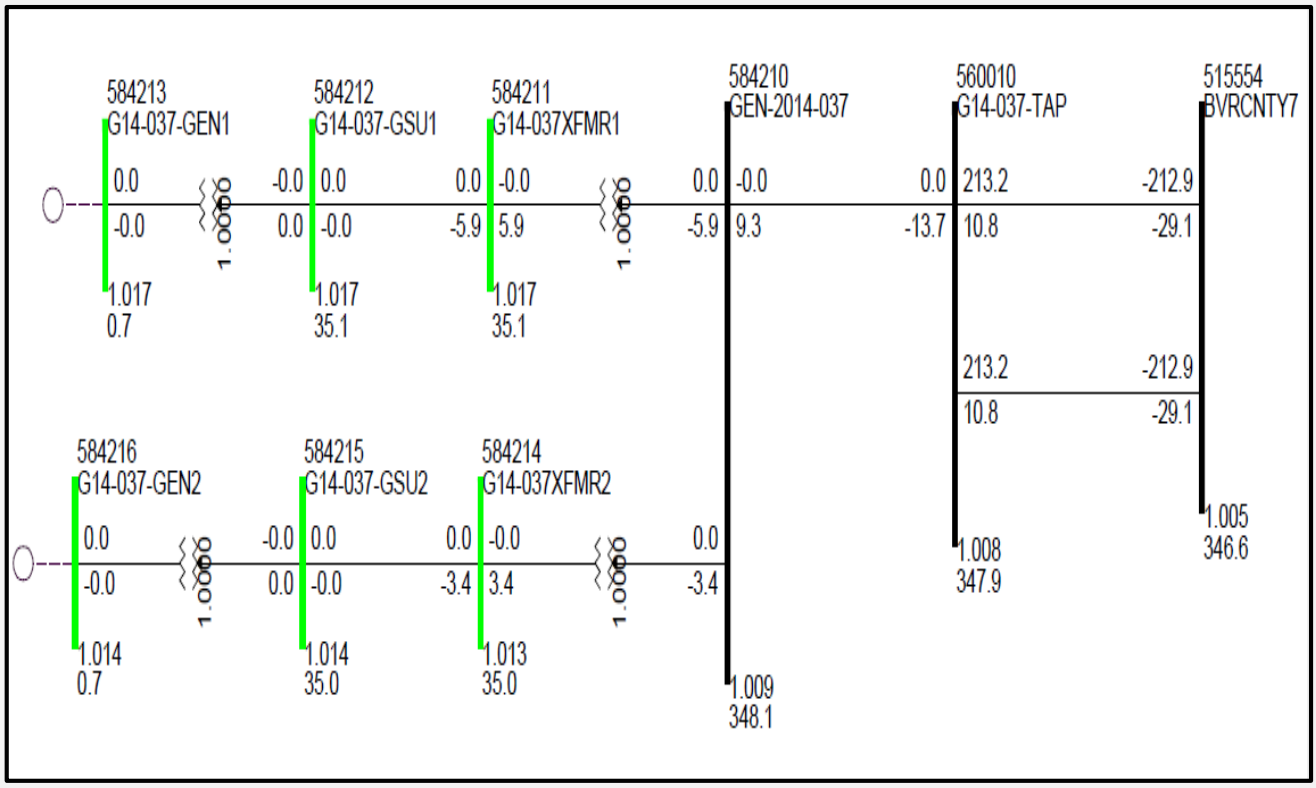

Figure 4.1.2: Inductive reactive requirement for GEN-2014-037

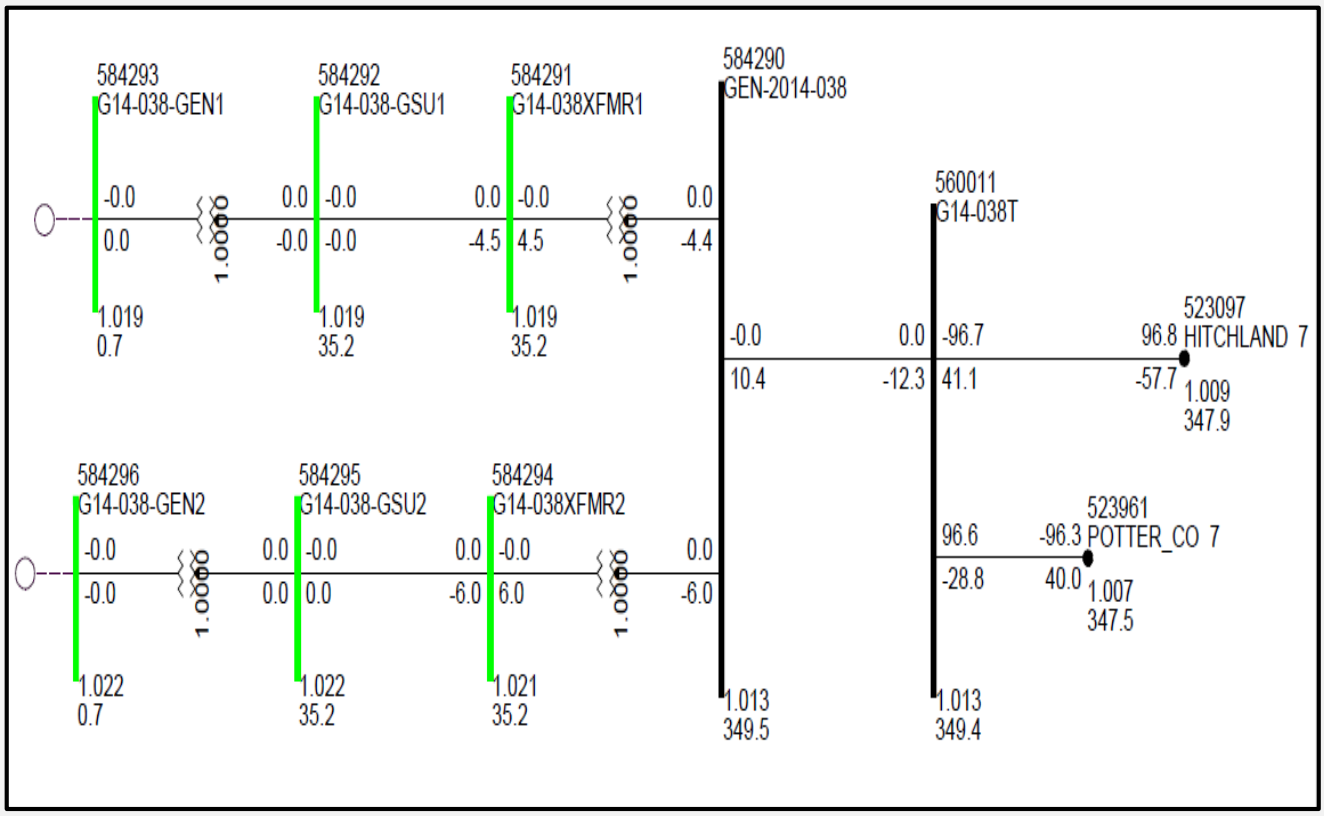

Figure 4.1.3: Inductive reactive requirement for GEN-2014-038

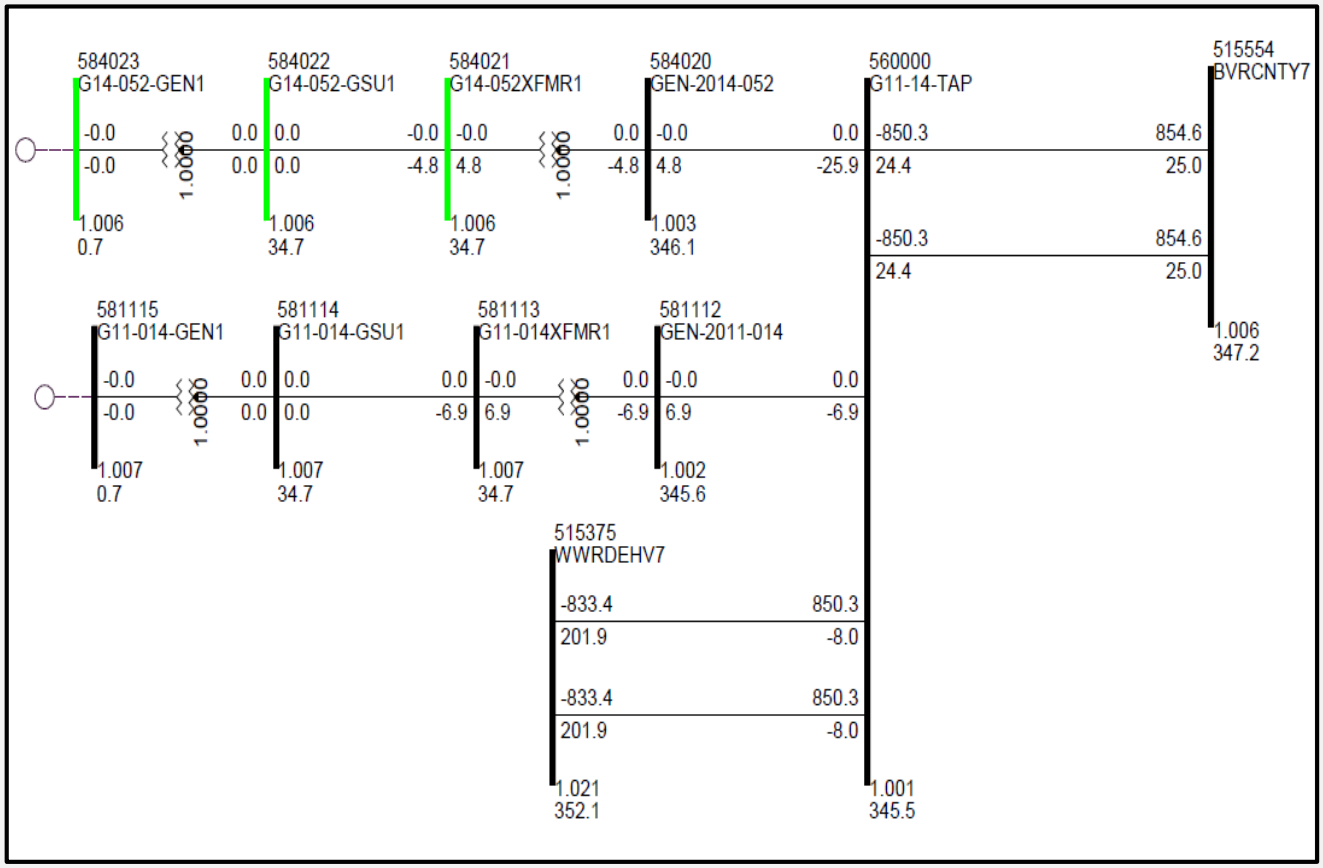

Figure 4.1.4: Inductive reactive requirement for GEN-2014-052

5. Short Circuit Analysis

The short circuit analysis out five buses away was performed for 2025 summer peak case for each interconnection request under project cluster scenario of DISIS-2014-002 (Group 02). No outage was assumed in the system model.

5.1. Short Circuit Result for POI Beaver County 345kV (515554)

The results of the short circuit analysis for POI i.e., Beaver County 345kV (515554) are tabulated below in table 5.1.1.

Table 5.1.1: Short circuit results for POI Beaver County 345kV (515554)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515554	BVRCNTY7 345.00	0	15329.9	8877.2
560000	G11-14-TAP 345.00	1	11684.3	5929.6
560010	G14-037-TAP 345.00	1	15149.8	3402.3
573501	G08-47&14-19345.00	1	1443.2	1064.8
578542	GEN-2010-001345.00	1	2632.1	1576.4
583760	GEN-2013-030345.00	1	2527.6	1129.8
515375	WWRDEHV7 345.00	2	10813.4	6718.5
523097	HITCHLAND 7345.00	2	14778.2	5141
573504	G0847&1419X234.500	2	2394.8	1747.4
573507	G0847&1419HV345.00	2	1203.4	886.2
578543	G10-001XFMR134.500	2	6902.4	5064
578546	G10-001XFMR234.500	2	6857.8	5053.8
581112	GEN-2011-014345.00	2	974	694.2
583761	G13-030XFMR134.500	2	12704	5650.4
583764	G13-030XFMR234.500	2	12572.6	5647.6
583930	GEN-2014-026345.00	2	1274.4	562.4
584020	GEN-2014-052345.00	2	930.4	689.8
584210	GEN-2014-037345.00	2	1375.9	712.7
515376	WWRDEHV4 138.00	3	3943.6	2643.9
515458	BORDER 7345.00	3	838.8	253.4
515795	WWDEHV31 13.800	3	0	0
515799	WWDEHV21 13.800	3	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523091	HITCHLD_TR0113.200	3	0	0
523094	HITCHLD_TR2113.200	3	0	0
523095	HITCHLAND 6230.00	3	4663.6	1629.9
523101	NOBLE_WND 7345.00	3	881.4	784.2
523112	NOVUS1 7345.00	3	2528	1299.4
523853	FINNEY 7345.00	3	3470.4	2054.9
539801	THISTLE7 345.00	3	3587.9	3549.8
560011	G14-038T 345.00	3	3625.2	1211.5
562075	G11-051-TAP 345.00	3	3878.7	3126.2
573505	G0847&1419S234.500	3	2373.8	1721.2
573508	G0847&1419X134.500	3	12033.6	8862.6
576395	GEN-2010-014345.00	3	1101.2	739.8
578544	G10-001-GSU134.500	3	6876.8	5034.2
578547	G10-001-GSU234.500	3	6818.6	5009.8
579351	GEN-2007-062345.00	3	1205.4	660.5
581113	G11-014XFMR134.500	3	9740	6941.2
581148	GEN-2011-022345.00	3	1212.1	987.8
582019	GEN-2011-019345.00	3	510.4	253.2
582020	GEN-2011-020345.00	3	510.6	253
583762	G13-030-GSU134.500	3	12656.8	5598.8
583765	G13-030-GSU234.500	3	12492.2	5560.2
583931	G14-026XFMR134.500	3	12744.8	5624.8
584021	G14-052XFMR134.500	3	9304.6	6897
584211	G14-037XFMR134.500	3	6533.8	3368.2
584214	G14-037XFMR234.500	3	7233.2	3766.2
514785	WOODWRD4 138.00	4	2820.5	2094
514796	IODINE-4 138.00	4	746.1	766.5
515394	KEENAN 4 138.00	4	560.2	320.6
515398	OUSPRT 4 138.00	4	353.6	193.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515407	TATONGA7 345.00	4	3992.8	3738.2
522801	NOVUS-44 115.00	4	4377.9	2215.5
523092	HITCHLD_TR1113.200	4	0	0
523093	HITCHLAND 3115.00	4	5792	2782.1
523098	HITCHLD_TR4113.200	4	0	0
523102	NOBLE_TR 113.800	4	0	0
523103	NOBLE_WND 3115.00	4	2644.8	2355.1
523110	NOVUS1_TR1 113.800	4	0	0
523111	NOVUS1 3115.00	4	3212.3	1691.3
523118	BUFF_DUNES 7345.00	4	287.9	206.9
523155	OCHILTREE 6230.00	4	479.6	439.6
523309	MOORE_CNTY 6230.00	4	1720.5	822.5
523961	POTTER_CO 7345.00	4	2727	1213
531449	HOLCOMB7 345.00	4	3762.1	2800.1
532796	WICHITA7 345.00	4	2799.9	3305.5
539800	CLARKCOUNTY7345.00	4	1574.1	1293.9
539802	THISTLE T1 13.800	4	0	0
539804	THISTLE4 138.00	4	1095.2	1404
562487	G14_007-TAP 345.00	4	472.9	446.3
573506	G0847&1419G20.6900	4	18690.2	6064
573509	G0847&1419S134.500	4	11914	8722
576396	G10-014-XFMR115.00	4	3445.5	2301
578545	G10-001-GEN10.6900	4	3836.2	11712.8
578548	G10-001-GEN20.6900	4	931.6	10490.5
579352	G07-062XFMR134.500	4	2639.2	1413.8
579355	G07-062XFMR234.500	4	2623.4	1414.2
579358	G07-062-HV-2345.00	4	654.3	355.7
581114	G11-014-GSU134.500	4	9671.2	6881.4
581149	G11-022XFMR134.500	4	6103.2	4952.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
581150	G11-022XFMR234.500	4	6017.8	4925.4
582119	G11-019XFMR134.500	4	5103.8	2533
582120	G11-020XFMR134.500	4	5105.4	2530.2
583090	GEN-2011-049345.00	4	279.4	184.1
583110	GEN-2011-051345.00	4	284.4	107.4
583763	G13-030-GEN10.5750	4	19405.4	15930.6
583766	G13-030-GEN20.5750	4	9526.8	13615.8
583820	GEN-2013-035345.00	4	152.4	85.6
583932	G14-026-GSU134.500	4	12696	5574
583990	GEN-2014-049345.00	4	193.4	142
584022	G14-052-GSU134.500	4	9263	6852.2
584212	G14-037-GSU134.500	4	6432.6	3283.6
584215	G14-037-GSU234.500	4	7173.2	3726.6
584290	GEN-2014-038345.00	4	1178	703
599950	LAMAR7 345.00	4	0	0
514782	WODWRD 2 69.000	5	1642.6	1711.3
514783	WOODWR11 24.900	5	183.4	222.4
514787	DEWEY 4 138.00	5	921.8	912.3
515363	CENT 4 138.00	5	543.1	268.6
515392	KEENAN T 9.9600	5	0	0
515393	KEENAN 1 34.500	5	2242.6	1284
515396	OUSPRT T 9.9600	5	0	0
515397	OUSPRT 1 34.500	5	1416	775.8
515448	CRSRDSW7 345.00	5	296.1	181
515771	WOODWR21 13.200	5	0	0
515785	WINDFRM4 138.00	5	1901.9	1399.8
522802	NOVUS-1 115.00	5	1564	819.8
522803	NOVUS-2 115.00	5	1908.2	852.8
522804	NOVUS-44-3 115.00	5	2472.4	1366.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523090	TEXAS_CNTY 3115.00	5	1588.5	1631.9
523108	NOVUS1 234.500	5	5488.2	2910.2
523114	BUFF_DN_TR1113.800	5	0	0
523115	BUFF_DN_TR2113.800	5	0	0
523119	BUFF_DUNES3134.500	5	2882.9	2074
523128	NBLWND-LV2 134.500	5	2927	2750.3
523130	NBLWND-HV2 3115.00	5	852.4	770.6
523131	NBLWND-HV3 3115.00	5	920.2	815.8
523151	OCHLTRE_TR1113.200	5	0	0
523154	OCHILTREE 3115.00	5	1030.4	833.8
523160	FRISCO_WND 3115.00	5	1389.1	895.9
523174	GOODWELLWND3115.00	5	2144	1952.6
523195	HANSFORD 3115.00	5	2214.5	1296.6
523302	MOORE_TR1 113.200	5	0	0
523308	MOORE_E 3115.00	5	2114.1	1768.8
523957	POTTER_TR 113.200	5	0	0
523959	POTTER_CO 6230.00	5	4603.9	1837.8
524296	SPNSPUR_WND7345.00	5	499.8	275.6
525832	TUCO_INT 7345.00	5	1862.4	1797.4
531448	HOLCOMB3 115.00	5	4447	3860
531450	HOLCTER1 13.800	5	0	0
531465	SETAB 7 345.00	5	1369.4	1359.3
531469	SPERVIL7 345.00	5	2154.8	2280.5
531501	BUCKNER7 345.00	5	2028.6	1985.4
531998	HOLCOMB_2-ST22.000	5	10624.6	7476.8
531999	HOLCOMB_1-CT18.000	5	5279.2	4801.6
532771	RENO 7 345.00	5	463.3	402.9
532791	BENTON 7 345.00	5	2111	2239.4
532798	VIOLA 7 345.00	5	782.7	777.3

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
532829	WICH11 1 13.800	5	0	0
532830	WICH12 1 13.800	5	0	0
533040	EVANS N4 138.00	5	5712.6	6245.3
539638	FLATRDG3 138.00	5	1252.2	1568.1
539803	IRONWOOD7 345.00	5	483.4	436.1
560019	G14-058-TAP 345.00	5	3435.2	3856.6
562476	G14-001-TAP 345.00	5	373.8	322.8
573510	G0847&1419G10.6900	5	15701.2	16100
576397	G10-014-XF-1115.00	5	2017.6	1771.6
576407	G10-014-XF-2115.00	5	1568.6	610
579253	G07-21&14-02345.00	5	256.8	163.4
579268	G07-44&14-03345.00	5	378.2	241.9
579353	G07-062-GSU134.500	5	2550.8	1343
579356	G07-062-GSU234.500	5	2487.4	1312.6
579359	G07-062XFMR334.500	5	3258.8	1772.8
579362	G07-062XFMR434.500	5	3285	1784.6
581115	G11-014-GEN10.6900	5	3564.8	4070.4
581151	G11-022-GSU134.500	5	6023	4904.8
581152	G11-022-GSU234.500	5	5917.6	4870.6
582008	GEN-2011-008345.00	5	510.5	415.2
582219	G11-019-GSU134.500	5	4883.4	2393.8
582220	G11-020-GSU134.500	5	4908.2	2404
583091	G11-049XFMR134.500	5	1386.4	912.6
583094	G11-049XFMR234.500	5	1407.2	928.6
583111	G11-051XFMR134.500	5	2844	1075
583370	GEN-2012-024345.00	5	162.8	128.6
583790	GEN-2014-007345.00	5	323.8	283.9
583821	G13-035XFMR134.500	5	1523.6	856.4
583933	G14-026-GEN112.000	5	16501.2	16025.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
583991	G14-049XFMR134.500	5	1933.8	1420.4
584023	G14-052-GEN10.6900	5	3150.8	2609
584200	GEN-2014-061345.00	5	189.6	123.4
584213	G14-037-GEN10.6900	5	1625.8	4176
584216	G14-037-GEN20.6900	5	18655.6	6330
584291	G14-038XFMR134.500	5	6377.2	3855.6
584294	G14-038XFMR234.500	5	5402.4	3174.6

5.2. Short Circuit Result for POI Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010)

The results of the short circuit analysis for POI i.e., Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010) are tabulated below in table 5.1.2.

Table 5.1.2: Short circuit results for POI Tap on Hitchland to Beaver County 345kV (Optima 345kV – 560010)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
560010	G14-037-TAP 345.00	0 LEVELS	16154.6	11755.3
515554	BVRCNTY7 345.00	1 LEVELS	13602.2	5766.7
523097	HITCHLAND 7345.00	1 LEVELS	19115.3	6481.8
584210	GEN-2014-037345.00	1 LEVELS	1742.7	782.3
523091	HITCHLD_TR0113.200	2 LEVELS	0	0
523094	HITCHLD_TR2113.200	2 LEVELS	0	0
523095	HITCHLAND 6230.00	2 LEVELS	6098.3	1942.1
523101	NOBLE_WND 7345.00	2 LEVELS	986.2	788
523112	NOVUS1 7345.00	2 LEVELS	3234.2	1415
523853	FINNEY 7345.00	2 LEVELS	4296.9	2145.6
560000	G11-14-TAP 345.00	2 LEVELS	9769	6014.5
560011	G14-038T 345.00	2 LEVELS	4685.8	1541.3
573501	G08-47&14-19345.00	2 LEVELS	1321	1056

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
576395	GEN-2010-014345.00	2 LEVELS	1347	769.4
578542	GEN-2010-001345.00	2 LEVELS	2308.4	1558.3
581148	GEN-2011-022345.00	2 LEVELS	1405.4	1001.8
583760	GEN-2013-030345.00	2 LEVELS	2124.4	1111.6
584211	G14-037XFMR134.500	2 LEVELS	8263	3709.4
584214	G14-037XFMR234.500	2 LEVELS	9174.6	4121
515375	WWRDEHV7 345.00	3 LEVELS	9264.4	6797.1
522801	NOVUS-44 115.00	3 LEVELS	5615.6	2418.9
523092	HITCHLD_TR1113.200	3 LEVELS	0	0
523093	HITCHLAND 3115.00	3 LEVELS	7227.9	3146.5
523098	HITCHLD_TR4113.200	3 LEVELS	0	0
523102	NOBLE_TR 113.800	3 LEVELS	0	0
523103	NOBLE_WND 3115.00	3 LEVELS	2958.4	2366.2
523110	NOVUS1_TR1 113.800	3 LEVELS	0	0
523111	NOVUS1 3115.00	3 LEVELS	4092	1835.2
523118	BUFF_DUNES 7345.00	3 LEVELS	321.9	217.7
523155	OCHILTREE 6230.00	3 LEVELS	613.8	401.4
523309	MOORE_CNTY 6230.00	3 LEVELS	2163.2	915.4
523961	POTTER_CO 7345.00	3 LEVELS	3453.6	1365.7
531449	HOLCOMB7 345.00	3 LEVELS	4420.4	2822
573504	G0847&1419X234.500	3 LEVELS	2183.2	1732.2
573507	G0847&1419HV345.00	3 LEVELS	1099.2	878.6
576396	G10-014-XFMR115.00	3 LEVELS	4166.2	2416.1
578543	G10-001XFMR134.500	3 LEVELS	6292.8	5019.4
578546	G10-001XFMR234.500	3 LEVELS	6258.4	5009.6
581112	GEN-2011-014345.00	3 LEVELS	884.8	688
581149	G11-022XFMR134.500	3 LEVELS	7081.4	5026.8
581150	G11-022XFMR234.500	3 LEVELS	6973	4991.4
583761	G13-030XFMR134.500	3 LEVELS	10665.8	5558.6

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
583764	G13-030XFMR234.500	3 LEVELS	10578.4	5558.4
583930	GEN-2014-026345.00	3 LEVELS	1067.8	553
584020	GEN-2014-052345.00	3 LEVELS	856.2	684.6
584212	G14-037-GSU134.500	3 LEVELS	8190.4	3603
584215	G14-037-GSU234.500	3 LEVELS	9129.2	4066.6
584290	GEN-2014-038345.00	3 LEVELS	1461.8	749.6
599950	LAMAR7 345.00	3 LEVELS	0	0
515376	WWRDEHV4 138.00	4 LEVELS	3387.7	2673.2
515458	BORDER 7345.00	4 LEVELS	678.1	255.1
515795	WWDEHV31 13.800	4 LEVELS	0	0
515799	WWDEHV21 13.800	4 LEVELS	0	0
522802	NOVUS-1 115.00	4 LEVELS	2007.6	883.6
522803	NOVUS-2 115.00	4 LEVELS	2461.2	967
522804	NOVUS-44-3 115.00	4 LEVELS	3156.2	1456.2
523090	TEXAS_CNTY 3115.00	4 LEVELS	1697.4	1574.8
523108	NOVUS1 234.500	4 LEVELS	6944.2	3171.6
523114	BUFF_DN_TR1113.800	4 LEVELS	0	0
523115	BUFF_DN_TR2113.800	4 LEVELS	0	0
523119	BUFF_DUNES3134.500	4 LEVELS	3222.3	2182
523128	NBLWND-LV2 134.500	4 LEVELS	3238.6	2734.2
523130	NBLWND-HV2 3115.00	4 LEVELS	962.2	769.4
523131	NBLWND-HV3 3115.00	4 LEVELS	1025	821.4
523151	OCHLTRE_TR1113.200	4 LEVELS	0	0
523154	OCHILTREE 3115.00	4 LEVELS	1246.8	799
523160	FRISCO_WND 3115.00	4 LEVELS	1659.9	934.9
523174	GOODWELLWND3115.00	4 LEVELS	2390.9	1950.4
523195	HANSFORD 3115.00	4 LEVELS	2708.3	1378.8
523302	MOORE_TR1 113.200	4 LEVELS	0	0
523308	MOORE_E 3115.00	4 LEVELS	2357.2	1769.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523957	POTTER_TR 113.200	4 LEVELS	0	0
523959	POTTER_CO 6230.00	4 LEVELS	5908.8	2134.5
524296	SPNSPUR_WND7345.00	4 LEVELS	607.7	306.2
531448	HOLCOMB3 115.00	4 LEVELS	4871.7	3862.6
531450	HOLCTER1 13.800	4 LEVELS	0	0
531465	SETAB 7 345.00	4 LEVELS	1423.2	1339.7
531501	BUCKNER7 345.00	4 LEVELS	2121.7	1959.9
531998	HOLCOMB_2-ST22.000	4 LEVELS	12074.2	7856.6
531999	HOLCOMB_1-CT18.000	4 LEVELS	5552.4	4858.8
539801	THISTLE7 345.00	4 LEVELS	3334.7	3542.2
562075	G11-051-TAP 345.00	4 LEVELS	3449.7	3155.5
573505	G0847&1419S234.500	4 LEVELS	2151.8	1705
573508	G0847&1419X134.500	4 LEVELS	10991.6	8786.6
576397	G10-014-XF-1115.00	4 LEVELS	2292.4	1777.4
576407	G10-014-XF-2115.00	4 LEVELS	1998.4	745.6
578544	G10-001-GSU134.500	4 LEVELS	6257.6	4988.6
578547	G10-001-GSU234.500	4 LEVELS	6204.8	4964.2
579351	GEN-2007-062345.00	4 LEVELS	1069.6	658.1
581113	G11-014XFMR134.500	4 LEVELS	8847.2	6880.4
581151	G11-022-GSU134.500	4 LEVELS	7024.2	4964.4
581152	G11-022-GSU234.500	4 LEVELS	6900.8	4917
582019	GEN-2011-019345.00	4 LEVELS	445	251.8
582020	GEN-2011-020345.00	4 LEVELS	445	251.4
583762	G13-030-GSU134.500	4 LEVELS	10608.4	5505.6
583765	G13-030-GSU234.500	4 LEVELS	10480.6	5468.6
583931	G14-026XFMR134.500	4 LEVELS	10678	5530.6
584021	G14-052XFMR134.500	4 LEVELS	8561.8	6845.8
584213	G14-037-GEN10.6900	4 LEVELS	9516.4	154.2
584216	G14-037-GEN20.6900	4 LEVELS	16458	3328.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
584291	G14-038XFMR134.500	4 LEVELS	7906.8	4097.8
584294	G14-038XFMR234.500	4 LEVELS	6712	3399
514785	WOODWRD4 138.00	5 LEVELS	2478.8	2114.2
514796	IODINE-4 138.00	5 LEVELS	712.9	771
515394	KEENAN 4 138.00	5 LEVELS	496.6	318.2
515398	OUSPRT 4 138.00	5 LEVELS	311.2	192
515407	TATONGA7 345.00	5 LEVELS	3722.1	3761.1
522797	NOVUS-44-1-234.500	5 LEVELS	6692	2945.4
522798	NOVUS-44-2-234.500	5 LEVELS	8204.2	3223.4
522799	NOVUS-44-3-234.500	5 LEVELS	10520.6	4854.2
523085	TC-TXCN_TR1113.200	5 LEVELS	0	0
523086	TC-TXCN_TR2113.200	5 LEVELS	0	0
523087	TC-TXCOUNTY134.500	5 LEVELS	1523.6	668.1
523089	TC-TXCOUNTY269.000	5 LEVELS	654.3	1342.2
523099	TC-WHITING 3115.00	5 LEVELS	147	301.4
523106	TXPHSF 3115.00	5 LEVELS	894.4	266.8
523109	NOVUS1 134.500	5 LEVELS	6892.2	3120.6
523113	TC-MCMURRY 3115.00	5 LEVELS	228.7	363.4
523117	BUFF_DUNES2134.500	5 LEVELS	2977.8	1989.4
523120	COLE 3115.00	5 LEVELS	383.6	795.5
523125	NBLWND-CB2 134.500	5 LEVELS	3078.4	2454.2
523127	NBLWND-LV1 134.500	5 LEVELS	3207.6	2564.8
523129	NBLWND-LV3 134.500	5 LEVELS	3418.1	2881.1
523140	TXFARMS 3115.00	5 LEVELS	1080	210.9
523147	WADE 3115.00	5 LEVELS	44.6	101.3
523158	PERRYTON 3115.00	5 LEVELS	83.2	188.6
523175	LASLEY 3115.00	5 LEVELS	1297.4	894.2
523177	RB-SPURLOCK3115.00	5 LEVELS	674.3	424.8
523186	SPEARMAN 3115.00	5 LEVELS	3278.2	1797

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523197	EXCELN4-HV23115.00	5 LEVELS	1129.6	798
523216	RB-HOGUE 3115.00	5 LEVELS	144.8	180.3
523256	ETTER 3115.00	5 LEVELS	540	599.8
523277	VALERO 3115.00	5 LEVELS	462.7	644.9
523301	MOORE_E 113.200	5 LEVELS	1233.1	1510.8
523304	MOORE_W 3115.00	5 LEVELS	1686.1	934.3
523869	CHAN/TASCOS6230.00	5 LEVELS	301.6	266.2
523979	HARRNG_EST 6230.00	5 LEVELS	3084.9	1878.3
524010	ROLLHILLS 6230.00	5 LEVELS	2160.4	889.5
524267	BUSHLAND 6230.00	5 LEVELS	1483.1	1164.6
524294	SPNSPUR-XF2 34.500	5 LEVELS	2980	1503.4
524295	SPNSPUR_WND134.500	5 LEVELS	3101.2	1563.6
531259	SETAB 1 13.800	5 LEVELS	0	0
531379	JONES3 115.00	5 LEVELS	189	185.3
531393	PLYMELL3 115.00	5 LEVELS	986.7	1176.3
531420	FLETCHR3 115.00	5 LEVELS	981.2	1089.8
531445	GRDNCTY3 115.00	5 LEVELS	2221.8	1907
531447	HOLCGEN1 22.000	5 LEVELS	19401	17331.6
531451	MINGO 7 345.00	5 LEVELS	1101.7	1159.4
531464	SETAB 3 115.00	5 LEVELS	341.2	484.2
531469	SPERVIL7 345.00	5 LEVELS	2159.7	2254.2
531502	CIMRRN 7 345.00	5 LEVELS	213.4	150.8
531504	CPV_CIMRRN 7345.00	5 LEVELS	176.8	124.8
531609	WDCTWF-1 345.00	5 LEVELS	335.4	232.4
532796	WICHITA7 345.00	5 LEVELS	2834.3	3299.8
539800	CLARKCOUNTY7345.00	5 LEVELS	1393.9	1268.7
539802	THISTLE T1 13.800	5 LEVELS	0	0
539804	THISTLE4 138.00	5 LEVELS	1142.6	1402.8
560015	G14-067-TAP 230.00	5 LEVELS	2218.2	1875

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
562487	G14_007-TAP 345.00	5 LEVELS	386.8	449
573506	G0847&1419G20.6900	5 LEVELS	7585.6	5250.6
573509	G0847&1419S134.500	5 LEVELS	10820.8	8640.6
576398	G10-014XFMR134.500	5 LEVELS	7641.2	5924.8
576408	G10-014XFMR234.500	5 LEVELS	6661.6	2485.2
578545	G10-001-GEN10.6900	5 LEVELS	12876.2	9434.6
578548	G10-001-GEN20.6900	5 LEVELS	10240	8205.8
579135	DEWIND-HV 115.00	5 LEVELS	448.6	227.4
579296	GWELL_XFMR-134.500	5 LEVELS	4648.2	3174.4
579299	GWELL_XFMR-234.500	5 LEVELS	3497	3508.1
579352	G07-062XFMR134.500	5 LEVELS	2332.4	1407.6
579355	G07-062XFMR234.500	5 LEVELS	2320.4	1408
579358	G07-062-HV-2345.00	5 LEVELS	578.9	354
580049	GEN-2010-045345.00	5 LEVELS	208.8	148.8
581114	G11-014-GSU134.500	5 LEVELS	8764.8	6818.6
581153	G11-022-GEN10.6900	5 LEVELS	11205.2	8218.2
581154	G11-022-GEN20.6900	5 LEVELS	5039	5852.2
582119	G11-019XFMR134.500	5 LEVELS	4450.8	2517.2
582120	G11-020XFMR134.500	5 LEVELS	4450.6	2514.2
583090	GEN-2011-049345.00	5 LEVELS	252.4	182.7
583110	GEN-2011-051345.00	5 LEVELS	240.6	106.8
583763	G13-030-GEN10.5750	5 LEVELS	16500.4	10336.4
583766	G13-030-GEN20.5750	5 LEVELS	8838.4	8119.6
583820	GEN-2013-035345.00	5 LEVELS	135.6	85.2
583932	G14-026-GSU134.500	5 LEVELS	10619.2	5478.6
583990	GEN-2014-049345.00	5 LEVELS	184	142.2
584022	G14-052-GSU134.500	5 LEVELS	8509.8	6799.6
584292	G14-038-GSU134.500	5 LEVELS	7832.2	4025.6
584295	G14-038-GSU234.500	5 LEVELS	6618.6	3304.2

5.3. Short Circuit Result for POI Tap on Hitchland to Potter County 345kV (560011)

The results of the short circuit analysis for POI i.e., Tap on Hitchland to Potter County 345kV (560011) are tabulated below in table 5.3.1.

Table 5.3.1: Short circuit results for POI Tap on Hitchland to Potter County 345kV (560011)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
560011	G14-038T 345.00	0 Level	10347.1	6732.4
523097	HITCHLAND 7345.00	1 Level	15908.1	5675.4
523961	POTTER_CO 7345.00	1 Level	4531.6	1432.2
584290	GEN-2014-038345.00	1 Level	1755.8	780.2
523091	HITCHLD_TR0113.200	2 Level	0	0
523094	HITCHLD_TR2113.200	2 Level	0	0
523095	HITCHLAND 6230.00	2 Level	3263.9	1566.4
523101	NOBLE_WND 7345.00	2 Level	840	783
523112	NOVUS1 7345.00	2 Level	2082.4	1276.9
523853	FINNEY 7345.00	2 Level	2879.2	2051.2
523957	POTTER_TR 113.200	2 Level	0	0
523959	POTTER_CO 6230.00	2 Level	6433.9	2024.4
524296	SPNSPUR_WND7345.00	2 Level	685.6	314
560010	G14-037-TAP 345.00	2 Level	7275.8	1964.4
576395	GEN-2010-014345.00	2 Level	963.2	733.6
581148	GEN-2011-022345.00	2 Level	1121.2	984.4
584291	G14-038XFMR134.500	2 Level	9491.2	4260.6
584294	G14-038XFMR234.500	2 Level	8066.4	3541.2
515554	BVRCNTY7 345.00	3 Level	8234.2	4849.2
522801	NOVUS-44 115.00	3 Level	3594.4	2175.9
523092	HITCHLD_TR1113.200	3 Level	0	0
523093	HITCHLAND 3115.00	3 Level	4589.9	2700.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523098	HITCHLD_TR4113.200	3 Level	0	0
523102	NOBLE_TR 113.800	3 Level	0	0
523103	NOBLE_WND 3115.00	3 Level	2520.9	2351.8
523110	NOVUS1_TR1 113.800	3 Level	0	0
523111	NOVUS1 3115.00	3 Level	2660.8	1662.9
523118	BUFF_DUNES 7345.00	3 Level	259.6	203.6
523155	OCHILTREE 6230.00	3 Level	375.8	451.2
523309	MOORE_CNTY 6230.00	3 Level	1147.5	772.8
523869	CHAN/TASCOS6230.00	3 Level	217.7	254.8
523979	HARRNG_EST 6230.00	3 Level	3043.6	1831.9
524010	ROLLHILLS 6230.00	3 Level	2376.4	880.7
524267	BUSHLAND 6230.00	3 Level	1498.9	1156.9
524294	SPNSPUR-XF2 34.500	3 Level	3363.4	1542.4
524295	SPNSPUR_WND134.500	3 Level	3496.2	1603.6
531449	HOLCOMB7 345.00	3 Level	3296.6	2804.1
560015	G14-067-TAP 230.00	3 Level	2230.7	1865.4
576396	G10-014-XFMR115.00	3 Level	3031.9	2275.7
581149	G11-022XFMR134.500	3 Level	5639.6	4934.6
581150	G11-022XFMR234.500	3 Level	5572.2	4910
584210	GEN-2014-037345.00	3 Level	1065.4	689.6
584292	G14-038-GSU134.500	3 Level	9432.4	4186.2
584295	G14-038-GSU234.500	3 Level	7995.8	3443.8
599950	LAMAR7 345.00	3 Level	0	0
522802	NOVUS-1 115.00	4 Level	1287.6	807.8
522803	NOVUS-2 115.00	4 Level	1543	830
522804	NOVUS-44-3 115.00	4 Level	2054.8	1349.2
523090	TEXAS_CNTY 3115.00	4 Level	1533.9	1647.1
523108	NOVUS1 234.500	4 Level	4570.6	2856.6
523114	BUFF_DN_TR1113.800	4 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523115	BUFF_DN_TR2113.800	4 Level	0	0
523119	BUFF_DUNES3134.500	4 Level	2600.4	2040
523128	NBLWND-LV2 134.500	4 Level	2824.2	2753.4
523130	NBLWND-HV2 3115.00	4 Level	812.2	770.6
523131	NBLWND-HV3 3115.00	4 Level	877.6	814.2
523151	OCHLTRE_TR1113.200	4 Level	0	0
523154	OCHILTREE 3115.00	4 Level	836.4	851
523160	FRISCO_WND 3115.00	4 Level	1105.5	886.1
523174	GOODWELLWND3115.00	4 Level	2060.9	1953
523195	HANSFORD 3115.00	4 Level	1789.2	1282.1
523221	XIT_INTG 6230.00	4 Level	170.8	192.8
523267	PRINGLE 6230.00	4 Level	305.8	186
523302	MOORE_TR1 113.200	4 Level	0	0
523308	MOORE_E 3115.00	4 Level	1906.5	1758.9
523866	CHANNING 134.500	4 Level	0	0
523973	HARRNGTON3 124.000	4 Level	17570	14696.2
523977	HARRNG_WST 6230.00	4 Level	3366.4	2378.6
523978	HARRNG_MID 6230.00	4 Level	3481.3	3137.8
524007	ROLLHILLS 3115.00	4 Level	1560.1	1799.7
524008	ROLHILLS_TR113.200	4 Level	0	0
524263	BSHLND_TR1 113.200	4 Level	0	0
524266	BUSHLAND 3115.00	4 Level	724.4	888.8
524290	WILDOR2_JUS6230.00	4 Level	297.6	246.7
524293	SPNSPUR-GSU234.500	4 Level	3239	1422.6
524297	SPNSPUR-CB1 34.500	4 Level	3349.6	1455
524623	DEAFSMITH 6230.00	4 Level	2029.7	1738.4
525461	NEWHART 6230.00	4 Level	1912.1	1893.1
531448	HOLCOMB3 115.00	4 Level	4145.5	3861.8
531450	HOLCTER1 13.800	4 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
531465	SETAB 7 345.00	4 Level	1319.4	1367.4
531501	BUCKNER7 345.00	4 Level	1967.3	1983
531998	HOLCOMB_2-ST22.000	4 Level	9473.8	7357
531999	HOLCOMB_1-CT18.000	4 Level	5109.2	4781.6
560000	G11-14-TAP 345.00	4 Level	6944.7	5864.6
573501	G08-47&14-19345.00	4 Level	1116	1038.2
576397	G10-014-XF-1115.00	4 Level	1907	1770
576407	G10-014-XF-2115.00	4 Level	1265.6	579.8
578542	GEN-2010-001345.00	4 Level	1746.5	1502.9
581151	G11-022-GSU134.500	4 Level	5556.6	4891.2
581152	G11-022-GSU234.500	4 Level	5469.6	4859.8
583760	GEN-2013-030345.00	4 Level	1393	1024.3
584140	GEN-2014-067230.00	4 Level	1888.8	1799.2
584211	G14-037XFMR134.500	4 Level	5063.8	3254.2
584214	G14-037XFMR234.500	4 Level	5598	3649.6
584293	G14-038-GEN10.6900	4 Level	11617.7	9310.8
584296	G14-038-GEN20.6900	4 Level	19794.1	12193.4
515375	WWRDEHV7 345.00	5 Level	7288.7	6787
522797	NOVUS-44-1-234.500	5 Level	4292	2692.4
522798	NOVUS-44-2-234.500	5 Level	5143.2	2766.4
522799	NOVUS-44-3-234.500	5 Level	6849.6	4497.4
523085	TC-TXCN_TR1113.200	5 Level	0	0
523086	TC-TXCN_TR2113.200	5 Level	0	0
523087	TC-TXCOUNTY134.500	5 Level	1001.1	619.8
523089	TC-TXCOUNTY269.000	5 Level	1030.2	1447.2
523099	TC-WHITING 3115.00	5 Level	231.4	325
523106	TXPHSF 3115.00	5 Level	532.8	212.4
523109	NOVUS1 134.500	5 Level	4510.4	2818
523113	TC-MCMURRY 3115.00	5 Level	290	390.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
523117	BUFF_DUNES2134.500	5 Level	2368.2	1871.6
523120	COLE 3115.00	5 Level	592.4	865.3
523125	NBLWND-CB2 134.500	5 Level	2569.6	2475.6
523127	NBLWND-LV1 134.500	5 Level	2707.4	2568.6
523129	NBLWND-LV3 134.500	5 Level	2976.6	2901.8
523140	TXFARMS 3115.00	5 Level	526.6	139
523147	WADE 3115.00	5 Level	75.5	109.9
523158	PERRYTON 3115.00	5 Level	140.5	204.6
523175	LASLEY 3115.00	5 Level	930.6	878.3
523177	RB-SPURLOCK3115.00	5 Level	454.2	396.4
523186	SPEARMAN 3115.00	5 Level	2225.6	1592.4
523197	EXCELN4-HV23115.00	5 Level	904.6	786.6
523216	RB-HOGUE 3115.00	5 Level	161.4	186.4
523219	XIT_INTG TR113.200	5 Level	0	0
523220	XIT_INTG 3115.00	5 Level	329.3	367.7
523256	ETTER 3115.00	5 Level	549.6	618.7
523265	PRINGLE_TR 113.200	5 Level	0	0
523266	PRINGLE 3115.00	5 Level	1739.3	859.3
523277	VALERO 3115.00	5 Level	532.2	668.6
523301	MOORE_E 113.200	5 Level	1419.4	1561.2
523304	MOORE_W 3115.00	5 Level	1217	901.9
523971	HARRNGTON1 124.000	5 Level	17417.2	14673
523972	HARRNGTON2 124.000	5 Level	17626.8	14710.8
524009	CHERRY 3115.00	5 Level	143.8	160.8
524043	NICHOLS 3115.00	5 Level	4640.7	4276.6
524044	NICHOLS 6230.00	5 Level	3923.3	3688
524106	NORTHWEST 3115.00	5 Level	1150.5	1280.3
524136	HASTINGS 3115.00	5 Level	342.4	325.4
524163	EAST_PLANT 6230.00	5 Level	641.8	761.8

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
524276	WILDOR_WND 6230.00	5 Level	195.8	164.8
524289	GS-PHWDRNCH134.500	5 Level	641.4	536.2
524292	SPNSPUR_WND20.6900	5 Level	1952	11126.2
524298	SPNSPUR_WND10.6900	5 Level	7482.8	12752.2
524300	HILLSIDE 3115.00	5 Level	725.9	891
524365	RANDALL 6230.00	5 Level	1294.7	1444.1
524620	DEFSMTH_TR1113.200	5 Level	0	0
524621	DEFSMTH_TR2113.800	5 Level	0	0
524622	DEAFSMITH 3115.00	5 Level	2983.4	3164.6
524625	DEAFSMITH_1 18.000	5 Level	10990.6	10818.6
525213	SWISHER 6230.00	5 Level	1540.2	1541.4
525458	NEWHART_TR2113.200	5 Level	0	0
525459	NEWHART_TR1113.200	5 Level	0	0
525460	NEWHART 3115.00	5 Level	1653	1798.9
525481	PLANT_X 6230.00	5 Level	3283.2	3074.7
531259	SETAB 1 13.800	5 Level	0	0
531379	JONES3 115.00	5 Level	154.8	206.6
531393	PLYMELL3 115.00	5 Level	1092.2	1206.6
531420	FLETCHR3 115.00	5 Level	1040.3	1108.6
531445	GRDNCTY3 115.00	5 Level	2010.7	1884.3
531447	HOLCGEN1 22.000	5 Level	17933.6	17203.8
531451	MINGO 7 345.00	5 Level	1114.2	1184.8
531464	SETAB 3 115.00	5 Level	359	545.5
531469	SPERVIL7 345.00	5 Level	2186.2	2295.9
531502	CIMRRN 7 345.00	5 Level	173.2	144.2
531504	CPV_CIMRRN 7345.00	5 Level	143.6	119.2
531609	WDCTWF-1 345.00	5 Level	270.4	221.2
560016	G14-068-TAP 230.00	5 Level	1424.8	1142.8
573504	G0847&1419X234.500	5 Level	1831.6	1704.8

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
573507	G0847&1419HV345.00	5 Level	926.6	865.6
576398	G10-014XFMR134.500	5 Level	6357	5900
576408	G10-014XFMR234.500	5 Level	4219	1933
578543	G10-001XFMR134.500	5 Level	5290.2	4950
578546	G10-001XFMR234.500	5 Level	5273.8	4942.6
579135	DEWIND-HV 115.00	5 Level	317	211
579296	GWELL_XFMR-134.500	5 Level	3574.8	3174.2
579299	GWELL_XFMR-234.500	5 Level	3453.5	3543.1
580049	GEN-2010-045345.00	5 Level	170.9	142
581112	GEN-2011-014345.00	5 Level	733.6	674.4
581153	G11-022-GEN10.6900	5 Level	17833.6	4556.4
581154	G11-022-GEN20.6900	5 Level	13483.4	2993.8
583761	G13-030XFMR134.500	5 Level	6971.8	5125.4
583764	G13-030XFMR234.500	5 Level	6957.8	5117.6
583930	GEN-2014-026345.00	5 Level	694	511.2
584020	GEN-2014-052345.00	5 Level	727.2	669.8
584143	G14-067-GCT118.000	5 Level	13740.8	13112.4
584146	G14-067-GST118.000	5 Level	10393.8	9877.2
584212	G14-037-GSU134.500	5 Level	4946	3179.6
584215	G14-037-GSU234.500	5 Level	5531.6	3616.6

5.4. Short Circuit Result for POI Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000)

The results of the short circuit analysis for POI i.e., Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000) are tabulated below in table 5.4.1.

Table 5.4.1: Short circuit results for POI Tap on Beaver County to Woodward 345kV (GEN 2011-014 tap 560000)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
560000	G11-14-TAP 345.00	0 LEVELS	13992.1	8296.9
515375	WWRDEHV7 345.00	1 LEVELS	12499.4	6845.1
515554	BVRCNTY7 345.00	1 LEVELS	16841.7	6183.4
581112	GEN-2011-014345.00	1 LEVELS	1028.6	693.8
584020	GEN-2014-052345.00	1 LEVELS	974	690.4
515376	WWRDEHV4 138.00	2 LEVELS	4577.9	2666.9
515458	BORDER 7345.00	2 LEVELS	974.6	277.8
515795	WWDEHV31 13.800	2 LEVELS	0	0
515799	WWDEHV21 13.800	2 LEVELS	0	0
539801	THISTLE7 345.00	2 LEVELS	3941.3	3553.5
560010	G14-037-TAP 345.00	2 LEVELS	11747.9	2797.6
562075	G11-051-TAP 345.00	2 LEVELS	4458.4	3134.9
573501	G08-47&14-19345.00	2 LEVELS	1255.2	1044.7
578542	GEN-2010-001345.00	2 LEVELS	2184	1526.6
579351	GEN-2007-062345.00	2 LEVELS	1305.8	678.9
581113	G11-014XFMR134.500	2 LEVELS	10285.2	6938.6
582019	GEN-2011-019345.00	2 LEVELS	558.8	261
582020	GEN-2011-020345.00	2 LEVELS	559.2	260.6
583760	GEN-2013-030345.00	2 LEVELS	2012	1066
584021	G14-052XFMR134.500	2 LEVELS	9739	6904.8
514785	WOODWRD4 138.00	3 LEVELS	3236.8	2105.7
514796	IODINE-4 138.00	3 LEVELS	820.7	763.3
515394	KEENAN 4 138.00	3 LEVELS	604.8	325.6
515398	OUSPRT 4 138.00	3 LEVELS	383.6	197
515407	TATONGA7 345.00	3 LEVELS	4446.3	3732.2
523097	HITCHLAND 7345.00	3 LEVELS	11891.7	4764.8
532796	WICHITA7 345.00	3 LEVELS	2857.8	3291.6
539800	CLARKCOUNTY7345.00	3 LEVELS	1710.6	1312.3
539802	THISTLE T1 13.800	3 LEVELS	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
539804	THISTLE4 138.00	3 LEVELS	1091	1393.4
562487	G14_007-TAP 345.00	3 LEVELS	573.2	427.7
573504	G0847&1419X234.500	3 LEVELS	2070.8	1714
573507	G0847&1419HV345.00	3 LEVELS	1042.8	869.8
578543	G10-001XFMR134.500	3 LEVELS	5963.4	4969.6
578546	G10-001XFMR234.500	3 LEVELS	5931.4	4961
579352	G07-062XFMR134.500	3 LEVELS	2866.2	1453.8
579355	G07-062XFMR234.500	3 LEVELS	2847	1453.6
579358	G07-062-HV-2345.00	3 LEVELS	709.6	364.9
581114	G11-014-GSU134.500	3 LEVELS	10226.4	6871.2
582119	G11-019XFMR134.500	3 LEVELS	5588.6	2610
582120	G11-020XFMR134.500	3 LEVELS	5591	2607
583090	GEN-2011-049345.00	3 LEVELS	296.6	184.8
583110	GEN-2011-051345.00	3 LEVELS	318.6	113.6
583761	G13-030XFMR134.500	3 LEVELS	10098.4	5330.6
583764	G13-030XFMR234.500	3 LEVELS	10021.8	5329.8
583820	GEN-2013-035345.00	3 LEVELS	164.6	87.6
583930	GEN-2014-026345.00	3 LEVELS	1010.2	530.6
583990	GEN-2014-049345.00	3 LEVELS	198.6	142.6
584022	G14-052-GSU134.500	3 LEVELS	9704.4	6855.6
584210	GEN-2014-037345.00	3 LEVELS	1115	682.1
514782	WODWRD 2 69.000	4 LEVELS	1708.4	1707.5
514783	WOODWR11 24.900	4 LEVELS	174.2	220.4
514787	DEWEY 4 138.00	4 LEVELS	995.9	910.1
515363	CENT 4 138.00	4 LEVELS	595.5	275.7
515392	KEENAN T 9.9600	4 LEVELS	0	0
515393	KEENAN 1 34.500	4 LEVELS	2420.9	1304.7
515396	OUSPRT T 9.9600	4 LEVELS	0	0
515397	OUSPRT 1 34.500	4 LEVELS	1536.4	790

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515448	CRSRDSW7 345.00	4 LEVELS	316.6	184.8
515771	WOODWR21 13.200	4 LEVELS	0	0
515785	WINDFRM4 138.00	4 LEVELS	2206.6	1407.2
523091	HITCHLD_TR0113.200	4 LEVELS	0	0
523094	HITCHLD_TR2113.200	4 LEVELS	0	0
523095	HITCHLAND 6230.00	4 LEVELS	3802.3	1627.5
523101	NOBLE_WND 7345.00	4 LEVELS	808.8	777.4
523112	NOVUS1 7345.00	4 LEVELS	2026.4	1246.8
523853	FINNEY 7345.00	4 LEVELS	3033.3	2082
525832	TUCO_INT 7345.00	4 LEVELS	1936.8	1793.6
531469	SPERVIL7 345.00	4 LEVELS	2239	2294.1
532771	RENO 7 345.00	4 LEVELS	501.4	406
532791	BENTON 7 345.00	4 LEVELS	2122.7	2236.2
532798	VIOLA 7 345.00	4 LEVELS	788.7	777.8
532829	WICH11 1 13.800	4 LEVELS	0	0
532830	WICH12 1 13.800	4 LEVELS	0	0
533040	EVANS N4 138.00	4 LEVELS	5622	6223.8
539638	FLATRDG3 138.00	4 LEVELS	1249.9	1556.9
539803	IRONWOOD7 345.00	4 LEVELS	506.9	431.7
560011	G14-038T 345.00	4 LEVELS	2932.7	1139.7
560019	G14-058-TAP 345.00	4 LEVELS	3723.4	3830.2
562476	G14-001-TAP 345.00	4 LEVELS	407.5	324.2
573505	G0847&1419S234.500	4 LEVELS	2032.4	1689.4
573508	G0847&1419X134.500	4 LEVELS	10427.6	8697.6
576395	GEN-2010-014345.00	4 LEVELS	928	722.8
578544	G10-001-GSU134.500	4 LEVELS	5921.6	4941.6
578547	G10-001-GSU234.500	4 LEVELS	5868	4919.6
579253	G07-21&14-02345.00	4 LEVELS	273.2	166.4
579268	G07-44&14-03345.00	4 LEVELS	402	246.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
579353	G07-062-GSU134.500	4 LEVELS	2776	1378.6
579356	G07-062-GSU234.500	4 LEVELS	2707.8	1344.2
579359	G07-062XFMR334.500	4 LEVELS	3533.4	1818.8
579362	G07-062XFMR434.500	4 LEVELS	3562.4	1830.6
581115	G11-014-GEN10.6900	4 LEVELS	11324.2	3563.4
581148	GEN-2011-022345.00	4 LEVELS	1077.6	975.1
582008	GEN-2011-008345.00	4 LEVELS	503	413.8
582219	G11-019-GSU134.500	4 LEVELS	5362.4	2453
582220	G11-020-GSU134.500	4 LEVELS	5389	2465.2
583091	G11-049XFMR134.500	4 LEVELS	1472.2	915.6
583094	G11-049XFMR234.500	4 LEVELS	1493.4	931.6
583111	G11-051XFMR134.500	4 LEVELS	3186.2	1135.6
583370	GEN-2012-024345.00	4 LEVELS	161.6	128.6
583762	G13-030-GSU134.500	4 LEVELS	10036.6	5282.6
583765	G13-030-GSU234.500	4 LEVELS	9916.8	5248.8
583790	GEN-2014-007345.00	4 LEVELS	326.2	284.4
583821	G13-035XFMR134.500	4 LEVELS	1645.6	876.8
583931	G14-026XFMR134.500	4 LEVELS	10102	5306.2
583991	G14-049XFMR134.500	4 LEVELS	1985.2	1426.6
584023	G14-052-GEN10.6900	4 LEVELS	5221.2	2775.4
584200	GEN-2014-061345.00	4 LEVELS	201	125.6
584211	G14-037XFMR134.500	4 LEVELS	5303.8	3220.6
584214	G14-037XFMR234.500	4 LEVELS	5853.2	3608.8
511456	O.K.U.-7 345.00	5 LEVELS	955.1	984.3
514008	KEENAN-1XF1 34.500	5 LEVELS	1166.2	636
514012	KEENAN-1XF2 34.500	5 LEVELS	1161.8	635
514085	OUSPRT-CB1 34.500	5 LEVELS	1495	773.2
514776	NEWGRTP2 69.000	5 LEVELS	386.6	467.6
514781	CEDARAV2 69.000	5 LEVELS	493.8	597.1

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514822	SOUTHRD4 138.00	5 LEVELS	596.3	659.5
515364	CENT 11 9.9600	5 LEVELS	0	0
515379	CENT CBXFMR134.500	5 LEVELS	2251.4	986
515390	TLGAWND4 138.00	5 LEVELS	253	256.6
515449	CRSRDW11 34.500	5 LEVELS	1394.4	807.8
515450	CRSRDW21 34.500	5 LEVELS	1772.2	1040.1
515451	CRSRDWT1 13.800	5 LEVELS	0	0
515452	CRSRDWT2 13.800	5 LEVELS	0	0
515497	MATHWSN7 345.00	5 LEVELS	3572.9	3993.7
515543	RENFROW7 345.00	5 LEVELS	588.6	592
515786	FPLWIND4 138.00	5 LEVELS	252.4	183.6
520999	MOORLND4 138.00	5 LEVELS	4554.5	3783.1
521065	TALOGA 4 138.00	5 LEVELS	532.8	408.2
521096	WOODWRD2 69.000	5 LEVELS	1285.4	874.8
522801	NOVUS-44 115.00	5 LEVELS	3499.4	2123.3
523092	HITCHLD_TR1113.200	5 LEVELS	0	0
523093	HITCHLAND 3115.00	5 LEVELS	4916.8	2740.9
523098	HITCHLD_TR4113.200	5 LEVELS	0	0
523102	NOBLE_TR 113.800	5 LEVELS	0	0
523103	NOBLE_WND 3115.00	5 LEVELS	2427.5	2334.9
523110	NOVUS1_TR1 113.800	5 LEVELS	0	0
523111	NOVUS1 3115.00	5 LEVELS	2587.7	1625.1
523118	BUFF_DUNES 7345.00	5 LEVELS	263.2	202.8
523155	OCHILTREE 6230.00	5 LEVELS	442	460.4
523309	MOORE_CNTY 6230.00	5 LEVELS	1468.1	817.6
523961	POTTER_CO 7345.00	5 LEVELS	2296.2	1209
525824	TUCO_TR1 113.200	5 LEVELS	2065.4	2123.6
525825	TUCO_TR2 113.200	5 LEVELS	0	0
525830	TUCO_INT 6230.00	5 LEVELS	3514	3355.1

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
525844	ELK_1 118.000	5 LEVELS	10651.4	10544.8
525845	ELK_4 1 18.000	5 LEVELS	12407.4	12309.6
526936	YOAKUM_345 345.00	5 LEVELS	1325.3	1363.4
531449	HOLCOMB7 345.00	5 LEVELS	3438	2830.4
531468	SPERTER1 13.800	5 LEVELS	0	0
531501	BUCKNER7 345.00	5 LEVELS	2029.8	2007.5
532721	EEC U1 16.000	5 LEVELS	9763.8	9212.6
532722	EEC U2 24.000	5 LEVELS	16476.4	15558.6
532729	EVAN SVC 8.0000	5 LEVELS	0	0
532768	EMPEC 7 345.00	5 LEVELS	2122.6	2160.4
532773	SUMMIT 7 345.00	5 LEVELS	398	417.5
532792	FR2EAST7 345.00	5 LEVELS	475.7	424.5
532794	ROSEHIL7 345.00	5 LEVELS	2185.2	2183.4
532797	WOLFCRK7 345.00	5 LEVELS	4022.4	3972.8
532807	RENO 1X1 14.400	5 LEVELS	0	0
532810	RENO 2X1 14.400	5 LEVELS	0	0
532821	BENTN1 1 13.800	5 LEVELS	0	0
532822	BENTN2 1 13.800	5 LEVELS	0	0
532832	VIOLA1X1 13.800	5 LEVELS	0	0
532986	BENTON 4 138.00	5 LEVELS	4151.8	4339.8
533041	EVANS S4 138.00	5 LEVELS	4487.5	4663.1
533065	SG12COL4 138.00	5 LEVELS	876.8	927.3
533075	VIOLA 4 138.00	5 LEVELS	1736.4	1833.5
533390	MAIZEW 4 138.00	5 LEVELS	2178	2237.4
533416	RENO 3 115.00	5 LEVELS	1873.2	1656.7
539631	FLATRWD3 138.00	5 LEVELS	163	166.4
539668	HARPER 4 138.00	5 LEVELS	1058.9	1242
539674	BARBER 4 138.00	5 LEVELS	303	425.2
539695	SPEARVL6 230.00	5 LEVELS	998.7	1105.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
539759	SPRVL 3 115.00	5 LEVELS	481.4	616.4
539809	IRONWOOD 1 7345.00	5 LEVELS	200.2	173.6
539960	SPRVL-T 13.800	5 LEVELS	0	0
560242	G11-017-TAP 345.00	5 LEVELS	1196.2	1243.3
562701	GEN-2006-006345.00	5 LEVELS	162.6	143.2
573506	G0847&1419G20.6900	5 LEVELS	1622.4	4471.4
573509	G0847&1419S134.500	5 LEVELS	10222.2	8565.6
576396	G10-014-XFMR115.00	5 LEVELS	2940	2243
578545	G10-001-GEN10.6900	5 LEVELS	16081.8	7081.6
578548	G10-001-GEN20.6900	5 LEVELS	13402.2	5979.4
579254	G0721&1402X134.500	5 LEVELS	2732.2	1663.4
579269	G0744&1403X134.500	5 LEVELS	2668.6	1634.2
579272	G0744&1403HV345.00	5 LEVELS	135.2	82.8
579354	G07-062-GEN10.6900	5 LEVELS	18801	8928.6
579357	G07-062-GEN20.6900	5 LEVELS	15387.4	7206
579360	G07-062-GSU334.500	5 LEVELS	3353.4	1692
579363	G07-062-GSU434.500	5 LEVELS	3403	1716.6
579480	GEN-2008-124230.00	5 LEVELS	242.4	206.9
581149	G11-022XFMR134.500	5 LEVELS	5422.2	4887.2
581150	G11-022XFMR234.500	5 LEVELS	5354	4863.6
582016	GEN-2011-016345.00	5 LEVELS	161.4	138.6
582108	G11-008XFMR134.500	5 LEVELS	941.6	763.2
582308	G11-008XFMR234.500	5 LEVELS	1155.2	976
582319	G11-019-GEN10.6900	5 LEVELS	8119.4	2648.4
582320	G11-020-GEN10.6900	5 LEVELS	9448.8	3256
582708	G-2011-008-1345.00	5 LEVELS	291.5	240.8
583092	G11-049-GSU134.500	5 LEVELS	1403.6	930.6
583095	G11-049-GSU234.500	5 LEVELS	1414.4	951.8
583112	G11-051-GSU134.500	5 LEVELS	3091.6	1068.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
583371	G12-024XFMR134.500	5 LEVELS	1616.4	1285.4
583763	G13-030-GEN10.5750	5 LEVELS	2196.8	16961
583766	G13-030-GEN20.5750	5 LEVELS	15013	14922.6
583791	G14-007XFMR134.500	5 LEVELS	1631.2	1421.8
583794	G14-007XFMR234.500	5 LEVELS	1630	1421.2
583822	G13-035-GSU134.500	5 LEVELS	1616.8	856.8
583850	GEN-2014-001345.00	5 LEVELS	151.6	136
583932	G14-026-GSU134.500	5 LEVELS	10038.8	5259.6
583992	G14-049-GSU134.500	5 LEVELS	1952.8	1426.6
584080	GEN-2014-058345.00	5 LEVELS	347.4	241.6
584201	G14-061XFMR134.500	5 LEVELS	2011	1255.2
584212	G14-037-GSU134.500	5 LEVELS	5183	3142.4
584215	G14-037-GSU234.500	5 LEVELS	5783.4	3573.6
584290	GEN-2014-038345.00	5 LEVELS	976.4	680.4
599950	LAMAR7 345.00	5 LEVELS	0	0

6. Stability Analysis for Cluster Scenario

6.1. Faults Simulated

Fifty Four (54) faults were considered for the transient stability simulations which included three phase faults, as well as single phase line faults, at the locations defined by SPP in the RFP. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location. As per the SPP current practice to compute the fault levels, the fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage

Concurrently and previously queued projects as respectively shown in Table-1 and Table-2 of the study request i.e., GEN-2002-008, GEN-2002-009, GEN-2003-020, GEN-2006-020S, GEN-2006-044, GEN-2007-046, GEN-2008-047, GEN-2010-001, GEN-2010-014, ASGI-2011-002, GEN-2011-014, GEN-2011-022, GEN-2013-030 as well as areas number 520, 524, 525, 526, 531, 534, and 536 were monitored during all the simulations. Table 6.1.1 shows the list of simulated contingencies. This table also shows the fault clearing time and the time delay before re-closing for all the study contingencies.

Simulations were performed with a 0.1-second steady-state run followed by the appropriate disturbance as described in Table 6.1.1. Simulations were run for minimum 15-second duration to confirm proper machine damping.

Table 6.1.1 summarizes the overall results for all faults simulations. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault are included in Appendices A, B and C respectively.

Table 6.1.1: List of simulated faults for cluster scenario stability analysis

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
4	FLT04-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1 & 2, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	**Oscillating**	**Oscillating**	**Oscillating**
5	FLT05-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Beaver 345kV (515554) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
6	FLT06-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Beaver 345kV (515554) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Oscillating
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Not Stable	Not Stable	Not Stable
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Border 345kV (515458) to G14_007-Tap 345kV (562487) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
18	FLT18-3PH	3 phase fault on the Tuco 345kV (525832) to OKU 345kV (511456) CKT 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Tuco 345kV (525832) to Tuco 230kV (525830) Tuco 13.2kV (525824) XFMR CKT 1, near Tuco 345kV. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Tatonga 345kV (515407) to G14-058-Tap 345kV (560019) CKT 1, near Tatonga. a. Apply fault at the Tatonga 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
23	FLT23-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) Thistle 13.8kV (539802) XFMR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Hitchland 345kV (523097) to G14-038T 345kV (560011) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
34	FLT34-3PH	3 phase fault on G14-038 Tap 345kV (560011) to Potter 345kV (523961) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
35	FLT35-3PH	3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	N/A	N/A	N/A
36	FLT36-3PH	3 phase fault on Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
37	FLT37-3PH	3 phase fault on the Finney 345kV (523853) to Lamar 345kV (599950) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.	Stable	Stable	Stable
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
40	FLT40-PO	Prior outage on the G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) 3 phase fault on Finney 345kV (523853) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
41	FLT41-PO	Prior outage on the G14-038 Tap 345kV (560011) to Potter 345kV (523961) 3 phase fault on Hitchland (523097) - Finney (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
42	FLT42-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-TAP (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to G14-058-TAP (560019) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
43	FLT43-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus on the Woodward – GEN-2011-051 tap (562075) 345kV line b. Wait 16 cycles, and then drop Woodward (515375) 345kV to Thistle (539801) 345kV ckt 1 c. Trip Woodward to GEN-2011-051 tap 345kV and remove the fault	Stable	Stable	Stable
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
46	FLT46-3PH	3 phase fault on the Holcomb 345kV (531449) to Setab 345kV (531465) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
47	FLT47-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) Holcomb 13.8kV (531450) XFMR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
48	FLT48-3PH	3 phase fault on the Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
49	FLT49-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-Tap (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to Mathewson (515497) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
50	FLT50-3PH	3 phase fault on the Potter 230kV (523959) to Harrington East 230kV (523979) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
51	FLT51-3PH	3 phase fault on the Potter 230kV (523959) to Bushland 230kV (524267) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Potter 230kV (523959) to Rollhills 230kV (524010) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

6.2. Simulation Results for Cluster Scenario

For cluster scenarios, all N-1 and N-2 contingencies, except in few cases, there are no impacts on the stability performance of the SPP system for the contingencies tested on the SPP provided base cases.

For stability analysis in cluster scenario, it has been observed that few N-2 contingencies are resulting in continuous oscillating behavior in stability performance especially FLT04-3PH, FLT06-3PH, and FLT08-3PH.
The reason is that the transmission corridor at/around POI, Beaver Country 345kV does not appear to have sufficient capacity to transfer combined power dispatch of the nearby generators. The system is having transmission constraints that the N-2 contingencies on circuits Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375) leads to power system load flow solution diverging and oscillatory system behavior in dynamic analysis. It is therefore recommended to SPP, to determine solution for these N-2 conditions. This solution could be obtained either by:

1. Considering another circuit on this link to maintain N-2 contingency OR
2. Curtailing some generation at POI Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375)[6]

[6] SPP noted that curtailment of all generation in the Texas/Oklahoma panhandle would be the likely mitigation for these conditions.

7. Stability Analysis for Stand-Alone Scenarios

For stand-alone scenario, selective contingencies are simulated for each interconnection request at 100% capacity of each generator at the POI.

7.1. Fault Simulated for GEN-2014-019 Request

Table 7.1.1, summarizes the overall results for all simulations for GEN-2014-019 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-019 are in Appendices E1, E2, and E3 respectively.

Table 7.1.1: List of simulated faults for standalone stability analysis (GEN-2014-019)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
4	FLT04-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1 & 2, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Stable	Stable
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Border 345kV (515458) to G14_007-Tap 345kV (562487) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
18	FLT18-3PH	3 phase fault on the Tuco 345kV (525832) to OKU 345kV (511456) CKT 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Tuco 345kV (525832) to Tuco 230kV (525830) Tuco 13.2kV (525824) XFMR CKT 1, near Tuco 345kV. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Tatonga 345kV (515407) to G14-058-Tap 345kV (560019) CKT 1, near Tatonga. a. Apply fault at the Tatonga 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
23	FLT23-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) Thistle 13.8kV (539802) XFMR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Hitchland 345kV (523097) to G14-038T 345kV (560011) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
40	FLT40-PO	Prior outage on the G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) 3 phase fault on Finney 345kV (523853) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
41	FLT41-PO	Prior outage on the G14-038 Tap 345kV (560011) to Potter 345kV (523961) 3 phase fault on Hitchland (523097) - Finney (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
42	FLT42-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-TAP (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to G14-058-TAP (560019) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
43	FLT43-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus on the Woodward – GEN-2011-051 tap (562075) 345kV line b. Wait 16 cycles, and then drop Woodward (515375) 345kV to Thistle (539801) 345kV ckt 1 c. Trip Woodward to GEN-2011-051 tap 345kV and remove the fault	Stable	Stable	Stable
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
46	FLT46-3PH	3 phase fault on the Holcomb 345kV (531449) to Setab 345kV (531465) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
47	FLT47-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) Holcomb 13.8kV (531450) XFMR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
48	FLT48-3PH	3 phase fault on the Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
49	FLT49-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-Tap (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to Mathewson (515497) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
50	FLT50-3PH	3 phase fault on the Potter 230kV (523959) to Harrington East 230kV (523979) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
51	FLT51-3PH	3 phase fault on the Potter 230kV (523959) to Bushland 230kV (524267) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Potter 230kV (523959) to Rollhills 230kV (524010) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

7.2. Fault Simulated for GEN-2014-026 Request

Table 7.2.1, summarizes the overall results for all simulations for GEN-2014-026 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-026 are in Appendices F1, F2, and F3 respectively.

Table 7.2.1: List of simulated faults for stability analysis (GEN-2014-026)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
4	FLT04-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1 & 2, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Stable
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Border 345kV (515458) to G14_007-Tap 345kV (562487) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
18	FLT18-3PH	3 phase fault on the Tuco 345kV (525832) to OKU 345kV (511456) CKT 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Tuco 345kV (525832) to Tuco 230kV (525830) Tuco 13.2kV (525824) XFMR CKT 1, near Tuco 345kV. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Tatonga 345kV (515407) to G14-058-Tap 345kV (560019) CKT 1, near Tatonga. a. Apply fault at the Tatonga 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
23	FLT23-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) Thistle 13.8kV (539802) XFMR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Hitchland 345kV (523097) to G14-038T 345kV (560011) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
40	FLT40-PO	Prior outage on the G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) 3 phase fault on Finney 345kV (523853) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
41	FLT41-PO	Prior outage on the G14-038 Tap 345kV (560011) to Potter 345kV (523961) 3 phase fault on Hitchland (523097) - Finney (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
42	FLT42-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-TAP (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to G14-058-TAP (560019) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
43	FLT43-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus on the Woodward – GEN-2011-051 tap (562075) 345kV line b. Wait 16 cycles, and then drop Woodward (515375) 345kV to Thistle (539801) 345kV ckt 1 c. Trip Woodward to GEN-2011-051 tap 345kV and remove the fault	Stable	Stable	Stable
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
46	FLT46-3PH	3 phase fault on the Holcomb 345kV (531449) to Setab 345kV (531465) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
47	FLT47-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) Holcomb 13.8kV (531450) XFMR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
48	FLT48-3PH	3 phase fault on the Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
49	FLT49-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-Tap (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to Mathewson (515497) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
50	FLT50-3PH	3 phase fault on the Potter 230kV (523959) to Harrington East 230kV (523979) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
51	FLT51-3PH	3 phase fault on the Potter 230kV (523959) to Bushland 230kV (524267) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Potter 230kV (523959) to Rollhills 230kV (524010) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

7.3.Fault Simulated for GEN-2014-037 Request

Table 7.3.1, summarizes the overall results for all simulations for GEN-2014-037 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-037 are in Appendices G1, G2, and G3 respectively.

Table 7.3.1: List of simulated faults for stability analysis (GEN-2014-037)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
4	FLT04-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1 & 2, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Oscillating
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Border 345kV (515458) to G14_007-Tap 345kV (562487) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
18	FLT18-3PH	3 phase fault on the Tuco 345kV (525832) to OKU 345kV (511456) CKT 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Tuco 345kV (525832) to Tuco 230kV (525830) Tuco 13.2kV (525824) XFMR CKT 1, near Tuco 345kV. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Tatonga 345kV (515407) to G14-058-Tap 345kV (560019) CKT 1, near Tatonga. a. Apply fault at the Tatonga 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
23	FLT23-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) Thistle 13.8kV (539802) XFMR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Hitchland 345kV (523097) to G14-038T 345kV (560011) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
40	FLT40-PO	Prior outage on the G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) 3 phase fault on Finney 345kV (523853) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
41	FLT41-PO	Prior outage on the G14-038 Tap 345kV (560011) to Potter 345kV (523961) 3 phase fault on Hitchland (523097) - Finney (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
42	FLT42-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-TAP (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to G14-058-TAP (560019) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
43	FLT43-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus on the Woodward – GEN-2011-051 tap (562075) 345kV line b. Wait 16 cycles, and then drop Woodward (515375) 345kV to Thistle (539801) 345kV ckt 1 c. Trip Woodward to GEN-2011-051 tap 345kV and remove the fault	Stable	Stable	Stable
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
46	FLT46-3PH	3 phase fault on the Holcomb 345kV (531449) to Setab 345kV (531465) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
47	FLT47-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) Holcomb 13.8kV (531450) XFMR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
48	FLT48-3PH	3 phase fault on the Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
49	FLT49-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-Tap (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to Mathewson (515497) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
50	FLT50-3PH	3 phase fault on the Potter 230kV (523959) to Harrington East 230kV (523979) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
51	FLT51-3PH	3 phase fault on the Potter 230kV (523959) to Bushland 230kV (524267) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Potter 230kV (523959) to Rollhills 230kV (524010) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

7.4. Fault Simulated for GEN-2014-038 Request

Table 7.4.1, summarizes the overall results for all simulations for GEN-2014-038 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-038 are in Appendices H1, H2, and H3 respectively.

Table 7.4.1: List of simulated faults for stability analysis (GEN-2014-038)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
4	FLT04-3PH	3 phase fault on the Beaver 345kV (515554) to GEN 2011-014 tap 345kV (560000) CKT 1 & 2, near Beaver. a. Apply fault at the Beaver 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Oscillating
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Oscillating
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
34	FLT34-3PH	3 phase fault on G14-038 Tap 345kV (560011) to Potter 345kV (523961) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
35	FLT35-3PH	3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	N/A	N/A	N/A
36	FLT36-3PH	3 phase fault on Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
37	FLT37-3PH	3 phase fault on the Finney 345kV (523853) to Lamar 345kV (599950) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.	Stable	Stable	Stable
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
41	FLT41-PO	Prior outage on the G14-038 Tap 345kV (560011) to Potter 345kV (523961) 3 phase fault on Hitchland (523097) - Finney (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
46	FLT46-3PH	3 phase fault on the Holcomb 345kV (531449) to Setab 345kV (531465) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
47	FLT47-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) Holcomb 13.8kV (531450) XFMR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
48	FLT48-3PH	3 phase fault on the Potter 230kV (523959) to Moore County 230kV (523309) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
50	FLT50-3PH	3 phase fault on the Potter 230kV (523959) to Harrington East 230kV (523979) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
51	FLT51-3PH	3 phase fault on the Potter 230kV (523959) to Bushland 230kV (524267) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Potter 230kV (523959) to Rollhills 230kV (524010) CKT 1, near Potter. a. Apply fault at the Potter 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

7.5. Fault Simulated for GEN-2014-052 Request

Table 7.5.1, summarizes the overall results for all simulations for GEN-2014-052 Request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-052 are in Appendices I1, I2, and I3 respectively.

Table 7.5.1: List of simulated faults for stability analysis (GEN-2014-052)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Beaver County 345kV (515554) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on G14-037 Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
5	FLT05-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Beaver 345kV (515554) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
6	FLT06-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Beaver 345kV (515554) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
7	FLT07-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the GEN 2011-014 tap 345kV (560000) to Woodward 345kV (515375) CKT 1 & 2, near GEN 2011-014 tap. a. Apply fault at the GEN 2011-014 tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Oscillating	Oscillating	Stable
9	FLT09-3PH	DELETED			
10	FLT10-3PH	3 phase fault on the G14-037-Tap 345kV (560010) to Hitchland 345kV (523097) CKT 1 and 2, near Beaver. a. Apply fault at the G14-037-Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
13	FLT13-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH (2025SP only)	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) Woodward 13.8kV (515799) XFMR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Border 345kV (515458) to G14_007-Tap 345kV (562487) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
18	FLT18-3PH	3 phase fault on the Tuco 345kV (525832) to OKU 345kV (511456) CKT 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Tuco 345kV (525832) to Tuco 230kV (525830) Tuco 13.2kV (525824) XFMR CKT 1, near Tuco 345kV. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Tatonga 345kV (515407) to G14-058-Tap 345kV (560019) CKT 1, near Tatonga. a. Apply fault at the Tatonga 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
23	FLT23-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted lines (CKT 1 and 2).	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) Thistle 13.8kV (539802) XFMR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Hitchland 345kV (523097) to Finney 345kV (523853) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Hitchland 345kV (523097) to G14-038T 345kV (560011) CKT 1, near Hitchland. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Hitchland 345kV (523097) to Hitchland 230kV (523095) Hitchland 13.2kV (523091) XFMR CKT 1, near Hitchland 345kV. a. Apply fault at the Hitchland 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
29	FLT29-3PH	3 phase fault on the Potter County 345kV (523961) to Potter County 230kV (523959) Potter County 13.2kV (13.2kV (523957) XFMR CKT 1, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Hitchland 230kV (523095) to Ochiltree 230kV (523155) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Hitchland 230kV (523095) to Moore County 230kV (523309) CKT 1, near Hitchland. a. Apply fault at the Hitchland 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	3 phase fault on the Finney 345kV (523853) to Holcomb 345kV (531449) CKT 1, near Finney. a. Apply fault at the Finney 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
33	FLT33-3PH	3 phase fault on the Holcomb 345kV (531449) to Buckner 345kV (531501) CKT 1, near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
38	FLT38-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on G14-038 Tap 345kV (560011) to Hitchland 345kV (523097) CKT 1, near G14-038 Tap. a. Apply fault at the G14-038 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
39	FLT39-PO	Prior outage on the Hitchland (523097) - Finney (523853) 3 phase fault on Hitchland 345kV (523097) to G14-037 Tap 345kV (560010) CKT 1, near G14-037 Tap. a. Apply fault at the G14-037 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
42	FLT42-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-TAP (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to G14-058-TAP (560019) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
43	FLT43-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus on the Woodward – GEN-2011-051 tap (562075) 345kV line b. Wait 16 cycles, and then drop Woodward (515375) 345kV to Thistle (539801) 345kV ckt 1 c. Trip Woodward to GEN-2011-051 tap 345kV and remove the fault	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
44	FLT44-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – G14-037-TAP (560010) 345kV circuit 1and remove fault	Stable	Stable	Stable
45	FLT45-SB	Hitchland 345kV Stuck Breaker a. Apply single phase fault at the Hitchland (523097) 345kV bus b. Wait 16 cycles, and then drop Hitchland – Finney (523853) 345kV circuit 1 and remove fault	Stable	Stable	Stable
49	FLT49-PO	Prior outage on the Woodward 345kV (515375) to Thistle (539801) 345kV line 3 phase fault on Tatonga (515407) to G14-058-Tap (560019) a. Prior outage Woodward (515375) to Thistle (539801) (solve network for steady state solution) b. 3 phase fault on the Tatonga (515407) 345kV to Mathewson (515497) near Tatonga c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-SB	Beaver 345kV Stuck Breaker a. Apply single phase fault at the Beaver (515554) 345kV bus b. Wait 16 cycles, and then drop Beaver – G11-14-TAP (560000) 345kV circuit 1 and remove fault	Stable	Stable	Stable
53	FLT53-SB	G11-14-TAP 345kV Stuck Breaker a. Apply single phase fault at the G11-14-TAP (560000) 345kV bus b. Wait 16 cycles, and then drop G11-14-TAP (560000) – Woodward (515375) 345kV circuit 1 and remove fault	Stable	Stable	Stable
54	FLT54-SB	Woodward 345kV Stuck Breaker a. Apply single phase fault at the Woodward (515375) 345kV bus b. Wait 16 cycles, and then drop Woodward (515375) – Border (515458) 345kV circuit 1 and remove fault	Stable	Stable	Stable

7.6. Simulation Results for Stand-Alone Scenario

For stand-alone scenarios all N-1 and N-2 contingencies, except in few cases, there are no impacts on the stability performance of the SPP system for the contingencies tested on the SPP provided base cases.

For stability analysis in stand-alone scenarios, it has been observed that few N-2 contingencies are resulting in continuous oscillating behavior in stability performance especially FLT04-3PH and FLT08-3PH.
The reason is that the transmission corridor at/around POI i.e., Beaver Country 345kV does not appear to have sufficient capacity to transfer combined power dispatch of the nearby generators. The system is having transmission constraints that the N-2 contingencies on circuits Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375) leads to power system load flow solution diverging and oscillatory system behavior in dynamic analysis. It is therefore recommended to SPP, to determine solution for these N-2 conditions. This solution could be obtained either by:

1. Considering another circuit on this link to maintain N-2 contingency OR
2. Curtailing some generation at POI Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375)[7]

[7] SPP noted that curtailment of all generation in the Texas/Oklahoma Panhandle would be the likely mitigation for these conditions.

8. Conclusions

The findings of the impact study for the proposed interconnection projects under DSIS-2014-002 (Group 02) considered 100% of their proposed installed capacity is as follows:

1. The power factor analysis indicates the DISIS-2014-002 (Group 02) interconnection requests i.e., GEN-2014-019, GEN-2014-026, GEN-2014-037, GEN-2014-038, GEN-2014-052 are required to maintain the SPP standard power factor at the point of interconnection i.e., (Open Sky 345kV 515621 GEN-2012-032 tap), Riverton 161kV (547469), Otter 138kV (514708), and Ferguson 69kV (512664) based on the contingencies studied. Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI
2. The inductive reactive support analysis for GEN-2014-019, which is an uprate to the existing GEN-2008-047 generator for winter-2015 requires an additional 0.6 Mvar of reactors on the GEN-2008-047/GEN-2014-019 345kV bus to maintain zero MVar flow at the POI from the combined GEN-2008-047/GEN2014-019 generator lead. The inductive reactive support analysis for GEN-2014-026 for winter-2015 scenario requires an additional 14 Mvar reactor on the GEN-2014-026 345kV bus to maintain zero MVAR flow on the GEN-2010-001/GEN-2014-026 generator lead.

   The inductive reactive support analysis for GEN-2014-037 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Beaver County 345kV) 13.7 MVAR reactor is required at Bus 560010 to maintain zero MVAR flow at POI.

   The inductive reactive support analysis for GEN-2014-038 performed for winter-2015 scenario indicates that at POI (Tap on Hitchland to Potter County 345kV) 12.3 MVAR reactor is required at Bus 560011 to maintain zero MVAR flow at POI.

   Similarly, the inductive reactive support analysis for GEN-2014-052 performed for winter-2015 scenario indicates that at POI (Tap on Beaver County to Woodward 345kV) 25 MVAR reactor is required at Bus 560000 to maintain zero MVAR flow at POI.
3. All N-1 and N-2 contingencies except in few cases, for both cluster as well as stand-alone scenarios there are no impacts on the stability performance of the SPP system for the contingencies tested on the SPP provided base cases.
4. For stability analysis in cluster scenario, it has been observed that few N-2 contingencies are resulting in continuous oscillating behavior in stability performance especially FLT04-3PH, FLT06-3PH, and FLT08-3PH etc. Similarly for stand-alone scenario FLT04-3PH and FLT08-3PH leads to continuous oscillations. The reason is that the transmission corridor at/around POI Beaver Country 345kV does not appear to have sufficient capacity to transfer combined power dispatch of the nearby generators. The system is having transmission constraints that the N-2 contingencies on circuits Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375) leads to power system load flow solution diverging and oscillatory system behavior in dynamic

analysis. It is therefore recommended to SPP to determine solution for these N-2 conditions. This solution could be obtained either by:

- Considering another circuit on this link to maintain N-2 contingency OR
- Curtailing some generation at POI Beaver Country 345kV (515554) TO G11-14-TAP 345kV (560000) TO WWRDEHV7 345kV (515375)

9. **Appendix A: 2015 Winter Peak Case Stability Run Plots – Cluster**
10. **Appendix B: 2015 Summer Peak Case Stability Run Plots – Cluster**
11. **Appendix C: 2025 Summer Peak Case Stability Run Plots – Cluster**
12. **Appendix D: Project Model Data**
13. **Appendix E1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-019 Stand Alone Scenario**
14. **Appendix E2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-019 Stand-Alone Scenario**
15. **Appendix E3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-019 Stand-Alone Scenario**
16. **Appendix F1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-026 Stand-Alone Scenario**
17. **Appendix F2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-026 Stand-Alone Scenario**
18. **Appendix F3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-026 Stand Alone Scenario**
19. **Appendix G1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario**
20. **Appendix G2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario**
21. **Appendix G3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-037 Stand-Alone Scenario**
22. **Appendix H1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario**
23. **Appendix H2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario**
24. **Appendix H3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-038 Stand-Alone Scenario**
25. **Appendix I1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario**
26. **Appendix I2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario**
27. **Appendix I3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-052 Stand-Alone Scenario**

L: Group 3 Dynamic Stability Analysis Report

See MAPPCOR report and SPP addendum on next page.

MAPPCOR[SM]

GROUP 3 IMPACT STUDY

DISIS-2014-002

JANUARY 2015

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Executive Summary

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the generation projects shown below.

- GEN-2013-010 – 99.0 MW wind project using Siemens 3.0 MW generators connected to a tap on the Spearville to Post Rock 345kV line.
- GEN-2014-049 – 200.0 MW project using GE 2.0 MW generators connected to the Thistle 345kV substation.

There are eighteen previously queued generation projects in the Group 3 area.

Stability, power factor and low wind analyses were performed for the addition of the generation projects in Group 3[1]. The analyses were performed on three seasonal models, the modified versions of the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak cases. A total of sixty-one contingencies were evaluated for the cluster stability scenario, as well as forty-one and thirty-four contingencies for GEN-2013-010 and GEN-2014-049**,** respectively.

GEN-2013-010 and GEN-2014-049 were found to be stable for all but one of the contingencies studied. The wind turbine generators in GEN-2013-010 and GEN-2014-049 have the capability of pre-contingency voltage recovery, and the post fault voltage recovery was found to be within the criterion of 0.7 pu to 1.2 pu for all but one contingency studied. The contingency defined in FLT06-3PH was the only contingency in which instability was encountered during this analysis. FLT06-3PH is a double circuit contingency located at the outlet of project GEN-2014-049. After further review, the instability related to this contingency was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects. Discussions with the Southwest Power Pool indicate the mitigation for this outage condition is to curtail all generation in the Spearville and southwest Kansas areas.

In addition, one prior queued project was found to trip off-line during the contingency defined in FLT46-3PH due to overvoltage. FLT46-3PH is a three phase contingency at that point of interconnection for the tripped unit. When the overvoltage protection for this project was disabled, and the contingency reanalyzed, the project was found to recover within the specified criteria.

A power factor analysis was performed for each interconnection project. The cluster scenario for all three study cases, 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions were used in the analyses. The power factor analyses showed that capacitors will be required for both study projects to maintain the system power factor per the pro-forma standard of 0.95 leading (absorbing) to 0.95 lagging (supplying) at their respective Points of Interconnection (POI).

[1] Section 8.4: Attachment V Generator Interconnection Procedures (GIP)

A low wind analysis was performed to determine the size shunt reactor required to support each project's POI to offset the capacitive effect on the transmission network caused by the project's transmission line and collector system during low wind conditions. Results of this analysis show that GEN-2013-010 requires a shunt reactor, approximately 2.8 MVAR, and GEN-2014-049 requires a shunt reactor, approximately 21.9 MVAR to counteract capacitive effects.

The analysis showed that none of the interconnection requests in this study tripped offline when their respective POI's were faulted to draw the POI voltage down to 0.0 pu. Therefore, each interconnection request in this study meets the FERC Order 661A, Low Voltage Ride Through (LVRT) requirements.

All generators in the monitored areas remained stable for all but one of the modeled disturbances. As stated above, the contingency defined in FLT06-3PH proved to be unstable in all scenarios.

Table of Contents

Executive Summary ..... **ii**
Introduction **1**
Facilities **3**
Generating Facility 3
Interconnection Facilities 3
Stability Analysis **5**
Model Preparation 5
Scenarios 5
Disturbances 5
Cluster Scenario 6
Cluster Scenario Results 14
GEN-2013-010 Stand Alone Scenario 16
GEN-2013-010 Stand Alone Scenario Results 22
GEN-2014-049 Stand Alone Scenario 24
GEN-2014-049 Stand Alone Scenario Results 28
Power Factor Analysis **31**
Model Preparation 31
Disturbances 31
Results 31
Low Wind Analysis **35**
Model Preparation 35
Results 35
Conclusion **36**
Appendix A: Charging Current Compensation Analysis Results **38**
Appendix B: Study Plots **40**

Introduction

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the following generation projects.

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2013-010	99.0	Siemens 3.0MW (583603)	GEN-2013-010 Tap 345kV (562334) (Tap on Spearville to Post Rock 345kV line)
GEN-2014-049	200	GE 2.0MW	Thistle 345kV (539801)

There are eighteen previously queued generation projects in the Group 3 area. These Interconnection Requests are listed below.

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2001-039A	104	GE 1.6MW	Shooting Star 115kV (539763)
GEN-2002-025A	150	GE 1.5 MW	Spearville 230kV (539695)
GEN-2004-014	154.5	GE 1.5 MW	Spearville 230kV (539695)
GEN-2005-012	250.7	Siemens 2.3MW	Ironwood 345kV (539803)
GEN-2006-006	205.5	GE 1.5 MW	Spearville 345kV (531469)
GEN-2006-021	100	Clipper 2.5MW	Flat Ridge 138kV (539638)
GEN-2007-040	200.1	Siemens 2.3MW	Buckner 345kV (531501)
GEN-2008-018	250.0	GE 1.85 MW	Finney 345kV (523853)
GEN-2008-079	98.9	Siemens 2.3MW	CRKCK 115kV line (539783)
GEN-2008-124	200.1	Siemens 2.3MW	Ironwood 345kV (539803)
GEN-2010-009	165.6	Siemens 2.3MW	Buckner 345kV (531501)
GEN-2010-045	197.8	Siemens 2.3MW	Buckner 345kV (531501)
GEN-2011-008	600	GE 1.6MW	Clark County 345kV (539800)
GEN-2011-016	200.1	Siemens 2.3MW	Spearville 345kV (531469)
GEN-2011-017	299	Siemens 2.3MW	Tap on Spearville – Post Rock 345kV line (G11-017 POI, 560242)
GEN-2012-007	96 Summer 120 Winter	GENSAL	Rubart 115kV (531200)
ASGI-2012-006	20.74 Summer 21.21 Winter	GENSAL	ABBK 69kV (531494)
GEN-2012-024	180	Vestas V112-3.0MW	Clark County 345kV (539800)

Stability, power factor and low wind analysis were performed for the addition of the generation projects in Group 3. The analyses were performed on three seasonal models, 2015 Summer Peak, the 2015 Winter Peak, and the 2025 Summer Peak cases. These models were prepared by SPP and provided to MAPPCOR.

The stability analysis determines the impacts of the new interconnecting projects on the stability and voltage recovery of the nearby systems and the ability of the interconnecting projects to meet FERC Order 661A. If problems with stability or voltage recovery are identified, the need for reactive compensation or system upgrades is investigated. The stability analysis consisted of three separate scenarios. The first scenario analyzed the system with both projects modeled and in service (cluster scenario). The remaining two scenarios analyzed the system looking only at one project in service at a time (stand-alone scenario). The three-phase and single line-to-ground faults listed in **Tables 3-1-1, 3-2-1, and 3-3-1** were used in the stability analysis.

The power factor analysis determines the power factor at the point of interconnection (POI) for the wind interconnection projects for pre-contingency and post-contingency conditions. The power factor analysis used only the three-phase, N-1 contingencies listed in **Table 3-1-1**, and was performed using only the cluster scenario.

Facilities

Generating Facility

GEN-2013-010 Interconnection Customer's request to interconnect a total of 99 MW (BUS 562334) is comprised of thirty-three Siemens 3.0 MW wind turbine generators and associated interconnection facilities.

GEN-2014-049 Interconnection Customer's request to interconnect a total of 200 MW (BUS 539801) is comprised of one-hundred GE 2.0 MW wind turbine generators and associated interconnection facilities.

Interconnection Facilities

The POI for GEN-2013-010 Interconnection Customer is a tap on the Spearville to Post Rock 345kV circuit (G13-010-TAP, 562334). **Figure 2-1** depicts the one-line diagram of the local transmission system including the POI as well as the power flow model representing the request.

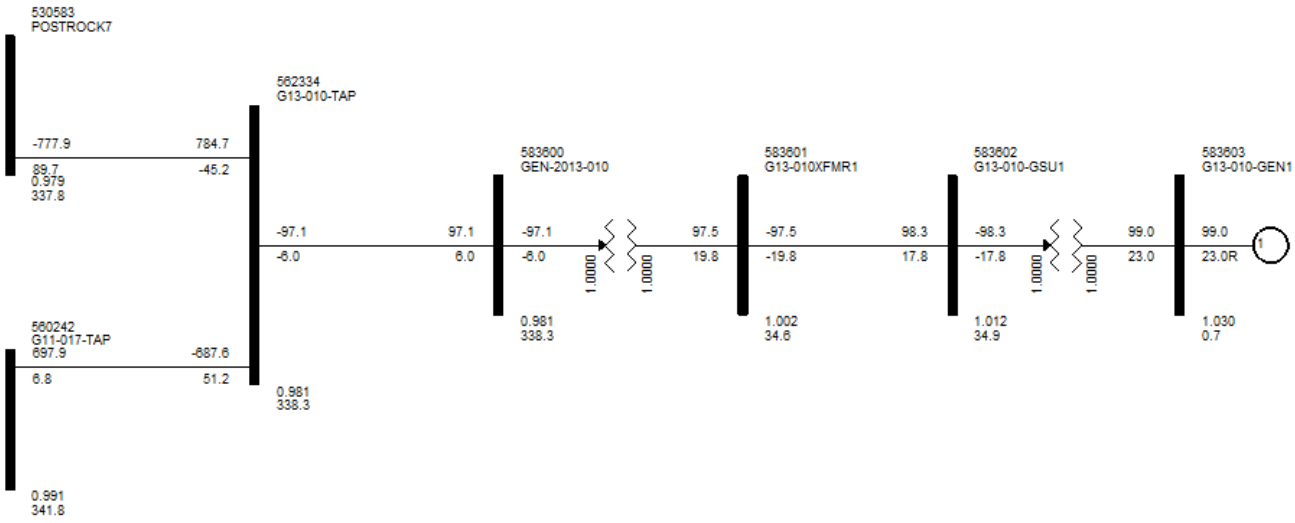

Figure 2-1: Power Flow Model for GEN-2013-010

The POI for GEN-2014-049 is the Thistle 345kV bus (539801). **Figure 2-2** depicts the one-line diagram of the local transmission system including the POI as well as the power flow model representing the requests.

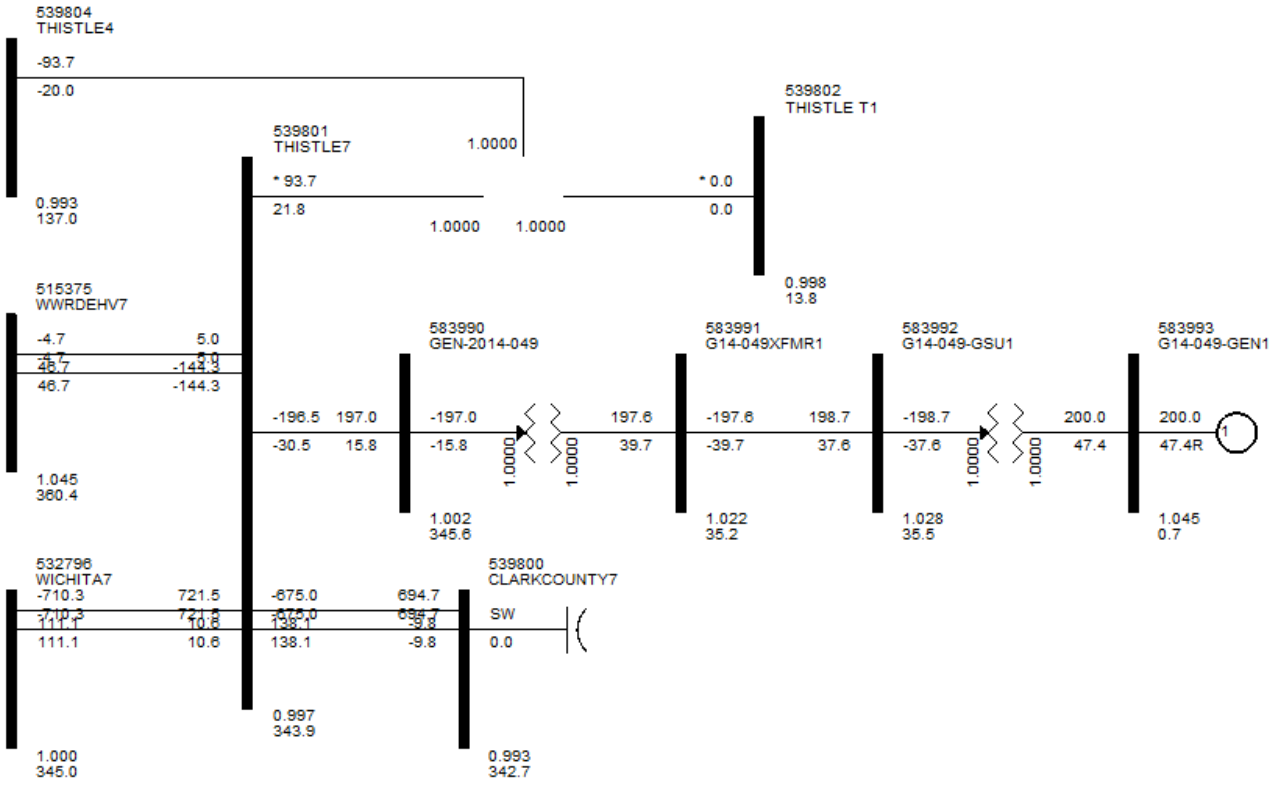

Figure 2-2: Power Flow Model for GEN-2014-049

Stability Analysis

The stability analysis is used to determine if the transmission system can maintain angular stability and ensure bus voltages stay within the planning criteria bandwidth during and after a disturbance while considering the addition of a generator interconnection request.

Model Preparation

The stability analysis was performed using modified versions of the 2014 series of Model Development Working Group (MDWG) dynamic study models including the 2015 Summer Peak, 2015 Winter Peak, and the 2025 Summer Peak seasonal models. The cases were then loaded with prior queued interconnection requests and network upgrades assigned to those interconnection requests. Finally the prior queued and study generation were dispatched into the SPP footprint. Initial simulations were then carried out for a no-disturbance run of twenty seconds to verify the numerical stability of the model.

Scenarios

The stability portion of this study was subject to three separate scenarios. Each of the two study projects were analyzed separately with only that project in-service. In addition to those two separate scenarios, the study projects were also analyzed in a cluster scenarios, which included both study projects in-service.[2,3]

Disturbances

Sixty-one contingencies were identified for use in the cluster study and are listed in **Table 3-1-1**. The stand-alone scenarios for GEN-2013-010 and GEN-2014-049 consisted of forty-one and thirty-four contingencies, listed in **Table 3-2-1** and **Table 3-3-1,** respectively. The contingencies for each scenario included three-phase, three-winding transformer, three-phase prior outage and single-phase stuck breaker faults at locations defined by SPP[4]. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage.

The typical sequence of events for a three-phase fault is as follows:

1. Apply fault at the specified location
2. Continue fault for five cycles
3. Clear the fault by tripping the faulted facility
4. After an additional twenty cycles, re-close the previous facility back into the fault
5. Continue fault for an additional five cycles
6. Trip the faulted facility and remove the fault

[2] Section 8.4: Attachment V Generator Interconnection Procedures (GIP)

[3] Section 7.1: SPP Guidelines for Generation Interconnection Requests to SPP's Transmission System

[4] Section 7.1.3: SPP Guidelines for Generation Interconnection Requests to SPP's Transmission System

If the fault is defined with a prior outage, the prior outage facility is taken out of service then the case is re-solved and generators are reconverted. Once this is completed, prior outage faults will follow the same sequence of events as other three-phase faults.

Single-phase stuck breaker faults typically follow the sequence of events as follows:

1. Apply fault for sixteen cycles
2. Clear the fault by tripping the affected facility

Transformer faults are typically modeled as three-phase faults, unless otherwise noted. The sequence of events for a transformer fault is as follows:

1. Apply fault for five cycles
2. Clear the fault by tripping the affected transformer facility

Cluster Scenario

Table 3-1-1: Fault Definitions – Cluster Scenario

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
3	FLT03-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (523796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.

Cont. No.	Cont. Name	Description
5	FLT05-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT06-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
7	FLT07-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) to Thistle 13.8kV (539802) XMFR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
8	FLT08-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT09-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
10	FLT10-3PH	3 phase fault on the Woodward 345kV (515375) to Beaver County 345kV (515554) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT11-3PH	3 phase fault on the Woodward 345kV (515375) to Beaver County 345kV (515554) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
12	FLT12-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) to Woodward 13.8kV (515799) XMFR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
13	FLT13-3PH	3 phase fault on the Border 345kV (515458) to Tuco 345kV (525832) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT14-3PH	3 phase fault on the Wichita 345kV (532796) to G14-001 Tap 345kV (562476) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15	FLT15-3PH	3 phase fault on the Wichita 345kV (532796) to Reno 345kV (532771) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT16-3PH	3 phase fault on the Wichita 345kV (532796) to Benton 345kV (532791) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
17	FLT17-3PH	3 phase fault on the Wichita 345kV (532796) to Viola 345kV (532798) CKT 1 near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT18-3PH	3 phase fault on the Wichita 345kV (532796) to Wichita 138kV (533040) to Wichita 13.8kV (532830) XMFR CKT 1, near Wichita 345kV. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
19	FLT19-3PH	3 phase fault on the G14-001 Tap 345kV (562476) to EMPEC 345kV (532768) CKT 1 near G14-001 Tap. a. Apply fault at the G14-001 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
20	FLT20-3PH	3 phase fault on the Reno 345kV (562476) to Summit 345kV (532773) CKT 1 near Reno. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT21-3PH	3 phase fault on the Reno 345kV (532771) to Reno 115kV (533416) to Reno 14.4kV (532807) XMFR CKT 1, near Reno 345kV. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
22	FLT22-3PH	3 phase fault on the Benton 345kV (532791) to Rose Hill 345kV (532794) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
23	FLT23-3PH	3 phase fault on the Benton 345kV (532791) to Wolf Creek 345kV (532797) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT24-3PH	3 phase fault on the Viola 345kV (532798) to Renfrow 345kV (515543) CKT 1 near Viola. a. Apply fault at the Viola 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25	FLT25-3PH	3 phase fault on the Viola 345kV (532798) to Viola 138kV (533075) to Reno 13.8kV (532832) XMFR CKT 1, near Viola 345kV. a. Apply fault at the Viola 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
26	FLT26-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to Post Rock 345kV (530583) CKT 1 near G13-010 Tap. a. Apply fault at the G13-010 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT27-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to G11-017 Tap 345kV (560242) CKT 1 near G13-010 Tap. a. Apply fault at the G13-010 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
28	FLT28-3PH	3 phase fault on the Post Rock 345kV (530583) to Post Rock 230kV (530584) to Post Rock 13.8kV (530673) XMFR CKT 1, near Post Rock 345kV. a. Apply fault at the Post Rock 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
29	FLT29-3PH	3 phase fault on Post Rock 345kV (530583) to Axtel 345kV (640065) CKT 1 near Post Rock. a. Apply fault at the Post Rock 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
30	FLT30-3PH	3 phase fault on Axtel 345kV (640065) to Pauline 345kV (640312) CKT 1 near Axtel. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
31	FLT31-3PH	3 phase fault on Axtel 345kV (640065) to Sweetwater 345kV (640374) CKT 1 near Axtel. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
32	FLT32-3PH	3 phase fault on the Axtel 345kV (640065) to Axtel 115kV (640066) to Axtel 13.8kV (640067) XMFR CKT 1, near Axtel 345kV. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
33	FLT33-3PH	3 phase fault on Post Rock 230kV (530584) to Knoll 230kV (530558) CKT 1 near Post Rock. a. Apply fault at the Post Rock 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
34	FLT34-3PH	3 phase fault on Post Rock 230kV (530584) to S. Hays 115kV (530582) CKT 1 near Post Rock. a. Apply fault at the Post Rock 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
35	FLT35-3PH	3 phase fault on the Knoll 230kV (530558) to Knoll 115kV (530561) to Knoll 11.49kV (530629) XMFR CKT 1, near Knoll 230kV. a. Apply fault at the Knoll 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
36	FLT36-3PH	3 phase fault on Summit 230kV (532873) to Smoky Hill 230kV (530592) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
37	FLT37-3PH	3 phase fault on Summit 230kV (532873) to Union Ridge 230kV (532874) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
38	FLT38-3PH	3 phase fault on Summit 230kV (532873) to East McPherson 230kV (532872) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
39	FLT39-3PH	3 phase fault on the Summit 230kV (532873) to Summit 345kV (532773) to Summit 11.4kV (532813) XMFR CKT 1, near Summit 230kV. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
40	FLT40-3PH	3 phase fault on the G11-017 Tap 345kV (560242) to Spearville 345kV (531469) CKT 1 near G11-017 Tap. a. Apply fault at the G11-017 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
41	FLT41-3PH	3 phase fault on the Spearville 345kV (531469) to Buckner 345kV (531501) CKT 1 near Spearville. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
42	FLT42-3PH	3 phase fault on the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1 near Spearville. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
43	FLT43-3PH	3 phase fault on the Spearville 345kV (531469) to Spearville 230kV (539695) to Spearville 13.8kV (531468) XMFR CKT 1, near Spearville 345kV. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
44	FLT44-3PH	3 phase fault on the Spearville 345kV (531469) to Spearville 115kV (539759) to Spearville 13.8kV (539960) XMFR CKT 1, near Spearville 345kV. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
45	FLT45-3PH	3 phase fault on the Buckner 345kV (531501) to Holcomb 345kV (531449) CKT 1 near Buckner. a. Apply fault at the Buckner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
46	FLT46-3PH	3 phase fault on the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
47	FLT47-3PH	3 phase fault on Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted lines— 1. the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 2. the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1
48	FLT48-3PH	3 phase fault on the Holcomb 345kV (539449) to Finney 345kV (523853) CKT 1 near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
49	FLT49-3PH	3 phase fault on the Holcomb 345kV (539449) to Setab 345kV (531465) CKT 1 near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
50	FLT50-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) to Holcomb 13.8kV (531450) XMFR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
51	FLT51-PO	**Prior outage on the Thistle – Clark County 345kV line** 3 phase fault on Thistle (539801) to Woodward (515375). a. Prior outage Thistle (539801) to Clark County (539800) (solve network for steady state solution). b. 3 phase fault on the Thistle (539801) to Woodward (515375) 345kV CKT 1 line near Thistle. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
52	FLT52-PO	**Prior outage on the Thistle – Wichita 345kV line** 3 phase fault on Thistle (539801) to Clark County (539800). a. Prior outage Thistle (539801) to Wichita (532796) 345kV line (solve network for steady state solution). b. 3 phase fault on the Thistle (539801) to Clark County (539800) 345kV CKT 1 line near Thistle. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
53	FLT53-PO	**Prior outage on the Spearville – Buckner 345kV line** 3 phase fault on GEN 2013-010-TAP (562334) to Post Rock (530583). a. Prior outage the Spearville (531469) to Buckner (531501) 345kV line (solve network for steady state solution). b. 3 phase fault on the GEN 2013-010-TAP (562334) to Post Rock (530583) 345kV line near GEN 2013-010-TAP. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
54	FLT54-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Woodward (515375) 345kV circuit 1 and remove fault.
55	FLT55-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Wichita (532796) 345kV circuit 1 and remove fault.
56	FLT56-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Clark County (539800) 345kV circuit 1 and remove fault.
57	FLT57-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) 345kV – Thistle (539804) 138kV transformer circuit 1 and remove fault.

Cont. No.	Cont. Name	Description
58	FLT58-PO	**Prior outage on the Spearville – Clark County 345kV line** 3 phase fault on Spearville (531469) to Buckner (531501) 345kV. a. Prior outage the Spearville (531469) to Clark County (539800) 345kV line (solve network for steady state solution). b. 3 phase fault on the Spearville (531469) to Buckner (531501) 345kV line near Spearville. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
59	FLT59-PO	**Prior outage on the Axtell – Pauline 345kV line** 3 phase fault on Axtell (640065) to Sweet Water (640374) 345kV. a. Prior outage the Axtell (640065) to Pauline (640312) 345kV line (solve network for steady state solution). b. 3 phase fault on the Axtell (640065) to Sweet water (640374) 345kV line near Axtell. c. Clear fault after 4.5 cycles and trip the faulted line.
60	FLT60-SB	**Postrock 345kV Stuck Breaker** a. Apply single phase fault at the Postrock (530583) 345kV bus. b. Wait 16 cycles, and then drop Postrock (530583) – Axtell (640065) 345kV circuit 1 and remove fault.
61	FLT61-SB	**Postrock 345kV Stuck Breaker** a. Apply single phase fault at the Postrock (530583) 345kV bus. b. Wait 16 cycles, and then drop Postrock (530583) 345kV – Postrock (530584) 230kV transformer circuit 1 and remove fault.

Cluster Scenario Results

The results of the stability analysis for the cluster scenario are summarized in **Table 3-1-2**. The results indicate that the transmission system remained stable for all but one of the contingencies studied. The contingency defined in FLT06-3PH was the only contingency in which instability was encountered during this analysis. FLT06-3PH is a three-phase, double circuit contingency located at the outlet of project GEN-2014-049. After further review, the instability related to this contingency was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects. Discussions with the Southwest Power Pool indicate the mitigation for this outage condition is to curtail all generation in the Spearville and southwest Kansas areas.

In addition, one prior queued project in the 2015 Winter Peak case was found to trip off-line during the contingency defined in FLT46-3PH due to overvoltage. FLT46-3PH is a three phase contingency at the point of interconnection for the tripped unit. As outlined in the scope of this study, the contingency was reanalyzed with the overvoltage protection disabled. When the

revised output of the contingency was reviewed, the project was found to recover within the specified criteria. The plots for each fault will be available upon request.

Table 3-1-2: Stability Analysis Results - Cluster Scenario				
Contingency Number	**Contingency Name**	**2015SP**	**2015WP**	**2025SP**
1	FLT01-3PH	STABLE	STABLE	STABLE
2	FLT02-3PH	STABLE	STABLE	STABLE
3	FLT03-3PH	STABLE	STABLE	STABLE
4	FLT04-3PH	STABLE	STABLE	STABLE
5	FLT05-3PH	STABLE	STABLE	STABLE
6	FLT06-3PH	UNSTABLE	UNSTABLE	UNSTABLE
7	FLT07-3PH	STABLE	STABLE	STABLE
8	FLT08-3PH	STABLE	STABLE	STABLE
9	FLT09-3PH	STABLE	STABLE	STABLE
10	FLT10-3PH	STABLE	STABLE	STABLE
11	FLT11-3PH	STABLE	STABLE	STABLE
12	FLT12-3PH	STABLE	STABLE	STABLE
13	FLT13-3PH	STABLE	STABLE	STABLE
14	FLT14-3PH	STABLE	STABLE	STABLE
15	FLT15-3PH	STABLE	STABLE	STABLE
16	FLT16-3PH	STABLE	STABLE	STABLE
17	FLT17-3PH	STABLE	STABLE	STABLE
18	FLT18-3PH	STABLE	STABLE	STABLE
19	FLT19-3PH	STABLE	STABLE	STABLE
20	FLT20-3PH	STABLE	STABLE	STABLE
21	FLT21-3PH	STABLE	STABLE	STABLE
22	FLT22-3PH	STABLE	STABLE	STABLE
23	FLT23-3PH	STABLE	STABLE	STABLE
24	FLT24-3PH	STABLE	STABLE	STABLE
25	FLT25-3PH	STABLE	STABLE	STABLE
26	FLT26-3PH	STABLE	STABLE	STABLE
27	FLT27-3PH	STABLE	STABLE	STABLE
28	FLT28-3PH	STABLE	STABLE	STABLE
29	FLT29-3PH	STABLE	STABLE	STABLE
30	FLT30-3PH	STABLE	STABLE	STABLE
31	FLT31-3PH	STABLE	STABLE	STABLE
32	FLT32-3PH	STABLE	STABLE	STABLE
33	FLT33-3PH	STABLE	STABLE	STABLE
34	FLT34-3PH	STABLE	STABLE	STABLE
35	FLT35-3PH	STABLE	STABLE	STABLE
36	FLT36-3PH	STABLE	STABLE	STABLE
37	FLT37-3PH	STABLE	STABLE	STABLE
38	FLT38-3PH	STABLE	STABLE	STABLE

Table 3-1-2: Stability Analysis Results - Cluster Scenario				
Contingency Number	**Contingency Name**	**2015SP**	**2015WP**	**2025SP**
39	FLT39-3PH	STABLE	STABLE	STABLE
40	FLT40-3PH	STABLE	STABLE	STABLE
41	FLT41-3PH	STABLE	STABLE	STABLE
42	FLT42-3PH	STABLE	STABLE	STABLE
43	FLT43-3PH	STABLE	STABLE	STABLE
44	FLT44-3PH	STABLE	STABLE	STABLE
45	FLT45-3PH	STABLE	STABLE	STABLE
46	FLT46-3PH	STABLE	STABLE	STABLE
47	FLT47-3PH	STABLE	STABLE	STABLE
48	FLT48-3PH	STABLE	STABLE	STABLE
49	FLT49-3PH	STABLE	STABLE	STABLE
50	FLT50-3PH	STABLE	STABLE	STABLE
51	FLT51-PO	STABLE	STABLE	STABLE
52	FLT52-PO	STABLE	STABLE	STABLE
53	FLT53-PO	STABLE	STABLE	STABLE
54	FLT54-SB	STABLE	STABLE	STABLE
55	FLT55-SB	STABLE	STABLE	STABLE
56	FLT56-SB	STABLE	STABLE	STABLE
57	FLT57-SB	STABLE	STABLE	STABLE
58	FLT58-PO	STABLE	STABLE	STABLE
59	FLT59-PO	STABLE	STABLE	STABLE
60	FLT60-SB	STABLE	STABLE	STABLE
61	FLT61-SB	STABLE	STABLE	STABLE

GEN-2013-010 Stand Alone Scenario

Table 3-2-1: Fault Definitions – GEN-2013-010 Scenario

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
2	FLT02-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
3	FLT03-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (523796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
5	FLT05-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT06-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
7	FLT20-3PH	3 phase fault on the Reno 345kV (562476) to Summit 345kV (532773) CKT 1 near Reno. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
8	FLT21-3PH	3 phase fault on the Reno 345kV (532771) to Reno 115kV (533416) to Reno 14.4kV (532807) XMFR CKT 1, near Reno 345kV. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
9	FLT22-3PH	3 phase fault on the Benton 345kV (532791) to Rose Hill 345kV (532794) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
10	FLT23-3PH	3 phase fault on the Benton 345kV (532791) to Wolf Creek 345kV (532797) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT24-3PH	3 phase fault on the Viola 345kV (532798) to Renfrow 345kV (515543) CKT 1 near Viola. a. Apply fault at the Viola 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
12	FLT26-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to Post Rock 345kV (530583) CKT 1 near G13-010 Tap. a. Apply fault at the G13-010 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
13	FLT27-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to G11-017 Tap 345kV (560242) CKT 1 near G13-010 Tap. a. Apply fault at the G13-010 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT28-3PH	3 phase fault on the Post Rock 345kV (530583) to Post Rock 230kV (530584) to Post Rock 13.8kV (530673) XMFR CKT 1, near Post Rock 345kV. a. Apply fault at the Post Rock 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
15	FLT29-3PH	3 phase fault on Post Rock 345kV (530583) to Axtel 345kV (640065) CKT 1 near Post Rock. a. Apply fault at the Post Rock 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT30-3PH	3 phase fault on Axtel 345kV (640065) to Pauline 345kV (640312) CKT 1 near Axtel. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
17	FLT31-3PH	3 phase fault on Axtel 345kV (640065) to Sweetwater 345kV (640374) CKT 1 near Axtel. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT32-3PH	3 phase fault on the Axtel 345kV (640065) to Axtel 115kV (640066) to Axtel 13.8kV (640067) XMFR CKT 1, near Axtel 345kV. a. Apply fault at the Axtel 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
19	FLT33-3PH	3 phase fault on Post Rock 230kV (530584) to Knoll 230kV (530558) CKT 1 near Post Rock. a. Apply fault at the Post Rock 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT34-3PH	3 phase fault on Post Rock 230kV (530584) to S. Hays 115kV (530582) CKT 1 near Post Rock. a. Apply fault at the Post Rock 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT35-3PH	3 phase fault on the Knoll 230kV (530558) to Knoll 115kV (530561) to Knoll 11.49kV (530629) XMFR CKT 1, near Knoll 230kV. a. Apply fault at the Knoll 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
22	FLT36-3PH	3 phase fault on Summit 230kV (532873) to Smoky Hill 230kV (530592) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
23	FLT37-3PH	3 phase fault on Summit 230kV (532873) to Union Ridge 230kV (532874) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT38-3PH	3 phase fault on Summit 230kV (532873) to East McPherson 230kV (532872) CKT 1 near Summit. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
25	FLT39-3PH	3 phase fault on the Summit 230kV (532873) to Summit 345kV (532773) to Summit 11.4kV (532813) XMFR CKT 1, near Summit 230kV. a. Apply fault at the Summit 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
26	FLT40-3PH	3 phase fault on the G11-017 Tap 345kV (560242) to Spearville 345kV (531469) CKT 1 near G11-017 Tap. a. Apply fault at the G11-017 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT41-3PH	3 phase fault on the Spearville 345kV (531469) to Buckner 345kV (531501) CKT 1 near Spearville. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
28	FLT42-3PH	3 phase fault on the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1 near Spearville. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
29	FLT43-3PH	3 phase fault on the Spearville 345kV (531469) to Spearville 230kV (539695) to Spearville 13.8kV (531468) XMFR CKT 1, near Spearville 345kV. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
30	FLT44-3PH	3 phase fault on the Spearville 345kV (531469) to Spearville 115kV (539759) to Spearville 13.8kV (539960) XMFR CKT 1, near Spearville 345kV. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
31	FLT45-3PH	3 phase fault on the Buckner 345kV (531501) to Holcomb 345kV (531449) CKT 1 near Buckner. a. Apply fault at the Buckner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
32	FLT46-3PH	3 phase fault on the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
33	FLT47-3PH	3 phase fault on Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted lines— 3. the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 4. the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1
34	FLT48-3PH	3 phase fault on the Holcomb 345kV (539449) to Finney 345kV (523853) CKT 1 near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
35	FLT49-3PH	3 phase fault on the Holcomb 345kV (539449) to Setab 345kV (531465) CKT 1 near Holcomb. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
36	FLT50-3PH	3 phase fault on the Holcomb 345kV (531449) to Holcomb 115kV (531448) to Holcomb 13.8kV (531450) XMFR CKT 1, near Holcomb 345kV. a. Apply fault at the Holcomb 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
37	FLT53-PO	**Prior outage on the Spearville – Buckner 345kV line** 3 phase fault on GEN 2013-010-TAP (562334) to Post Rock (530583). a. Prior outage the Spearville (531469) to Buckner (531501) 345kV line (solve network for steady state solution). b. 3 phase fault on the GEN 2013-010-TAP (562334) to Post Rock (530583) 345kV line near GEN 2013-010-TAP. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
38	FLT58-PO	**Prior outage on the Spearville – Clark County 345kV line** 3 phase fault on Spearville (531469) to Buckner (531501) 345kV. a. Prior outage the Spearville (531469) to Clark County (539800) 345kV line (solve network for steady state solution). b. 3 phase fault on the Spearville (531469) to Buckner (531501) 345kV line near Spearville. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
39	FLT59-PO	**Prior outage on the Axtell – Pauline 345kV line** 3 phase fault on Axtell (640065) to Sweet Water (640374) 345kV. a. Prior outage the Axtell (640065) to Pauline (640312) 345kV line (solve network for steady state solution). b. 3 phase fault on the Axtell (640065) to Sweet water (640374) 345kV line near Axtell. c. Clear fault after 4.5 cycles and trip the faulted line.
40	FLT60-SB	**Postrock 345kV Stuck Breaker** a. Apply single phase fault at the Postrock (530583) 345kV bus. b. Wait 16 cycles, and then drop Postrock (530583) – Axtell (640065) 345kV circuit 1 and remove fault.
41	FLT61-SB	**Postrock 345kV Stuck Breaker** a. Apply single phase fault at the Postrock (530583) 345kV bus. b. Wait 16 cycles, and then drop Postrock (530583) 345kV – Postrock (530584) 230kV transformer circuit 1 and remove fault.

GEN-2013-010 Stand Alone Scenario Results

The results of the stability analysis for the GEN-2013-010 Stand-Alone scenario are summarized in **Table 3-2-2**. The results indicate that the transmission system remained stable for all but one of the contingencies studied. The contingency defined in FLT06-3PH was the only contingency in which instability was encountered during this analysis. FLT06-3PH is a three-phase, double circuit contingency located at the outlet of project GEN-2014-049. After further review, the instability related to this contingency was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects. In addition, one prior queued project in the 2015 Winter Peak case was found to trip off-line during the contingency defined in FLT46-3PH due to overvoltage. FLT46-3PH is a three phase contingency at the point of interconnection for the tripped unit. As outlined in the scope of this study, the contingency was reanalyzed with the overvoltage protection disabled. When the revised output of the contingency was reviewed, the project was found to recover within the specified criteria. The plots for each fault will be available upon request.

Table 3-2-2: Stability Analysis Results - Stand Alone GEN-2013-010

Contingency Number	Contingency Name	2015SP	2015WP	2025SP
1	FLT01-3PH	STABLE	STABLE	STABLE
2	FLT02-3PH	STABLE	STABLE	STABLE
3	FLT03-3PH	STABLE	STABLE	STABLE
4	FLT04-3PH	STABLE	STABLE	STABLE
5	FLT05-3PH	STABLE	STABLE	STABLE
6	FLT06-3PH	UNSTABLE	UNSTABLE	UNSTABLE

Table 3-2-2: Stability Analysis Results - Stand Alone GEN-2013-010				
Contingency Number	**Contingency Name**	**2015SP**	**2015WP**	**2025SP**
7	FLT20-3PH	STABLE	STABLE	STABLE
8	FLT21-3PH	STABLE	STABLE	STABLE
9	FLT22-3PH	STABLE	STABLE	STABLE
10	FLT23-3PH	STABLE	STABLE	STABLE
11	FLT24-3PH	STABLE	STABLE	STABLE
12	FLT26-3PH	STABLE	STABLE	STABLE
13	FLT27-3PH	STABLE	STABLE	STABLE
14	FLT28-3PH	STABLE	STABLE	STABLE
15	FLT29-3PH	STABLE	STABLE	STABLE
16	FLT30-3PH	STABLE	STABLE	STABLE
17	FLT31-3PH	STABLE	STABLE	STABLE
18	FLT32-3PH	STABLE	STABLE	STABLE
19	FLT33-3PH	STABLE	STABLE	STABLE
20	FLT34-3PH	STABLE	STABLE	STABLE
21	FLT35-3PH	STABLE	STABLE	STABLE
22	FLT36-3PH	STABLE	STABLE	STABLE
23	FLT37-3PH	STABLE	STABLE	STABLE
24	FLT38-3PH	STABLE	STABLE	STABLE
25	FLT39-3PH	STABLE	STABLE	STABLE
26	FLT40-3PH	STABLE	STABLE	STABLE
27	FLT41-3PH	STABLE	STABLE	STABLE
28	FLT42-3PH	STABLE	STABLE	STABLE
29	FLT43-3PH	STABLE	STABLE	STABLE
30	FLT44-3PH	STABLE	STABLE	STABLE
31	FLT45-3PH	STABLE	STABLE	STABLE
32	FLT46-3PH	STABLE	STABLE	STABLE
33	FLT47-3PH	STABLE	STABLE	STABLE
34	FLT48-3PH	STABLE	STABLE	STABLE
35	FLT49-3PH	STABLE	STABLE	STABLE
36	FLT50-3PH	STABLE	STABLE	STABLE
37	FLT53-PO	STABLE	STABLE	STABLE
38	FLT58-PO	STABLE	STABLE	STABLE
39	FLT59-PO	STABLE	STABLE	STABLE
40	FLT60-SB	STABLE	STABLE	STABLE
41	FLT61-SB	STABLE	STABLE	STABLE

GEN-2014-049 Stand Alone Scenario

Table 3-3-1: Fault Definitions – GEN-2014-049 Scenario

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
3	FLT03-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (523796) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
5	FLT05-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT06-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle. a. Apply fault at the Thistle 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
7	FLT07-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) to Thistle 13.8kV (539802) XMFR CKT 1, near Thistle 345kV. a. Apply fault at the Thistle 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Cont. No.	Cont. Name	Description
8	FLT08-3PH	3 phase fault on the Woodward 345kV (515375) to Border 345kV (515458) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT09-3PH	3 phase fault on the Woodward 345kV (515375) to G11-051 Tap 345kV (562075) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
10	FLT10-3PH	3 phase fault on the Woodward 345kV (515375) to Beaver County 345kV (515554) CKT 1, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT11-3PH	3 phase fault on the Woodward 345kV (515375) to Beaver County 345kV (515554) CKT 1 and 2, near Woodward. a. Apply fault at the Woodward 345kV bus. b. Leave fault on for 5 cycles, then trip the lines (CKT 1 and 2) and remove fault.
12	FLT12-3PH	3 phase fault on the Woodward 345kV (515375) to Woodward 138kV (515376) to Woodward 13.8kV (515799) XMFR CKT 2, near Woodward 345kV. a. Apply fault at the Woodward 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
13	FLT13-3PH	3 phase fault on the Border 345kV (515458) to Tuco 345kV (525832) CKT 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT14-3PH	3 phase fault on the Wichita 345kV (532796) to G14-001 Tap 345kV (562476) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
15	FLT15-3PH	3 phase fault on the Wichita 345kV (532796) to Reno 345kV (532771) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT16-3PH	3 phase fault on the Wichita 345kV (532796) to Benton 345kV (532791) CKT 1, near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
17	FLT17-3PH	3 phase fault on the Wichita 345kV (532796) to Viola 345kV (532798) CKT 1 near Wichita. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT18-3PH	3 phase fault on the Wichita 345kV (532796) to Wichita 138kV (533040) to Wichita 13.8kV (532830) XMFR CKT 1, near Wichita 345kV. a. Apply fault at the Wichita 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
19	FLT19-3PH	3 phase fault on the G14-001 Tap 345kV (562476) to EMPEC 345kV (532768) CKT 1 near G14-001 Tap. a. Apply fault at the G14-001 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT20-3PH	3 phase fault on the Reno 345kV (562476) to Summit 345kV (532773) CKT 1 near Reno. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT21-3PH	3 phase fault on the Reno 345kV (532771) to Reno 115kV (533416) to Reno 14.4kV (532807) XMFR CKT 1, near Reno 345kV. a. Apply fault at the Reno 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
22	FLT22-3PH	3 phase fault on the Benton 345kV (532791) to Rose Hill 345kV (532794) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
23	FLT23-3PH	3 phase fault on the Benton 345kV (532791) to Wolf Creek 345kV (532797) CKT 1 near Benton. a. Apply fault at the Benton 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT24-3PH	3 phase fault on the Viola 345kV (532798) to Renfrow 345kV (515543) CKT 1 near Viola. a. Apply fault at the Viola 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25	FLT25-3PH	3 phase fault on the Viola 345kV (532798) to Viola 138kV (533075) to Reno 13.8kV (532832) XMFR CKT 1, near Viola 345kV. a. Apply fault at the Viola 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
26	FLT42-3PH	3 phase fault on the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1 near Spearville. a. Apply fault at the Spearville 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT46-3PH	3 phase fault on the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
28	FLT47-3PH	3 phase fault on Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 near Clark County. a. Apply fault at the Clark County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted lines— 5. the Clark County 345kV (539800) to Ironwood 345kV (539803) CKT 1 6. the Spearville 345kV (531469) to Clark County 345kV (539800) CKT 1
29	FLT51-PO	**Prior outage on the Thistle – Clark County 345kV line** 3 phase fault on Thistle (539801) to Woodward (515375). a. Prior outage Thistle (539801) to Clark County (539800) (solve network for steady state solution). b. 3 phase fault on the Thistle (539801) to Woodward (515375) 345kV CKT 1 line near Thistle. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
30	FLT52-PO	**Prior outage on the Thistle – Wichita 345kV line** 3 phase fault on Thistle (539801) to Clark County (539800). a. Prior outage Thistle (539801) to Wichita (532796) 345kV line (solve network for steady state solution). b. 3 phase fault on the Thistle (539801) to Clark County (539800) 345kV CKT 1 line near Thistle. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
31	FLT54-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Woodward (515375) 345kV circuit 1 and remove fault.
32	FLT55-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Wichita (532796) 345kV circuit 1 and remove fault.
33	FLT56-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) – Clark County (539800) 345kV circuit 1 and remove fault.
34	FLT57-SB	**Thistle 345kV Stuck Breaker** a. Apply single phase fault at the Thistle (539801) 345kV bus. b. Wait 16 cycles, and then drop Thistle (539801) 345kV – Thistle (539804) 138kV transformer circuit 1 and remove fault.

GEN-2014-049 Stand Alone Scenario Results

The results for the stability analysis for the GEN-2014-049 Stand Alone scenario are summarized in **Table 3-3-2**. The results indicate that the transmission system remained stable for all but one of the contingencies studied. The contingency defined in FLT06-3PH was the only contingency in which instability was encountered during this analysis. FLT06-3PH is a three-phase, double circuit contingency located at the outlet of project GEN-2014-049. After further review, the instability related to this contingency was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects. In addition, one prior queued project in the 2015 Summer Peak and 2015 Winter Peak cases, was found to trip off-line during the contingency defined in FLT46-3PH due to overvoltage. FLT46-3PH is a three phase contingency at the point of interconnection for the tripped unit. As outlined in the scope of this study, the contingency was reanalyzed with the overvoltage protection disabled. When the revised output of the contingency was reviewed, the project was found to recover within the specified criteria. The plots for each fault will be available upon request.

Table 3-3-2: Stability Analysis Results - Stand Alone GEN-2014-049				
Contingency Number	**Contingency Name**	**2015SP**	**2015WP**	**2025SP**
1	FLT01-3PH	STABLE	STABLE	STABLE
2	FLT02-3PH	STABLE	STABLE	STABLE
3	FLT03-3PH	STABLE	STABLE	STABLE
4	FLT04-3PH	STABLE	STABLE	STABLE
5	FLT05-3PH	STABLE	STABLE	STABLE
6	FLT06-3PH	UNSTABLE	UNSTABLE	UNSTABLE
7	FLT07-3PH	STABLE	STABLE	STABLE
8	FLT08-3PH	STABLE	STABLE	STABLE
9	FLT09-3PH	STABLE	STABLE	STABLE
10	FLT10-3PH	STABLE	STABLE	STABLE
11	FLT11-3PH	STABLE	STABLE	STABLE
12	FLT12-3PH	STABLE	STABLE	STABLE
13	FLT13-3PH	STABLE	STABLE	STABLE
14	FLT14-3PH	STABLE	STABLE	STABLE
15	FLT15-3PH	STABLE	STABLE	STABLE
16	FLT16-3PH	STABLE	STABLE	STABLE
17	FLT17-3PH	STABLE	STABLE	STABLE
18	FLT18-3PH	STABLE	STABLE	STABLE
19	FLT19-3PH	STABLE	STABLE	STABLE
20	FLT20-3PH	STABLE	STABLE	STABLE
21	FLT21-3PH	STABLE	STABLE	STABLE
22	FLT22-3PH	STABLE	STABLE	STABLE
23	FLT23-3PH	STABLE	STABLE	STABLE
24	FLT24-3PH	STABLE	STABLE	STABLE
25	FLT25-3PH	STABLE	STABLE	STABLE
26	FLT42-3PH	STABLE	STABLE	STABLE
27	FLT46-3PH	STABLE	STABLE	STABLE
28	FLT47-3PH	STABLE	STABLE	STABLE
29	FLT51-PO	STABLE	STABLE	STABLE
30	FLT52-PO	STABLE	STABLE	STABLE
31	FLT54-SB	STABLE	STABLE	STABLE
32	FLT55-SB	STABLE	STABLE	STABLE
33	FLT56-SB	STABLE	STABLE	STABLE
34	FLT57-SB	STABLE	STABLE	STABLE

FERC LVRT Compliance

FERC Order 661A places specific requirements on wind farms through its Low Voltage Ride Through (LVRT) provisions. For Interconnection Agreements signed after December 31, 2006, wind farms shall stay on line for faults at the point of interconnection (POI) that draw the voltage down at the POI to 0.0 pu.

Fault contingencies were developed to verify that wind farms remain on line when the POI voltage is drawn down to 0.0 pu[5]. These contingencies are shown in **Tables 3-4**.

Table 3-4: Fault Definitions – FERC LVRT Compliance

Cont. Name	Description
FLT01-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1, near Thistle.
FLT02-3PH	3 phase fault on the Thistle 345kV (539801) to Woodward 345kV (515375) CKT 1 and 2, near Thistle.
FLT03-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (532796) CKT 1, near Thistle.
FLT04-3PH	3 phase fault on the Thistle 345kV (539801) to Wichita 345kV (523796) CKT 1 and 2, near Thistle.
FLT05-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1, near Thistle.
FLT06-3PH	3 phase fault on the Thistle 345kV (539801) to Clark County 345kV (539800) CKT 1 and 2, near Thistle.
FLT07-3PH	3 phase fault on the Thistle 345kV (539801) to Thistle 138kV (539804) to Thistle 13.8kV (539802) XMFR CKT 1, near Thistle 345kV.
FLT26-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to Post Rock 345kV (530583) CKT 1 near G13-010 Tap.
FLT27-3PH	3 phase fault on the G13-010 Tap 345kV (562334) to G11-017 Tap 345kV (560242) CKT 1 near G13-010 Tap.
FLT51-PO	Prior outage on the Thistle – Clark County 345kV line 3 phase fault on Thistle (539801) to Woodward (515375).
FLT52-PO	Prior outage on the Thistle – Wichita 345kV line 3 phase fault on Thistle (539801) to Clark County (539800).
FLT53-PO	Prior outage on the Spearville – Buckner 345kV line 3 phase fault on GEN 2013-010-TAP (562334) to Post Rock (530583).

The required study project wind farms remained online for the fault contingencies described in this section as well as the fault contingencies described in the Disturbances section of this report. GEN-2013-010 and GEN-2014-049 were found to be in compliance with FERC Order 661A.

[5] Section 7.1.3: SPP Guidelines for Generation Interconnection Requests to SPP's Transmission System

Power Factor Analysis

The power factor analysis was performed for each wind project included in this study and is designed to demonstrate the reactive power requirements at the point of interconnection (POI)[6]. For all wind projects that require reactive power, the final requirement in the Generation Interconnection Agreement (GIA) will be to maintain the pro-forma power factor of 95% lagging to 95% leading at the POI[7].

Model Preparation

For each wind project included in this study, as well as previous queued projects modeled at the same POI, the wind projects were turned off for the power factor analysis. The wind farms were replaced by an equivalent generator located at the POI producing the total MW of the wind farms at that POI and 0.0 VAR capability. A VAR generator without limits was modeled at the wind farm's POI to hold a voltage schedule at the POI consistent with the greater of the voltage schedule in the base case or unity (1.0 pu) voltage.

Disturbances

Each N-1 contingency evaluated in the Stability Analysis found in **Table 3-1-1** was also included in the determination of the power factor requirements. This analysis was performed only on the cluster scenario.

Results

The power factor results are included in **Table 4-1 and 4-2** for each contingency. Since the analysis showed that reactive power is required for each of the study projects, the final requirement in the GIA for each project will be the pro-forma 95% lagging to 95% leading at the POI.

Table 4-1: Power Factor Analysis at the GEN-2013-010 POI Results

Power Factor Analysis									
Power Factor Analysis: GEN-2013-010 (PGEN = 99 MW)									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)
Base	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
1	0.995	Lagging	38.1	0.989	Lagging	59.1	0.997	Lagging	30.3
3	0.978	Lagging	85.4	0.968	Lagging	103.8	0.989	Lagging	59.7
5	0.949	Lagging	132.2	0.935	Lagging	150.5	0.955	Lagging	123.8
7	0.993	Lagging	45.8	0.988	Lagging	62.9	0.997	Lagging	30.2
8	0.995	Lagging	39.4	0.989	Lagging	59.2	0.997	Lagging	29.4
9	0.986	Lagging	67.3	0.977	Lagging	86.3	0.997	Lagging	31.4
10	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8

[6] Section 7: SPP Guidelines for Generation Interconnection Requests to SPP's Transmission System

[7] Section 9.6.1: SPP Generator Interconnection Agreement (GIA)

Power Factor Analysis									
Power Factor Analysis: GEN-2013-010 (PGEN = 99 MW)									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)
12	0.995	Lagging	39.7	0.989	Lagging	60.1	0.997	Lagging	29.4
13	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
14	0.993	Lagging	47.3	0.987	Lagging	65.2	0.997	Lagging	31.2
15	0.994	Lagging	44.7	0.986	Lagging	68.3	0.998	Lagging	26.8
16	0.993	Lagging	46	0.985	Lagging	69	0.996	Lagging	36.3
17	0.995	Lagging	39.8	0.989	Lagging	59.3	0.997	Lagging	28.3
18	0.995	Lagging	38.5	0.989	Lagging	58.4	0.997	Lagging	28.4
19	0.993	Lagging	48.9	0.986	Lagging	66.6	0.997	Lagging	32.5
20	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
21	0.995	Lagging	39.9	0.989	Lagging	60	0.997	Lagging	28.5
22	0.995	Lagging	41.1	0.988	Lagging	61.4	0.997	Lagging	30.3
23	0.996	Lagging	35.5	0.990	Lagging	55.8	0.998	Lagging	25.7
24	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
25	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	29.1
26	1.000	Leading	-2.5	1.000	Lagging	5.5	1.000	Lagging	1.5
27	0.987	Leading	-63.9	0.990	Leading	-55.5	0.988	Leading	-62.3
28	0.996	Lagging	34.9	0.997	Lagging	32.6	0.998	Lagging	23.3
29	0.999	Lagging	21.5	0.992	Lagging	50.2	0.998	Lagging	22.7
30	0.999	Lagging	18.2	0.993	Lagging	48.5	0.999	Lagging	21.2
31	0.988	Lagging	63.4	0.980	Lagging	81.6	0.992	Lagging	52.1
32	0.997	Lagging	31.6	0.993	Lagging	46.9	0.999	Lagging	16.5
33	0.993	Lagging	47.6	0.984	Lagging	72.4	0.996	Lagging	35.1
34	0.996	Lagging	33.7	0.995	Lagging	41.4	0.998	Lagging	23.7
35	0.998	Lagging	27.3	0.992	Lagging	50.3	1.000	Lagging	10.5
36	0.999	Lagging	21.6	0.995	Lagging	38.1	0.999	Lagging	18.4
37	0.996	Lagging	37.8	0.989	Lagging	58.3	0.998	Lagging	28.1
38	0.995	Lagging	39.4	0.989	Lagging	59.7	0.997	Lagging	29.6
39	0.995	Lagging	40.3	0.986	Lagging	66.3	0.997	Lagging	33.3
40	0.966	Leading	-107.2	0.971	Leading	-98.5	0.967	Leading	-105
41	0.997	Lagging	29.6	0.996	Lagging	37.5	1.000	Lagging	6.7
42	0.989	Lagging	59.4	0.981	Lagging	79.3	0.992	Lagging	49.4
43	0.997	Lagging	32.3	0.992	Lagging	50.3	0.999	Lagging	21.6
44	0.996	Lagging	36.7	0.990	Lagging	56.9	0.998	Lagging	26.7
45	0.947	Lagging	134.8	0.945	Lagging	137.7	0.969	Lagging	101.3
46	0.989	Lagging	60.8	0.980	Lagging	80.6	0.992	Lagging	50.8
48	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
49	0.995	Lagging	38.5	0.989	Lagging	58.9	0.997	Lagging	28.8
50	0.996	Lagging	36	0.991	Lagging	53.1	0.998	Lagging	23.7

Power Factor Analysis									
Power Factor Analysis: GEN-2013-010 (PGEN = 99 MW)									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)
Low	0.947	Lagging	134.8	0.935	Lagging	150.5	0.955	Lagging	123.8

Table 4-2: Power Factor Analysis at the GEN-2014-049 POI Results

Power Factor Analysis									
Power Factor Analysis: GEN-2014-049 (PGEN = 200 MW)									
Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)
Base	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
1	0.793	Lagging	153.5	0.726	Lagging	189.2	0.867	Lagging	114.9
3	0.942	Lagging	71.2	0.925	Lagging	82.4	0.982	Lagging	39
5	0.910	Lagging	90.9	0.812	Lagging	143.7	0.961	Lagging	57.9
7	0.999	Leading	-9.3	0.976	Lagging	44.3	0.982	Leading	-38.2
8	0.987	Lagging	33.2	0.930	Lagging	79.1	1.000	Leading	-2.3
9	0.899	Lagging	97.5	0.832	Lagging	133.3	0.999	Leading	-10.7
10	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
12	0.996	Lagging	17.3	0.955	Lagging	61.9	0.997	Leading	-15.6
13	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
14	0.995	Lagging	20.8	0.947	Lagging	67.8	1.000	Leading	-2.3
15	1.000	Leading	-0.4	0.963	Lagging	56.3	1.000	Lagging	4.8
16	0.993	Lagging	24.2	0.976	Lagging	44.4	0.994	Leading	-21.1
17	0.995	Lagging	20.4	0.930	Lagging	78.8	0.999	Leading	-7.9
18	0.995	Leading	-19.1	0.991	Lagging	27.3	0.972	Leading	-48.1
19	1.000	Lagging	1.7	0.975	Lagging	45.8	0.995	Leading	-20.3
20	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
21	0.999	Lagging	7.4	0.966	Lagging	53.8	0.997	Leading	-16.7
22	0.998	Lagging	11.4	0.953	Lagging	63.8	0.997	Leading	-15.6
23	0.992	Lagging	25	0.931	Lagging	78.5	1.000	Leading	-1.3
24	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
25	0.999	Lagging	9.7	0.964	Lagging	55.5	0.997	Leading	-16.2
26	0.447	Lagging	400.2	0.417	Lagging	435.8	0.535	Lagging	316.1
27	0.710	Lagging	198.2	0.640	Lagging	240	0.816	Lagging	141.6
28	0.912	Lagging	90.1	0.843	Lagging	127.6	0.973	Lagging	47.4
29	0.800	Lagging	150.1	0.702	Lagging	202.8	0.869	Lagging	113.7
30	0.966	Lagging	53.5	0.888	Lagging	103.4	0.997	Lagging	14.9
31	0.999	Lagging	6.8	0.966	Lagging	53.4	0.994	Leading	-21.2

Power Factor Analysis									
Power Factor Analysis: GEN-2014-049 (PGEN = 200 MW)									
Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)	Power Factor		Q(MVAR)
32	0.997	Lagging	15.5	0.957	Lagging	60.9	0.998	Leading	-13.7
33	0.974	Lagging	46.2	0.914	Lagging	88.6	0.998	Lagging	13.6
34	0.996	Lagging	18	0.958	Lagging	60.1	0.998	Leading	-13.9
35	0.999	Lagging	10.9	0.963	Lagging	56.2	0.996	Leading	-17.3
36	0.911	Lagging	90.5	0.835	Lagging	131.6	0.972	Lagging	48.1
37	0.998	Lagging	13.2	0.960	Lagging	58.7	0.997	Leading	-15.3
38	0.998	Lagging	11	0.962	Lagging	56.9	0.997	Leading	-16.7
39	1.000	Lagging	3.8	0.970	Lagging	49.8	0.995	Leading	-20
40	0.699	Lagging	204.4	0.635	Lagging	243	0.804	Lagging	147.7
41	0.986	Leading	-34.1	0.991	Lagging	27.7	0.934	Leading	-76.8
42	1.000	Lagging	0.1	0.971	Lagging	48.9	0.989	Leading	-30
43	1.000	Lagging	3.3	0.971	Lagging	49.3	0.993	Leading	-23.8
44	0.999	Lagging	8.9	0.964	Lagging	55.4	0.995	Leading	-19.5
45	0.832	Lagging	133.4	0.730	Lagging	187.4	0.910	Lagging	90.9
46	1.000	Leading	-1.8	0.973	Lagging	47	0.988	Leading	-31.9
48	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
49	0.999	Lagging	9.7	0.964	Lagging	55.5	0.996	Leading	-18.3
50	1.000	Lagging	1.9	0.967	Lagging	52.9	0.992	Leading	-24.8
Low	**0.447**	**Lagging**	**400.2**	**0.417**	**Lagging**	**435.8**	**0.535**	**Lagging**	**316.1**

Low Wind Analysis

Interconnection requests for wind generation projects that interconnect to a 345kV or 230kV bus on the SPP system are analyzed for the capacitive charging effects during reduced generation conditions (low wind speeds, curtailment, etc.) at the generation site.

Model Preparation

The project generators along with any capacitors modeled with the study projects, and all other wind projects that share the same POI, were turned off in the base case. The resulting reactive power injection into the transmission network comes from the capacitance of the study project's transmission lines and collector cables. This reactive power injection is measured at the POI. Shunt reactors were added at the study project substation low voltage bus to bring the MVAR flow into the POI down to approximately zero.

Results

A final shunt reactor requirement for each of the studied interconnection requests is shown in **Table 5-1**. One line drawings used in the analysis are shown in **Appendix A: Charging Current Compensation Analysis Results**.

Table 5-1: Summary of Shunt Reactor Requirements

Request	Capacity (MW)	POI	Shunt Reactor Required 2015S	Shunt Reactor Required 2015W	Shunt Reactor Required 2025S
GEN-2013-010	99.0	GEN-2013-010 Tap 345 kV (562334) (Tap on Spearville to Post Rock 345 kV line)	2.8 MVAR	2.8 MVAR	2.8 MVAR
GEN-2014-049	200.0	Thistle 345 kV (539801)	22.1 MVAR	21.9 MVAR	21.8 MVAR

Conclusion

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting generation to the SPP Transmission System.

GEN-2013-010 and GEN-2014-049 were found to be stable for all but one of the contingencies studied. The contingency defined in FLT06-3PH was the only contingency in which instability was encountered during this analysis. FLT06-3PH is a double circuit contingency located at the outlet of project GEN-2014-049. After further review, the instability related to this contingency was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects. Discussions with the Southwest Power Pool indicate the mitigation for this outage condition is to curtail all generation in the Spearville and southwest Kansas areas.

In addition, one prior queued project was found to trip off-line during the contingency defined in FLT46-3PH due to overvoltage. FLT46-3PH is a three phase contingency at the point of interconnection for the tripped unit. When the overvoltage protection for this project was disabled, and the contingency reanalyzed, the project was found to recover within the specified criteria. The wind turbine generators in GEN-2013-010 and GEN-2014-049 have the capability of pre-contingency voltage recovery, and the post fault voltage recovery was found to be within the criterion of 0.7 pu to 1.2 pu.

The Low Voltage Ride Through (LVRT) analysis showed that none of the interconnection requests in this study tripped offline when their respective POI's were faulted to draw the POI voltage down to 0.0 pu. Therefore, each interconnection request in this study meets the FECR Order 661A requirement.

A power factor analysis was performed for each interconnection project. All three cluster scenario study cases, 2015 Winter, 2015 Summer, and 2025 Summer Peak conditions, were used in the analyses. The power factor analyses showed that GEN-2013-010 and GEN-2014-049 will be required to provide the pro-forma standard 0.95 leading (absorbing) to 0.95 lagging (supplying) at their respective Point of Interconnection (POI).

A low wind analysis was done on the interconnection requests. A summary of reactor requirements is shown in **Table 5-1**. The reactor requirements can be implemented by external reactor banks or other means.

All generators in the monitored areas remained stable for all but one of the modeled disturbances. As stated above, this instability was found to exist in a base case scenario which did not include either project being analyzed in this study. Therefore, this instability was found to be unrelated to the operation of these projects.

Any changes to the assumptions made in this study may require a re-study at the expense of the Customer, for example, withdrawal of one or more of the previously queued requests.

Nothing in this study should be construed as a guarantee of delivery or transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

Appendix A: Charging Current Compensation Analysis Results

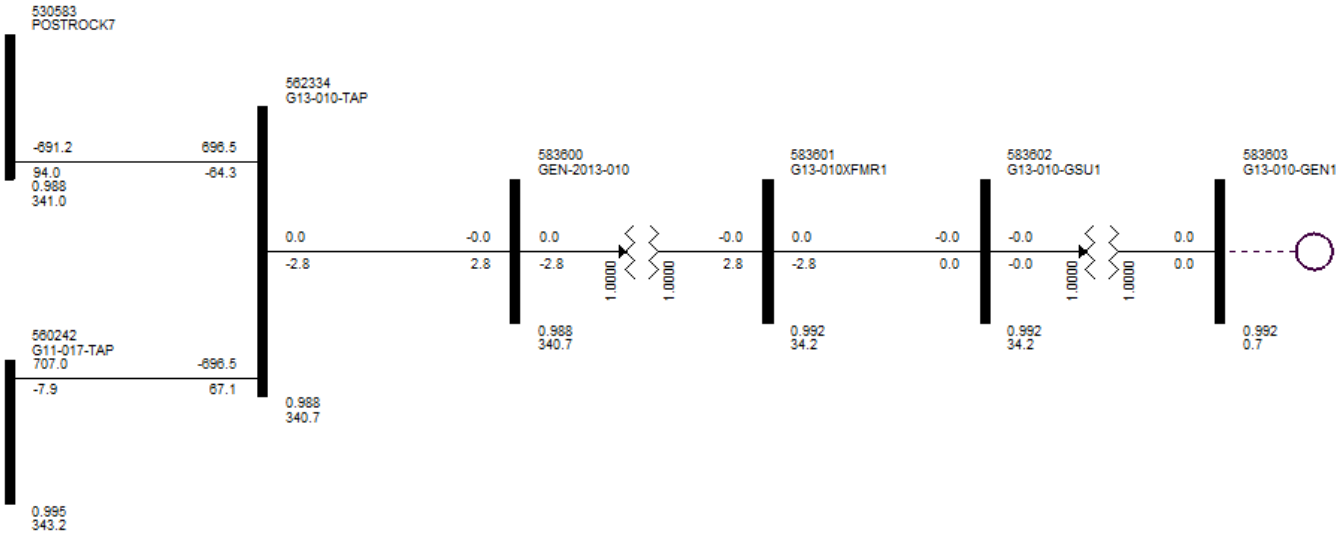

Figure B 1: GEN-2013-010 with generators off and no shunt reactors

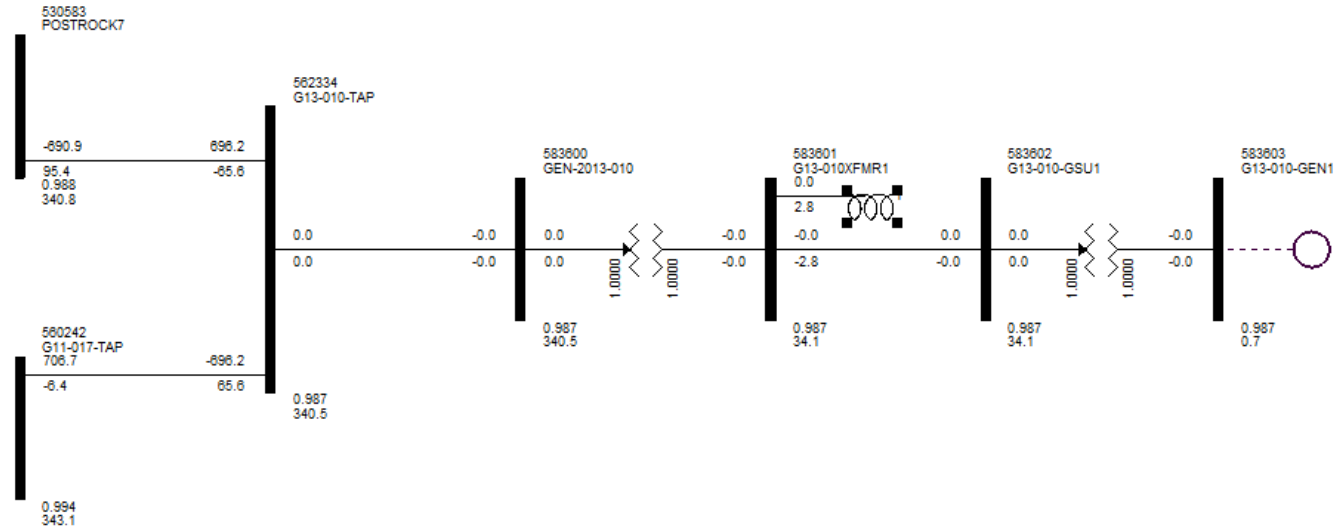

Figure B 2: GEN-2013-010 with generator turned off and shunt reactors added to the low side of the substation 345/34.5kV transformer

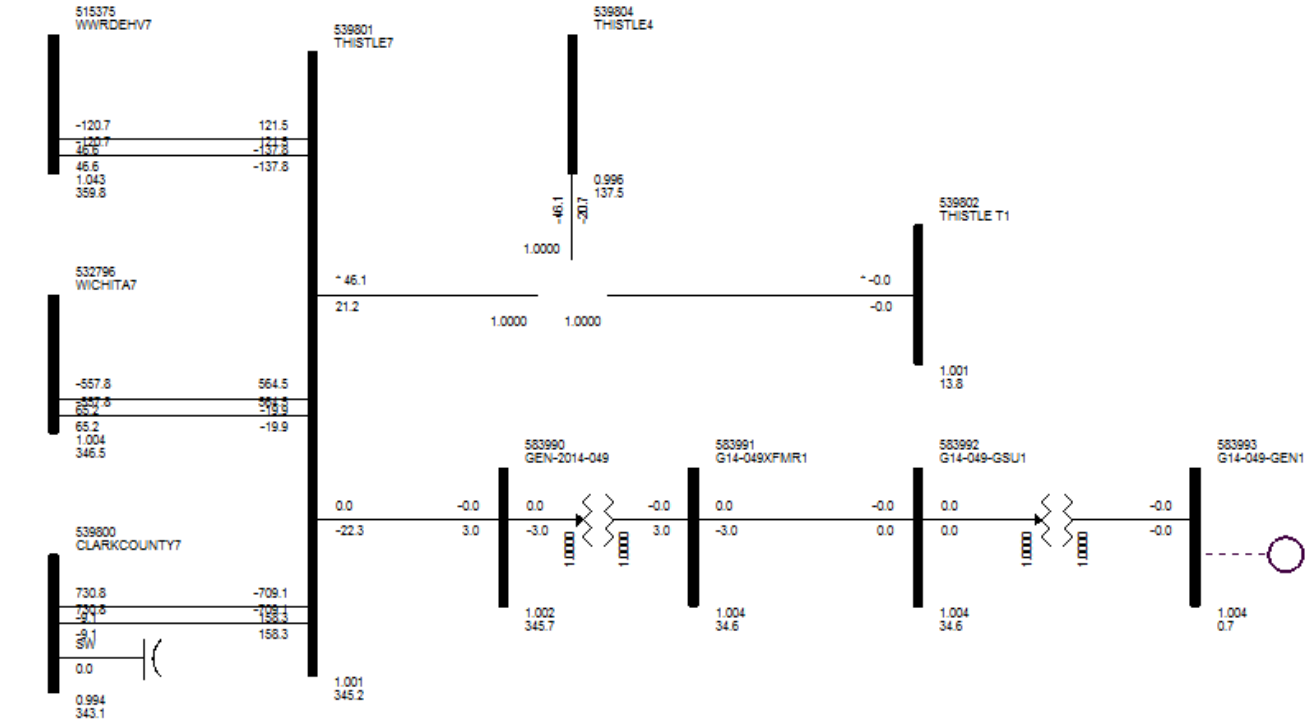

Figure B 3: GEN-2014-049 turned off and no shunt reactors

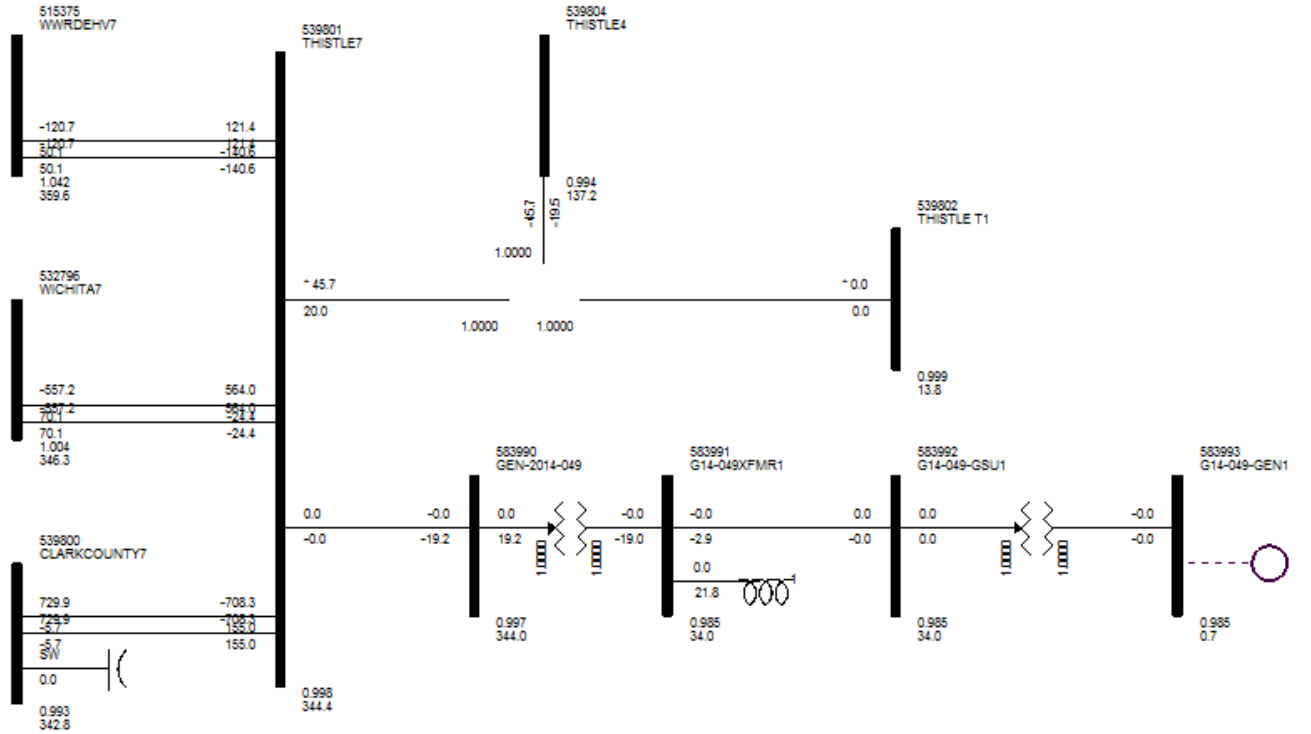

Figure B 4: GEN-2014-049 with generator turned off and shunt reactors added to the low side of the substation 345/34.5kV transformers

Appendix B: Study Plots

Transient stability plots will be made available upon request

Group 3 Short Circuit Analysis Addendum

DISIS-2014-002

January 2015
Generator Interconnection

SPP Southwest Power Pool

Short Circuit Analysis

A short circuit analysis was performed on the Group 3 DISIS-2014-002 interconnection requests. The Group 3 interconnection projects are as follows:

- GEN-2013-010 – 99.0MW wind project using Siemens 3.0MW wind turbine generators connected to a tap on the Spearville to Post Rock 345kV circuit on the Midwest Energy, Inc. (MIDW) and Sunflower Electric Power Corporation (SUNC) Transmission Systems.

- GEN-2014-049 – 200.0MW wind project using GE 3.0MW wind turbine generators connected to the SUNC Thistle 345kV Substation.

The short circuit analysis was performed on the 2025 Summer Peak power flow case using the PSS/E ASCC program. Since the power flow model does not contain negative and zero sequence data, only three-phase symmetrical fault current levels were calculated at the point of interconnection up to and including five levels away. The following pages list the results of the analysis.

PSS(R)E-32.2.2 ASCC SHORT CIRCUIT CURRENTS
FRI, JAN 23 2015 10:36
2014 MDWG PASS 8 WITH 2013 MMWG
MDWG 2025S WITH MMWG 2024S

OPTIONS USED:
- DC LINES AND FACTS DEVICES BLOCKED

X---------- BUS ----------X		THREE PHASE FAULT /I+/	AN(I+)
515375 [WWRDEHV7 345.00]	AMP	20457.9	-80.28
523853 [FINNEY 7345.00]	AMP	11881.2	-56.52
530551 [SALINE 3 115.00]	AMP	5048.7	-67.80
530552 [GORHAM 3 115.00]	AMP	3144.8	-66.60
530553 [S HAYS 3 115.00]	AMP	8665.7	-69.29
530558 [KNOLL 6 230.00]	AMP	10816.0	-69.46
530561 [KNOLL 3 115.00]	AMP	11611.5	-69.73
530562 [HAYS 3 115.00]	AMP	8813.2	-67.70
530581 [N HAYS3 115.00]	AMP	10110.3	-67.87
530582 [S HAYS6 230.00]	AMP	8640.1	-68.87
530583 [POSTROCK7 345.00]	AMP	7752.0	-67.79
530584 [POSTROCK6 230.00]	AMP	10951.9	-69.40
530592 [SMOKYHL6 230.00]	AMP	6940.6	-80.45
530593 [SMKYP1 6 230.00]	AMP	6035.3	-80.35
530599 [SMKYP2 6 230.00]	AMP	6448.5	-80.41
530605 [REDLIN 3 115.00]	AMP	4181.5	-62.29
530629 [KNLL1 1 11.490]	AMP	36089.5	-106.88
530632 [SHYS1 1 12.470]	AMP	17032.7	-107.37
530673 [POSTROCK1 13.800]	AMP	79821.1	-72.95
530676 [GMEC 3 115.00]	AMP	11087.3	-69.83
530677 [OGALATP3 115.00]	AMP	2656.5	-66.32
530680 [HEIZER 6 230.00]	AMP	8235.8	-68.45
531448 [HOLCOMB3 115.00]	AMP	23318.0	-53.70
531449 [HOLCOMB7 345.00]	AMP	12029.3	-56.49
531450 [HOLCTER1 13.800]	AMP	18435.4	-92.90
531465 [SETAB 7 345.00]	AMP	7915.3	-59.50
531468 [SPERTER1 13.800]	AMP	12969.8	-89.61
531469 [SPERVIL7 345.00]	AMP	13886.3	-54.82
531501 [BUCKNER7 345.00]	AMP	10560.2	-53.41
531502 [CIMRRN 7 345.00]	AMP	8296.1	-52.94
531503 [CIMRRN 1 34.500]	AMP	23982.1	-47.55
531504 [CPV_CIMRRN 7345.00]	AMP	10560.2	-53.41
531505 [CPV_CIMRRN 134.500]	AMP	21055.9	-48.06
531998 [HOLCOMB_2-ST22.000]	AMP	61358.2	-83.98
531999 [HOLCOMB_1-CT18.000]	AMP	43710.6	-87.02
532796 [WICHITA7 345.00]	AMP	24027.5	-86.02
532871 [CIRCLE 6 230.00]	AMP	10588.1	-83.56
532873 [SUMMIT 6 230.00]	AMP	13632.5	-86.34
539671 [FTDODGE3 115.00]	AMP	12518.6	-49.47
539678 [GRTBEND3 115.00]	AMP	12331.2	-69.06
539679 [GRTBEND6 230.00]	AMP	8283.7	-68.43
539688 [S-DODGE3 115.00]	AMP	8301.4	-45.99
539694 [SPEARVL3 115.00]	AMP	10363.2	-54.99
539695 [SPEARVL6 230.00]	AMP	12530.8	-56.17
539732 [SPEARVL1 34.500]	AMP	891.8	-54.46
539743 [SPWIND-T1 13.800]	AMP	36489.0	-84.36

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539744 [SPWIND-T2   13.800] AMP    31138.1   -84.46
539752 [GPEWIND1    34.500] AMP    26391.8   -48.42
539753 [SPEARVLE-EVB230.00] AMP    12530.8   -56.17
539758 [FORD   3    115.00] AMP     5495.4   -47.09
539759 [SPRVL  3    115.00] AMP    11589.3   -56.84
539771 [NFTDODG3    115.00] AMP    12558.1   -49.49
539800 [CLARKCOUNTY7345.00] AMP    12011.4   -58.24
539801 [THISTLE7    345.00] AMP    15242.7   -75.12
539802 [THISTLE T1  13.800] AMP     8127.9   -79.01
539803 [IRONWOOD7   345.00] AMP    13428.0   -54.79
539804 [THISTLE4    138.00] AMP    16128.4   -76.22
539807 [IRONWOOD 1  34.500] AMP    23128.7   -47.49
539808 [IRONWOOD T1 13.800] AMP    36381.8   -47.47
539809 [IRONWOOD 1 7345.00] AMP    13428.0   -54.79
539810 [IRONWOOD T 213.800] AMP    27646.8   -47.71
539920 [GRTBNDTT    13.800] AMP    32654.1  -106.06
539935 [SPERVLTT    13.800] AMP    31211.9   -87.47
539936 [SPERVLDT    3.9840] AMP     5991.4   -89.87
539960 [SPRVL-T     13.800] AMP    27208.5   -59.05
560137 [G08-123N-TAP115.00] AMP     6732.0   -80.71
560242 [G11-017-TAP 345.00] AMP     9831.7   -56.56
560733 [G14-060-TAP 115.00] AMP     5878.6   -83.08
562334 [G13-010-TAP 345.00] AMP     7511.6   -63.69
562701 [GEN-2006-006345.00] AMP    13886.3   -54.82
562702 [G06-006XFMR134.500] AMP    24972.7   -49.40
562703 [G06-006-GSU134.500] AMP    19425.1   -42.90
575010 [GEN-2009-008230.00] AMP     4535.7   -68.23
575011 [G09-008XFMR134.500] AMP    17419.3   -70.89
579470 [GEN-2008-092230.00] AMP     5376.4   -69.66
579471 [G08-092XFMR134.500] AMP    11424.7   -69.03
579474 [G08-092XFMR234.500] AMP    11304.8   -69.09
579480 [GEN-2008-124230.00] AMP    19428.6   -54.77
579481 [G08-124XFMR134.500] AMP     9755.0   -46.97
579484 [G08-124XFMR234.500] AMP    10281.6   -47.29
580049 [GEN-2010-045345.00] AMP     7297.3   -52.06
580050 [G10-045XFMR134.500] AMP    12148.5   -47.12
580051 [G10-045XFMR234.500] AMP    11973.1   -47.47
582008 [GEN-2011-008345.00] AMP     9911.8   -46.99
582016 [GEN-2011-016345.00] AMP     7589.2   -50.11
582017 [GEN-2011-017345.00] AMP     9135.8   -55.78
582108 [G11-008XFMR134.500] AMP    17988.0   -53.51
582116 [G11-016XFMR134.500] AMP    17897.6   -44.75
582117 [G11-017XFMR134.500] AMP    25565.9   -47.76
582216 [G11-016-GSU134.500] AMP    17614.4   -43.32
582217 [G11-017-GSU134.500] AMP    25050.7   -45.90
582308 [G11-008XFMR234.500] AMP    15694.6   -50.40
582708 [G-2011-008-1345.00] AMP     8958.6   -42.79
583370 [GEN-2012-024345.00] AMP     9628.0   -55.56
583371 [G12-024XFMR134.500] AMP    19837.0   -51.79
583600 [GEN-2013-010345.00] AMP     7511.6   -63.69
583601 [G13-010XFMR134.500] AMP    13239.0   -59.94
583602 [G13-010-GSU134.500] AMP    12784.9   -57.74
583990 [GEN-2014-049345.00] AMP     7730.2   -74.03
640011 [GENTLM2G    24.000] AMP   181470.3  -103.03
640065 [AXTELL 3    345.00] AMP     8680.2   -83.58
640066 [AXTELL 7    115.00] AMP    13878.3   -86.32
640067 [AXTELL 9    13.800] AMP    23272.4  -123.04
```

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640139 [COOPER 3    345.00] AMP    25902.7   -97.15
640161 [ELMCRK_7    115.00] AMP     5965.2   -79.11
640183 [GENTLMN3    345.00] AMP    15021.1   -74.36
640184 [GENTLMN4    230.00] AMP    18777.5   -74.01
640185 [G.GENT19    13.800] AMP    28431.1  -106.59
640200 [GR ISLD4    230.00] AMP    16172.3   -90.66
640215 [HASTING7    115.00] AMP    19265.0   -87.67
640222 [HILDRTH7    115.00] AMP     4546.4   -82.29
640224 [HOLDREG7    115.00] AMP     6377.1   -82.72
640225 [HOLDREG9    34.500] AMP     5942.5   -92.23
640242 [JOHN.2 7    115.00] AMP    12478.4   -80.10
640248 [KEAR.NE7    115.00] AMP     9056.0   -84.94
640250 [KEARNEY7    115.00] AMP    11530.2   -84.40
640251 [KEARNEY9    34.500] AMP     8889.5   -91.79
640252 [KEYSTON3    345.00] AMP     8392.7   -72.88
640261 [LOWELL 7    115.00] AMP     8094.6   -82.94
640271 [MCCOOL 3    345.00] AMP    10143.9   -93.58
640275 [MINDEN 7    115.00] AMP     7170.9   -85.24
640276 [MINDEN 9    34.500] AMP     6155.3   -91.79
640277 [MOORE  3    345.00] AMP    20854.9   -96.23
640278 [SHELDON7    115.00] AMP    32927.8   -97.56
640280 [MOORE  9    13.800] AMP    33178.5  -131.06
640310 [ORLEANS7    115.00] AMP     2546.4   -78.68
640312 [PAULINE3    345.00] AMP     7711.8   -88.93
640313 [PAULINE7    115.00] AMP    16559.7   -87.22
640314 [PAULINE8    69.000] AMP     5034.6   -94.11
640315 [PAULINE9    13.800] AMP    16304.9  -125.03
640325 [REDWILO3    345.00] AMP     6221.2   -70.55
640374 [SWEET W3    345.00] AMP     9562.4   -82.64
640383 [TOWER  7    115.00] AMP     8780.3   -86.42
640448 [HOLDREGE   869.000] AMP     5445.9   -88.29
640500 [CHERRYC3    345.00] AMP     4953.1   -79.29
640510 [HOLT.CO3    345.00] AMP     5768.7   -87.67
643066 [GENTLEMANT2913.800] AMP    27670.7  -106.71
643071 [GR ISLD T6 913.800] AMP    36857.5  -127.85
643080 [HOLDREDGET1913.800] AMP     4416.6  -128.66
643081 [HOLDREDGET2913.800] AMP     4440.6  -128.65
643091 [KEARNEY T1 913.800] AMP     3356.5  -129.52
643092 [KEARNEY T2 913.800] AMP     3297.0  -129.46
643102 [MINDEN T1  913.800] AMP     4454.8  -127.50
643103 [MINDEN T2  913.800] AMP     4268.6  -127.52
643121 [PAULINE T2 913.800] AMP     4471.9  -128.33
643177 [HOLDREGET3 913.800] AMP     4271.5   111.37
643178 [HOLDREGET4 913.800] AMP     4271.5   111.37
650114 [NW68HOLDRG3 345.00] AMP    16625.2   -97.84
650189 [103&ROKEBY3 345.00] AMP    19981.0   -97.03
652314 [GR ISL19    13.800] AMP    25054.5  -127.35
652316 [GR ISL29    13.800] AMP    25167.7  -127.35
652571 [GR ISLD3    345.00] AMP    11516.8   -89.92
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PSS(R)E-32.2.2 ASCC SHORT CIRCUIT CURRENTS
FRI, JAN 23 2015 10:45
2014 MDWG PASS 8 WITH 2013 MMWG
MDWG 2025S WITH MMWG 2024S

OPTIONS USED:
- DC LINES AND FACTS DEVICES BLOCKED

X---------- BUS ----------X		THREE PHASE FAULT /I+/	AN(I+)
511456 [O.K.U.-7 345.00]	AMP	5117.8	-94.12
514008 [KEENAN-1XF1 34.500]	AMP	15178.4	-79.91
514012 [KEENAN-1XF2 34.500]	AMP	15063.9	-79.70
514085 [OUSPRT-CB1 34.500]	AMP	13561.9	-80.40
514715 [WOODRNG7 345.00]	AMP	16658.7	-92.16
514776 [NEWGRTP2 69.000]	AMP	5842.1	-78.26
514781 [CEDARAV2 69.000]	AMP	6113.7	-74.64
514782 [WODWRD 2 69.000]	AMP	12327.4	-82.86
514783 [WOODWR11 24.900]	AMP	25974.1	-115.77
514785 [WOODWRD4 138.00]	AMP	21383.0	-79.71
514787 [DEWEY 4 138.00]	AMP	6736.8	-78.36
514796 [IODINE-4 138.00]	AMP	7338.9	-78.68
514822 [SOUTHRD4 138.00]	AMP	3950.6	-80.57
514825 [KAYWIND7 345.00]	AMP	11266.5	-93.56
515363 [CENT 4 138.00]	AMP	4113.1	-74.69
515364 [CENT 11 9.9600]	AMP	34185.5	-110.88
515375 [WWRDEHV7 345.00]	AMP	20457.9	-80.28
515376 [WWRDEHV4 138.00]	AMP	26205.9	-81.13
515379 [CENT CBXFMR134.500]	AMP	14054.9	-78.57
515390 [TLGAWND4 138.00]	AMP	3046.7	-79.36
515392 [KEENAN T 9.9600]	AMP	39670.9	-81.09
515393 [KEENAN 1 34.500]	AMP	16552.5	-82.23
515394 [KEENAN 4 138.00]	AMP	9375.2	-80.90
515396 [OUSPRT T 9.9600]	AMP	31727.4	-82.01
515397 [OUSPRT 1 34.500]	AMP	13992.7	-82.16
515398 [OUSPRT 4 138.00]	AMP	9959.6	-78.28
515407 [TATONGA7 345.00]	AMP	16884.7	-86.07
515448 [CRSRDSW7 345.00]	AMP	11915.1	-85.25
515449 [CRSRDW11 34.500]	AMP	17038.1	-87.39
515450 [CRSRDW21 34.500]	AMP	17947.9	-87.12
515451 [CRSRDWT1 13.800]	AMP	27626.1	-116.97
515452 [CRSRDWT2 13.800]	AMP	28453.4	-116.62
515458 [BORDER 7345.00]	AMP	5187.5	-83.18
515476 [HUNTERS7 345.00]	AMP	12359.4	-91.74
515477 [CHSHLMV7 345.00]	AMP	12343.0	-91.74
515497 [MATHWSN7 345.00]	AMP	29924.9	-91.78
515543 [RENFROW7 345.00]	AMP	12216.0	-90.91
515544 [RENFROW4 138.00]	AMP	13739.0	-93.06
515545 [RENFRO11 13.800]	AMP	49062.1	-97.73
515546 [GRANTCO4 138.00]	AMP	6774.7	-91.31
515554 [BVRCNTY7 345.00]	AMP	15910.2	-74.61
515569 [MDFRDTP4 138.00]	AMP	11385.0	-92.53
515576 [RANCHRD7 345.00]	AMP	12318.2	-93.77
515621 [OPENSKY7 345.00]	AMP	11293.5	-93.57
515771 [WOODWR21 13.200]	AMP	20992.6	-119.61
515785 [WINDFRM4 138.00]	AMP	19099.7	-80.68

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515786 [FPLWIND4    138.00] AMP     6301.4   -81.40
515795 [WWDEHV31     13.800] AMP    63254.6   -84.61
515799 [WWDEHV21     13.800] AMP    62898.2   -84.48
520409 [SAND RDG_138138.00] AMP    10099.4   -91.85
520999 [MOORLND4    138.00] AMP    19417.9   -81.13
521065 [TALOGA 4    138.00] AMP     6743.4   -78.51
521096 [WOODWRD2     69.000] AMP    10548.9   -81.25
523097 [HITCHLAND  7345.00] AMP    16938.9   -73.06
523853 [FINNEY     7345.00] AMP    11881.2   -56.52
525824 [TUCO_TR1   113.200] AMP    31905.5  -122.63
525825 [TUCO_TR2   113.200] AMP    23895.7  -124.11
525830 [TUCO_INT   6230.00] AMP    22825.5   -87.75
525832 [TUCO_INT   7345.00] AMP    12316.1   -89.29
525844 [ELK_1      118.000] AMP    43928.1  -117.17
525845 [ELK_4     1 18.000] AMP    43917.9  -116.04
526936 [YOAKUM_345  345.00] AMP     9064.4   -97.54
530582 [S HAYS6     230.00] AMP     8640.1   -68.87
530583 [POSTROCK7   345.00] AMP     7752.0   -67.79
530592 [SMOKYHL6    230.00] AMP     6940.6   -80.45
530680 [HEIZER 6    230.00] AMP     8235.8   -68.45
531214 [FLTRDG-CB1  34.500] AMP     8383.1   -65.35
531448 [HOLCOMB3    115.00] AMP    23318.0   -53.70
531449 [HOLCOMB7    345.00] AMP    12029.3   -56.49
531450 [HOLCTER1     13.800] AMP    18435.4   -92.90
531465 [SETAB  7    345.00] AMP     7915.3   -59.50
531468 [SPERTER1     13.800] AMP    12969.8   -89.61
531469 [SPERVIL7    345.00] AMP    13886.3   -54.82
531501 [BUCKNER7    345.00] AMP    10560.2   -53.41
531502 [CIMRRN 7    345.00] AMP     8296.1   -52.94
531503 [CIMRRN 1    34.500] AMP    23982.1   -47.55
531504 [CPV_CIMRRN 7345.00] AMP    10560.2   -53.41
531505 [CPV_CIMRRN 134.500] AMP    21055.9   -48.06
531998 [HOLCOMB_2-ST22.000] AMP    61358.2   -83.98
531999 [HOLCOMB_1-CT18.000] AMP    43710.6   -87.02
532721 [EEC U1      16.000] AMP    80912.7   -89.84
532722 [EEC U2      24.000] AMP   117418.9   -89.39
532723 [EEC GT1     13.800] AMP    52235.3   -90.39
532724 [EEC GT2     13.800] AMP    52282.1   -90.57
532725 [EEC GT3     18.000] AMP    70283.7   -89.34
532729 [EVAN SVC    8.0000] AMP   141628.8   -93.26
532739 [GILL SVC    8.0000] AMP    93139.8   -98.17
532740 [EMPEC121    13.800] AMP    60938.7   -89.43
532741 [EMPEC341    13.800] AMP    60938.7   -89.43
532742 [EMPEC5 1    18.000] AMP    85494.0   -90.99
532743 [EMPEC6 1    18.000] AMP    85494.0   -90.99
532744 [EMPEC7 1    18.000] AMP    85494.0   -90.99
532751 [WCGS U1     25.000] AMP   208796.3   -81.69
532766 [JEC N  7    345.00] AMP    23379.9   -87.44
532767 [GEARY  7    345.00] AMP     9929.0   -88.70
532768 [EMPEC 7     345.00] AMP    16791.7   -90.08
532769 [LANG   7    345.00] AMP    16597.6   -90.08
532770 [MORRIS 7    345.00] AMP    12584.8   -89.32
532771 [RENO   7    345.00] AMP    12228.7   -87.60
532773 [SUMMIT 7    345.00] AMP    11029.7   -87.88
532774 [SWISVAL7    345.00] AMP    16329.0   -94.31
532780 [CANEYRV7    345.00] AMP     9872.0   -94.98
532791 [BENTON 7    345.00] AMP    18896.7   -88.26
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532792 [FR2EAST7    345.00] AMP     6407.6   -90.25
532794 [ROSEHIL7    345.00] AMP    18209.3   -90.12
532795 [FR2WEST7    345.00] AMP     5177.5   -90.23
532796 [WICHITA7    345.00] AMP    24027.5   -86.02
532797 [WOLFCRK7    345.00] AMP    15605.7   -85.66
532798 [VIOLA   7   345.00] AMP    13375.9   -89.70
532799 [WAVERLY7    345.00] AMP    14538.5   -86.38
532800 [LATHAMS7    345.00] AMP    10418.8   -94.26
532801 [ELKRVR17    345.00] AMP     9226.9   -94.30
532807 [RENO 1X1    14.400] AMP    46551.8   -90.23
532808 [LANG   1    14.400] AMP    37138.4   -95.92
532809 [MORRIS1X1   14.400] AMP    31693.5   -94.78
532810 [RENO 2X1    14.400] AMP    46344.1   -90.27
532813 [SUMMIT 1    14.400] AMP    30884.2   -91.19
532815 [SWISV1X1    14.400] AMP    36207.7   -98.96
532819 [SWISV2X2    14.400] AMP   653883.2    57.61
532821 [BENTN1 1    13.800] AMP    23858.5   -99.03
532822 [BENTN2 1    13.800] AMP    45457.9   -97.59
532826 [ROSEH1 1    13.800] AMP    39721.8   -98.99
532827 [ROSEH5 1    13.800] AMP    39171.9   -99.03
532829 [WICH11 1    13.800] AMP    50515.2   -92.98
532830 [WICH12 1    13.800] AMP    50725.8   -93.27
532831 [ROSEH3 1    13.800] AMP    39656.8   -99.00
532832 [VIOLA1X1    13.800] AMP    56503.9   -94.87
532834 [GEARY1X1    13.800] AMP    69785.8   -93.63
532856 [SWISVAL6    230.00] AMP    21620.3   -94.02
532863 [MORRIS 6    230.00] AMP    13486.0   -90.61
532871 [CIRCLE 6    230.00] AMP    10588.1   -83.56
532872 [EMCPHER6    230.00] AMP     9432.7   -84.54
532873 [SUMMIT 6    230.00] AMP    13632.5   -86.34
532874 [UNIONRG6    230.00] AMP     7381.5   -87.43
532892 [CIRCLE 1    13.800] AMP    57184.7   -90.22
532896 [SUMIT2 1    13.800] AMP    48480.6   -94.16
532897 [SUMIT3 1    13.800] AMP    49413.4   -91.59
532982 [OXFORD 4    138.00] AMP     9165.6   -94.00
532984 [SUMNER 4    138.00] AMP    10045.5   -93.51
532986 [BENTON 4    138.00] AMP    28180.3   -90.61
532987 [BUTLER 4    138.00] AMP    10172.1   -90.15
532988 [BELAIRE4    138.00] AMP    18827.2   -91.56
532990 [MIDIAN 4    138.00] AMP    10350.8   -90.74
532991 [WEAVER 4    138.00] AMP    22179.8   -90.88
532992 [TIMBJCT4    138.00] AMP     5706.1   -95.58
533012 [HALSTDS4    138.00] AMP     9620.6   -89.28
533013 [MOUND  4    138.00] AMP     8039.1   -89.21
533015 [BENTLEY4    138.00] AMP    12506.9   -89.09
533016 [WWUPLNT4    138.00] AMP     9132.7   -89.46
533024 [29TH   4    138.00] AMP    19590.9   -91.79
533029 [59TH ST4    138.00] AMP    18812.3   -91.27
533031 [BURNSTP4    138.00] AMP     4539.7   -89.37
533035 [CHISHLM4    138.00] AMP    22633.5   -90.35
533036 [CLEARWT4    138.00] AMP    17147.6   -91.43
533037 [COMOTAR4    138.00] AMP    18553.7   -91.47
533038 [COWSKIN4    138.00] AMP    19852.8   -89.32
533039 [ELPASO 4    138.00] AMP    25348.0   -90.59
533040 [EVANS N4    138.00] AMP    41582.6   -88.10
533041 [EVANS S4    138.00] AMP    41582.6   -88.10
533045 [GILL W 4    138.00] AMP    27556.2   -90.02
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533046 [GILL S 4    138.00] AMP    27556.2   -90.02
533049 [HOOVERN4    138.00] AMP    19153.6   -90.90
533053 [LAKERDG4    138.00] AMP    19361.4   -90.66
533054 [MAIZE  4    138.00] AMP    23598.4   -89.23
533060 [NOEASTE4    138.00] AMP    20362.2   -91.25
533062 [ROSEHIL4    138.00] AMP    31090.1   -91.66
533063 [SC10BEL4    138.00] AMP     9678.1   -92.58
533064 [17TH   4    138.00] AMP    18161.3   -91.78
533065 [SG12COL4    138.00] AMP    22965.1   -88.84
533068 [STEARMN4    138.00] AMP    19920.9   -91.73
533074 [45TH ST4    138.00] AMP    28405.0   -88.38
533075 [VIOLA  4    138.00] AMP    20739.3   -92.25
533082 [MIDIAN 1    13.200] AMP    20067.7   -99.30
533097 [MOUN 2X1    13.800] AMP     7484.3  -126.67
533103 [CHISOLM1    13.200] AMP    22558.2   -99.97
533106 [GILL S 1    13.200] AMP    17450.7  -103.30
533107 [GILL S 2    13.200] AMP    17450.8  -103.30
533127 [F2EAST11    13.800] AMP    59461.2   -90.60
533128 [F2EAST21    13.800] AMP    59471.1   -90.62
533129 [F2WEST11    13.800] AMP    54726.6   -90.45
533130 [F2WEST21    13.800] AMP    54479.4   -90.48
533131 [FR2ELV11    34.500] AMP    14453.4   -91.59
533132 [FR2ELV21    34.500] AMP    14399.9   -91.60
533133 [FR2WLV11    34.500] AMP    13993.4   -91.29
533134 [FR2WLV21    34.500] AMP    13969.9   -91.30
533135 [ECLCT1 1    34.500] AMP    12721.8   -89.91
533136 [ECLCT2 1    34.500] AMP    12643.2   -89.83
533304 [LANG   3    115.00] AMP    14706.9   -91.14
533336 [GEARY  3    115.00] AMP    17423.1   -90.74
533372 [PHILIPS3    115.00] AMP    12775.3   -86.82
533380 [SPRGCRK3    115.00] AMP     3944.6   -78.65
533381 [SUMMIT 3    115.00] AMP    17797.0   -88.23
533390 [MAIZEW 4    138.00] AMP    27995.3   -88.50
533391 [MAIZEE 4    138.00] AMP    22109.9   -89.62
533412 [ARKVALJ3    115.00] AMP    10181.2   -70.86
533413 [CIRCLE 3    115.00] AMP    29461.5   -85.07
533414 [CITIES 3    115.00] AMP     9157.4   -84.03
533415 [DAVIS  3    115.00] AMP     9215.4   -84.18
533416 [RENO   3    115.00] AMP    30371.0   -86.63
533419 [HEC    3    115.00] AMP    26884.1   -84.85
533421 [HEC GT 3    115.00] AMP    28543.3   -85.15
533422 [HEC U4 3    115.00] AMP    27721.7   -84.79
533426 [MANVILE3    115.00] AMP    11732.6   -84.37
533428 [MCPHER 3    115.00] AMP    15812.1   -85.36
533429 [MOUNDRG3    115.00] AMP     9851.1   -88.40
533438 [WMCPHER3    115.00] AMP    15842.5   -85.38
533439 [WHEATLD3    115.00] AMP     8966.3   -85.84
533444 [DAVIS  1    34.500] AMP     3292.9   -90.35
533506 [DAVIS  2    69.000] AMP     7716.0   -85.05
533597 [MIDIAN 2    69.000] AMP    12563.0   -93.54
533626 [BURLJCT2    69.000] AMP     4854.1   -93.68
533629 [CC2SHAR2    69.000] AMP     4543.3   -87.80
533653 [WOLFCRK2    69.000] AMP     5861.0   -93.02
533786 [CHISHLM2    69.000] AMP    17926.0   -95.34
533795 [GILL E 2    69.000] AMP    34107.9   -92.77
533796 [GILL W 2    69.000] AMP    34107.9   -92.77
539629 [FLATRDT1    13.800] AMP    22151.3   -73.51
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539630 [FLATRDG1    34.500] AMP     8815.6   -69.70
539631 [FLATRWD3    138.00] AMP     9600.2   -73.25
539638 [FLATRDG3    138.00] AMP    14495.8   -75.22
539639 [ELMCREK6    230.00] AMP     8301.7   -88.62
539649 [SAWYER 3    115.00] AMP     4344.4   -72.86
539668 [HARPER 4    138.00] AMP     5561.8   -75.95
539671 [FTDODGE3    115.00] AMP    12518.6   -49.47
539673 [MED-LDG3    115.00] AMP     7507.2   -71.58
539674 [BARBER 4    138.00] AMP     7843.8   -73.06
539675 [MILANTP4    138.00] AMP     6498.5   -79.39
539676 [MILAN 4     138.00] AMP     3486.3   -75.61
539678 [GRTBEND3    115.00] AMP    12331.2   -69.06
539679 [GRTBEND6    230.00] AMP     8283.7   -68.43
539688 [S-DODGE3    115.00] AMP     8301.4   -45.99
539694 [SPEARVL3    115.00] AMP    10363.2   -54.99
539695 [SPEARVL6    230.00] AMP    12530.8   -56.17
539713 [HARPER 1    34.500] AMP     4811.6   -82.42
539732 [SPEARVL1    34.500] AMP      891.8   -54.46
539743 [SPWIND-T1   13.800] AMP    36489.0   -84.36
539744 [SPWIND-T2   13.800] AMP    31138.1   -84.46
539752 [GPEWIND1    34.500] AMP    26391.8   -48.42
539753 [SPEARVLE-EVB230.00] AMP    12530.8   -56.17
539758 [FORD   3    115.00] AMP     5495.4   -47.09
539759 [SPRVL  3    115.00] AMP    11589.3   -56.84
539760 [BARBER 3    115.00] AMP     7669.3   -72.14
539771 [NFTDODG3    115.00] AMP    12558.1   -49.49
539800 [CLARKCOUNTY7345.00] AMP    12011.4   -58.24
539801 [THISTLE7    345.00] AMP    15242.7   -75.12
539802 [THISTLE T1  13.800] AMP     8127.9   -79.01
539803 [IRONWOOD7   345.00] AMP    13428.0   -54.79
539804 [THISTLE4    138.00] AMP    16128.4   -76.22
539805 [ELMCREEK7   345.00] AMP     5785.1   -89.12
539806 [ELMCREEK1   13.800] AMP    70934.4   -91.04
539807 [IRONWOOD 1  34.500] AMP    23128.7   -47.49
539808 [IRONWOOD T1 13.800] AMP    36381.8   -47.47
539809 [IRONWOOD 1 7345.00] AMP    13428.0   -54.79
539810 [IRONWOOD T 213.800] AMP    27646.8   -47.71
539812 [IRONWOOD 1 334.500] AMP    18055.5   -34.27
539813 [IRONWOOD 1 434.500] AMP    14276.4   -27.91
539913 [HARPER-T    8.6600] AMP     9339.2  -115.56
539917 [BARBER-T    2.7200] AMP    36405.5  -109.90
539920 [GRTBNDTT    13.800] AMP    32654.1  -106.06
539935 [SPERVLTT    13.800] AMP    31211.9   -87.47
539936 [SPERVLDT    3.9840] AMP     5991.4   -89.87
539960 [SPRVL-T     13.800] AMP    27208.5   -59.05
542965 [W.GRDNR7    345.00] AMP    24386.2   -97.07
542981 [LACYGNE7    345.00] AMP    25219.4   -94.80
560000 [G11-14-TAP  345.00] AMP    14618.6   -75.91
560010 [G14-037-TAP 345.00] AMP    16660.0   -73.33
560019 [G14-058-TAP 345.00] AMP    18672.2   -89.49
560242 [G11-017-TAP 345.00] AMP     9831.7   -56.56
562075 [G11-051-TAP 345.00] AMP    17145.3   -83.30
562334 [G13-010-TAP 345.00] AMP     7511.6   -63.69
562476 [G14-001-TAP 345.00] AMP    10569.9   -88.29
562487 [G14_007-TAP 345.00] AMP     6849.6   -87.71
562701 [GEN-2006-006345.00] AMP    13886.3   -54.82
562702 [G06-006XFMR134.500] AMP    24972.7   -49.40
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562703	[G06-006-GSU134.500]	AMP	19425.1	-42.90
572091	[GEN-2008-098345.00]	AMP	12457.1	-86.31
573501	[G08-47&14-19345.00]	AMP	13380.9	-74.38
573504	[G0847&1419X234.500]	AMP	8385.1	-76.37
573507	[G0847&1419HV345.00]	AMP	11371.5	-74.20
578542	[GEN-2010-001345.00]	AMP	13097.3	-73.57
578543	[G10-001XFMR134.500]	AMP	17685.1	-75.00
578546	[G10-001XFMR234.500]	AMP	17681.7	-74.99
579253	[G07-21&14-02345.00]	AMP	13979.5	-85.93
579254	[G0721&1402X134.500]	AMP	26177.7	-86.89
579268	[G07-44&14-03345.00]	AMP	9394.2	-84.78
579269	[G0744&1403X134.500]	AMP	25473.7	-86.37
579272	[G0744&1403HV345.00]	AMP	9394.2	-84.78
579351	[GEN-2007-062345.00]	AMP	8809.0	-79.64
579352	[G07-062XFMR134.500]	AMP	21072.0	-80.72
579353	[G07-062-GSU134.500]	AMP	20338.2	-78.88
579355	[G07-062XFMR234.500]	AMP	21032.6	-80.65
579356	[G07-062-GSU234.500]	AMP	19732.7	-77.74
579358	[G07-062-HV-2345.00]	AMP	6741.5	-79.37
579359	[G07-062XFMR334.500]	AMP	24551.8	-80.07
579360	[G07-062-GSU334.500]	AMP	23342.1	-77.58
579362	[G07-062XFMR434.500]	AMP	24603.8	-80.08
579363	[G07-062-GSU434.500]	AMP	23472.9	-77.86
579480	[GEN-2008-124230.00]	AMP	19428.6	-54.77
579481	[G08-124XFMR134.500]	AMP	9755.0	-46.97
579482	[G08-124-GSU134.500]	AMP	8608.7	-37.37
579484	[G08-124XFMR234.500]	AMP	10281.6	-47.29
579485	[G08-124-GSU234.500]	AMP	9527.7	-41.13
580049	[GEN-2010-045345.00]	AMP	7297.3	-52.06
580050	[G10-045XFMR134.500]	AMP	12148.5	-47.12
580051	[G10-045XFMR234.500]	AMP	11973.1	-47.47
581112	[GEN-2011-014345.00]	AMP	10811.1	-75.07
581113	[G11-014XFMR134.500]	AMP	23663.1	-76.56
581114	[G11-014-GSU134.500]	AMP	22740.3	-75.10
582008	[GEN-2011-008345.00]	AMP	9911.8	-46.99
582016	[GEN-2011-016345.00]	AMP	7589.2	-50.11
582017	[GEN-2011-017345.00]	AMP	9135.8	-55.78
582019	[GEN-2011-019345.00]	AMP	20457.9	-80.28
582020	[GEN-2011-020345.00]	AMP	20457.9	-80.28
582108	[G11-008XFMR134.500]	AMP	17988.0	-53.51
582116	[G11-016XFMR134.500]	AMP	17897.6	-44.75
582117	[G11-017XFMR134.500]	AMP	25565.9	-47.76
582119	[G11-019XFMR134.500]	AMP	37834.1	-81.72
582120	[G11-020XFMR134.500]	AMP	37833.0	-81.72
582198	[G11-008-GSU134.500]	AMP	17056.7	-51.97
582216	[G11-016-GSU134.500]	AMP	17614.4	-43.32
582219	[G11-019-GSU134.500]	AMP	35572.4	-79.33
582220	[G11-020-GSU134.500]	AMP	35589.9	-79.39
582308	[G11-008XFMR234.500]	AMP	15694.6	-50.40
582398	[G11-008-GSU234.500]	AMP	15121.0	-49.01
582508	[G11-008-GSU334.500]	AMP	18912.2	-50.23
582608	[G11-008XFMR334.500]	AMP	19392.4	-51.01
582708	[G-2011-008-1345.00]	AMP	8958.6	-42.79
582908	[G-2011-008-2345.00]	AMP	7606.9	-37.29
582998	[G11-008XFMR434.500]	AMP	23947.5	-48.25
583090	[GEN-2011-049345.00]	AMP	4715.5	-82.97
583091	[G11-049XFMR134.500]	AMP	13708.3	-83.69

583092	[G11-049-GSU134.500]	AMP	12918.5	-81.05
583094	[G11-049XFMR234.500]	AMP	13753.2	-83.62
583095	[G11-049-GSU234.500]	AMP	12916.7	-80.56
583110	[GEN-2011-051345.00]	AMP	17145.3	-83.30
583111	[G11-051XFMR134.500]	AMP	21255.1	-83.92
583112	[G11-051-GSU134.500]	AMP	20624.9	-82.11
583370	[GEN-2012-024345.00]	AMP	9628.0	-55.56
583371	[G12-024XFMR134.500]	AMP	19837.0	-51.79
583372	[G12-024-GSU134.500]	AMP	19158.3	-49.82
583600	[GEN-2013-010345.00]	AMP	7511.6	-63.69
583750	[GEN-2013-029345.00]	AMP	10860.2	-91.61
583751	[G13-029XFMR134.500]	AMP	23457.1	-92.71
583754	[G13-029XFMR234.500]	AMP	23368.8	-92.66
583760	[GEN-2013-030345.00]	AMP	12201.3	-73.26
583761	[G13-030XFMR134.500]	AMP	24249.4	-73.95
583764	[G13-030XFMR234.500]	AMP	23989.4	-73.61
583790	[GEN-2014-007345.00]	AMP	6849.6	-87.71
583791	[G14-007XFMR134.500]	AMP	20798.5	-88.29
583794	[G14-007XFMR234.500]	AMP	20770.0	-88.28
583820	[GEN-2013-035345.00]	AMP	11580.5	-82.86
583821	[G13-035XFMR134.500]	AMP	15281.9	-84.53
583822	[G13-035-GSU134.500]	AMP	14837.7	-82.82
583850	[GEN-2014-001345.00]	AMP	7901.7	-88.28
583851	[G14-001XFMR134.500]	AMP	13604.0	-90.36
583852	[G14-001-GSU134.500]	AMP	12311.8	-86.16
583854	[G14-001XFMR234.500]	AMP	13628.4	-90.37
583855	[G14-001-GSU234.500]	AMP	12568.2	-86.31
583930	[GEN-2014-026345.00]	AMP	10692.8	-72.70
583990	[GEN-2014-049345.00]	AMP	7730.2	-74.03
583991	[G14-049XFMR134.500]	AMP	24446.6	-70.44
583992	[G14-049-GSU134.500]	AMP	23976.9	-68.81
584000	[GEN-2014-050345.00]	AMP	9063.2	-94.94
584020	[GEN-2014-052345.00]	AMP	7405.1	-75.18
584021	[G14-052XFMR134.500]	AMP	24257.2	-76.49
584022	[G14-052-GSU134.500]	AMP	23821.4	-75.33
584080	[GEN-2014-058345.00]	AMP	17758.4	-89.44
584200	[GEN-2014-061345.00]	AMP	10065.1	-84.47
584201	[G14-061XFMR134.500]	AMP	19119.7	-86.62
584210	[GEN-2014-037345.00]	AMP	11785.4	-70.79

M: Group 4 Dynamic Stability Analysis Report

See Burns and McDonald report on next page.

BURNS McDONNELL

Definitive Impact Study
DISIS-2014-002 Group 04 Report

Southwest Power Pool

DISIS-2014-002 Group 04
Project No. 82253

01/21/2015

Definitive Impact Study
DISIS-2014-002 Group 04 Report

prepared for

Southwest Power Pool
DISIS-2014-002 Group 04
Little Rock, AR

Project No. 82253

01/21/2015

prepared by

Burns & McDonnell Engineering Company, Inc.
Houston, Texas

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TABLE OF CONTENTS

Page No.

EXECUTIVE SUMMARY ES-1

ES.1 SHORT CIRCUIT ANALYSIS ES-1

ES.2 POWER FACTOR ANALYSIS ES-1

ES.3 STABILITY ANALYSIS ES-2

1. INTRODUCTION 1-1

1.1 STUDY SCOPE 1-1

1.2 LIMITATIONS 1-1

2. STUDY ASSUMPTIONS 2-1

2.1 DISTURBANCE PERFORMANCE REQUIREMENT 2-1

2.1.1 ROTOR ANGLE DAMPING REQUIREMENT 2-1

2.1.2 TRANSIENT VOLTAGE RECOVERY REQUIREMENT: 2-1

2.2 STUDY SYSTEM 2-2

2.3 STUDY MODELS 2-2

2.4 PRIOR QUEUED PROJECTS 2-3

3. SHORT CIRCUIT ANALYSIS 3-1

3.1 METHODOLOGY 3-1

3.2 SHORT CIRCUIT ANALYSIS RESULTS 3-1

4. POWER FACTOR ANALYSIS 4-1

4.1 METHODOLOGY 4-1

4.2 POWER FACTOR ANALYSIS RESULTS 4-1

5. STABILITY ANALYSIS 5-1

5.1 METHODOLOGY 5-1

5.2 FAULT DEFINITIONS 5-1

5.3 CLUSTER SCENARIO RESULTS 5-7

5.4 STAND ALONE SCENARIO RESULTS 5-7

6. CONCLUSIONS 6-1

6.1 SHORT CIRCUIT ANALYSIS 6-1

6.2 POWER FACTOR ANALYSIS 6-1

6.3 STABILITY ANALYSIS 6-1

LIST OF TABLES

Page No.

TABLE ES-1: GROUP 04 INTERCONNECTION PROJECT ES-1
TABLE 1-1: GROUP 04 INTERCONNECTION PROJECT 1-1
TABLE 2-1: CLUSTER SCENARIO STUDY MODELS 2-2
TABLE 2-2: STAND ALONE SCENARIO STUDY MODELS FOR STABILITY ANALYSIS 2-2
TABLE 2-3: PRIOR QUEUED PROJECTS 2-4
TABLE 3-1: GEN-2014-025 3 PHASE FAULT CURRENTS 3-1
TABLE 3-2: GEN-2014-041 3 PHASE FAULT CURRENTS 3-2
TABLE 3-3: GEN-2010-048 3 PHASE FAULT CURRENTS 3-2
TABLE 4-1: BASE CASE GROUP 4 POI VOLTAGES 4-1
TABLE 4-2: POWER FACTOR CONTINGENCY SUMMARY 4-1
TABLE 4-3: GEN-2014-025 POWER FACTOR REQUIREMENTS 4-3
TABLE 4-4: GEN-2014-041 POWER FACTOR REQUIREMENTS 4-4
TABLE 4-5: GEN-2010-048 POWER FACTOR REQUIREMENTS 4-5
TABLE 5-1: FAULT DEFINITIONS 5-1

LIST OF FIGURES

Page No.

FIGURE 2-1: GEN-2014-025 SINGLE-LINE DIAGRAM 2-3
FIGURE 2-2: GEN-2014-041 SINGLE-LINE DIAGRAM 2-3
FIGURE 2-3: GEN-2010-048 SINGLE-LINE DIAGRAM 2-3

APPENDICES

APPENDIX A: STABILITY MODEL DATA
APPENDIX B: DYNAMIC STABILITY RESULTS AND PLOTS CLUSTER SCENARIOS
APPENDIX C: DYNAMIC STABILITY RESULTS AND PLOTS STAND ALONE SCENARIOS

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EXECUTIVE SUMMARY

Burns & McDonnell was retained by Southwest Power Pool (SPP) to perform a Definitive Impact Study for the Group 04 (DISIS-2014-002) interconnection projects. This study included short circuit analysis, power factor analysis and stability analysis to find impacts on the transmission system caused by the interconnections of the Group 04 projects.

Group 04 consists of three generator interconnection projects as shown in Table ES-1. All three of the projects were proposed to interconnect with the SPP control area. The combined capacity of Group 04 projects for summer and winter approximately totaled to 243.88 MW.

Table ES-1: Group 04 Interconnection Project

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2014-025	2.415 Uprate of GEN-2009-020.	Siemens SWT-2.3MW-108	Nekoma (530564) to Bazine (530585) 69 kV
GEN-2014-041	123.165	Siemens SWT-2.3MW-108	Arnold 115 kV (531409)
GEN-2010-048	70	Nordex 2.5MW	Tap on the Ross Beach (530557) to Redline (530605) 115kV line

GEN-2014-025 interconnection request is an uprate to the existing Siemens GEN-2009-020. The interconnection request represents an addition of 2.415 MW to the existing generation capacity of 48.3 MW.

Cluster Scenario study cases were developed to represent the system with all three generating units online at their requested capacities. The Stand Alone Scenario study cases were developed to represent the system with the individual generators each modeled separately at their respective capacities. 2015 summer peak, 2015 winter peak and 2025 summer peak loading conditions were included in the Cluster and Stand Alone Scenarios. As GEN-2014-025 was an uprate of a prior queued project, the generator was dispatched in all the Stand Alone study cases. All three analyses were performed using the PTI PSS/E software and the results are summarized below.

ES.1 SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed for the Cluster Scenario to determine the impact of the generation interconnection requests on the fault current levels in the study system. The results from short circuit analysis showed that the maximum change in the fault current in the immediate systems at or near GEN-2014-025, GEN-2014-041 and GEN-2010-048 were 12%, 28% and 21% respectively. All three phase current levels with the Group 04 generators online were below 14,000 A.

ES.2 POWER FACTOR ANALYSIS

The power factor analysis was performed for the Cluster Scenario to identify the reactive power requirement for each interconnection request that is a renewable energy project. The results from the power factor analysis showed that the power factor requirements for GEN-2014-025 and GEN-2014-041 were both within the Siemens Turbine capability of +/- 0.909. For GEN-2010-048, the required power factor exceeded the capability of the machine for FLT08-3PH (3 phase fault Knoll to Saline 115 kV line), FLT24-3PH (3 phase fault on G10-048 Tap to Beach 115 kV line) and FLT39-3PH (3 phase fault Knoll to Saline 115 kV line). The maximum difference between the reactive power capability of GEN-2010-048 and the requirement was less than one percent. The customer may be required to add capacitor and/or reactor banks depending upon its final collector system design. Per tariff requirements, the Generating Facilities will be required to meet the standard 95% power factor requirement at the Point of Interconnection.

ES.3 STABILITY ANALYSIS

The stability analysis was performed for the Cluster Scenario and Stand Alone Scenario. The Stability Analysis evaluated the system during three load scenarios (2015 summer peak, 2015 winter peak and 2025 summer peak) simulating up to 60 faults that included three phase and single-line-to-ground faults. The Stability Analysis results indicated that the machine rotor angle damping and transient voltage recovery criteria were met for all faults studied. The Stability Analysis results showed that the Group 04 projects met the Low-Voltage Ride Through and pre-fault voltage recovery requirements of FERC Order 661A for the fault scenarios analyzed.

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1. INTRODUCTION

Burns & McDonnell was retained by Southwest Power Pool (SPP) to perform a Definitive Impact Study for the Group 04 (DISIS-2014-002) interconnection projects. This study included short circuit analysis, power factor analysis and stability analysis to find impacts on the transmission system caused by the interconnections of the Group 04 projects. All the interconnection requests in this study are wind projects. Since none of the interconnection requests has a point of interconnection (POI) at either a 345kV or a 230kV bus, the no wind/low wind analysis for the charging effects of the collector system and generator lead to the POI was not required to be performed.

Group 04 consists of three generator interconnection projects as shown in Table 1-1. All three of the projects were proposed to interconnect with the SPP control area. The combined capacity of Group 4 projects for summer and winter totaled approximately 243.88 MW.

Table 1-1: Group 04 Interconnection Project

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2014-025	2.415 Uprate of GEN-2009-020.	Siemens SWT-2.3MW-108	Nekoma (530564) to Bazine (530585) 69 kV
GEN-2014-041	123.165	Siemens SWT-2.3MW-108	Arnold 115 kV (531409)
GEN-2010-048	70	Nordex 2.5MW	Tap on the Ross Beach (530557) to Redline (530605) 115kV line

GEN-2014-025 interconnection request is an uprate to the existing Siemens GEN-2009-020. The interconnection request represents an addition of 2.415MW to the existing generation capacity of 48.3MW.

1.1 STUDY SCOPE

This study is presented in the following six main parts:

1. Introduction
2. Study Assumptions
3. Short Circuit Analysis
4. Power Factor Analysis
5. Stability Analysis
6. Conclusions

1.2 LIMITATIONS

In the preparation of this report, the information provided to Burns & McDonnell by others was used by Burns & McDonnell to make certain assumptions with respect to conditions which may exist in the future. While Burns & McDonnell believes the assumptions made are reasonable for the purposes of this report, Burns & McDonnell makes no representation that the conditions assumed will, in fact, occur. In addition, while Burns & McDonnell has no reason to believe that the information provided by others, and on which this report is based, is inaccurate in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness. To the extent that actual future conditions differ from those assumed herein or from the information provided to Burns & McDonnell, the actual results will vary from those presented.

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2. STUDY ASSUMPTIONS

The short circuit analysis, power factor analysis and stability analysis were performed using PTI PSS/E software version 32.

2.1 DISTURBANCE PERFORMANCE REQUIREMENT

The following SPP Disturbance Performance Requirements were applied to the Bulk Electric System for the stability analysis. These requirements establish the minimum requirements for machine rotor angle damping and transient voltage recovery.

2.1.1 Rotor Angle Damping Requirement

The machine rotor angles shall exhibit well damped angular oscillations and acceptable power swings following a disturbance on the Bulk Electric System for all NERC events.

Well damped angular oscillation is defined as:

1. The Successive Positive Peak Ratio(SPPR) must be less than or equal to 0.95 where SPPR is calculated as:

$$SPPR = \frac{\text{Peak Rotor Angle of 2nd Positive Swing Peak}}{\text{Peak Rotor Angle of 1st Positive Swing Peak}} \leq 0.95$$

   Or, Damping Factor % = (1 – SPPR) x 100% ≥ 5%

   The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

   Damping Ratio ≥ 0.0081633

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

$$SPPR5 = \frac{\text{Peak Rotor Angle of 5th Positive Swing Peak}}{\text{Peak Rotor Angle of 1st Positive Swing Peak}} \leq 0.774$$

   Or, Damping Factor % = (1 – SPPR) x 100% ≥ 22.6%

   The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

   Damping Ratio ≥ 0.0081633.

Burns & McDonnell only calculated these damping values where oscillations were not well damped by the end of the simulation.

2.1.2 Transient Voltage Recovery Requirement:

Any time after a disturbance is cleared; bus voltages on the Bulk Electric System shall not swing outside of the bandwidth of 0.70 per unit to 1.20 per unit.

2.2 STUDY SYSTEM

The study system consisted of facilities at or above 69kV within the SPP transmission region. Machines in areas 520 (AEPW), 524 (OKGE), 525 (WFEC), 526 (SPS), 531 (MIDW), 534 (SUNC) and 536 (WERE) were monitored for the study.

2.3 STUDY MODELS

The short circuit, power factor and stability analyses were performed using models developed from the 2014 Southwest Power Pool (SPP) Model Development Working Group (MDWG) PSS/E models. A set of three Cluster Scenario base cases and three Stand Alone base cases were provided by SPP. The base cases model the 2015 Summer Peak, 2015 Winter Peak and 2025 Summer Peak study conditions. The Cluster Scenario models were built with the SPP footprint displaced by the new generation interconnection requests listed in Table 1-1. The Stand Alone scenarios were developed with a single interconnection request added to the base case with dispatch in accordance to SPP's supplied dispatch. As GEN-2014-025 was an uprate of a prior queued project, GEN-2014-025 was dispatched in all of the Stand Alone cases. Table 2-1 and Table 2-2 summarize the study models used for each of the analysis.

Table 2-1: Cluster Scenario Study Models

Model	Short Circuit	Power Factor	Stability Cluster Scenario
MDWG14-15SP_DIS1402_G04_v2.SAV			X
MDWG14-15WP_DIS1402_G04_v2.SAV			X
MDWG14-25SP_DIS1402_G04_v2.SAV	X		X
MDWG14-15SP_DIS1402_G04_v2_PF.SAV		X	
MDWG14-15WP_DIS1402_G04_v2_PF.SAV		X	
MDWG14-25SP_DIS1402_G04_v2_PF.SAV		X	

Table 2-2: Stand Alone Scenario Study Models for Stability Analysis

Model	GEN-2014-025	GEN-2014-041	GEN-2010-048
MDWG14-15SP_DIS1402_G04-SA_G25_v2.sav	X		
MDWG14-15WP_DIS1402_G04-SA_G25_v2.sav	X		
MDWG14-25SP_DIS1402_G04-SA_G25_v2.sav	X		
MDWG14-15SP_DIS1402_G04-SA_G41_v2.sav		X	
MDWG14-15WP_DIS1402_G04-SA_G41_v2.sav		X	
MDWG14-25SP_DIS1402_G04-SA_G41_v2.sav		X	
MDWG14-15SP_DIS1402_G04-SA_G48_v2.sav			X
MDWG14-15WP_DIS1402_G04-SA_G48_v2.sav			X
MDWG14-25SP_DIS1402_G04-SA_G48_v2.sav			X

Single-line diagrams for each of the Group 04 projects for summer peak conditions are provided in Figure 2-1 through Figure 2-3.

Figure 2-1: GEN-2014-025 Single-line Diagram

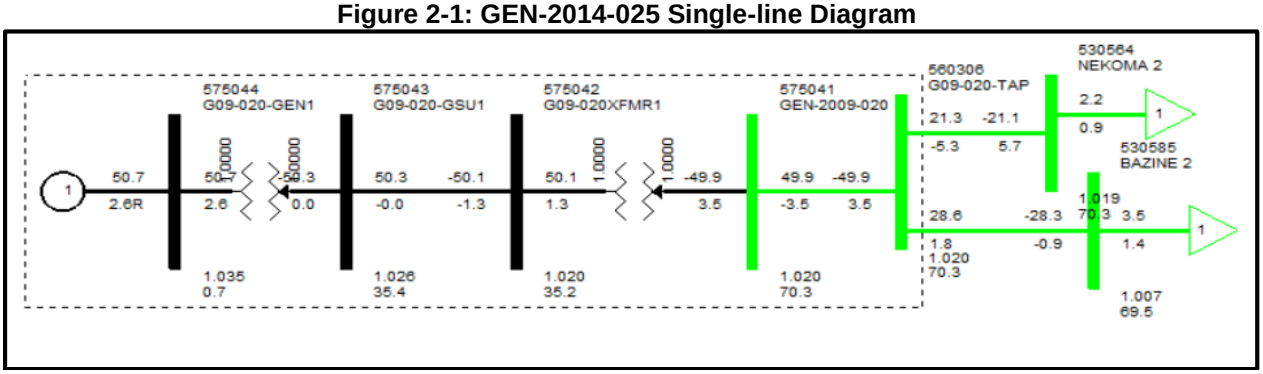


Figure 2-2: GEN-2014-041 Single-line Diagram

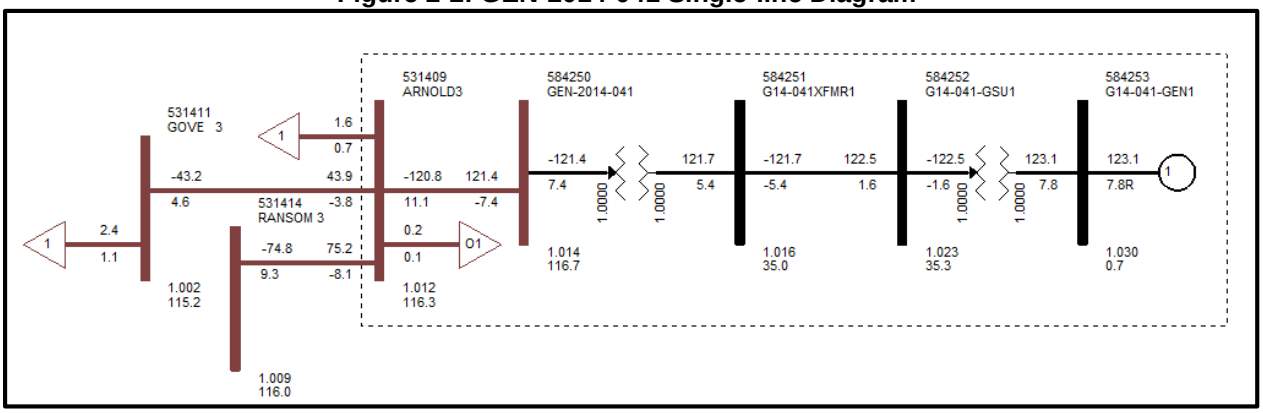
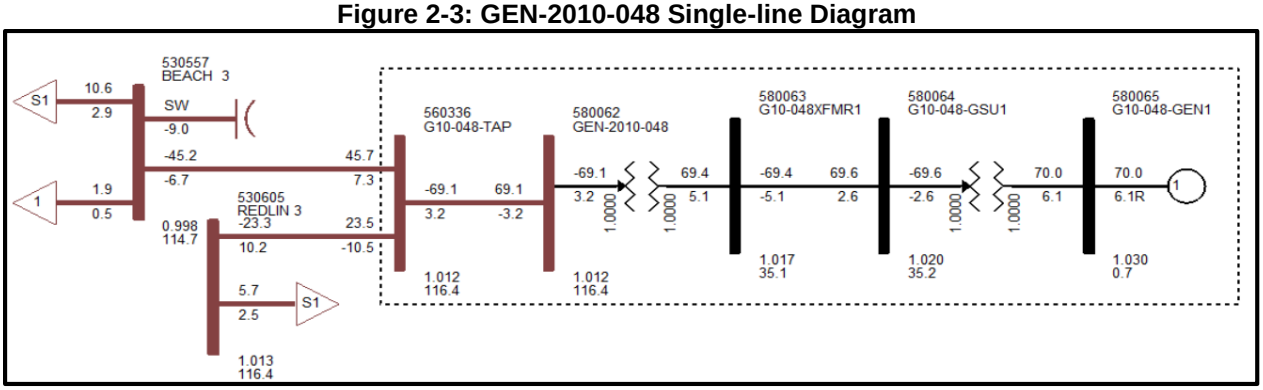


Figure 2-3: GEN-2010-048 Single-line Diagram



2.4 PRIOR QUEUED PROJECTS

All study cases contained the Prior Queued Projects listed in Table 2-3 below.

Table 2-3: Prior Queued Projects

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2001-039M	99.0	Vestas V90VCRS 3.0MW	Central Plains 115kV (531485)
GEN-2003-006A	201.0	Vestas V90VCRS	Elm Creek 230kV (539639)
GEN-2003-019	249.3	GE 1.5MW & Vestas 3.0MW	Smoky Hills 230kV (530592)
GEN-2006-031	75.0	GENROU (530674, Machine ID 01; 530675, Machine ID 07)	Knoll 115kV (530561)
GEN-2006-040	108.0	Acciona AW1500 1.5MW	Mingo 115kV (531429)
GEN-2007-011	135.0	Acciona AW1500 1.5MW	Syracuse 115kV (531437)
GEN-2008-017	300.0	GE 1.5MW	Setab 345kV (531465)
GEN-2008-092	201.0	GE 1.5MW	Knoll 230kV (530558)
GEN-2009-008	198.9	GE 1.7MW	South Hays 230kV (530582)
GEN-2009-020	48.3	Siemens 2.3MW	Tap on the Balzine to Nekoma 69kV line (560306)
GEN-2010-057	201.0	GE 1.5MW	Rice County 230kV (530686)
ASGI-2013-004-	27.6 Summer/ 36.6 Winter	GENSAL (583693)	Morris 115kV (531430)
GEN-2013-033	28.0	GENSAL (Bus 530675, Machine ID 10)	Knoll 115kV (530561)

* * * * *

3. SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed to determine the impact of the generation interconnection requests on the fault current levels in the study system. The analysis was performed using version 32 of the PTI PSS/E software. The following sections outline the results of the analysis.

3.1 METHODOLOGY

The short circuit analysis was performed using the 2025 Summer Peak Cluster Scenario model. Three phase fault currents were calculated for 69 kV and above buses within 5 buses of each generator's point of interconnection. The fault current levels were then compared to the fault currents without the generator to determine the impact of the generation interconnection.

3.2 SHORT CIRCUIT ANALYSIS RESULTS

Table 3-1 through Table 3-3 summarizes the three phase fault current observed for facilities near GEN-2014-025, GEN-2014-041 and GEN-2010-048.

Table 3-1: GEN-2014-025 3 Phase Fault Currents

Bus Dist. from POI	Bus Number	Bus Name	Voltage (kV)	AREA	ZONE	3 Phase Fault Current (A)		Difference (ON - OFF)	
						GENs ON	GENs OFF	Change (A)	%Change
0	560306	G09-020-TAP	69	531	1520	3324	3285	40	1%
1	530564	NEKOMA 2	69	531	1520	4704	4622	82	2%
1	530585	BAZINE 2	69	531	1520	2470	2451	19	1%
1	575041	GEN-2009	69	531	1520	3324	3285	40	1%
2	530586	ALBERT 2	69	531	1520	3647	3642	5	0%
2	530608	NEKOMA 3	115	531	1520	4095	3974	121	3%
2	530580	PAWNEE 2	69	531	1520	2271	2256	15	1%
2	531456	NESSCTY3	115	534	1529	3894	3469	424	12%
3	530563	HEIZER 2	69	531	1520	8749	8742	7	0%
3	530602	LAXTAP 3	115	531	1520	4193	4109	84	2%
3	530606	ALXNDR 3	115	531	1520	3723	3554	169	5%
3	530566	HANSTN 2	69	531	1520	2041	2032	9	0%
3	530598	CHSPIP 2	69	531	1520	1717	1708	10	1%
3	530607	NESCTY 3	115	531	1520	3891	3468	423	12%
4	530568	GB NTH 2	69	531	1520	6777	6777	0	0%
4	530587	WSPRTTP2	69	531	1520	5941	5942	-2	0%
4	530601	HEIZER 3	115	531	1520	12575	12520	56	0%
4	530603	LACROS 3	115	531	1520	3619	3557	62	2%
4	530578	KINSLY 2	69	531	1520	1942	1939	3	0%
4	530579	JETMOR 2	69	531	1520	1421	1416	5	0%
5	530570	GT BND 2	69	531	1520	5886	5888	-2	0%
5	530571	SUSANK 2	69	531	1520	1599	1602	-3	0%
5	530574	COLLEG 2	69	531	1520	4266	4270	-4	0%
5	530588	WSTPRT 2	69	531	1520	4945	4948	-3	0%
5	530609	HZRNGPL3	115	531	1520	7989	7971	18	0%
5	539678	GRTBEND3	115	534	1541	12748	12694	54	0%
5	530680	HEIZER 6	230	531	1520	8427	8393	33	0%
5	530577	ZOOK 2	69	531	1520	2482	2482	-1	0%

The fault current increased up to 12% with the addition of GEN-2014-025.

Table 3-2: GEN-2014-041 3 Phase Fault Currents

Bus Dist. from POI	Bus Number	Bus Name	Voltage (kV)	AREA	ZONE	3 Phase Fault Current (A)		Difference (ON - OFF)	
						GENs ON	GENs OFF	Change (A)	%Change
0	531409	ARNOLD3	115	534	1527	3412	2665	747	28%
1	531411	GOVE 3	115	534	1527	3013	2697	316	12%
1	531414	RANSOM 3	115	534	1527	3402	2763	640	23%
1	584250	GEN-2014	115	534	1527	3085	N/A*	N/A*	N/A*
2	531412	GRINNEL3	115	534	1527	3801	3566	235	7%
2	531456	NESSCTY3	115	534	1529	3894	3469	424	12%
2	531413	RANSOM 2	69	534	1527	2031	1851	179	10%
3	530559	PH RUN 3	115	531	1520	4534	4302	232	5%
3	530607	NESCTY 3	115	531	1520	3891	3468	423	12%
3	531359	BEELER 3	115	534	1523	3384	3149	235	7%
3	531410	ELLIS 2	69	534	1527	1165	1091	73	7%
4	530683	SEGUIN 3	115	531	1520	4080	3905	176	5%
4	531429	MINGO 3	115	534	1528	9945	9752	193	2%
4	530606	ALXNDR 3	115	1	531	3723	3554	169	5%
4	531360	DIGHTNT3	115	534	1523	3735	3627	108	3%
5	531351	BREWSTR3	115	534	1522	3013	2982	31	1%
5	579158	GEN-2006	115	534	1528	8340	8200	140	2%
5	531451	MINGO 7	345	534	1529	5983	5925	57	1%
5	531361	DIGHTON3	115	534	1523	3545	3447	98	3%
5	531362	MANNGT 3	115	534	1523	5281	5187	94	2%
5	530682	SEGNTP 3	115	531	1520	4295	4103	192	5%
5	530555	COLBY 3	115	531	1520	5761	5632	129	2%
5	530608	NEKOMA 3	115	531	1520	4095	3974	121	3%

*Bus 584250 is the high side of the collector step-up transformer, not online if the OFF case.

The fault current increased up to 28% with the addition of GEN-2014-041.

Table 3-3: GEN-2010-048 3 Phase Fault Currents

Bus Dist. from POI	Bus Number	Bus Name	Voltage (kV)	AREA	ZONE	3 Phase Fault Current (A)		Difference (ON - OFF)	
						GENs ON	GENs OFF	Change (A)	%Change
0	560336	G10-048-	115	531	1520	4207	3484	722	21%
1	530557	BEACH 3	115	531	1520	4065	3586	479	13%
1	530605	REDLIN 3	115	531	1520	4233	3743	490	13%
1	580062	GEN-2010	115	531	1520	4207	N/A*	N/A*	N/A*
2	530556	HOXIE 3	115	531	1520	3590	3406	184	5%
2	531386	GRHMSUB3	115	534	1524	3700	3332	368	11%
2	530561	KNOLL 3	115	531	1520	11674	11412	262	2%
3	530682	SEGNTP 3	115	531	1520	4295	4103	192	5%
3	531373	RHOADES3	115	534	1524	3259	3117	142	5%
3	530551	SALINE 3	115	531	1520	5072	5001	71	1%
3	530581	N HAYS3	115	531	1520	10170	9991	179	2%
3	530676	GMEC 3	115	531	1520	11137	10902	235	2%
3	530677	OGALATP3	115	531	1520	2660	2641	19	1%
3	530558	KNOLL 6	230	531	1520	11042	10950	93	1%
3	530559	PH RUN 3	115	531	1520	4534	4302	232	5%
4	530555	COLBY 3	115	531	1520	5761	5632	129	2%
4	530683	SEGUIN 3	115	531	1520	4080	3905	176	5%
4	531366	CNORTON3	115	534	1529	3254	3112	142	5%
4	531372	NORCATR3	115	534	1524	2470	2395	75	3%
4	539685	PHLBURG3	115	534	1541	3529	3459	71	2%
4	530590	BEMIS 3	115	531	1520	4037	3989	48	1%
4	539686	PLAINVL3	115	534	1541	3748	3698	50	1%

Table 3-3: GEN-2010-048 3 Phase Fault Currents (Continued)

Bus Dist. from POI	Bus Number	Bus Name	Voltage (kV)	AREA	ZONE	3 Phase Fault Current (A)		Difference (ON - OFF)	
						GENs ON	GENs OFF	Change (A)	%Change
4	530591	VINE 3	115	531	1520	8922	8813	109	1%
4	530560	WKNNY 3	115	531	1520	2238	2224	14	1%
4	531492	OG ONEOK	115	534	1527	2151	2138	13	1%
4	530584	POSTROCK	230	531	1520	11187	11095	93	1%
4	530592	SMOKYHL6	230	531	1520	6982	6975	7	0%
4	579470	GEN-2008	230	531	1520	5413	5385	27	1%
4	531429	MINGO 3	115	534	1528	9945	9752	193	2%
5	530554	ATWOOD 3	115	531	1520	2958	2902	56	2%
5	530644	COLBY 2	69	531	1520	3958	3911	48	1%
5	531457	OBER T 3	115	534	1529	2280	2224	56	2%
5	539693	SMITH-C3	115	534	1541	3794	3771	23	1%
5	530562	HAYS 3	115	531	1520	8883	8776	107	1%
5	530582	S HAYS6	230	531	1520	8769	8703	67	1%
5	530583	POSTROCK	345	531	1520	8091	8052	40	0%
5	530593	SMKYP1 6	230	531	1520	6066	6060	6	0%
5	530599	SMKYP2 6	230	531	1520	6488	6482	6	0%
5	532873	SUMMIT 6	230	536	1535	13663	13662	1	0%

*Bus 580062 is the high side of the collector step-up transformer, not online if the OFF case.

The fault current increased up to 21% with the addition of GEN-2010-048.

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4. POWER FACTOR ANALYSIS

Power factor analysis was performed to identify the reactive power requirements for each renewable interconnection request.

4.1 METHODOLOGY

Each of the wind farm projects in Group 04, as well as any previous queued projects sharing the same point of interconnection (POI) were turned off for the power factor analysis. Each of the interconnection generators were replaced with a generator modeled at the high side bus of the collector substation transformers. The replacement generators were modeled to reflect the real power (MW) output of each of the interconnection request generators and were set to maintain a voltage schedule at the point of interconnection consistent with the voltage schedule in the provided base case or 1.0 p.u. voltage, whichever was higher. The replacement generators had reactive power capability of +/- 9999 MVAr. The analysis was performed for the Cluster Scenario study cases only.

4.2 POWER FACTOR ANALYSIS RESULTS

The base case voltages at the POI for each of the Group 04 projects for Cluster Scenario models are provided in Table 4-1.

Table 4-1: Base Case Group 4 POI Voltages

Machine	PF Capability	POI Bus Number	POI Bus Name	Initial POI Voltage (pu)		
				15SP	15WP	25SP
GEN-2014-025	+/- 0.909	560306	G09-020-TAP	1.019	1.024	1.017
GEN-2014-041	+/- 0.909	531409	ARNOLD3	1.012	1.017	1.006
GEN-2010-048	+/- 0.957	560336	G10-048-TAP	1.012	1.024	1.008

Each of the projects in Group 04 was analyzed under the single element contingency conditions listed in Table 4-2.

Table 4-2: Power Factor Contingency Summary

Fault Event	Outage Details
FLT01-3PH	South Hays (530582) to Post Rock (530584) 230kV CKT 1
FLT02-3PH	South Hays (530582) to Great Bend (539679) 230kV CKT 1
FLT03-3PH	Great Bend (539679) to Circle (532871) 230kV CKT 1
FLT04-3PH	Great Bend (539679) to Spearville (539695) 230kV CKT 1
FLT05-3PH	Post Rock 345KV (530583) to G13-010-Tap 345KV (562334) 230kV CKT 1
FLT06-3PH	Post Rock 345KV (530583) to Axtell 345kV (640065) 230kV CKT 1
FLT07-3PH	Knoll (530558) to Smokey Hill 230V (530592) 230kV CKT 1
FLT08-3PH	Knoll (530561) to Saline (530551) 115kV CKT 1
FLT09-3PH	Knoll (530561) to North Hays (530581) 115kV CKT 1
FLT10-3PH	Knoll (530561) to Redline (530605) 115kV CKT 1
FLT11-3PH	GEN-2009-020 TAP (560306) to Nekoma (530564) 69kV CKT 1
FLT12-3PH	GEN-2009-020 TAP (560306) to Bazine (530585) 69kV CKT 1
FLT13-3PH	Seward 69kV (530565) to Hudson (530576) 69kV CKT 1
FLT14-3PH	Nekoma (530608) to Alexander (530606) 115kV CKT 1
FLT15-3PH	Nekoma (530608) to Lacross Tap (530602) 115kV CKT 1
FLT16-3PH	Ness City (531456) to Ransom (531414) 115kV CKT 1
FLT17-3PH	Ness City (531456) to Beeler (531359) 115kV CKT 1
FLT18-3PH	Post Rock (530584) 230kV to Post Rock (530583) 345kV to Post Rock (530673) 13.8kV CKT 1
FLT19-3PH	Great Bend (539679)230kV to Great Bend (539678)115kV to Great Bend (539920)13.8kV CKT1

Table 4-2: Power Factor Contingency Summary (Continued)

Fault Event	Outage Details
FLT20-3PH	Knoll (530558) 238kV to Knoll (530561)115kV to Knoll (530629) 11.49kV CKT 1
FLT21-3PH	Nekoma (530564) 69kV to Nekoma (530608) 115kV to Nekoma (530630) 12.5kV CKT 2
FLT22-3PH	Seward (530565) 69kV to Seward (530679) 115kV to Seward (530631) 12.5kV CKT 1
FLT23-3PH	Heizer (530601) 115kV to Heizer (530680) 230kV to Heizer (530626) 12.5kV CKT 1
FLT24-3PH	G10-048 Tap (560336) to Beach (530557) 115kV CKT 1
FLT25-3PH	G10-048 Tap (560336) to Redline (530605) 115kV CKT 1
FLT26-3PH	Beach (530557) to Hoxie (530556) 115kV CKT 1
FLT27-3PH	Beach (530557) to Graham (531386) 115kV CKT 1
FLT28-3PH	Redline (530605) to Knoll (530561) 115kV CKT 1
FLT29-3PH	Colby (530555) to Atwood (530554) 115kV CKT 1
FLT30-3PH	Colby (530555) to Seguin Tap (530682) 115kV CKT 1
FLT31-3PH	Colby (530555) to Mingo (531429) 115kV CKT 1
FLT32-3PH	Mingo (531429) to Pheasant Run (530559) 115kV CKT 1
FLT33-3PH	Mingo (531429) to Brewster (531351) 115kV CKT 1
FLT34-3PH	Mingo (531451) to Red Willow (640325) 345kV CKT 1
FLT35-3PH	Rhoades (531373) to Norcatr (531372) 115kV CKT 1
FLT36-3PH	Rhoades (531373) to Graham (531386) 115kV CKT 1
FLT37-3PH	Rhoades (531373) to Phillipsburg (539685) 115kV CKT 1
FLT38-3PH	Sequin Tap (530682) to Hoxie (530556) 115kV CKT 1
FLT39-3PH	Knoll (530561) to Saline (530551) 115kV CKT 1
FLT40-3PH	Knoll (530561) to N. Hays (530581) 115kV CKT 1
FLT41-3PH	Phillipsburg (539685) to Plainville (539686) 115kV CKT 1
FLT42-3PH	Knoll (530558) to Postrock (530584) 115kV CKT 1
FLT43-3PH	Knoll (530558) to Smoky Hill (530592) 115kV CKT 1
FLT44-3PH	Arnold (531409) to Gove (531411) 115kV CKT 1
FLT45-3PH	Arnold (531409) to Ransom (531414) 115kV CKT 1
FLT46-3PH	Ness City (531456) to Beeler (531359) 115kV CKT 1
FLT47-3PH	Ness City (530607) to Alexander (530606) 115kV CKT 1
FLT48-3PH	Heizer (530601) to Lacross Tap (530602) 115kV CKT 1
FLT49-3PH	Heizer (530601) to Great Bend (539678) 115kV CKT 1
FLT50-3PH	Scott City (531433) to ManningTap (531362) 115kV CKT 1
FLT51-3PH	Scott City (531433) to Pile (531432) 115kV CKT 1
FLT52-3PH	Scott City (531433) to Setab (531464) 115kV CKT 1
FLT53-3PH	Pheasant Run (530559) to Seguin (530683) 115kV CKT 1
FLT54-3PH	Pheasant Run (530559) to Grinnel (531412) 115kV CKT 1

The power factor requirements for each contingency event in Table 4-2 are listed in Table 4-3, Table 4-4 and Table 4-5 for GEN-2014-025, GEN-2014-041 and GEN-2010-048 respectively. The contingency events for which the required power factor at the POI exceeded the capability of the wind farm are highlighted in red.

Table 4-3: GEN-2014-025 Power Factor Requirements

Contingency Event	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor
FLT01-3PH	50.7	-2.8	99.85%	50.7	-1.4	99.96%	50.7	-3.3	99.79%
FLT02-3PH	50.7	-2.1	99.92%	50.7	-1.1	99.98%	50.7	-2.5	99.88%
FLT03-3PH	50.7	-3.0	99.83%	50.7	-1.6	99.95%	50.7	-3.7	99.73%
FLT04-3PH	50.7	-3.4	99.78%	50.7	-2.2	99.91%	50.7	-3.5	99.76%
FLT05-3PH	50.7	-2.3	99.89%	50.7	-1.3	99.97%	50.7	-2.9	99.84%
FLT06-3PH	50.7	-3.5	99.77%	50.7	-1.7	99.94%	50.7	-3.6	99.75%
FLT07-3PH	50.7	-2.7	99.86%	50.7	-1.3	99.97%	50.7	-3.2	99.80%
FLT08-3PH	50.7	-2.7	99.86%	50.7	-1.6	99.95%	50.7	-3.2	99.81%
FLT09-3PH	50.7	-2.7	99.86%	50.7	-1.3	99.97%	50.7	-3.2	99.80%
FLT10-3PH	50.7	-2.5	99.88%	50.7	-1.4	99.96%	50.7	-2.6	99.87%
FLT11-3PH	50.7	5.5	99.41%	50.7	5.9	99.34%	50.7	5.4	99.44%
FLT12-3PH	50.7	-10.9	97.77%	50.7	-8.0	98.77%	50.7	-10.9	97.77%
FLT13-3PH	50.7	-2.6	99.87%	50.7	-1.6	99.95%	50.7	-3.2	99.81%
FLT14-3PH	50.7	-7.7	98.87%	50.7	-4.2	99.66%	50.7	-8.3	98.69%
FLT15-3PH	50.7	-1.4	99.96%	50.7	-0.8	99.99%	50.7	-1.2	99.97%
FLT16-3PH	50.7	-3.0	99.82%	50.7	-1.5	99.95%	50.7	-3.7	99.73%
FLT17-3PH	50.7	-3.0	99.83%	50.7	-2.1	99.92%	50.7	-3.0	99.83%
FLT18-3PH	50.7	-3.3	99.79%	50.7	-1.9	99.93%	50.7	-3.4	99.77%
FLT19-3PH	50.7	-2.7	99.86%	50.7	-1.4	99.96%	50.7	-3.4	99.78%
FLT20-3PH	50.7	-3.0	99.82%	50.7	-2.0	99.92%	50.7	-3.2	99.81%
FLT21-3PH	50.7	-3.6	99.75%	50.7	-2.9	99.84%	50.7	-4.1	99.68%
FLT22-3PH	50.7	-0.8	99.99%	50.7	0.2	100.00%	50.7	-0.9	99.98%
FLT23-3PH	50.7	-3.3	99.78%	50.7	-1.1	99.98%	50.7	-3.5	99.77%
FLT24-3PH	50.7	-2.9	99.84%	50.7	-1.8	99.94%	50.7	-3.0	99.82%
FLT25-3PH	50.7	-2.4	99.89%	50.7	-1.4	99.96%	50.7	-2.9	99.83%
FLT26-3PH	50.7	-2.3	99.89%	50.7	-1.3	99.97%	50.7	-2.9	99.84%
FLT27-3PH	50.7	-2.6	99.86%	50.7	-1.2	99.97%	50.7	-3.1	99.81%
FLT28-3PH	50.7	-2.5	99.88%	50.7	-1.4	99.96%	50.7	-2.6	99.87%
FLT29-3PH	50.7	-2.4	99.89%	50.7	-1.4	99.96%	50.7	-2.9	99.83%
FLT30-3PH	50.7	-2.6	99.86%	50.7	-1.6	99.95%	50.7	-2.8	99.85%
FLT31-3PH	50.7	-2.7	99.86%	50.7	-1.7	99.95%	50.7	-2.8	99.84%
FLT32-3PH	50.7	-2.8	99.84%	50.7	-1.8	99.94%	50.7	-3.0	99.83%
FLT33-3PH	50.7	-2.6	99.87%	50.7	-1.6	99.95%	50.7	-2.8	99.85%
FLT34-3PH	50.7	-1.1	99.98%	50.7	0.2	100.00%	50.7	-1.6	99.95%
FLT35-3PH	50.7	-2.5	99.87%	50.7	-1.5	99.96%	50.7	-2.7	99.86%
FLT36-3PH	50.7	-2.4	99.89%	50.7	-1.4	99.96%	50.7	-2.9	99.83%
FLT37-3PH	50.7	-2.4	99.89%	50.7	-1.4	99.96%	50.7	-2.5	99.87%
FLT38-3PH	50.7	-2.1	99.91%	50.7	-1.1	99.98%	50.7	-2.6	99.87%
FLT39-3PH	50.7	-2.7	99.86%	50.7	-1.6	99.95%	50.7	-3.2	99.81%
FLT40-3PH	50.7	-2.7	99.86%	50.7	-1.3	99.97%	50.7	-3.2	99.80%
FLT41-3PH	50.7	-2.6	99.87%	50.7	-1.5	99.95%	50.7	-3.1	99.81%
FLT42-3PH	50.7	-2.6	99.86%	50.7	-1.6	99.95%	50.7	-2.8	99.85%
FLT43-3PH	50.7	-2.7	99.86%	50.7	-1.3	99.97%	50.7	-3.2	99.80%
FLT44-3PH	50.7	-0.1	100.00%	50.7	1.2	99.97%	50.7	-1.9	99.93%
FLT45-3PH	50.7	-2.7	99.86%	50.7	-1.2	99.97%	50.7	-3.4	99.78%
FLT46-3PH	50.7	-3.0	99.83%	50.7	-2.1	99.92%	50.7	-3.0	99.83%
FLT47-3PH	50.7	-7.3	98.99%	50.7	-4.9	99.55%	50.7	-7.9	98.82%
FLT48-3PH	50.7	-0.5	100.00%	50.7	0.1	100.00%	50.7	-0.3	100.00%
FLT49-3PH	50.7	-3.6	99.75%	50.7	-1.7	99.94%	50.7	-4.0	99.69%
FLT50-3PH	50.7	-2.3	99.90%	50.7	-1.4	99.96%	50.7	-2.3	99.89%
FLT51-3PH	50.7	-2.9	99.83%	50.7	-1.9	99.93%	50.7	-3.1	99.82%
FLT52-3PH	50.7	-1.9	99.93%	50.7	-0.9	99.98%	50.7	-2.1	99.92%
FLT53-3PH	50.7	-2.1	99.91%	50.7	-1.1	99.98%	50.7	-2.6	99.87%
FLT54-3PH	50.7	-0.7	99.99%	50.7	0.3	100.00%	50.7	-1.1	99.97%

The required power factor for GEN-2014-025 was observed to be within the Siemens Turbine capability of +/- 0.909. The customer may be required to add capacitor and/or reactor banks depending upon its final collector system design. Per tariff requirements, the Generating Facility will be required to meet the standard 95% power factor requirement at the Point of Interconnection.

Table 4-4: GEN-2014-041 Power Factor Requirements

Contingency Event	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor
FLT01-3PH	123.2	-1.2	100.00%	123.2	1.1	100.00%	123.2	-4.2	99.94%
FLT02-3PH	123.2	-0.8	100.00%	123.2	1.3	99.99%	123.2	-3.8	99.95%
FLT03-3PH	123.2	-1.2	100.00%	123.2	1.1	100.00%	123.2	-4.2	99.94%
FLT04-3PH	123.2	-1.1	100.00%	123.2	1.1	100.00%	123.2	-3.9	99.95%
FLT05-3PH	123.2	-0.7	100.00%	123.2	1.4	99.99%	123.2	-3.7	99.95%
FLT06-3PH	123.2	-0.3	100.00%	123.2	2.2	99.98%	123.2	-3.2	99.97%
FLT07-3PH	123.2	-1.1	100.00%	123.2	1.2	100.00%	123.2	-4.1	99.94%
FLT08-3PH	123.2	-0.2	100.00%	123.2	1.9	99.99%	123.2	-3.3	99.97%
FLT09-3PH	123.2	-1.2	100.00%	123.2	1.1	100.00%	123.2	-4.2	99.94%
FLT10-3PH	123.2	-1.0	100.00%	123.2	1.1	100.00%	123.2	-3.9	99.95%
FLT11-3PH	123.2	-1.1	100.00%	123.2	1.5	99.99%	123.2	-4.2	99.94%
FLT12-3PH	123.2	-0.5	100.00%	123.2	1.4	99.99%	123.2	-3.3	99.96%
FLT13-3PH	123.2	-1.1	100.00%	123.2	1.0	100.00%	123.2	-4.1	99.94%
FLT14-3PH	123.2	4.8	99.92%	123.2	6.4	99.87%	123.2	2.7	99.98%
FLT15-3PH	123.2	2.9	99.97%	123.2	4.6	99.93%	123.2	0.3	100.00%
FLT16-3PH	123.2	11.3	99.58%	123.2	11.7	99.56%	123.2	10.5	99.64%
FLT17-3PH	123.2	-3.9	99.95%	123.2	-2.5	99.98%	123.2	-6.1	99.88%
FLT18-3PH	123.2	-1.3	99.99%	123.2	0.8	100.00%	123.2	-4.1	99.94%
FLT19-3PH	123.2	-1.0	100.00%	123.2	1.1	100.00%	123.2	-4.1	99.94%
FLT20-3PH	123.2	-1.3	99.99%	123.2	0.8	100.00%	123.2	-4.1	99.94%
FLT21-3PH	123.2	-0.6	100.00%	123.2	1.6	99.99%	123.2	-3.7	99.96%
FLT22-3PH	123.2	-1.0	100.00%	123.2	1.1	100.00%	123.2	-3.9	99.95%
FLT23-3PH	123.2	-1.1	100.00%	123.2	1.3	99.99%	123.2	-4.0	99.95%
FLT24-3PH	123.2	3.2	99.97%	123.2	5.9	99.89%	123.2	0.1	100.00%
FLT25-3PH	123.2	-0.9	100.00%	123.2	1.2	100.00%	123.2	-4.0	99.95%
FLT26-3PH	123.2	0.3	100.00%	123.2	2.9	99.97%	123.2	-2.9	99.97%
FLT27-3PH	123.2	-0.8	100.00%	123.2	1.5	99.99%	123.2	-3.8	99.95%
FLT28-3PH	123.2	-1.0	100.00%	123.2	1.1	100.00%	123.2	-3.9	99.95%
FLT29-3PH	123.2	-1.1	100.00%	123.2	1.0	100.00%	123.2	-4.2	99.94%
FLT30-3PH	123.2	0.1	100.00%	123.2	2.0	99.99%	123.2	-2.7	99.98%
FLT31-3PH	123.2	2.6	99.98%	123.2	4.7	99.93%	123.2	-0.2	100.00%
FLT32-3PH	123.2	4.8	99.92%	123.2	6.4	99.86%	123.2	2.3	99.98%
FLT33-3PH	123.2	-1.6	99.99%	123.2	0.5	100.00%	123.2	-4.4	99.94%
FLT34-3PH	123.2	2.2	99.98%	123.2	4.2	99.94%	123.2	-0.9	100.00%
FLT35-3PH	123.2	-0.7	100.00%	123.2	1.5	99.99%	123.2	-3.5	99.96%
FLT36-3PH	123.2	-0.8	100.00%	123.2	1.3	99.99%	123.2	-3.9	99.95%
FLT37-3PH	123.2	-1.2	100.00%	123.2	0.8	100.00%	123.2	-4.0	99.95%
FLT38-3PH	123.2	-3.1	99.97%	123.2	-0.5	100.00%	123.2	-6.2	99.87%
FLT39-3PH	123.2	-0.2	100.00%	123.2	1.9	99.99%	123.2	-3.3	99.97%
FLT40-3PH	123.2	-1.2	100.00%	123.2	1.1	100.00%	123.2	-4.2	99.94%
FLT41-3PH	123.2	-0.7	100.00%	123.2	1.4	99.99%	123.2	-3.7	99.96%
FLT42-3PH	123.2	-1.2	100.00%	123.2	0.9	100.00%	123.2	-4.1	99.95%
FLT43-3PH	123.2	-1.1	100.00%	123.2	1.2	100.00%	123.2	-4.1	99.94%
FLT44-3PH	123.2	-0.1	100.00%	123.2	1.2	100.00%	123.2	-1.3	99.99%
FLT45-3PH	123.2	12.1	99.52%	123.2	12.4	99.50%	123.2	11.3	99.58%
FLT46-3PH	123.2	-3.9	99.95%	123.2	-2.5	99.98%	123.2	-6.1	99.88%
FLT47-3PH	123.2	4.9	99.92%	123.2	6.5	99.86%	123.2	2.8	99.97%
FLT48-3PH	123.2	3.5	99.96%	123.2	5.2	99.91%	123.2	0.9	100.00%
FLT49-3PH	123.2	-1.6	99.99%	123.2	0.9	100.00%	123.2	-4.5	99.93%
FLT50-3PH	123.2	7.9	99.79%	123.2	9.5	99.70%	123.2	5.6	99.90%
FLT51-3PH	123.2	-2.4	99.98%	123.2	-0.3	100.00%	123.2	-5.2	99.91%
FLT52-3PH	123.2	4.1	99.95%	123.2	6.1	99.88%	123.2	1.3	99.99%
FLT53-3PH	123.2	-2.2	99.98%	123.2	0.1	100.00%	123.2	-5.2	99.91%
FLT54-3PH	123.2	0.2	100.00%	123.2	1.6	99.99%	123.2	-1.5	99.99%

The required power factor for GEN-2014-041 was observed to be within the Siemens Turbine capability of +/- 0.909. The customer may be required to add capacitor and/or reactor banks depending upon its final collector system design. Per tariff requirements, the Generating Facility will be required to meet the standard 95% power factor requirement at the Point of Interconnection.

Table 4-5: GEN-2010-048 Power Factor Requirements

Contingency Event	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor	P (MW)	Q (MVAR)	Power Factor
FLT01-3PH	70.0	1.3	99.98%	70.0	11.5	98.69%	70.0	-1.7	99.97%
FLT02-3PH	70.0	1.5	99.98%	70.0	11.6	98.64%	70.0	-1.6	99.98%
FLT03-3PH	70.0	1.8	99.97%	70.0	12.0	98.57%	70.0	-1.2	99.98%
FLT04-3PH	70.0	1.4	99.98%	70.0	11.6	98.66%	70.0	-1.7	99.97%
FLT05-3PH	70.0	1.7	99.97%	70.0	11.8	98.60%	70.0	-1.4	99.98%
FLT06-3PH	70.0	3.0	99.91%	70.0	13.1	98.28%	70.0	-0.1	100.00%
FLT07-3PH	70.0	1.6	99.97%	70.0	11.7	98.62%	70.0	-1.5	99.98%
FLT08-3PH	70.0	13.0	98.33%	70.0	**22.9**	**95.04%**	70.0	9.9	99.02%
FLT09-3PH	70.0	1.2	99.99%	70.0	11.3	98.72%	70.0	-1.9	99.96%
FLT10-3PH	70.0	9.0	99.19%	70.0	13.3	98.25%	70.0	7.8	99.39%
FLT11-3PH	70.0	1.1	99.99%	70.0	11.2	98.74%	70.0	-2.0	99.96%
FLT12-3PH	70.0	1.5	99.98%	70.0	11.6	98.65%	70.0	-1.6	99.97%
FLT13-3PH	70.0	1.3	99.98%	70.0	11.4	98.71%	70.0	-1.8	99.97%
FLT14-3PH	70.0	3.0	99.91%	70.0	13.0	98.31%	70.0	-0.1	100.00%
FLT15-3PH	70.0	2.2	99.95%	70.0	12.3	98.50%	70.0	-0.9	99.99%
FLT16-3PH	70.0	6.7	99.54%	70.0	16.8	97.24%	70.0	3.7	99.86%
FLT17-3PH	70.0	1.4	99.98%	70.0	11.5	98.68%	70.0	-1.7	99.97%
FLT18-3PH	70.0	2.6	99.93%	70.0	12.7	98.40%	70.0	-0.5	100.00%
FLT19-3PH	70.0	1.3	99.98%	70.0	11.3	98.71%	70.0	-1.8	99.97%
FLT20-3PH	70.0	1.8	99.97%	70.0	11.9	98.59%	70.0	-1.3	99.98%
FLT21-3PH	70.0	1.2	99.98%	70.0	11.3	98.71%	70.0	-1.8	99.97%
FLT22-3PH	70.0	1.3	99.98%	70.0	11.4	98.71%	70.0	-1.8	99.97%
FLT23-3PH	70.0	1.2	99.98%	70.0	11.3	98.71%	70.0	-1.8	99.97%
FLT24-3PH	70.0	**-23.4**	**94.85%**	70.0	-17.9	96.88%	70.0	**-25.2**	**94.10%**
FLT25-3PH	70.0	4.7	99.78%	70.0	8.9	99.21%	70.0	3.5	99.87%
FLT26-3PH	70.0	-2.5	99.93%	70.0	5.8	99.66%	70.0	-5.2	99.72%
FLT27-3PH	70.0	-18.2	96.80%	70.0	-10.1	98.97%	70.0	-20.6	95.94%
FLT28-3PH	70.0	9.0	99.19%	70.0	13.3	98.25%	70.0	7.8	99.39%
FLT29-3PH	70.0	6.8	99.54%	70.0	16.9	97.21%	70.0	3.7	99.86%
FLT30-3PH	70.0	2.7	99.93%	70.0	12.4	98.46%	70.0	-0.2	100.00%
FLT31-3PH	70.0	9.0	99.17%	70.0	18.8	96.58%	70.0	6.1	99.62%
FLT32-3PH	70.0	3.7	99.86%	70.0	13.6	98.16%	70.0	0.8	99.99%
FLT33-3PH	70.0	1.5	99.98%	70.0	11.5	98.67%	70.0	-1.6	99.97%
FLT34-3PH	70.0	6.2	99.61%	70.0	16.3	97.40%	70.0	3.1	99.90%
FLT35-3PH	70.0	0.4	100.00%	70.0	10.2	98.95%	70.0	-2.6	99.93%
FLT36-3PH	70.0	-8.7	99.24%	70.0	-0.4	100.00%	70.0	-11.2	98.75%
FLT37-3PH	70.0	-0.9	99.99%	70.0	8.2	99.31%	70.0	-3.6	99.87%
FLT38-3PH	70.0	10.5	98.88%	70.0	19.2	96.45%	70.0	7.7	99.39%
FLT39-3PH	70.0	13.0	98.33%	70.0	**22.9**	**95.04%**	70.0	9.9	99.02%
FLT40-3PH	70.0	1.2	99.99%	70.0	11.3	98.72%	70.0	-1.9	99.96%
FLT41-3PH	70.0	6.8	99.53%	70.0	16.7	97.26%	70.0	3.7	99.86%
FLT42-3PH	70.0	1.7	99.97%	70.0	11.8	98.61%	70.0	-1.4	99.98%
FLT43-3PH	70.0	1.6	99.97%	70.0	11.7	98.62%	70.0	-1.5	99.98%
FLT44-3PH	70.0	1.8	99.97%	70.0	12.1	98.55%	70.0	-1.6	99.97%
FLT45-3PH	70.0	7.4	99.45%	70.0	17.5	97.02%	70.0	4.3	99.81%
FLT46-3PH	70.0	1.4	99.98%	70.0	11.5	98.68%	70.0	-1.7	99.97%
FLT47-3PH	70.0	3.1	99.90%	70.0	13.1	98.28%	70.0	0.0	100.00%
FLT48-3PH	70.0	2.1	99.95%	70.0	12.2	98.51%	70.0	-0.9	99.99%
FLT49-3PH	70.0	1.3	99.98%	70.0	11.4	98.70%	70.0	-1.7	99.97%
FLT50-3PH	70.0	0.9	99.99%	70.0	11.0	98.80%	70.0	-2.2	99.95%
FLT51-3PH	70.0	1.1	99.99%	70.0	11.1	98.76%	70.0	-2.0	99.96%
FLT52-3PH	70.0	0.8	99.99%	70.0	10.9	98.81%	70.0	-2.3	99.95%
FLT53-3PH	70.0	3.6	99.87%	70.0	13.4	98.21%	70.0	0.4	100.00%
FLT54-3PH	70.0	0.7	99.99%	70.0	11.0	98.79%	70.0	-2.6	99.93%

The required power factor for GEN-2010-048 was observed to exceed the machine's capability of +/- 0.957 (+/- 21.2185 MVAr) by less than one percent. The customer may be required to add capacitor and/or reactor banks depending upon its final collector system design. Per tariff requirements, the Generating Facility will be required to meet the standard 95% power factor requirement at the Point of Interconnection.

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5. STABILITY ANALYSIS

Stability Analysis was performed to identify impacts on the system stability resulting from the interconnection of the Group 04 projects.

5.1 METHODOLOGY

The Stability Analysis was performed using all the Cluster Scenario and Stand Alone Scenario. The power flow models and associated dynamics database were initialized (no fault test) to confirm that there were no errors in the initial conditions of the system and the dynamic data. The dynamics model data for each of the Group 04 projects is provided in Appendix A. The stability analysis was performed using PSS/E version 32.

During the fault simulations, the active power (PELEC), reactive power (QELEC), terminal voltage (ETERM), angle (ANGL) and speed (SPD) were monitored for all Group 04 generation interconnection requests and prior queued projects listed in Table 1-1 and Table 2-3. The machine rotor angle was monitored only for synchronous machines and speed was monitored only for asynchronous machines. The angles of all the synchronous machines within areas 520 (AEPW), 524 (OKGE), 525 (WFEC), 526 (SPS), 531 (MIDW), 534 (SUNC) and 536 (WERE) were monitored. The voltages of the 69 kV and above buses used in the contingencies in Table 5-1 were monitored. In addition, the voltages of all 69 kV and above buses within 6 buses of the POI of GEN-2014-025 and all 100 kV and above buses within 6 buses of the POI of GEN-2010-048 and GEN-2014-041 were monitored.

5.2 FAULT DEFINITIONS

Three phase fault and single phase fault events provided by SPP were simulated for the applicable study cases. The studied fault events are listed in Table 5-1. All 60 faults were applied for the Cluster Scenarios. However, only the selected faults indicated with an 'X' were studied for the Stand Alone Scenarios.

Table 5-1: Fault Definitions

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT01-3PH	3 phase fault on South Hays 230kV (530582) to Post Rock 230KV (530584) CKT 1, near South Hays. a. Apply fault at the South Hays 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT02-3PH	3 phase fault on the South Hays 230kV (530582) to Great Bend 230KV (539679) CKT 1, near South Hays. a. Apply fault at the South Hays 230kV. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	X
FLT03-3PH	3 phase fault on the Great Bend 230kV (539679) to Circle 230kV (532871) CKT 1, near Great Bend. a. Apply fault at the Great Bend 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT04-3PH	3 phase fault on the Great Bend 230kV (539679) to Spearville 230kV (539695) CKT 1, near Great Bend. a. Apply fault at the Great Bend 230V bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	X

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT05-3PH	3 phase fault on the Post Rock 345KV (530583) to G13-010-Tap 345KV (562334) CKT 1, near Post Rock. a. Apply fault at the Post Rock 345KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT06-3PH	3 phase fault on the Post Rock 345KV (530583) to Axtell 345kV (640065) CKT 1, near Post Rock. a. Apply fault at the Post Rock 345KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	X
FLT07-3PH	3 phase fault on the Knoll 230kV (530558) to Smokey Hill 230V (530592) CKT 1, near Knoll. a. Apply fault at the Knoll 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	X
FLT08-3PH	3 phase fault on the Knoll 115kV (530561) to Saline 115kV (530551) CKT 1, near Knoll. a. Apply fault at the Knoll 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	X
FLT09-3PH	3 phase fault on the Knoll 115kV (530561) to North Hays 115kV (530581) CKT 1, near Knoll. a. Apply fault at the Knoll 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		X
FLT10-3PH	3 phase fault on the Knoll 115kV (530561) to Redline 115kV (530605) CKT 1, near Knoll. a. Apply fault at the Knoll 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT11-3PH	3 phase fault on the GEN-2009-020 TAP 69kV (560306) to Nekoma 69kV (530564) CKT 1, near GEN-2009-020 TAP. a. Apply fault at the GEN-2009-020 TAP 69kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT12-3PH	3 phase fault on the GEN-2009-020 TAP 69kV (560306) to Bazine 69kV (530585) CKT 1, near GEN-2009-020 TAP. a. Apply fault at the GEN-2009-020 TAP 69kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT13-3PH	3 phase fault on the Seward 69kV (530565) to Hudson 69kV (530576) CKT 1, near Seward. a. Apply fault at the Seward 69kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
FLT14-3PH	3 phase fault on the Nekoma 115kV (530608) to Alexander 115kV (530606) CKT 1, near Nekoma. a. Apply fault at the Nekoma 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT15-3PH	3 phase fault on the Nekoma 115kV (530608) to Lacross Tap 115kV (530602) CKT 1, near Nekoma. a. Apply fault at the Nekoma 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	
FLT16-3PH	3 phase fault on the Ness City 115kV (531456) to Ransom 115kV (531414) CKT 1, near Ness City. a. Apply fault at the Ness City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	
FLT17-3PH	3 phase fault on the Ness City 115kV (531456) to Beeler 115kV (531359) CKT 1, near Ness City. a. Apply fault at the Ness City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X	X	
FLT18-3PH	3 phase fault on the Post Rock 230KV (530584) to Post Rock 345kV (530583) to Post Rock 13.8kVkV (530673) XFMR CKT 1, near Post Rock 230 kV. a. Apply fault at the Post Rock 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	X
FLT19-3PH	3 phase fault on the Great Bend 230kV (539679) to Great Bend 115kV (539678) to Great Bend 13.8kVkV (539920) XFMR CKT 1, near Great Bend 230 kV. a. Apply fault at the Great Bend 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	X
FLT20-3PH	3 phase fault on the Knoll 230kV (530558) to Knoll 115kV (530561) to Knoll 11.49kV (530629) XFMR CKT 1, near Knoll 230 kV. a. Apply fault at the Knoll 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	X
FLT21-3PH	3 phase fault on the Nekoma 69kV (530564) to Nekoma 115kV (530608) to Nekoma 12.5kV (530630) XFMR CKT 2, near Nekoma 69 kV. a. Apply fault at the Nekoma 69kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	
FLT22-3PH	3 phase fault on the Seward 69kV (530565) to Seward 115kV (530679) to Seward 12.5kV (530631) XFMR CKT 1, near Seward 69 kV. a. Apply fault at the Seward 69kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	
FLT23-3PH	3 phase fault on the Heizer 115kV (530601) to Heizer 230kV (530680) to Heizer 12.5kV (530626) XFMR CKT 1, near Heizer 115 kV. a. Apply fault at the Heizer 115kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	X	X	
FLT24-3PH	3 phase fault on the G10-048 Tap 115kV (560336) to Beach 115kV (530557) CKT 1, near G10-048 Tap. a. Apply fault at the G10-048 Tap 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT25-3PH	3 phase fault on the G10-048 Tap 115kV (560336) to Redline 115kV (530605) CKT 1, near G10-048 Tap. a. Apply fault at the G10-048 Tap 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT26-3PH	3 phase fault on the Beach 115kV (530557) to Hoxie 115kV (530556) CKT 1, near Beach. a. Apply fault at the Beach 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT27-3PH	3 phase fault on the Beach 115kV (530557) to Graham 115kV (530556) CKT 1, near Beach. a. Apply fault at the Beach 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT28-3PH	3 phase fault on the Redline 115kV (530605) to Knoll 115kV (530561) CKT 1, near Redline. a. Apply fault at the Redline 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT29-3PH	3 phase fault on the Colby 115kV (530555) to Atwood 115kV (530554) CKT 1, near Colby. a. Apply fault at the Colby 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT30-3PH	3 phase fault on the Colby 115kV (530555) to Seguin Tap 115kV (530682) CKT 1, near Colby. a. Apply fault at the Colby 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT31-3PH	3 phase fault on the Colby 115kV (530555) to Mingo 115kV (531429) CKT 1, near Colby. a. Apply fault at the Colby 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
FLT32-3PH	3 phase fault on the Mingo 115kV (531429) to Pheasant Run 115kV (530559) CKT 1, near Mingo. a. Apply fault at the Mingo 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
FLT33-3PH	3 phase fault on the Mingo 115kV (531429) to Brewster 115kV (531351) CKT 1, near Mingo. a. Apply fault at the Mingo 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
FLT34-3PH	3 phase fault on the Mingo 345kV (531451) to Red Willow 345kV (640325) CKT 1, near Mingo. a. Apply fault at the Mingo 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
FLT35-3PH	3 phase fault on the Rhoades 115kV (531373) to Norcatr 115kV (531372) CKT 1, near Rhoades. a. Apply fault at the Rhoades 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT36-3PH	3 phase fault on the Rhoades 115kV (531373) to Graham 115kV (531386) CKT 1, near Rhoades. a. Apply fault at the Rhoades 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT37-3PH	3 phase fault on the Rhoades 115kV (531373) to Phillipsburg 115kV (539685) CKT 1, near Rhoades. a. Apply fault at the Rhoades 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT38-3PH	3 phase fault on the Sequin Tap 115kV (530682) to Hoxie 115kV (530556) CKT 1, near Sequin Tap. a. Apply fault at the Seguin Tap 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT39-3PH	3 phase fault on the Knoll 115kV (530561) to Saline 115kV (530551) CKT 1, near Knoll. a. Apply fault at the Knoll 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT40-3PH	3 phase fault on the Knoll 115kV (530561) to N. Hays 115kV (530581) CKT 1, near Knoll. a. Apply fault at the Knoll 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT41-3PH	3 phase fault on the Phillipsburg 115kV (539685) to Plainville 115kV (539686) CKT 1, near Phillipsburg. a. Apply fault at the Phillipsburg 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT42-3PH	3 phase fault on the Knoll 230kV (530558) to Postrock 230kV (530584) CKT 1, near Phillipsburg. a. Apply fault at the Knoll 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT43-3PH	3 phase fault on the Knoll 230kV (530558) to Smoky Hill 230kV (530592) CKT 1, near Phillipsburg. a. Apply fault at the Knoll 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
FLT44-3PH	3 phase fault on the Arnold 115kV (531409) to Gove 115kV (531411) CKT 1, near Arnold. a. Apply fault at the Arnold 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT45-3PH	3 phase fault on the Arnold 115kV (531409) to Ransom 115kV (531414) CKT 1, near Arnold. a. Apply fault at the Arnold 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT46-3PH	3 phase fault on the Ness City 115kV (531456) to Beeler 115kV (531359) CKT 1, near Ness City. a. Apply fault at the Ness City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT47-3PH	3 phase fault on the Ness City 115kV (530607) to Alexander 115kV (530606) CKT 1, near Ness City. a. Apply fault at the Ness City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT48-3PH	3 phase fault on the Heizer 115kV (530601) to Lacross Tap 115kV (530602) CKT 1, near Heizer. a. Apply fault at the Heizer 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT49-3PH	3 phase fault on the Heizer 115kV (530601) to Great Bend 115kV (539678) CKT 1, near Heizer. a. Apply fault at the Heizer 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT50-3PH	3 phase fault on the Scott City 115kV (531433) to ManningTap 115kV (531362) CKT 1, near Scott City. a. Apply fault at the Scott City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT51-3PH	3 phase fault on the Scott City 115kV (531433) to Pile 115kV (531432) CKT 1, near Scott City. a. Apply fault at the Scott City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT52-3PH	3 phase fault on the Scott City 115kV (531433) to Setab 115kV (531464) CKT 1, near Scott City. a. Apply fault at the Scott City 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT53-3PH	3 phase fault on the Pheasant Run 115kV (530559) to Seguin 115kV (530683) CKT 1, near Pheasant Run. a. Apply fault at the Pheasant Run 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT54-3PH	3 phase fault on the Pheasant Run 115kV (530559) to Grinnel 115kV (531412) CKT 1, near Pheasant Run. a. Apply fault at the Pheasant Run 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
FLT55-PO	Prior Outage of Knoll to N Hays 115kV. 3 phase fault on the Ross Beach to GEN-2010-048 Tap 115kV. a. Prior outage Knoll (530561) 115kV to N Hays (530581) 115kV (solve network for steady state solution). b. 3 phase fault on the Ross Beach (530557) 115kV to GEN-2010-048 Tap (560366) 115kV, near Ross Beach 115kV. c. Leave fault on for 5 cycles, then trip the faulted line in (b).			X
FLT56-SB	Knoll 115kV Stuck Breaker a. Apply single phase fault at the Knoll (530561) 115kV bus on the Knoll – Red Line (530605) 115kV line. b. Wait 16 cycles, and then drop Knoll (530558) 230kV to Knoll (530561) 115kV (530629) 11.49kV transformer. c. Trip Knoll to Red Line 115kV and remove the fault.			X
FLT57-SB	Mingo 115kV Stuck Breaker a. Apply single phase fault at the Mingo (531429)115kV bus on the Mingo – Brewster (531351) 115kV line. b. Wait 16 cycles, and then trip Mingo (531429) to Brewster (531351) 115kV. c. Trip Mingo (531429) to Colby (530555) 115kV and remove the fault.		X	

Table 5-1: Fault Definitions (Continued)

Fault Name	Description	GEN-2014-025	GEN-2014-041	GEN-2010-048
FLT58-SB	Heizer 69kV Stuck Breaker a. Apply single phase fault at the Heizer (530563) 69kV bus on the Heizer – Great Bend North (530568) 69kV line. b. Wait 16 cycles, and then trip Heizer (530563)–Great Bend North (530568) 69kV line. c. Trip Heizer (530563) 69kV to Heizer (530601) 115kV to Heizer (530628) 12.5kV ckt 3 transformer and remove the fault.	X	X	
FLT59-SB	Heizer 69kV Stuck Breaker a. Apply single phase fault at the Heizer (530563) 69kV bus on the Heizer – WSPRTTP (530587) 69kV line. b. Wait 16 cycles, and then trip Heizer (530563)–WSPRTTP (530587) 69kV line. c. Trip Heizer (530563) 69kV to Heizer (530601) 115kV to Heizer (530627) 12.5kV ckt 2 transformer and remove the fault.	X	X	
FLT60-SB	Heizer 115kV Stuck Breaker a. Apply single phase fault at the Heizer (530601) 115kV bus on the Heizer – Great Bend (539678) 115kVkV line. b. Wait 16 cycles, and then trip Heizer (530601)–Great Bend (539678) 115kVkV line. c. Trip Heizer (530601) 115kV to Heizer (530563) 69kV to Heizer (530627) 12.5kV ckt 2 transformer and remove the fault.	X	X	

Single-line-to-ground faults were also simulated by using the PSS/E SCMU function which automatically calculates the fault levels at the specified fault location.

5.3 CLUSTER SCENARIO RESULTS

For the Cluster Scenario, the machine rotor angle damping and transient voltage recovery criteria were met for all faults studied. The Cluster Scenario dynamic stability results and plots are provided in Appendix B.

5.4 STAND ALONE SCENARIO RESULTS

For the Stand Alone Scenario, the machine rotor angle damping and transient voltage recovery criteria were met for all faults studied. The Stand Alone Scenario dynamic stability results and plots are provided in Appendix C.

******

6. CONCLUSIONS

The purpose of this study was to evaluate the impacts of the proposed Group 04 generation interconnection projects. Short circuit analysis, power factor analysis and stability analysis were performed for the evaluation.

6.1 SHORT CIRCUIT ANALYSIS

The results from short circuit analysis showed that the maximum change in the fault current in the immediate systems at or near GEN-2014-025, GEN-2014-041 and GEN-2010-048 were 12%, 28% and 21% respectively. All three phase current levels with the Group 04 generators online were below 14,000 A.

6.2 POWER FACTOR ANALYSIS

The power factor analysis showed that only for GEN-2010-048, power factor requirements exceeded the capacity of the wind farms. The power factor requirements for both GEN-2014-025 and GEN-2014-041 were within the Siemens Turbine capability of +/- 0.909. The maximum difference between the reactive power capability of GEN-2010-048 and the requirement was less than one percent. The customers may be required to add capacitor and/or reactor banks depending upon its final collector system design. Per tariff requirements, the Generating Facility will be required to meet the standard 95% power factor requirement at the Point of Interconnection.

6.3 STABILITY ANALYSIS

The stability analysis showed no generator tripping, machine rotor angle damping violations or transient voltage recovery violations for the Group 04 projects. The stability analysis results showed that the Group 04 projects met the low-voltage ride through and pre-fault voltage recovery requirements of FERC Order 661A for the fault scenarios analyzed. There were no system stability issues caused by the interconnection of the Group 04 projects which required mitigation.

It should be noted that the results of this study are based on available data and assumptions made at the time of this study. If any of the data and/or assumptions change, the results provided in this report may not apply.

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N: Group 5 Dynamic Stability Analysis Report

See Quanta Technology report and SPP addendum on next page.

DISIS 2014-002

GROUP 5

DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY

January 30, 2015

Submitted To:
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EXECUTIVE SUMMARY

The Southwest Power Pool (SPP), on behalf of generation interconnection customers, desires a definitive interconnection system impact study for a wind farm and 2 gas turbine installations in the Texas panhandle (Castro and Deaf Smith counties), known as Group 5. Group 5 consists of the following:

- GEN-2014-040 – 349 MW wind farm connected to the Castro County 115 kV substation (Southwestern Public Service)

- GEN-2014-067– 339 MW summer/356 MW winter combined cycle turbine connected to a tap on the Potter County-Newhart 230 kV line (Southwestern Public Service)

- GEN-2014-068–196 MW summer/203 MW winter combustion turbine connected to a tap on the Deaf Smith-Plant X 230 kV line (Southwestern Public Service)

There are 4 previously queued generators in Group 5.

SPP requested a stability analysis for the queued generation projects in Group 5, both individually and as a cluster. In addition, SPP requested fault current analysis and power factor analysis for the queued generator projects in Group 5, for the cluster scenario only. SPP did not request an Available Transfer Capability (ATC) study as part of this study.

- GEN-2014-040 will be required to maintain the standard pro-forma power factor requirement of 0.95 leading (absorbing) to 0.95 lagging (supplying) at the point of interconnection. This may or may not require external capacitor banks, depending on the customer's collector system design. If the GEN-2014-040 reactive capabilities are used to regulate the POI voltage, tap changing may be needed to avoid generator and collector overvoltages.

- For 2 of the study cases (Summer 2015 with GEN-2014-067 only online, and Winter 2015 with GEN-2014-068 only online), the out of step relay on the SPS-AEPW Wheeler-Sweetwater 230 kV line tripped for some of the Potter County 230 kV faults. However, this tripping did not occur with all 3 study units online. Also, this tripping did not take any generators down with it.

- The GEN-2014-040 wind farm and the GEN-2014-067 & GEN-2014-068 turbines were stable for all studied faults. Minor oscillation was observed at the transmission side (especially the 115 kV side) for some studied faults, but this oscillation is not caused or worsened by the study projects.

- GEN-2014-040, GEN-2014-067 and GEN-2014-068 did not trip offline under any of the studied fault conditions.

- Using real power output as a proxy for rotor angle, GEN-2014-040 met the rotor angle damping requirements. (The GE wind turbines are asynchronous, so the rotor angle measurement does not indicate actual rotor angle.)

- Using the rotor angle measurement, the synchronous machines at GEN-2014-067 and GEN-2014-068 met the rotor angle damping requirements.

- The GEN-2014-040 POI voltage recovered to near the pre-contingency voltage following all studied fault disturbances.

- Low Voltage Ride Through (LVRT) analysis shows no generators tripping offline due to low voltage.

- All generators in the monitored areas remain stable for all of the modeled disturbances. (However, see previous note regarding Wheeler-Sweetwater 230 kV out of step relay tripping in selected cases.)

- All generators are found to be compliant with rotor angle damping requirement and post fault voltage recovery was found to be within the criterion of 0.7 PU to 1.2 PU.

TABLE OF CONTENTS

PAGE

Contents

1. INTRODUCTION 1
2. STUDY METHODOLOGY 2
2.1 POWER FACTOR ANALYSIS 2
2.2 DYNAMIC ANALYSIS 3
3. PROJECT DESCRIPTION 6
4. POWER FACTOR RESULTS 11
5. TRANSIENT STABILITY RESULTS 14
6. ROTOR ANGLE DAMPING AND VOLTAGE RECOVERY REQUIREMENT 15
7. FAULT CURRENT ANALYSIS 26
8. CONCLUSIONS 32
APPENDIX 1 34

Tables

Table 2-1: Description of Study Areas 2
Table 2-2: MW and MVAR as measured at the GEN-2014-040 generator buses 2
Table 2-3: Real and reactive power injection at GEN-2014-040 POI, and POI voltages 3
Table 2-4: Fault Descriptions 4
Table 3-1: Points of Interconnection for Group 5 6
Table 4-1: Power factor analysis results at GEN-2014-040 POI (Positive numbers imply leading/VAR draw from POI) 12
Table 6-1: GEN-2014-040 115 kV POI voltage recovery 19
Table 7-1: Fault Currents 26

Figures

Figure 3-1: Geographical Location of Group 5 Projects 7
Figure 3-2: GEN-2014-040 One-Line Diagram 8
Figure 3-3: GEN-2014-067 One-Line Diagram 9
Figure 3-4: GEN-2014-068 One-Line Diagram 9
Figure 6-1: GEN-2014-040 oscillatory portion of real power output, FLT40, Winter 2015 with GEN-2014-040 as the only study unit online 16
Figure 6-2: GEN-2014-067 rotor angle, FLT17, Winter 2015 with GEN-2014-067 as the only study unit online 17
Figure 6-3: GEN-2014-068 rotor angle, FLT33, Summer 2025 with all study units online 18

Figure 6-4: Example of post-fault oscillation observed on GEN-2014-040 POI with or without the study projects 21
Figure 6-5: Worst-case GEN-2014-040 POI transient (FLT40, Winter 2015 case, GEN-2014-040 only online) 22
Figure 6-6: Worst-case GEN-2014-067 POI transient (FLT17, Winter 2015 case, GEN-2014-067 only online) 23
Figure 6-7: Worst-case GEN-2014-068 POI transient (FLT32, Winter 2015 case, GEN-2014-068 only online) 24
Figure 6-8: GEN-2014-040 Generator bus voltage for fault FLT40, Winter 2014 case with GEN-2014-040 only. 25

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1. INTRODUCTION

The Southwest Power Pool (hereafter referred to as SPP) commissioned Quanta Technology to study the impact of a wind farm and two gas turbine installations in the SPP interconnection queue referred to as Group 5. The sites studied are in the Texas panhandle in Castro and Deaf Smith counties (GEN-2014-040 wind farm, GEN-2014-067 & GEN-2014-068 gas turbines).

The sites studied were:

- GEN-2014-040 – 349 MW wind farm connected to the Castro County 115 kV substation (Southwestern Public Service)
- GEN-2014-067– 339 MW summer/356 MW winter combined cycle turbine connected to a tap on the Potter County-Newhart 230 kV line (Southwestern Public Service)
- GEN-2014-068–196 MW summer/203 MW winter combustion turbine connected to a tap on the Deaf Smith-Plant X 230 kV line (Southwestern Public Service)

SPP did not request an Available Transfer Capability (ATC) study.

SPP requested a stability analysis for the generation in Group 5, both individually and as a cluster. Quanta Technology performed a dynamics study utilizing SPP's list of faults as follows:

1. Determined the ability of the generators to remain in synchronism following three phase faults, for the above interconnections on-line both individually and as a cluster.
2. Performed a power factor and LVRT study for GEN-2014-040 because it is a wind farm. This power factor and LVRT study was performed with GEN-2014-040, GEN-2014-067, and GEN-2014-068 all online simultaneously.
3. Performed a fault current study for transmission buses within 5 buses of GEN-2014-040, GEN-2014-067, and GEN-2014-068. This fault study was performed with all of the above studied units online simultaneously.

The results of the study are given in the following sections.

2. STUDY METHODOLOGY

SPP provided 2015 summer peak and 2015 winter peak and 2025 summer peak load flow cases in PSS/E format. Table 2-1 below shows the total demand and generation in the monitored areas.

Table 2-1: Description of Study Areas

Area #	Area Name	2015 Winter Peak		2015 Summer Peak		2024 Summer Peak	
		Load (MW)	Generation (MW)	Load (MW)	Generation (MW)	Load (MW)	Generation (MW)
520	AEPW	8381.7	7141.1	10411.4	9374.5	11250.8	9800.3
524	OKGE	4141.4	5376	6013.3	7409.8	6351.5	7941.8
525	WFEC	1425	1080.2	1542.2	1232.6	1774.4	1327.7
526	SPS	4595.5	5585.8	6353.6	7357.3	8413.8	8858.8
531	MIDW	284	244.6	387.6	311.6	420.7	314.6
534	SUNC	883.4	1247.9	1311.2	1720.4	1342.7	1976.3
536	WERE	4246.4	4251.2	6182.7	5766.1	6861.3	6438.5

2.1 POWER FACTOR ANALYSIS

A power factor analysis was performed at the GEN-2014-040 wind farm POI (bus 524746 – CASTRO_CNTY3 115 kV). In all cases, the GEN-2014-040 voltage was scheduled at 1.03 pu as measured at the generator bus and the GEN-2014-040 wind turbines had a power factor range of ± 0.95 at the generator buses. Real and reactive power outputs as measured at the generator buses are as noted in Table 2-2 below.

Table 2-2: MW and MVAR as measured at the GEN-2014-040 generator buses

Bus Number	Bus Name	MW at Gen Bus	MVAR at Gen Bus		
			Sum15	Win15	Sum25
584223	G14-040-GEN1 0.69	173.6	5.5	0.8	12.3
584226	G14-040 GEN2 0.69	175.4	2.1	-2.5	8.8

After taking losses into account, the real and reactive injection into the Castro County 115 kV POI is as described below in Table 2-3. Of the 349 MW generated by GEN-2014-040 at full output, 15.5-15.6 MW are lost in the collector, transformers, and lead line. In all cases, the collector, transformers, and lead line draw reactive power from the POI, hence the negative numbers for the MVAR injection.

Table 2-3: Real and reactive power injection at GEN-2014-040 POI, and POI voltages

Case	POI Voltage	MW at POI	MVAR at POI
Summer 2015	1.0041	333.5	-66.9
Winter 2015	1.0114	333.5	-75.9
Summer 2025	0.9936	333.4	-54.1

The GEN-2014-040 wind turbines were modelled off-line and replaced by proxy generators of 333.5 MW (Summer 2015 & Winter 2015) or 333.4 MW (Winter 2015) at the 115 kV POI. These proxy generators were given reactive capabilities of ±9999 MVAR and set to regulate the POI to the pre-contingency voltages noted above (Summer & Winter 2015), or to 1.00 pu (Summer 2025). Then, all study faults were simulated, and the reactive injection needed to regulate the POI voltage was noted.

An analysis for low wind/no wind conditions was not needed due to the 115 kV voltage level of the interconnection. However, for reference, the unloaded collector system supplies approximately 17 MVAR to the 115 kV POI.

2.2 DYNAMIC ANALYSIS

The study areas shown in Table 2-1 were monitored in the dynamic analysis.

The transmission line and transformer faults were simulated and synchronous machine rotor angles and wind turbine generator electrical power outputs were monitored to check whether synchronism is maintained and oscillations are damped following fault removal. Bus voltages were also monitored to ensure voltage recovery following fault removal. The GE wind turbine model does not give meaningful information for rotor angle or speed as it is an asynchronous machine. GEN-2014-040 real power output was used as a proxy for rotor angle,

Line faults were simulated with or without reclosing, depending on the fault. All clearing times were 5.0 cycles except for the Castro stuck breaker faults FLT38-SB and FLT39-SB which had a clearing time of 20 cycles. Transformer faults and stuck breaker faults were not reclosed.

Unless otherwise noted, all faults had a clearing time of 5 cycles and a reclosing time of 20 cycles. That is, the fault sequence is:

a. Apply fault
b. Open faulted line and clear fault after 5 cycles
c. Wait 20 cycles, reclose line opened in step b, and reapply fault
d. Open faulted line and clear fault after 20 cycles.

If a normally cleared fault is described with "No reclosing", the fault sequence is:

a. Apply fault
b. Open faulted transmission element and clear fault after 5 cycles

Table 2-4 gives detailed descriptions of all the studied faults. **In all cases, the fault is applied to the first specified bus, and all studied faults are 3φ faults.**

Table 2-4: Fault Descriptions

Cont. No.	Description
1	Castro County (524746) to Deaf Smith #21 (524734) 115 kV line
2	Castro County (524746) to BC-Earth (525056) 115 kV line
3	Castro County (524746) to Newhart (525460) 115 kV line
4	DS-#21 (524734) to Deaf Smith (524622) 115 kV line
5	Deaf Smith (524622) to NE Hereford (524567) 115 kV line
6	Deaf Smith (524622) to Panda (524597) 115 kV line
7	Deaf Smith (524622) to Hereford (524606) 115 kV line. NOTE: There are 2-115 kV circuits between Deaf Smith and Hereford. Circuit 1 has slightly lower impedance and was the circuit studied in contingency 7.
8	Deaf Smith 115 kV (524746) to 69 kV (524745) to 13.8 kV (524743) transformer. NOTES: (a) No reclosing (b) There are 2-115/69/13.2 kV transformers at Deaf Smith. Transformer 2 has a somewhat higher flow pre-fault, and is the fault studied.
9	BC-Earth (525056) to Plant X (525480) 115 kV line
10	Plant X (525480) to EMU&VLY_TP (525019) 115 kV line NOTE: This line is not in the Summer 2015 case and was therefore not simulated in the Summer 2015 case.
11	Plant X (525480) to LC-S_OLTON (525440) 115 kV line
12	Plant X (525480) to Hale County (525454) 115 kV line
13	Plant X (525480) to W_LITLFLDTP (525614) 115 kV line NOTE: This line is not in the Summer 2015 or Winter 2015 case. Therefore, it was only simulated in the Summer 2025 case.
14	Newhart (525460) to Hart Industrial (525124) 115 kV line
15	Newhart (525460) to Kress (525192) 115 kV line

Cont. No.	Description
16	G14-067 Tap (560015) to Potter County (523959) 230 kV line
17	G14-067 Tap (560015) to Newhart (525461) 230 kV line
18	Potter County (523959) to Moore County (523309) 230 kV line
19	Potter County (523959) to Channing (523869) 230 kV line NOTE: This line was not in the Summer 2015 case and was therefore not simulated in the Summer 2015 case.
20	Potter County (523959) to Harrington East (523979) 230 kV line
21	Potter County (523959) to Rolling Hills (524010) 230 kV line
22	Potter County (523959) to Bushland (524267) 230 kV line
23	Potter County (523961) to G14-038T (560011) 345 kV line NOTE: This was specified as Potter Co-Hitchland 345 in the scope. The line is tapped to accommodate G14-038, so the fault was simulated as a Potter Co-G14-038T 345 kV fault.
24	Nichols (524044) to Grapevine (523771) 230 kV line
25	Grapevine (523771) to Wheeler (523777) 230 kV line
26	Newhart (525461) to Swisher (525213) 230 kV line
27	Newhart (525461) to Plant X (525481) 230 kV line
28	Swisher (525213) to Tuco (525830) 230 kV line
29	Plant X (525481) to Tolk East (525524) 230 kV line
30	Plant X (525481) to Tolk West (525531) 230 kV line
31	Plant X (525481) to Sundown (526435) 230 kV line
32	GEN-2014-068 Tap (560016) to Deaf Smith (524623) 230 kV line
33	GEN-2014-068 Tap (560016) to Plant X (525481) 230 kV line
34	Deaf Smith (524623) to Bushland (524267) 230 kV line
35	Deaf Smith 230 kV (524623) to 115 kV (524622) to 13.2 kV (524620) transformer 1. NOTES: (a) No reclosing (b) There are 2-230/115/13.2 kV transformers at Deaf Smith, both with identical impedances and flows.
36	Newhart 230 kV (525461) to 115 kV (525460) to 13.2 kV (525459) transformer 1. NOTES: (a) No reclosing (b) There are 2-230/115/13.2 kV transformers at Newhart, both with identical impedances and flows.
37	Plant X 230 kV (525481) to 115 kV (525480) to 13.2 kV (525479) transformer 1. NOTES: (a) No reclosing (b) There are 2-230/115/13.2 kV transformers at Plant X, both with identical impedances and flows.
38	Castro County (524746) to BC-Earth (525056) 115 kV line with stuck breaker and additional tripping of Castro County 115 kV (524746) to 69 kV (524745) to 13.2 kV (524743)

Cont. No.	Description
	transformer 2. Both elements trip 20 cycles after fault start without reclosing.
39	Castro County (524746) to Newhart (525460) 115 kV line with stuck breaker and additional tripping of Castro County 115 kV (524746) to 69 kV (524745) to 13.2 kV (524744) transformer 1. Both elements trip 20 cycles after fault start without reclosing.
40	With prior outage of Castro County (524746) to Newhart (525460) 115 kV line: Castro County (524746) to BC-Earth (525056) 115 kV line. NOTE: Reclosing occurs 20 cycles after original trip as usual.

Another important aspect of the dynamic analysis was to check FERC Order 661A (Low Voltage Ride Through) compliance for wind generating plants. GEN-2014-040 did not trip offline for undervoltage or for any other reason for any of the tested faults, nor did any of the other wind farms trip offline.

3. PROJECT DESCRIPTION

Following is a table of the proposed generators in Group 5.

Table 3-1: Points of Interconnection for Group 5

Request	Size (MW)	Model	Point Of Interconnection		
			Common Name	Bus #	Name in Model
GEN-2014-040	349	GE 1.79 MW wind turbine	Castro County 115 kV substation	524746	CASTRO_CNTY3 115
GEN-2014-067	339 summer 356 winter	GE 7FA Natural Gas combustion turbine & GE 7FH2 steam turbine	Tap Potter County-Newhart 230 kV line	560015	G14-067-TAP 230
GEN-2014-068	196 summer 203 winter	GE 7FA Natural Gas combustion turbine	Tap Deaf Smith-Plant X 230 kV line	560016	G14-068-TAP 230

As illustrated below, all study interconnections are in the Texas panhandle. GEN-2014-040 is in Castro County, and GEN-2014-067 and GEN-2014-068 are both in Deaf Smith County.

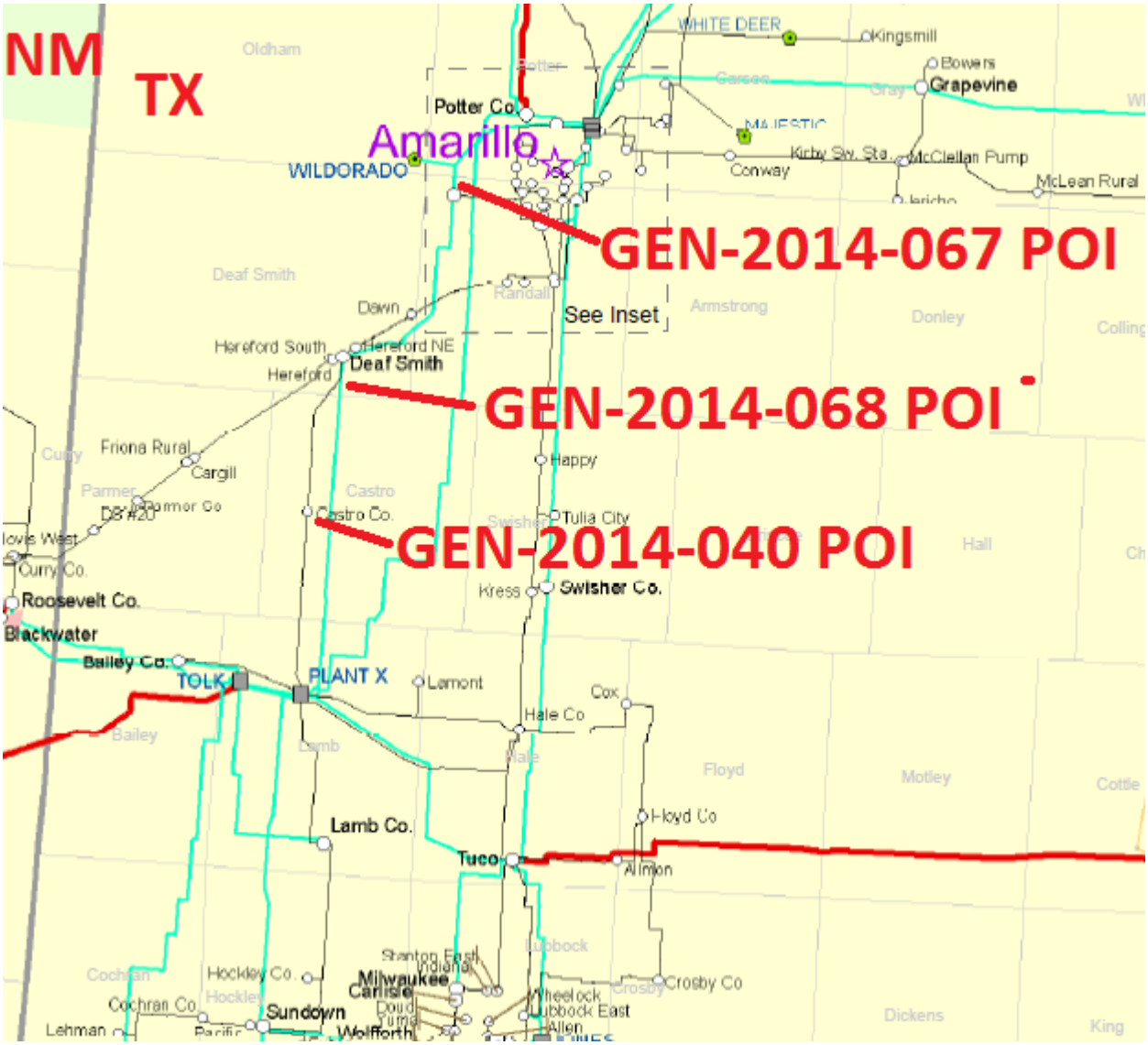


Figure 3-1: Geographical Location of Group 5 Projects

One-line diagram of the studied interconnections are shown below. All voltages and line flows are from the 2015 summer peak base case. The one-line diagrams use this following color code for nominal voltages:

Red	**345 kV**
Blue	**230 kV**
Black	**115 kV**
Purple	**Lower voltage levels**

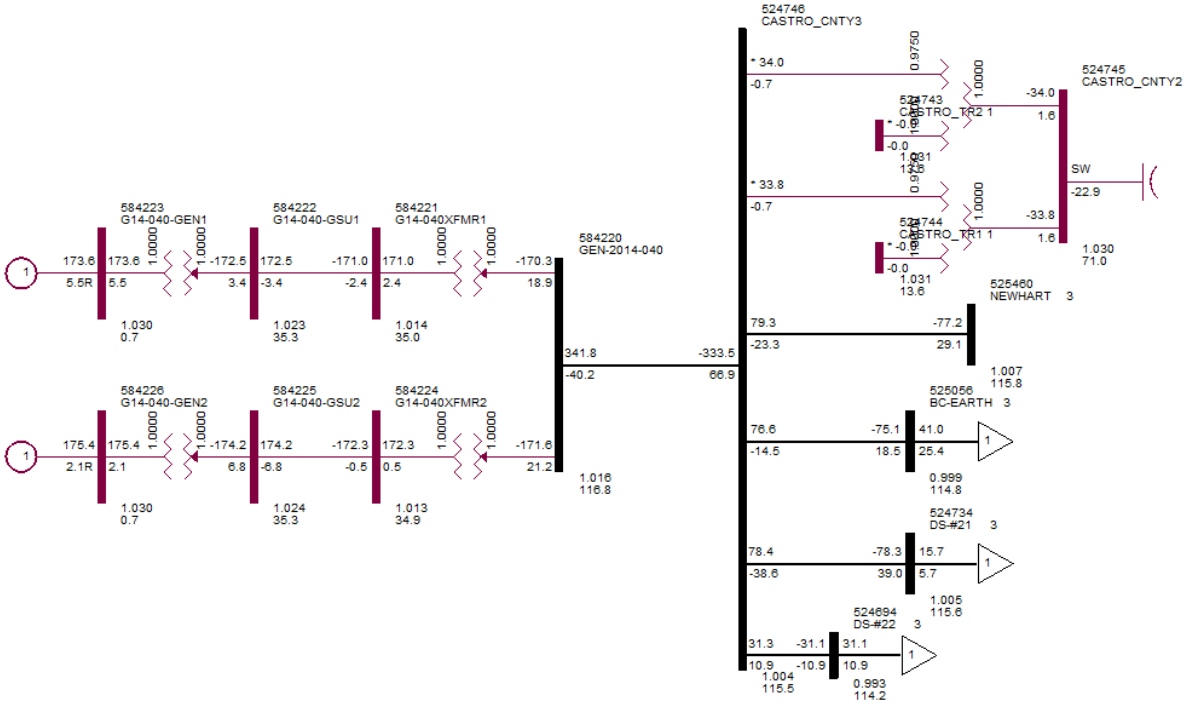


Figure 3-2: GEN-2014-040 One-Line Diagram

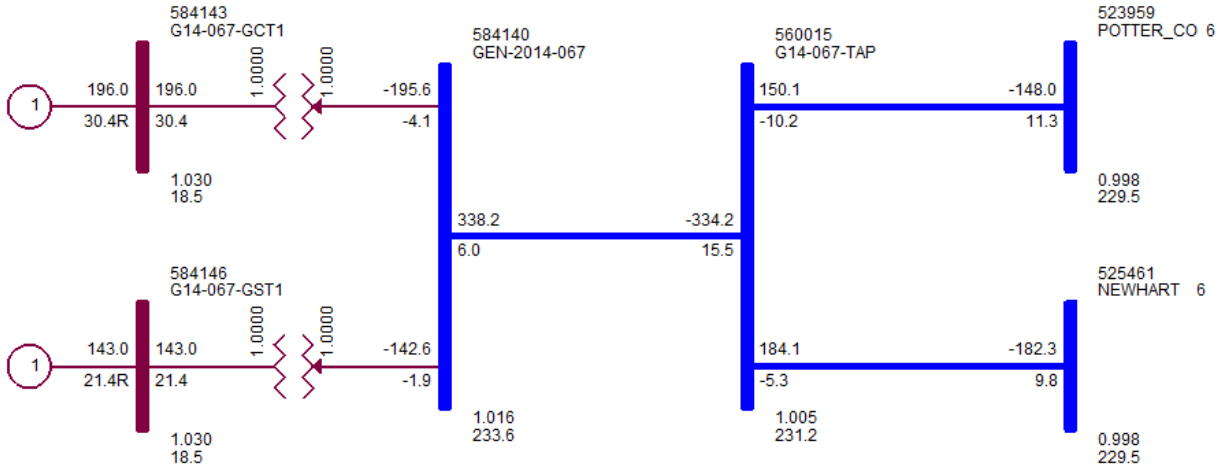


Figure 3-3: GEN-2014-067 One-Line Diagram

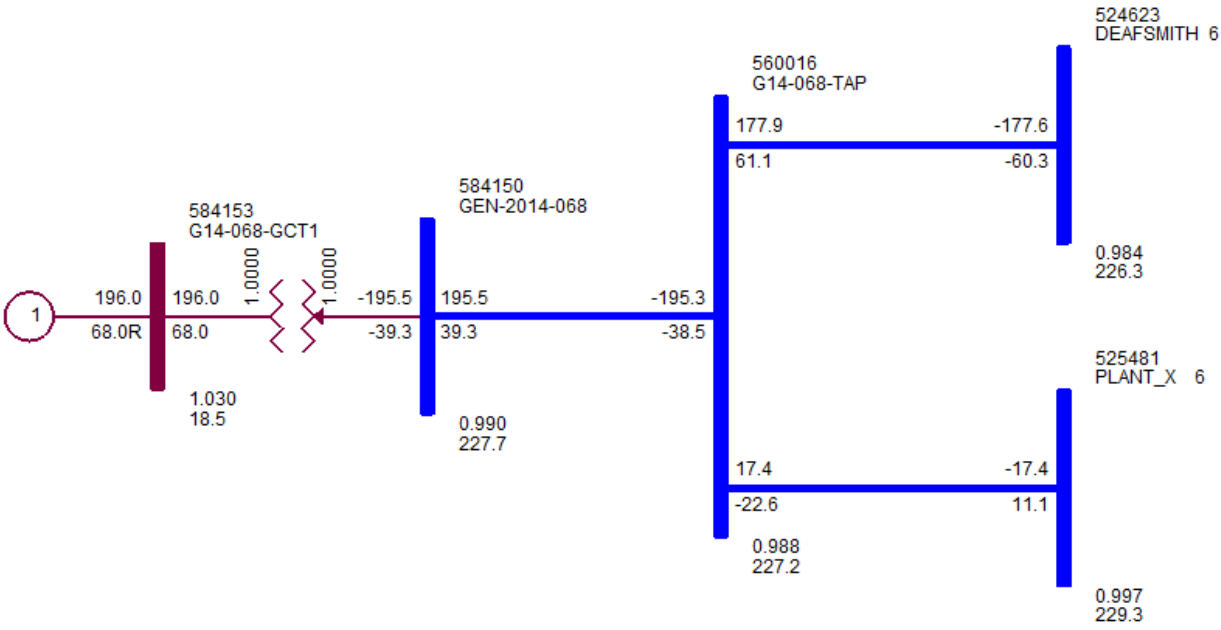


Figure 3-4: GEN-2014-068 One-Line Diagram

The following is the detailed description of the Group 5 wind and gas turbine projects.

GEN-2014-040

- Wind Turbine
  - GE 1.79 MW turbines (195 x 1.79 MW)
  - Power Output: 349 MW total at generation buses (173.6 MW at bus 1, 175.4 MW at bus 2)
  - Power factor: 95% lagging, 95% leading at the generator bus

- Interconnection
  - Voltage: 115 kV
  - Location: Castro County 115 kV Substation (SWPS)
  - Generator-to-Collector step up transformer #1 (Aggregated):
    - MVA for Trf. #1: Rate A – 183.3 MW. Rate B – 183.3 MW. Rate C – 183.3 MW
    - MVA for Trf. #2: Rate A – 185.2 MW. Rate B – 185.2 MW. Rate C – 185.2 MW
    - X: 5.7% using above Rate A as base
    - X/R = 7.5
  - 34.5 kV Collector Line Parameters:
    - Line 1: R = 0.005050, X = 0.005540, Bc = 0.070650 (per unit on 100 MVA base)
    - Line 2: R = 0.006630, X = 0.008480, Bc=0.093790 (per unit on 100 MVA base)
  - 34.5 kV to 115 kV collector step up transformers:
    - MVA for both transformers: Rate A – 200 MW. Rate B – 200 MW. Rate C – 200 MW
    - X: 9% on 100 MVA base
    - X/R = 29.03
  - 115 kV line from collector step up transformer:
    - R = 0.007282, X = 0.023521, Bc = 0.002895 (per unit on 100 MVA base)
    - 4 miles

GEN-2014-067

- Combined Cycle Gas Turbine
  - GE 7FA natural gas turbine & GE 7FH2 steam turbine
  - Summer power output: 339 MW (196 MW at the gas turbine & 143 MW at the steam turbine)
  - Winter power output: 356 MW (203 MW at the gas turbine & 153 MW at the steam turbine)
  - Power factor: 0.85 lagging, 0.95 leading at the generator bus

- Interconnection

- Voltage: 230 kV
- Location: Tap Potter County-Newhart 230 kV line
- Generator Step-Up Transformer Parameters for Combustion Turbine
  - MVA: Rate A – 263 MW. Rate B – 263 MW. Rate C – 263 MW
  - X: 9.999% on 263 MW base
  - X/R = 59.87
- Generator Step-Up Transformer Parameters for Steam Turbine
  - MVA: Rate A – 179 MW. Rate B – 179 MW. Rate C – 179 MW
  - X: 9.498% on 263 MW base
  - X/R = 47.92
- 230 kV line from generator step-up transformers to interconnection tap on Potter County-Newhart 230 kV
  - R = 0.003560, X = 0.023690, Bc = 0.046820 (pu on 100 MVA base)
  - 16.13 miles

GEN-2014-068

- Combustion turbine
  - GE 7FA natural gas turbine
  - Summer power output: 196 MW
  - Winter power output: 203 MW
  - Power factor: 0.85 lagging, 0.95 leading at the generator bus

- Interconnection
  - Voltage: 230 kV
  - Location: Tap Deaf Smith-Plant X 230 kV line
  - Generation Step-Up Transformer Parameters
    - MVA: Rate A – 263 MVA. Rate B – 263 MVA. Rate C – 263 MVA.
    - X: 9.999% on 263 MVA base
    - X/R = 59.87
  - 230 kV line from Generator Step-Up transformer to interconnection tap on Deaf Smith-Plant X 230 kV
    - R = 0.000510, X = 0.003420, Bc = 0.006760 (pu on 100 MVA base)
    - 2.33 miles

4. POWER FACTOR RESULTS

Following in Table 4-1 are the VAR injections and power factors as measured at the 115 kV POI associated with the above 333.5 MW (Summer and Winter 2015) or 333.4 MW (Summer 2014) real

power injection at the POI. Blue highlighting indicates the most leading power factor (larger positive numbers for VARs and power factor), and yellow highlighting indicates the least leading power factor (smaller positive numbers for VARs and power factor.) That is, positive numbers imply a VAR draw from the 115 kV POI.

Key findings of the power factor analysis are:

- The unloaded collector system injects 17.3 MVAR (Winter 2015), 17.0 MVAR (Summer 2015) and 16.9 MVAR (Summer 2025) into the POI. The following table assumes the collector is disconnected.

- To maintain POI voltage at the pre-fault level for all studied faults requires a power factor range of **0.9998 leading to 0.9739 leading as measured at the POI**, the former for FLT04 in the Summer 2024 case and the latter for FLT22 in the Winter 2015 case.

- Transformer tap changing is needed to avoid overvoltage on the generator and collector system in certain situations where the fault increases reactive demand if the GEN-2014-040 reactive capability is used to regulate POI voltage.

- The interconnection customer, GEN-2014-040, will be required to maintain the standard pro-forma power factor requirement of 0.95 leading (absorbing) to 0.95 lagging (supplying) at the point of interconnection. This may require capacitor banks or other reactive compensation, depending on the customer's detailed design of the collector and lead line system.

- The Summer 2015 case did not have the lines faulted in FLT10, FLT13 and FLT19, so those faults were not simulated for the power factor analysis for Summer 2015. The Winter 2015 case did not have the line faulted in FLT13, so that fault was not simulated for the Winter 2015 power factor analysis.

Table 4-1: Power factor analysis results at GEN-2014-040 POI (Positive numbers imply leading/VAR draw from POI)

	MVAR			POWER FACTOR		
FAULT	SUM15	WIN15	SUM25	SUM15	WIN15	SUM25
BASE CASE	65.9	74.7	41.8	0.981	0.9758	0.9922
FLT01-3PH	37.4	47	17	0.9938	0.9902	0.9987
FLT02-3PH	60	65.5	51.5	0.9842	0.9813	0.9883
FLT03-3PH	54	59.9	17.6	0.9871	0.9843	0.9986
FLT04-3PH	30.1	46.2	5.9	0.996	0.9905	0.9998

	MVAR			POWER FACTOR		
FAULT	SUM15	WIN15	SUM25	SUM15	WIN15	SUM25
FLT05-3PH	65.7	74.5	40.4	0.9811	0.9759	0.9927
FLT06-3PH	67.1	77.5	40.9	0.9804	0.974	0.9926
FLT07-3PH	65.8	74.5	40.6	0.9811	0.9759	0.9927
FLT08-3PH	64	74.6	37.4	0.9821	0.9759	0.9938
FLT09-3PH	31.1	63	13.4	0.9957	0.9826	0.9992
FLT10-3PH	n/a	75	39.8	n/a	0.9756	0.993
FLT11-3PH	61.6	74.5	36.9	0.9834	0.9759	0.9939
FLT12-3PH	64.5	73.8	39.6	0.9818	0.9764	0.993
FLT13-3PH	n/a	n/a	40.4	n/a	n/a	0.9927
FLT14-3PH	67.4	73.1	46.3	0.9802	0.9768	0.9905
FLT15-3PH	62.9	71.1	41.5	0.9827	0.978	0.9923
FLT16-3PH	62.5	72.9	38.1	0.9829	0.9769	0.9935
FLT17-3PH	62.2	69	32	0.983	0.9793	0.9954
FLT18-3PH	66	74	40.3	0.981	0.9763	0.9928
FLT19-3PH	n/a	74.3	41.6	n/a	0.9761	0.9923
FLT20-3PH	65.5	75	40.8	0.9813	0.9756	0.9926
FLT21-3PH	66.1	75.7	41.4	0.9809	0.9752	0.9924
FLT22-3PH	64.3	77.7	40	0.9819	0.9739	0.9929
FLT23-3PH	65.2	70.9	39.7	0.9814	0.9781	0.993
FLT24-3PH	65.6	73	40	0.9812	0.9769	0.9929
FLT25-3PH	65.7	74.8	40.4	0.9811	0.9758	0.9927
FLT26-3PH	65.9	74.9	41.1	0.981	0.9757	0.9925
FLT27-3PH	65.1	70.2	35.6	0.9815	0.9786	0.9944
FLT28-3PH	64.2	73.4	37.5	0.982	0.9766	0.9937
FLT29-3PH	65.9	71.6	40.7	0.981	0.9777	0.9926
FLT30-3PH	65.9	71.4	40.7	0.981	0.9778	0.9926
FLT31-3PH	65.5	77.3	39.4	0.9813	0.9742	0.9931
FLT32-3PH	39	67.5	29.7	0.9932	0.9801	0.9961
FLT33-3PH	62.9	69.7	37.9	0.9827	0.9789	0.9936
FLT34-3PH	60.7	71	37.6	0.9838	0.9781	0.9937
FLT35-3PH	53.7	69.9	27.1	0.9873	0.9787	0.9967
FLT36-3PH	64.3	74.4	34.4	0.9819	0.976	0.9947
FLT37-3PH	65.9	74.7	40.8	0.981	0.9758	0.9926

	MVAR			POWER FACTOR		
FAULT	SUM15	WIN15	SUM25	SUM15	WIN15	SUM25
FLT38-3PH	58.1	65.4	48.1	0.9852	0.9813	0.9898
FLT39-3PH	52.1	59.8	13.8	0.988	0.9843	0.9991
FLT40-SB	29.8	35	16.9	0.996	0.9945	0.9987

To regulate the POI voltage to pre-contingency levels in the study cases, the most lagging/least leading scenario (FLT04-3PH, Summer 2025), requires the GEN-2014-040 to supply 349 MW and 63.6 MVAR at the generator buses (0.9838 lagging power factor), which is well within the ± 0.95 power factor capabilities of the turbines. However, if the GEN-2014-040 transformer taps are set at unity, the generator bus voltage reaches 1.0729 pu (G14-040-GEN2) or 1.0684 pu (G14-040-GEN1) when regulating the POI voltage for FLT04-3PH. Therefore, tap ratios would need to be adjusted on the 115 kV side of the 34.5/161 kV transformers at GEN-2014-040 to provide the needed reactive output for FLT04-3PH without causing overvoltages at the generator and collector if the wind turbine reactive capability is to be used to regulate the POI voltage.

For the most leading scenario (FLT22, Winter 2015), GEN-2014-040 must supply -4.4 MVAR at the generator buses (0.9999 leading power factor). With a unity tap ratio, the generator bus voltages reach 1.0296 (G14-040-GEN2) and 1.0260 (G14-040-GEN1) post-fault.

The pro-forma tariff requires a ±0.95 power factor at the POI. It will be up to the interconnection customer to meet this power factor requirement with their detailed design of the collector and lead line system, and this design may include capacitor banks or other forms of reactive compensation if needed.

5. TRANSIENT STABILITY RESULTS

Dynamic simulations were performed using each fault noted in Table 2-4. Fault clearing times were 5 cycles for all faults. If reclosing occurred, faulted transmission lines were reclosed into the fault 20 cycles after the initial clearing, then cleared and locked out after one more 5 cycle interval. Faulted transformers were not reclosed.

The proposed projects (GEN-2014-040 wind project, GEN-2014-067 combined cycle gas turbine, and GEN-2014-068 gas combustion turbine) and all other generator units in the monitored areas remained stable and did not trip off line under any of the faults simulated in all three seasonal cases. All faults were stable and adequately damped.

However, in two of the study cases (2015 Summer Peak with GEN-2014-067 only, and 2015 Winter Peak with GEN-2014-068 only), the out-of-step relay (SLNOS1 model) trips the SPS-AEPW Wheeler-Sweetwater 230 kV line for 230 kV faults at Potter County. Specifically, the 230 kV line between buses 523779 (STLN-DEMARC6) and 511541 (SWEETWT6) trips for the following faults:

- FLT18 (Potter County-Moore County 230 kV)
- FLT20 (Potter County-Harrington East 230 kV), and
- FLT21 (Potter County-Rolling Hills 230 kV).

This tripping does not occur in the cluster study case—only in the individual study cases noted above. In addition, this line tripping does not cause any generators to trip offline, nor does it drop any load.

6. ROTOR ANGLE DAMPING AND VOLTAGE RECOVERY REQUIREMENT

The GE model does not output meaningful rotor angles as it is an asynchronous machine. Therefore, electrical power output (PELEC) was used as a substitute measurement. Rotor angular damping and voltage recovery as determined via dynamic simulation were checked against all contingencies. Electrical power output plots (as a stand-in for rotor angle) for GEN-2014-040 are provided in Appendix 2 (cluster study)/Appendix 8 (individual study) and POI voltage recovery plots for GEN-2014-040 are provided in Appendix 3 (cluster study)/Appendix 9 (individual study). Plots in these Appendices are labelled with suffixes to indicate the conditions studied: W15 for 2015 Winter conditions, S15 for 2015 Spring conditions, and S25 for 2025 Summer conditions

SPP's Rotor Angle Damping Requirements are shown in Appendix 1. Using electrical power output as a proxy for rotor angle, GEN-2014-040 meets the Rotor Angle Damping Requirements.

The electric power output was treated as the sum of the steady-state value (1.7363 pu/173.63 MW for generator bus 1 and 1.7542 pu/175.42 MW for generator bus 2), and the oscillatory component. By visual inspection, the worst-case fault for GEN-2014-040 from an oscillatory standpoint was FLT09 (BC Earth-Plant X 115 kV line.) The least-damped case for this fault was the Winter 2015 case with only GEN-2014-040 online. In this case, the first peak in PELEC was 0.4942 pu (G2) or 0.4669 pu (G1). For both G1 & G2, the second peak undershoots the steady-state value by approximately 0.02 pu, and the electric power output reaches steady state where the third peak would be. The Rotor Angle Damping Requirements require that the second peak must be no more than 95% of the first peak or the fifth peak must be no more than 77.4% of the first peak. The second peak is approximately 4% of the first peak and

there is no fifth peak. Therefore, if PELEC is used as a proxy for rotor angle, GEN-2014-040 meets the Rotor Angle Damping Requirement whether the second or the fifth peak is used as the basis.

Following is a plot of the electrical power output of GEN-2014-040 with the oscillatory portion zoomed in (i.e. PELEC on a scale of 0.5 to 3.0 pu) and the rotor angle test applied to the oscillatory portion of the electrical power output.

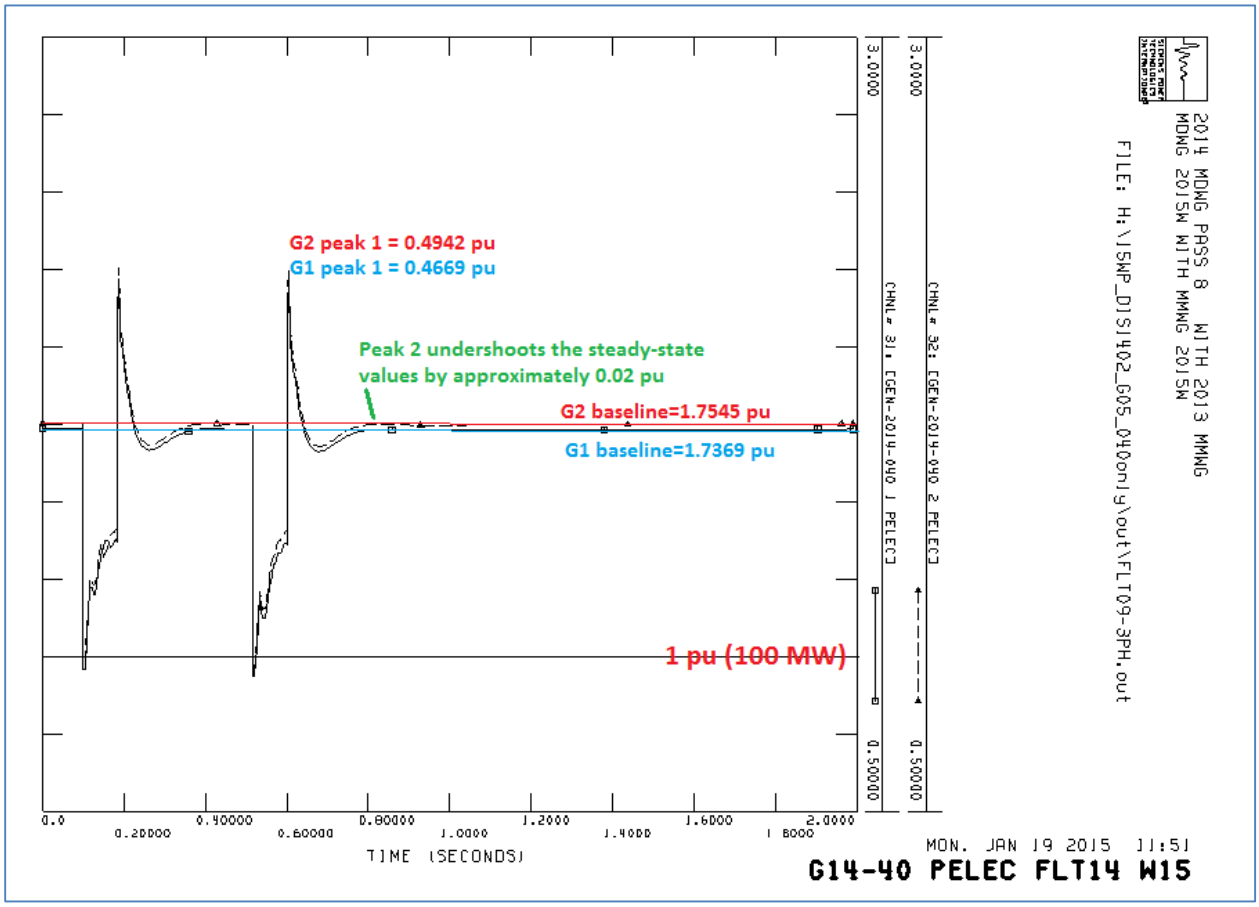


Figure 6-1: GEN-2014-040 oscillatory portion of real power output, FLT40, Winter 2015 with GEN-2014-040 as the only study unit online

For GEN-2014-067, the worst-case fault from a rotor angle standpoint was FLT17 (GEN-2014-067 POI – Newhart 230 kV), in the 2014 Winter case with only GEN-2014-067. For GEN-2014-067, the steam turbine is slightly more oscillatory than the combustion turbine, but even the steam turbine easily passes the Rotor Angle Damping Requirement. For the steam turbine, the second peak is 19.9% of the first peak, and the fifth peak is 13.4% of the first peak, and the rotor angle settles to steady-state within

approximately 12 seconds. For the combustion turbine, the second peak is 8.1% of the first peak, the fifth peak is 7.6% of the first peak, and the rotor angle settles to steady-state within approximately 10 seconds.

Complete sets of rotor angle plots for GEN-2014-067 are in Appendix 4 (cluster) and Appendix 10 (individual), and the GEN-2014-067 POI voltage recovery plots are in Appendix 5 (cluster) and Appendix 11 (individual).

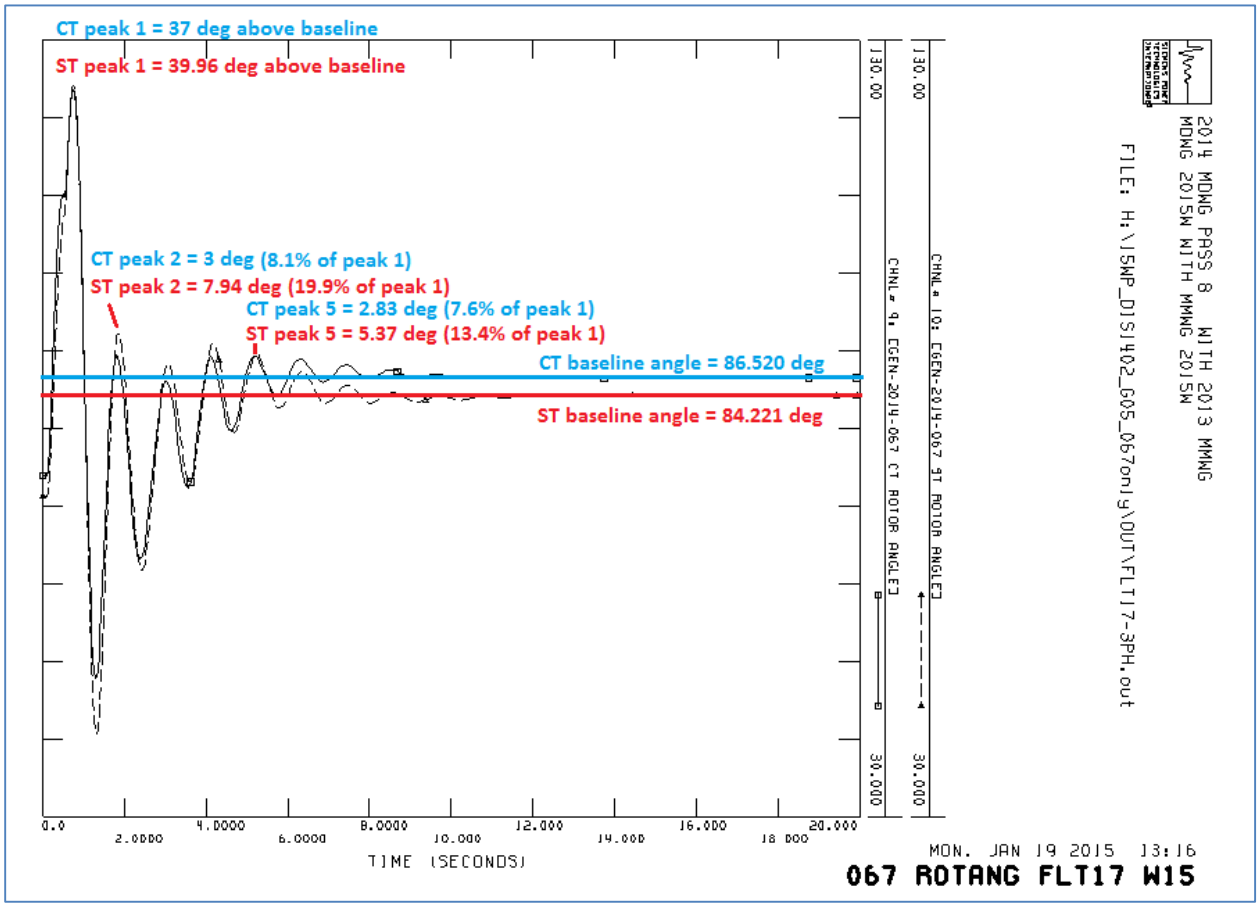


Figure 6-2: GEN-2014-067 rotor angle, FLT17, Winter 2015 with GEN-2014-067 as the only study unit online

For GEN-2014-068, the worst-case fault from a rotor angle standpoint is FLT33 (GEN-2014-068—Plant X 230 kV line) on the 2025 summer peak case with all study units online. This unit also easily passes the Rotor Angle Damping Requirement. The second peak is 58.1% of the first peak, and there is no fifth positive peak (the third peak is 5.0% of the first peak and the rotor angle settles to steady state at approximately 14 seconds.)

Complete sets of rotor angle plots for GEN-2014-068 are in Appendix 6 (cluster) and Appendix 12 (individual), and the GEN-2014-068 POI voltage recovery plots are in Appendix 7 (cluster) and Appendix 13 (individual).

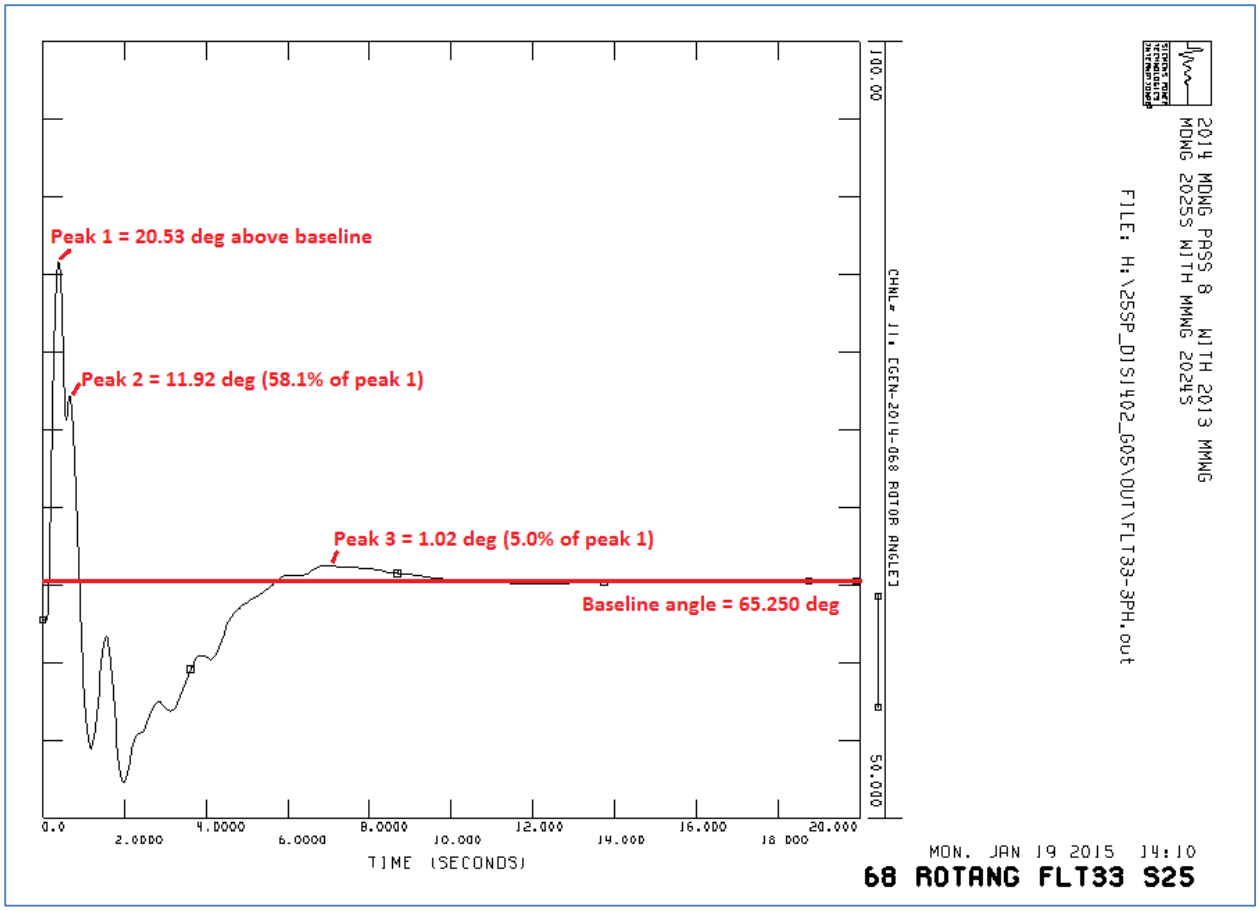


Figure 6-3: GEN-2014-068 rotor angle, FLT33, Summer 2025 with all study units online

If the voltage recovers post-fault to a steady-state level consistent with the steady-state simulation, the generator interconnection is considered stable from a voltage standpoint. The POI voltages were determined via dynamic simulations and AC contingency analysis. Due to generation being converted in the dynamics cases and due to dynamic effects not captured in AC contingency analysis, minor differences in voltages are to be expected between dynamic and steady-state simulations. However, all POI voltages calculated via dynamic simulation were reasonably close to the POI voltages calculated via

AC contingency analysis. The largest difference between dynamic and AC contingency analysis POI voltages was 0.0156 pu for FLT40-3PH for the Winter 2015 case.

The following table shows all POI voltages for all tested contingencies, as determined by dynamic simulation and AC contingency analysis. Yellow highlighting indicates the highest voltage for a given scenario, and blue highlighting indicates the lowest voltage for a given scenario. The highest post-fault steady-state voltage was 1.0125 for FLT22 in the Winter 2015 case as determined via AC contingency analysis (0.0011 pu rise above base case), and the lowest post-fault steady-state voltage was 0.9724 for FLT40 in the Winter 2015 case as determined by dynamic simulation (0.039 pu fall below base case).

Following are the post-fault voltages for all simulated faults using both methods (dynamic simulation and AC contingency analysis) for all 3 study cases. All post-fault voltages were between 0.9724-1.0125 pu.

Table 6-1: GEN-2014-040 115 kV POI voltage recovery

Fault	By Dynamic Simulation			By AC Contingency Analysis		
	WIN15	SUM15	SUM25	WIN15	SUM15	SUM25
BASE CASE	1.0114	1.0040	0.9936	1.0114	1.0041	0.9936
FLT01-3PH	0.9977	0.9916	0.9819	0.9994	0.9928	0.9827
FLT02-3PH	1.0057	1.0013	0.9957	1.0074	1.0016	0.9961
FLT03-3PH	1.0038	0.9979	0.9812	1.0042	0.9987	0.9819
FLT04-3PH	0.9974	0.9889	0.9778	0.9991	0.99	0.9784
FLT05-3PH	1.0092*	1.0049*	0.9933	1.0113	1.004	0.9935
FLT06-3PH	1.0101*	1.0062*	0.9941	1.0124	1.0045	0.9944
FLT07-3PH	1.0092*	1.0050*	0.9933	1.0113	1.0041	0.9935
FLT08-3PH	1.0112	1.0033	0.9924	1.0113	1.0035	0.9924
FLT09-3PH	1.0047	0.9901	0.9811	1.0064	0.9898	0.981
FLT10-3PH	1.0099*	n/a	0.9941*	1.0115	n/a	0.9933
FLT11-3PH	1.0091*	1.0042*	0.9931*	1.0113	1.0027	0.9923
FLT12-3PH	1.0088*	1.0046*	0.9936*	1.0111	1.0036	0.9932
FLT13-3PH	n/a	n/a	0.9934	n/a	n/a	0.9935
FLT14-3PH	1.0104	1.0040	0.9946	1.0109	1.0046	0.9954
FLT15-3PH	1.0098	1.0027	0.9934	1.0102	1.0032	0.9938
FLT16-3PH	1.0102	1.0022	0.9923	1.0108	1.003	0.9927
FLT17-3PH	1.0088	1.0023	0.9899	1.0094	1.0029	0.9908
FLT18-3PH	1.0106	1.0036	0.9931	1.0111	1.0041	0.9935
FLT19-3PH	1.0108	n/a	0.9932	1.0113	n/a	0.9935
FLT20-3PH	1.0111	1.0037	0.9934	1.0115	1.004	0.9936

Fault	By Dynamic Simulation			By AC Contingency Analysis		
	WIN15	SUM15	SUM25	WIN15	SUM15	SUM25
FLT21-3PH	1.0113	1.0038	0.9935	1.0118	1.0042	0.9938
FLT22-3PH	1.0114	1.0032	0.9930	1.0125	1.0036	0.9933
FLT23-3PH	1.0088	1.0027	0.9927	1.0101	1.0039	0.9932
FLT24-3PH	1.0099	1.0032	0.9928	1.0108	1.004	0.9934
FLT25-3PH	1.0106	1.0037	0.9932	1.004	1.004	0.9935
FLT26-3PH	1.0091*	1.0048*	0.9932	1.0114	1.0041	0.9936
FLT27-3PH	1.0077*	1.0046*	0.9916	1.0098	1.0038	0.9918
FLT28-3PH	1.0089*	1.0029	0.9919	1.0109	1.0035	0.9925
FLT29-3PH	1.0083*	1.0043 *	0.9938*	1.0103	1.0041	0.9936
FLT30-3PH	1.0082*	1.0042 *	0.9938*	1.0102	1.0041	0.9936
FLT31-3PH	1.0098*	1.0050*	0.9937*	1.0123	1.004	0.9932
FLT32-3PH	1.0063*	0.9956*	0.9898	1.0089	0.9952	0.99
FLT33-3PH	1.0062*	1.0041*	0.9922	1.0085	1.0031	0.9927
FLT34-3PH	1.0079*	1.0032*	0.9922	1.0101	1.0024	0.9926
FLT35-3PH	1.0077*	1.0012*	0.9883	1.0097	1.0001	0.9902
FLT36-3PH	1.0092*	1.0045*	0.9912	1.0112	1.0035	0.9914
FLT37-3PH	1.0067*	1.0027*	0.9939*	1.0088	1.0046	0.9937
FLT38-SB	1.0054	1.0020	0.9941	1.0074	1.0008	0.9947
FLT39-SB	1.0034	0.9968	0.9794	1.0041	0.9979	0.9802
FLT40-3PH	0.9724	0.9808	0.9726	0.988	0.9839	0.9745

Several of the post-fault voltages above are asterisked (*). The * indicates that post-fault oscillation on the order of 0.003-0.004 pu was noted in the steady state at a frequency of approximately 8 Hz. This oscillation occurred with all of the study units online, with a single study unit online, and with no study units online. Therefore, it does not appear to be caused by the wind farm or turbines in GEN-2014-002 Group 5. Please refer to Figure 6-4: as an example of the oscillation that was observed regardless of the status of the study units. This example is for FLT05 on the Winter 2014 case.

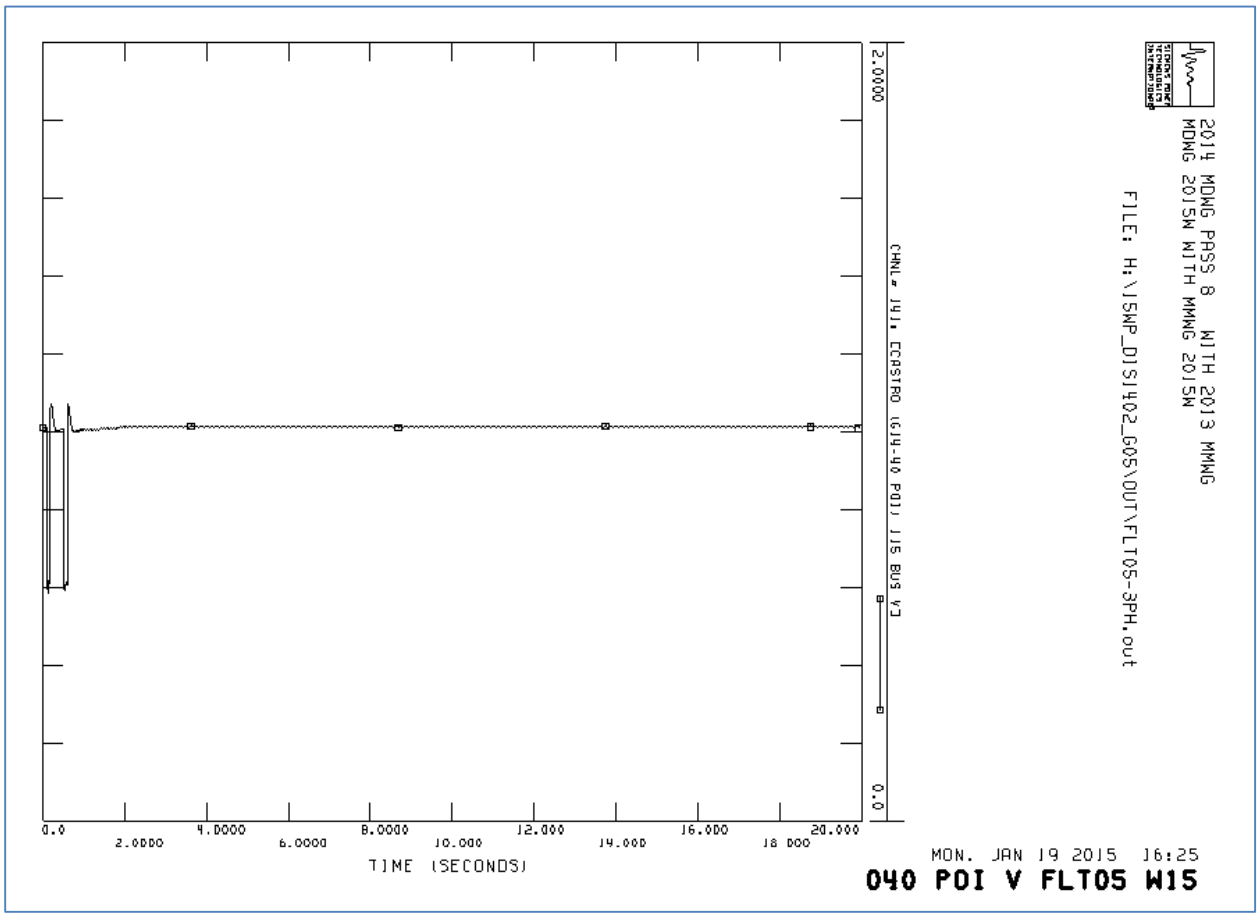


Figure 6-4: Example of post-fault oscillation observed on GEN-2014-040 POI with or without the study projects

For GEN-2014-040, the worst-case fault from a standpoint of a POI transient is FLT40 (Prior outage of Castro County-Newhart 115 kV, then fault Castro County-BC Earth 115 kV.). That fault meets the 0.7-1.2 pu Transient Voltage Recovery Requirement. In the worst-case scenario (Winter 2015 case with GEN-2014-040 only), the peak transient voltage of the POI is 1.1570 pu at 0.0167 seconds (1 cycle) after fault is cleared and locked out.

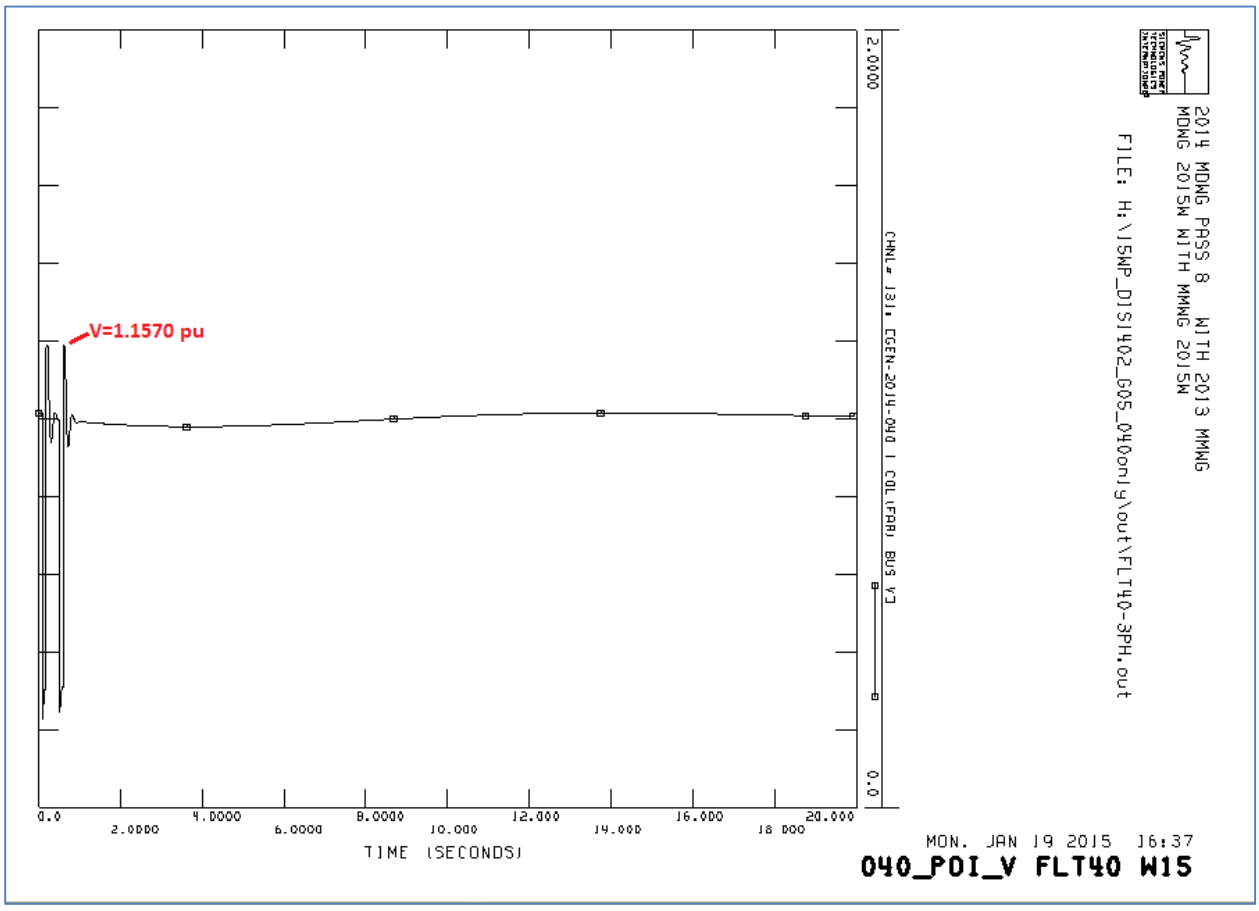


Figure 6-5: Worst-case GEN-2014-040 POI transient (FLT40, Winter 2015 case, GEN-2014-040 only online)

For GEN-2014-067, the worst transient response observed at the POI was FLT17 (GEN-2014-067 POI—Newhart 230 kV) in the Winter 2015 case with GEN-2014-067 as the only study unit online. In this case, the GEN-2014-067 POI voltage reaches a transient peak of 1.0777 pu approximately 32 cycles after the fault is cleared. This is well within the 0.7-1.2 pu limits in the Transient Voltage Recovery Requirement.

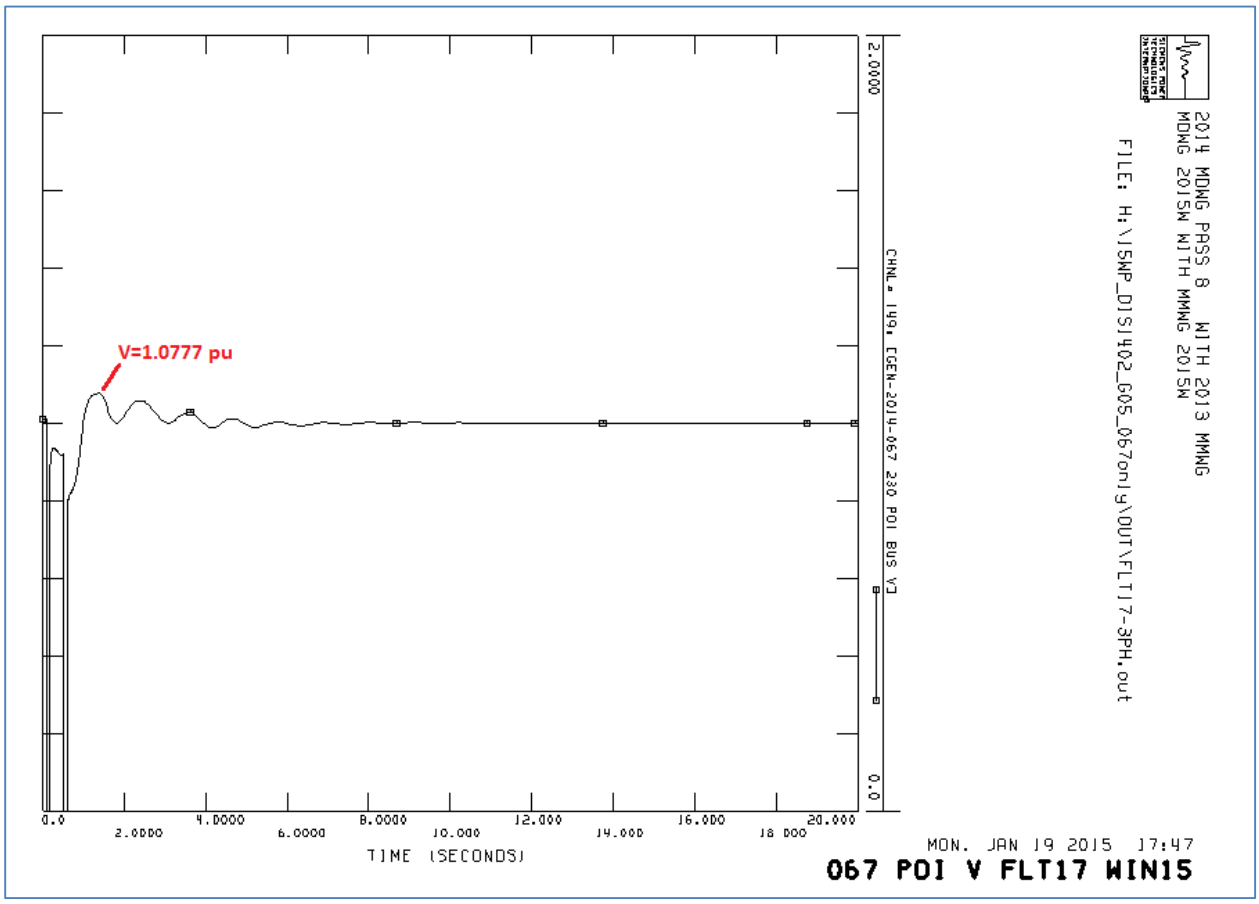


Figure 6-6: Worst-case GEN-2014-067 POI transient (FLT17, Winter 2015 case, GEN-2014-067 only online)

For GEN-2014-068, the worst-case transient voltage occurs for FLT32 (GEN-2014-068 POI—Deaf Smith 230 kV) for the Winter 2015 case, with GEN-2014-068 as the only online study unit. The POI voltage hits a peak of 1.0584 pu at 2.07 seconds, but this is well below the 1.2 pu upper limit allowed in the Transient Voltage Recovery Requirement.

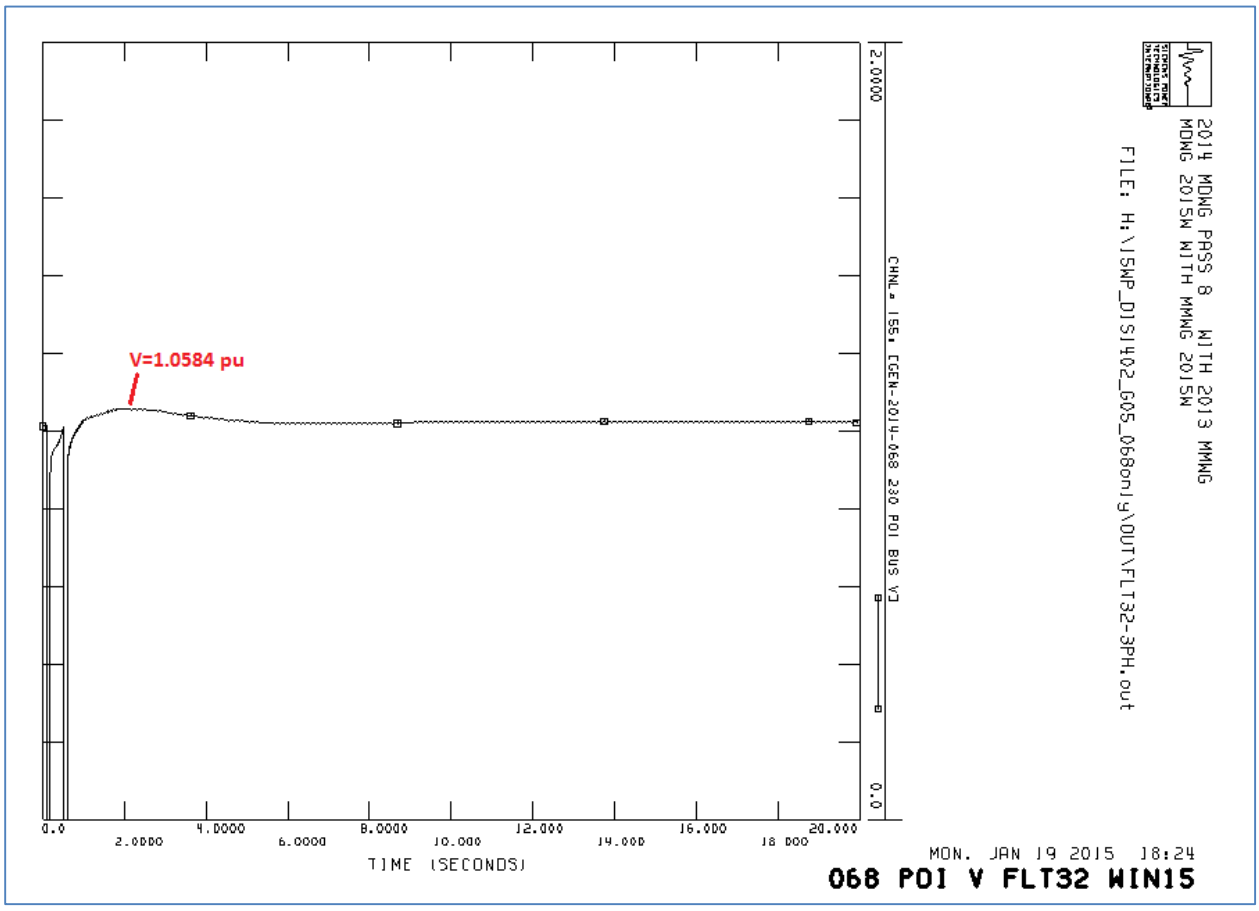


Figure 6-7: Worst-case GEN-2014-068 POI transient (FLT32, Winter 2015 case, GEN-2014-068 only online)

None of the generators tripped offline for voltage related reasons or for any other reason. In particular, GEN-2014-040 did not trip offline for voltage-related reasons. Therefore, for the tested faults, low-voltage ride through (LVRT) is met.

In all instances, the GEN-2014-040 wind farm was able to regulate its generator buses to the scheduled voltage of 1.03 in the steady state. The worst-case transients for generation voltage at the GEN-2014-040 wind farm occurred for fault FLT40 in the Winter 2015 case.

Figure 6-8 is a plot of the generator bus voltage for this worst-case fault FLT40 in the Winter 2014 case on a 1-second scale to highlight the durations of the voltage transients. There were 2 low voltage transients each lasting 0.083 seconds in which the generator voltage was between 0.3 and 0.4 pu, and 2 high voltage transients each lasting 0.046 seconds in which the generator voltage was between 1.19-1.20 pu. These voltages were within the GEN-2014-040 ride through capabilities.

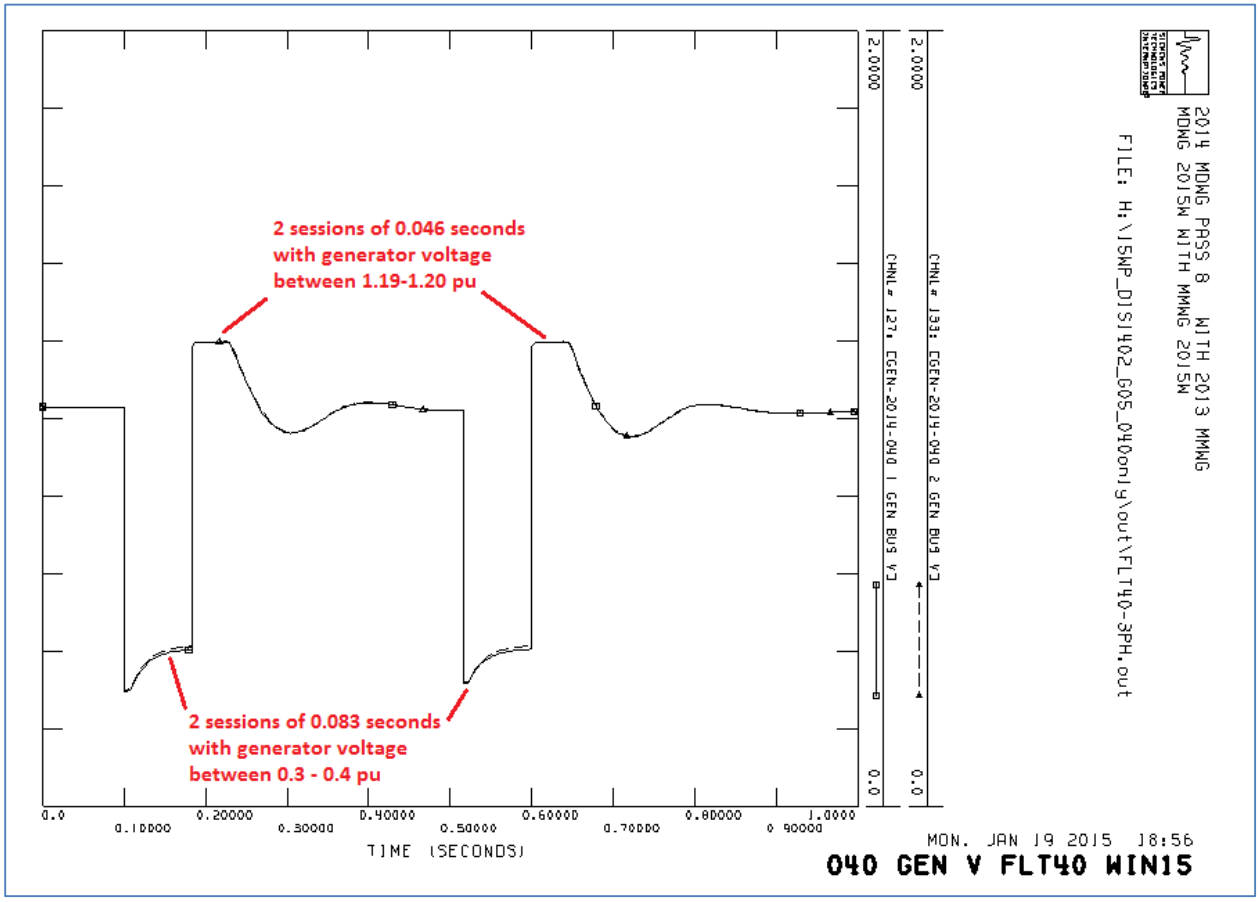


Figure 6-8: GEN-2014-040 Generator bus voltage for fault FLT40, Winter 2014 case with GEN-2014-040 only.

7. FAULT CURRENT ANALYSIS

A fault current study was performed on all transmission buses 5 buses away from the Point Of Interconnection buses for all 3 study projects. The 2025 Summer Peak power flow model was exported to ASPEN. Because sequence data was not furnished, only balanced 3φ faults were simulated. Moreover, all faults were assumed to be of negligible impedance.

The resulting fault currents are noted below. The highest fault currents, in the 30,000-33,000 A range, are at Tolk and Plant X 230 kV and Asarco 115 kV.

Table 7-1: Fault Currents

Bus No	Bus Name	kV	Fault Current
511456	O.K.U.-7	345	4801
522800	MU-TULIA 3	115	5181
522823	LP-MILWAKEE6	230	13571
522861	LP-SOUTHEST6	230	17135
522870	LP-HOLLY 6	230	16815
523090	TEXAS_CNTY 3	115	8534
523093	HITCHLAND 3	115	18484
523095	HITCHLAND 6	230	15072
523097	HITCHLAND 7	345	16442
523101	NOBLE_WND 7	345	16368
523101	NOBLE_WND 7	345	16122
523112	NOVUS1 7	345	5827
523154	OCHILTREE 3	115	4335
523155	OCHILTREE 6	230	6700
523160	FRISCO_WND 3	115	7638
523174	GOODWELLWND3	115	5654
523175	LASLEY 3	115	5613
523177	RB-SPURLOCK3	115	9237
523186	SPEARMAN 3	115	10444
523195	HANSFORD 3	115	3630
523216	RB-HOGUE 3	115	3743
523220	XIT_INTG 3	115	2656
523221	XIT_INTG 6	230	4693
523228	DALLAM 3	115	4058
523240	RB-EXUM 3	115	4512
523246	DALHART 3	115	5198
523256	ETTER 3	115	11015

Bus No	Bus Name	kV	Fault Current
523266	PRINGLE 3	115	4632
523267	PRINGLE 6	230	7671
523270	ASGI-GEN0757	115	9676
523277	VALERO 3	115	10621
523304	MOORE_W 3	115	10629
523308	MOORE_E 3	115	6807
523309	MOORE_CNTY 6	230	8348
523315	RB-S&S 3	115	5307
523339	FAIN 3	115	6672
523366	RB-SNEED 3	115	13468
523377	RIVERVIEW 3	115	9788
523410	CRMWA_#4 3	115	11798
523478	Q_RYTON_TP 3	115	7687
523551	HUTCHISON 6	230	5624
523771	GRAPEVINE 6	230	5404
523817	MIDSTRM_TP 3	115	12933
523853	FINNEY 7	345	3881
523869	CHAN/TASCOS6	230	21828
523959	POTTER_CO 6	230	7954
523961	POTTER_CO 7	345	27498
523977	HARRNG_WST 6	230	27542
523978	HARRNG_MID 6	230	27403
523979	HARRNG_EST 6	230	19729
524007	ROLLHILLS 3	115	18851
524009	CHERRY 3	115	20343
524010	ROLLHILLS 6	230	26904
524016	ASARCO 3	115	29248
524018	ASARCO_TP 3	115	31340
524043	NICHOLS 3	115	26711
524044	NICHOLS 6	230	22276
524058	WHITAKER 3	115	5060
524079	CONWAY 3	115	16368
524105	NORTHWEST 2	69	6227
524106	NORTHWEST 3	115	11732
524124	BUSH 3	115	7260
524136	HASTINGS 3	115	13865

Bus No	Bus Name	kV	Fault Current
524162	EAST_PLANT 3	115	23306
524163	EAST_PLANT 6	230	14347
524249	SUNSET 3	115	12022
524266	BUSHLAND 3	115	9347
524267	BUSHLAND 6	230	10464
524276	WILDOR_WND 6	230	7084
524290	WILDOR2_JUS6	230	7084
524296	SPNSPUR_WND7	345	4800
524300	HILLSIDE 3	115	12961
524306	COULTER 3	115	15886
524364	RANDALL 3	115	21111
524365	RANDALL 6	230	14932
524377	FARMERS 3	115	15595
524397	ARROWHEAD 3	115	13827
524404	OWENSCORN 3	115	15280
524414	AMA_SOUTH 3	115	17067
524415	AMA_SOUTH 6	230	14003
524516	CANYON_WEST3	115	4927
524530	PALO_DURO 3	115	6629
524544	SPRING_DRW 3	115	6452
524554	CENTRE_ST 2	69	4047
524556	CENTRE_ST 3	115	6295
524561	DS-MTR 2	69	6828
524567	NE_HEREFORD3	115	10066
524573	NE_HEREFORD2	69	7654
524580	DS-#9 2	69	3427
524590	DAWN 3	115	5292
524597	PANDAHFD 3	115	8625
524605	HEREFORD 2	69	4637
524606	HEREFORD 3	115	11289
524622	DEAFSMITH 3	115	12602
524623	DEAFSMITH 6	230	10992
524629	DS-#6 3	115	6362
524633	DS-#4 2	69	3380
524655	FRIONA 3	115	4063
524681	DIMMIT_E&S 2	69	2856

Bus No	Bus Name	kV	Fault Current
524688	DS-#3 2	69	3021
524694	DS-#22 3	115	4895
524714	CASTRO_TP 2	69	3582
524721	DS-#15&#19 2	69	3750
524728	DS-CASTRO 2	69	4358
524734	DS-#21 3	115	10085
524745	CASTRO_CNTY2	69	8775
524746	CASTRO_CNTY3	115	10719
524768	PLSNT_HILL 3	115	9729
524770	PLSNT_HILL 6	230	5899
524822	CURRY 3	115	10427
524875	OASIS 6	230	7481
524908	ROOSEVELT 3	115	9770
524909	ROSEVELT_N 6	230	9037
524911	ROSEVELT_S 6	230	9027
524915	SW_4K33 6	230	9037
524924	PORTALES 3	115	7096
525018	EMULESH&VLY3	115	6089
525019	EMU&VLY_TP 3	115	6708
525027	BAILEYCO 2	69	5394
525028	BAILEYCO 3	115	6693
525040	BAILEY_PMP 3	115	5035
525056	BC-EARTH 3	115	9206
525116	DS-#12 2	69	2510
525124	HART_INDUST3	115	7779
525132	LC-N_OLTON 2	69	2987
525153	HAPPY_INT 2	69	3202
525154	HAPPY_INT 3	115	5522
525179	TULIA_TP 3	115	6433
525191	KRESS_INT 2	69	4083
525192	KRESS_INT 3	115	11227
525203	SW-KRESS 2	69	4081
525212	SWISHER 3	115	9987
525213	SWISHER 6	230	10768
525224	KRESS_RURL 2	69	2386
525225	KRESS_RURAL3	115	6329

Bus No	Bus Name	kV	Fault Current
525249	LH-PLW&FNY 2	69	1563
525257	N_PLAINVIEW 3	115	5222
525272	KISER 3	115	5235
525291	PLAINVW_TP 2	69	5961
525298	S_PLAINVEW 2	69	2569
525325	COX 5325	69	3022
525326	COX 3	115	6154
525404	LC-OLTON 2	69	4090
525413	LAMTON 2	69	4635
525414	LAMTON 3	115	8254
525432	SP-HALFWAY 2	69	5443
525440	LC-S_OLTON 3	115	7867
525453	HALE_CNTY 2	69	6315
525454	HALE_CNTY 3	115	10585
525460	NEWHART 3	115	15652
525461	NEWHART 6	230	12137
525480	PLANT_X 3	115	26791
525481	PLANT_X 6	230	32294
525524	TOLK_EAST 6	230	30603
525531	TOLK_WEST 6	230	30633
525543	TOLK_TAP 6	230	30641
525549	TOLK 7	345	7343
525608	NEW_AMHERST3	115	5408
525614	W_LITLFLDTP3	115	8223
525615	W_LITTLFLD 3	115	7684
525635	LAMB_CNTY 2	69	6146
525636	LAMB_CNTY 3	115	9612
525637	LAMB_CNTY 6	230	6137
525780	FLOYD_CNTY 3	115	6679
525816	TUCO_INT2 2	69	4380
525826	TUCO_INT 2	69	7781
525828	TUCO_INT 3	115	20318
525830	TUCO_INT 6	230	23996
525832	TUCO_INT 7	345	14018
525840	ANTELOPE_1 6	230	23794
526020	HOCKLEY 3	115	5617

Bus No	Bus Name	kV	Fault Current
526036	LC-OPDYKE 3	115	5794
526076	STANTON_W 3	115	9233
526160	CARLISLE 3	115	13154
526161	CARLISLE 6	230	14040
526268	LUBBCK_STH 3	115	19145
526269	LUBBCK_STH 6	230	19005
526298	LUBBCK_EST 3	115	14751
526299	LUBBCK_EST 6	230	13683
526337	JONES 6	230	20833
526361	COCHRAN 3	115	5814
526424	PACIFIC 3	115	8345
526434	SUNDOWN 3	115	9795
526435	SUNDOWN 6	230	11508
526445	AMOCO_TP 3	115	9301
526452	AMOCO_CRYO 3	115	6057
526460	AMOCO_SS 6	230	10078
526475	YUMA_INT 3	115	10785
526484	LG-LEVELAND3	115	8517
526524	WOLFFORTH 3	115	10956
526525	WOLFFORTH 6	230	14043
526677	GRASSLAND 6	230	6410
526736	TERRY_CNTY 3	115	10103
526934	YOAKUM 3	115	15555
526935	YOAKUM 6	230	18883
526936	YOAKUM_345	345	9529
527010	OXYBRU_TP 6	230	14842
527149	MUSTANG 6	230	17109
560007	G08-022-TAP	345	5665
560010	G14-037-TAP	345	16158
560011	G14-038T	345	10267
560015	G14-067-TAP	230	9462
560016	G14-068-TAP	230	10720
560018	G14-070-TAP	230	9631
562480	G13-027-TAP	230	10135
562487	G14_007-TAP	345	7104
576395	GEN-2010-014	345	11795

Bus No	Bus Name	kV	Fault Current
581148	GEN-2011-022	345	9564
583340	GEN-2012-020	230	9284
583840	GEN-2013-027	230	9073
584030	G14053&14054	230	8365
584140	GEN-2014-067	115	7266
584150	GEN-2014-068	230	9745
584220	GEN-2014-040	115	8067
584290	GEN-2014-038	345	9277
599955	PNM-DC6	230	8995

8. CONCLUSIONS

Based on the results of dynamic simulation studies, the following findings apply to Group 5, consisting of GEN-2014-040 (wind farm), GEN-2014-067 (combined cycle gas turbine), and GEN-2014-068 (gas combustion turbine):

- Some oscillation (8 Hz, 0.003-0.004 pu amplitude) was noted on the transmission POI buses for some of the studied faults, even without the units studied for Group 5.

- The Wheeler-Sweetwater 230 kV out-of-step relay trips for Potter County 230 kV faults for 2 of the studied cases (Summer 2015 with GEN-2014-067 only online, and Winter 2015 with GEN-2014-068 only online).

- GEN-2014-040 will be required to maintain the standard pro-forma power factor requirement of 0.95 leading (absorbing) to 0.95 lagging (supplying) at the point of interconnection. The need for capacitor banks or other forms of reactive compensation will be determined by the interconnection customer in their detailed design of the collector system and lead line. Transformer tap ratio changing at GEN-2014-040 may be required to avoid overvoltage on the generator and collector system in certain situations.

- The GEN-2014-040 wind farm was stable for all studied faults.

- GEN-2014-040 is capable of meeting LVRT requirements. GEN-2014-040 did not trip offline under any fault conditions.

- GEN-2014-040 meets the rotor angle damping requirement if electrical power output is used as a stand-in for rotor angle, because the GE wind turbine model does not give meaningful rotor angle output as it is an asynchronous machine.

- The GEN-2014-040 POI recovered to between 0.022 pu above and 0.039 pu below the pre-fault voltage following all studied fault disturbances.

- GEN-2014-067 and GEN-2017-068 are compliant with the rotor angle damping requirement and are also stable for all of the modeled disturbances.

- All generators in the monitored areas remain stable for all of the modeled disturbances.

APPENDIX 1

ROTOR ANGLE DAMPING REQUIREMENT

Machine Rotor Angles shall exhibit well damped angular oscillations [as defined below] and acceptable power swings following a disturbance on the Bulk Electric System for all NERC Category A, B and C events.

Well damped angular oscillations shall meet one of the following two requirements when calculated directly from the rotor angle:

1. Successive Positive Peak Ratio (SPPR) must be less than or equal to 0.95 where SPPR is calculated as follows:

$$SPPR = \frac{\text{Peak Rotor Angle of } 2^{nd} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.95$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 5%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

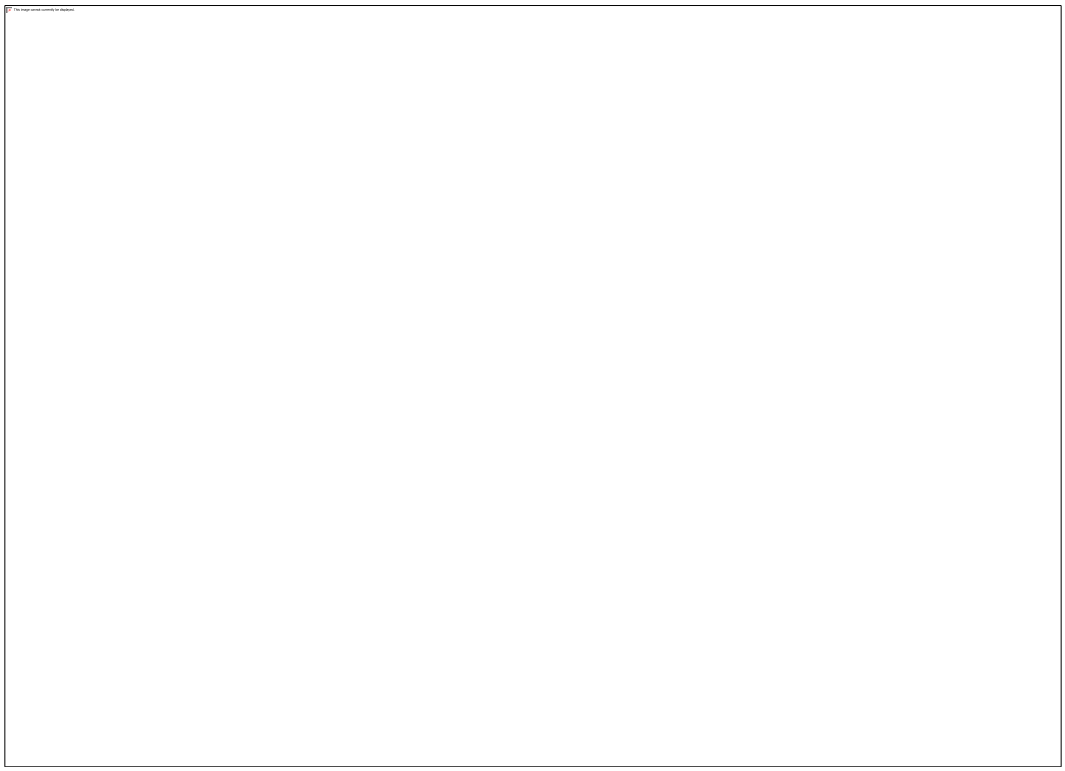
$$SPPR5 = \frac{\text{Peak Rotor Angle of } 5^{th} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.774$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 22.6%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

Qualitatively, these Requirements are shown in Figure 1 below.



Group 5
Impact Study Addendum
GEN-2014-040 Low Wind Analysis

DISIS 2014-002

January 2015
Generator Interconnection

SPP Southwest Power Pool

Low Wind Analysis

A low wind analysis has been performed for the GEN-2014-040 Interconnection Request. The large size of the GEN-2014-040 Interconnection Request (349MW) caused SPP to perform this analysis for excessive capacitive charging current even though the Interconnection Request is not located on a 230kV or 345kV system.

The project generators and capacitors (if any) were turned off in the base case (Figure 1). The resulting reactive power injection into the transmission network comes from the capacitance of the project's transmission lines and collector cables.

Shunt reactors were added at the study project substation 34.5 kV buses to bring the Mvar flow into the Castro County 115kV substation down to approximately zero (CASTRO_CNTY3 115kV in Figure 2). Final shunt reactor requirement for this project is approximately 16.5Mvars. The one-line diagram in Figure 2 shows actual Mvar output at the specific voltages in the base case. The results shown are for the 2015SP case. The other two cases (2015WP and 2025SP) were almost identical since the plant design is the same in all cases.

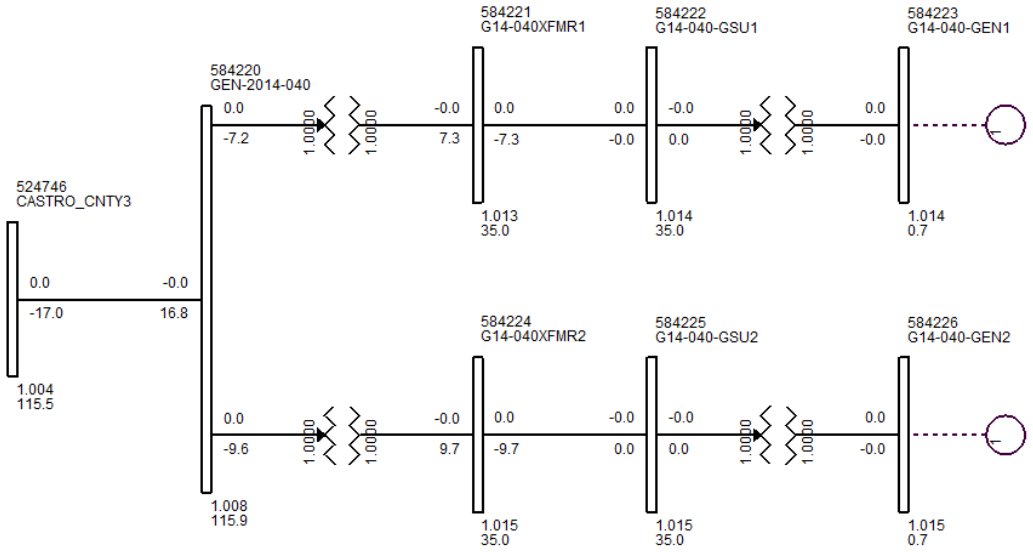


Figure 1: GEN-2014-040 with generators off and no shunt reactors

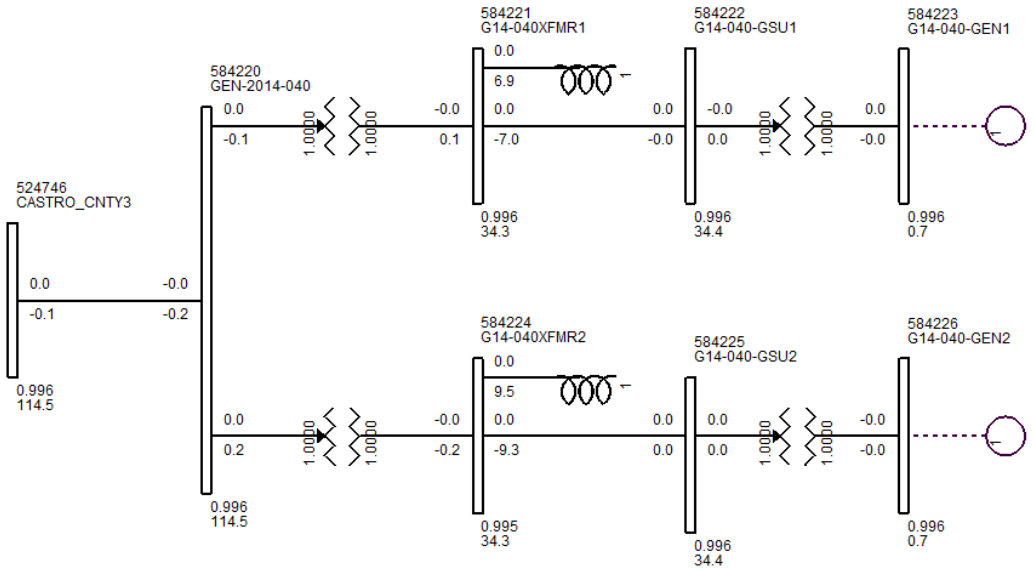


Figure 2: GEN-2014-040 with generators turned off and shunt reactors added to the low side of the substation 115/34.5kV transformers

Table 1: Low Wind/No Wind Analysis

Request	Size (MW)	Point of Interconnection	Shunt Reactive Mvar Requirement
GEN-2014-040	349	Castro County 115kV	16.5

Conclusion

A low wind analysis has been performed for the GEN-2014-040 Interconnection Request. The large size of the GEN-2014-040 Interconnection Request (349MW) caused SPP to perform this analysis for excessive capacitive charging current even though the Interconnection Request is not located on a 230kV or 345kV system.

The analysis has determined the need or the GEN-2014-040 Interconnection Request to install approximately 16.5Mvars of reactor bank(s) on its 34.5kV collector system buses.

O: Group 6 Dynamic Stability Analysis Report

See MEPPI Cluster study report and SPP Stand-alone study report on next page.

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Southwest Power Pool, Inc. (SPP)

DISIS-2014-002 (Group 06) Definitive Impact Study

Final Report

PXE-0989
Revision #00

January 2015

Submitted By:
Mitsubishi Electric Power Products, Inc. (MEPPI)
Power Systems Engineering Services Department
Warrendale, PA

Title: **DISIS-2014-002 (Group 6) Definitive Impact Study: Final Report PXE-0989**
Date: January 2015
Author: Elizabeth C. Gall; Engineer I, Power Systems Engineering Dept. *Elizabeth C. Gall*
Reviewed: Nicholas W. Tenza; Engineer I, Power Systems Engineering Dept. *Nicholas W. Tenza*
Approved: Robert T. Hellested; Deputy Manager, Power Systems Engineering Dept. *Robert T. Hellested*

EXECUTIVE SUMMARY

SPP requested a Definitive Interconnection System Impact Study (DISIS). The DISIS required a Stability Analysis, Short Circuit Analysis, Power Factor Analysis and Low Wind/No Wind Analysis detailing the impacts of the interconnecting projects as shown in Table ES-1.

Table ES-1
Interconnection Projects Evaluated

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2013-027	150	Alstom ECO1222 3.0MW WTG (583843,583846)	Tap Tolk to Yoakum 230kV (562480)
GEN-2014-007	399.6	GE 87m 1.85MW WTG (583813,583816)	Tap Tuco to Border 345kV (562487)
GEN-2014-033	70	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-034	70	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-035	30	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-046	125.4	SMAPPC 0.25MW PV inverter	Chaves County 115kV
GEN-2014-047	40	AE 500NX 0.5 MW PV inverters	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-053	80	GE 2.0MW WTG	Carlisle 230kV
GEN-2014-054	120	GE 2.0MW WTG	Carlisle 230kV
GEN-2014-062	200.1	GE 2.3MW-107 WTG	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-063	381	GE 1.79 MW WTG	Hobbs 230kV
GEN-2014-066	30	AE 1000NX 1.0MW PV inverter	Norton 115kV
GEN-2014-069	96	GE 4.0MW inverter	Tap Postash Junction - Livingston Ridge 115kV
GEN-2014-070	116	GE 4.0MW inverter	Tap Hobbs - Yoakum 230kV

Table ES-1 (Continued)
Interconnection Projects Evaluated

Request	Size (MW)	Generator Model	Point of Interconnection
ASGI-2014-002	49.6	SMA 1.6MVA 630CP-US inverters	Santa Rosa tap - Tucumcari 115kV line
ASGI-2014-004	10	Solar PV inverter	Livingston Ridge 115 kV - bus 527953
ASGI-2014-005	10	Solar PV inverter	Strata 69 kV - bus 528046
ASGI-2014-008	10	Solar PV inverter	South Loving 69 kV - bus 528218
ASGI-2014-009	10	Solar PV inverter	Wood Draw 115 kV - bus 528228
ASGI-2014-010	10	Solar PV inverter	Ochoa 115 kV - bus 528232
ASGI-2014-011	10	Solar PV inverter	Zia 115 kV - bus 528420
ASGI-2014-012	10	Solar PV inverter	Cooper Ranch 115 kV - bus 528554
ASGI-2014-013	2	GE 2.0MW WTG	Erksine-Wolfforth-Reese sub in Lubbock TX (South Plains Elec Coop)

SUMMARY OF STABILITY ANALYSIS

The Stability Analysis determined that there were multiple contingencies that resulted in system instability, generation tripping offline, or bus voltages below 0.7 p.u. or above 1.2 p.u. for the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions when all generation interconnection requests were at 100% output. The following contingencies required system upgrades in order to achieve system stability and recover within SPP criteria:

- FLT03-3PH
- FLT05-3PH
- FLT06-3PH
- FLT26-3PH (2015SP and 2015WP)
- FLT52-SB
- FLT62-3PH
- FLT63-SB
- FLT64-3PH
- FLT65-SB
- FLT67-3PH
- FLT68-SB
- FLT69-PO (2015WP)
- FLT70-SB (2015SP and 2015WP)
- FLT84-3PH (2015SP and 2015WP)
- FLT85-3PH (2015SP and 2015WP)
- FLT86-3PH (2015WP)
- FLT87-3PH (2015SP and 2015WP)
- FLT99-3PH
- FLT100-3PH
- FLT101-3PH
- FLT102-3PH
- FLT103-3PH
- FLT104-3PH
- FLT105-3PH
- FLT106-3PH
- FLT107-3PH (2015WP)

- FLT113-3PH (2015SP and 2015WP)
- FLT114-3PH (2015SP and 2015WP)
- FLT115-3PH (2015SP and 2015WP)
- FLT122-3PH

In order to mitigate all voltage violations and the contingencies that resulted in system instability, the following upgrades[1] were implemented as discussed with SPP:

- Dynamic reactive device added to the Chaves County 115 kV bus
- Dynamic reactive device added to the GEN-2014-069-Tap 115 kV bus
- Conversion and rebuild of the existing Norton-Pleasant Hill 115 kV line to a 230 kV circuit
- Add a 230/115kV transformer at Norton
- Model corrections at Caprock wind farm[2]
- Add an additional 18 Mvar fast switched capacitor at the Caprock Wind 34.5kV bus
- Add additional switched capacitors on the GEN-2014-066 34.5kV bus and apply the extended ride-through option
- Add additional switched capacitors and an 8 Mvar STATCOM on the ASGI-2014-002 34.5kV bus
- Add Tolk – Potter County 345 kV line
- Add Chisholm – Potter County 345 kV line
- Disable relay (SNLOS1) for Tuco – Oklaunion 345 kV circuit[3]

After implementing the above upgrades, the contingency analysis was re-simulated for all contingencies. With the new upgrades, the Stability Analysis determined that there was no wind turbine tripping or system instability observed as a result of interconnecting all study projects at 100% output.

SUMMARY OF THE SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed on the 2025 Summer Peak power flow for all study projects. Refer to Table ES-1 for a list of maximum fault currents observed for each study project.

[1] SPP indicated additional upgrades were added to the models before they were provided to MEPPI.

[2] Model corrections included modeling the Caprock wind farm on a 600 V bus and modeling the plant's reactive compensation equipment including switch shunts, fast switched shunts, and dynamic reactive devices on the 34.5kV bus

[3] SPP indicated further analysis regarding the out-of-step relays on the Tuco-Oklaunion 345kV line will be addressed during the Interconnection Facilities Study.

Table ES-1
List of Maximum Fault Currents Observed for Each Study Project

Ref. No.	Study Project	Maximum Fault Current (kA)	Fault Location
1	GEN-2013-027	32.74	Hobbs 115 kV
2	GEN-2014-007	35.19	LP - Cook 69 kV
3	GEN-2014-033 GEN-2014-034 GEN-2014-035 GEN-2014-046	29.44	Cunningham 115 kV
4	GEN-2014-047 GEN-2014-062	32.22	Tolk 230 kV
5	GEN-2014-053 GEN-2014-054	35.19	LP - Cook 69 kV
6	GEN-2014-063	32.74	Hobbs 115 kV
7	GEN-2014-066	32.22	Tolk 230 kV
8	GEN-2014-069	29.44	Cunningham 115 kV
9	GEN-2014-070	32.74	Hobbs 115 kV
10	ASGI-2014-002	32.22	Tolk 230 kV
11	ASGI-2014-004	15.22	Potash Junction 115 kV
12	ASGI-2014-005	15.22	Potash Junction 115 kV
13	ASGI-2014-008	15.22	Potash Junction 115 kV
14	ASGI-2014-009	15.22	Potash Junction 115 kV
15	ASGI-2014-010	15.22	Potash Junction 115 kV
16	ASGI-2014-011	32.74	Hobbs 115 kV
17	ASGI-2014-012	32.74	Hobbs 115 kV
18	ASGI-2014-013	32.22	Tolk 230 kV

SUMMARY OF POWER FACTOR ANALYSIS

Study Generator GEN-2013-027

The Power Factor Analysis shows that GEN-2013-027 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.959 leading (absorbing) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.969 leading (absorbing) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-007

The Power Factor Analysis shows that GEN-2014-007 has a power factor range of 0.576 lagging (supplying) to 0.927 lagging for 2015 Summer Peak conditions, a power factor range of 0.582 lagging (supplying) to 0.940 lagging for 2015 Winter Peak conditions, and a power factor range of 0.911 lagging (supplying) to 0.995 leading (absorbing) for 2025 Summer Peak conditions.

Chaves County POI

The Power Factor Analysis shows that the Chaves County generation has a power factor range of 0.981 leading (absorbing) to 0.992 leading for 2015 Summer Peak conditions, a power factor range of 0.994 leading (absorbing) to 0.998 lagging for 2015 Winter Peak conditions, and a power factor range of 0.992 leading (absorbing) to 0.998 leading for 2025 Summer Peak conditions.

Tap Tolk – Eddy County POI

The Power Factor Analysis shows that the Tap Tolk – Eddy County generation has a power factor range of 0.969 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.984 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.998 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Carlisle POI

The Power Factor Analysis shows that the Carlisle generation has a power factor range of 0.986 lagging (supplying) to 0.968 leading for 2015 Summer Peak conditions, a power factor range of 0.994 lagging (supplying) to 0.971 leading for 2015 Winter Peak conditions, and a power factor range of 0.980 lagging (supplying) to 0.857 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-063

The Power Factor Analysis shows that the GEN-2014-063 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.993 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.977 lagging (supplying) to 0.998 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-066

The Power Factor Analysis shows that the GEN-2014-066 has a power factor range of 0.617 lagging (supplying) to 0.711 lagging for 2015 Summer Peak conditions, a power factor range of 0.701 lagging (supplying) to 0.818 lagging for 2015 Winter Peak conditions, and a power factor range of 0.567 lagging (supplying) to 0.659 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-069

The Power Factor Analysis shows that the GEN-2014-069 has a power factor range of 0.876 leading (absorbing) to 0.999 leading for 2015 Summer Peak conditions, a power factor range of 0.881 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.870 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-070

The Power Factor Analysis shows that the GEN-2014-070 has a power factor range of 0.978 lagging (supplying) to 0.940 leading for 2015 Summer Peak conditions, a power factor range of 0.999 lagging (supplying) to 0.943 leading for 2015 Winter Peak conditions, and a power factor range of 0.933 lagging (supplying) to 0.933 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-002

The Power Factor Analysis shows that the ASGI-2014-002 has a power factor range of 0.925 lagging (supplying) to 0.981 lagging for 2015 Summer Peak conditions, a power factor range of 0.943 lagging (supplying) to 0.993 lagging for 2015 Winter Peak conditions, and a power factor range of 0.900 lagging (supplying) to 0.970 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-004

The Power Factor Analysis shows that the ASGI-2014-004 has a power factor range of 0.676 lagging (supplying) to 0.870 lagging for 2015 Summer Peak conditions, a power factor range of 0.849 lagging (supplying) to 0.976 lagging for 2015 Winter Peak conditions, and a power factor range of 0.043 lagging (supplying) to 0.107 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-005

The Power Factor Analysis shows that the ASGI-2014-005 has a power factor range of 0.781 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.931 leading (absorbing) to 0.989 lagging for 2015 Winter Peak conditions, and a power factor range of 0.449 lagging (supplying) to 0.918 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-008

The Power Factor Analysis shows that the ASGI-2014-008 has a power factor range of 0.850 lagging (supplying) to 0.998 leading for 2015 Summer Peak conditions, a power factor range of 0.940 lagging (supplying) to 0.963 leading for 2015 Winter Peak conditions, and a power factor range of 0.938 lagging (supplying) to 0.962 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-009

The Power Factor Analysis shows that the ASGI-2014-009 has a power factor range of 0.282 lagging (supplying) to 0.568 lagging for 2015 Summer Peak conditions, a power factor range of 0.309 lagging (supplying) to 0.637 leading for 2015 Winter Peak conditions, and a power factor range of 0.055 lagging (supplying) to 0.130 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-010

The Power Factor Analysis shows that the ASGI-2014-010 has a power factor range of 0.174 lagging (supplying) to 0.924 lagging for 2015 Summer Peak conditions, a power factor range of 0.162 lagging (supplying) to 0.943 lagging for 2015 Winter Peak conditions, and a power factor range of 0.034 lagging (supplying) to 0.118 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-011

The Power Factor Analysis shows that the ASGI-2014-011 has a power factor range of 0.368 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.338 lagging (supplying) to 0.787 lagging for 2015 Winter Peak conditions, and a power factor range of 0.158 lagging (supplying) to 0.503 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-012

The Power Factor Analysis shows that the ASGI-2014-012 has a power factor range of 0.357 lagging (supplying) to 0.916 leading for 2015 Summer Peak conditions, a power factor range of 0.474 lagging (supplying) to 0.631 leading for 2015 Winter Peak conditions, and a power factor range of 0.087 lagging (supplying) to 0.542 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-013

The Power Factor Analysis shows that the ASGI-2014-013 has a power factor range of 0.191 lagging (supplying) to 0.120 leading for 2015 Summer Peak conditions, a power factor range of 0.224 lagging (supplying) to 0.148 leading for 2015 Winter Peak conditions, and a power factor range of 0.148 lagging (supplying) to 0.951 leading for 2025 Summer Peak conditions.

SUMMARY OF LOW WIND/NO WIND ANALYSIS

The amount of reactive power injected into the transmission network was recorded at the point of interconnection for GEN-2013-027, GEN-2014-007, GEN-2014-062, GEN-2014-053, GEN-2014-054, GEN-2014-063, and GEN-2014-070 for each season. The maximum reactance needed for zero Mvar flow was 24.9 Mvar for GEN-2014-063 (the Hobbs 230 kV POI). The minimum reactance needed for zero Mvar flow was 0.3 Mvar for GEN-2014-070 (the Tap Hobbs - Yoakum 230 kV POI).

Table of Contents

Section 1: Objectives 10
Section 2: Background 10
Section 3: Stability Analysis 42
3.1 Approach 42
3.2 Stability Analysis Results 43
Section 4: Short Circuit Analysis 56
4.1 Approach 56
4.2 Short Circuit Analysis Results 56
Section 5: Power Factor Analysis 72
5.1 Approach 72
5.2 Power Factor Analysis Results 76
Section 6: Low Wind/No Wind Analysis 133
6.1 Approach 133
6.2 Low Wind/No Wind Analysis Results 134
Section 7: Conclusions 135

SECTION 1: OBJECTIVES

The objective of this report is to provide Southwest Power Pool, Inc. (SPP) with the deliverables for the "DISIS-2014-002 (Group 6) Definitive Impact Study." SPP requested an Interconnection System Impact Study for twenty-three (23) generation interconnections for 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak, which require a Stability Analysis, Short Circuit Analysis, Power Factor Analysis, Low Wind/No Wind Analysis and an Impact Study Report.

SECTION 2: BACKGROUND

The Siemens Power Technologies, Inc. PSS/E power system simulation program Version 32.2.0 was used for this study. SPP provided the stability database cases for 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions and a list of contingencies to be examined. The model includes the study projects, with some reactive compensation equipment shown in Table 2-1, and the previously queued projects as listed in Table 2-2 and Table 2-3, respectively. Refer to Appendix A for the steady-state and dynamic model data for the study projects. A power flow one-line diagram for each generation interconnection project is shown in Figures 2-1 through 2-15. Note that the one-line diagrams represent the 2015 Summer Peak case.

In the models provided by SPP, several solar (PV inverter) requests were represented with external capacitor banks[4]. The following table indicates the switched shunts required to achieve unity voltage in all three seasonal cases provided. Additional reactive equipment may be required to maintain the power factor (pf) at the Point of Interconnection (POI) within +/- 0.95 pf for system intact conditions and for post-contingency conditions.

Table 2-1
Switched Shunt Requirements

Request	Switched Shunt (Mvar)
GEN-2014-033	3.6
GEN-2014-034	3.6
GEN-2014-035	2.4
GEN-2014-046	14.4
GEN-2014-066	35.4
GEN-2014-069	38.4
ASGI-2014-002	4.8
ASGI-2014-004	7.8
ASGI-2014-005	2.4
ASGI-2014-009	9.0

[4] SPP noted that unity voltage at the inverter terminals was necessary for flat initialization of the dynamic model.

The Stability Analysis determined the impacts of the new interconnecting projects on the stability and voltage recovery of the nearby systems and the ability of the interconnecting projects to meet FERC Order 661A. If problems with stability or voltage recovery are identified, the need for reactive compensation or system upgrades will be investigated. Three-phase faults and single line-to-ground faults will be examined as listed in Table 2-4.

A short circuit analysis was performed on the 2025 Summer Peak study year for each study generator in the Cluster Scenario. The study was performed five buses out from the study generator's point of interconnection and results were documented.

The Power Factor analysis determined the power factor at the point of interconnection for the wind or solar interconnection projects for pre-contingency and post-contingency conditions. Table 2-4 lists the contingencies developed from the three-phase fault definitions provided in the group's interconnection impact study request.

The Low Wind/No Wind Analysis was completed for wind or solar farm interconnections that interconnect to a 345 kV or 230 kV bus. This analysis determined if reactor support is needed to have an Mvar flow of approximately zero at the point of interconnection (POI).

Table 2-2
Interconnection Projects Evaluated

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2013-027	150	Alstom ECO1222 3.0MW WTG (583843,583846)	Tap Tolk to Yoakum 230kV (562480)
GEN-2014-007	399.6	GE 87m 1.85MW WTG (583813,583816)	Tap Tuco to Border 345kV (562487)
GEN-2014-033	70	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-034	70	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-035	30	SC 500HE/CP 0.5MVA inverter	Chaves County 115kV
GEN-2014-046	125.4	SMAPPC 0.25MW PV inverter	Chaves County 115kV
GEN-2014-047	40	AE 500NX 0.5 MW PV inverters	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-053	80	GE 2.0MW WTG	Carlisle 230kV
GEN-2014-054	120	GE 2.0MW WTG	Carlisle 230kV
GEN-2014-062	200.1	GE 2.3MW-107 WTG	Tap Tolk - Eddy County (Crossroads) 345kV
GEN-2014-063	381	GE 1.79 MW WTG	Hobbs 230kV
GEN-2014-066	30	AE 1000NX 1.0MW PV inverter	Norton 115kV
GEN-2014-069	96	GE 4.0MW inverter	Tap Postash Junction - Livingston Ridge 115kV
GEN-2014-070	116	GE 4.0MW inverter	Tap Hobbs - Yoakum 230kV
ASGI-2014-002	49.6	SMA 1.6MVA 630CP-US inverters	Santa Rosa tap - Tucumcari 115kV line
ASGI-2014-004	10	Solar PV inverter	Livingston Ridge 115 kV - bus 527953
ASGI-2014-005	10	Solar PV inverter	Strata 69 kV - bus 528046
ASGI-2014-008	10	Solar PV inverter	South Loving 69 kV - bus 528218
ASGI-2014-009	10	Solar PV inverter	Wood Draw 115 kV - bus 528228
ASGI-2014-010	10	Solar PV inverter	Ochoa 115 kV - bus 528232
ASGI-2014-011	10	Solar PV inverter	Zia 115 kV - bus 528420
ASGI-2014-012	10	Solar PV inverter	Cooper Ranch 115 kV - bus 528554
ASGI-2014-013	2	GE 2.0MW WTG	Erksine-Wolfforth-Reese sub in Lubbock TX (South Plains Elec Coop)

Table 2-3
Previously Queued Nearby Interconnection Projects Included

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2001-033	180	Mitsubishi 1000	San Juan Mesa 230kV (524885)
GEN-2001-036	80	Mitsubishi 1000	Norton 115kV (524502)
GEN-2006-018	170	GENSAL	Tuco 230kV (525830)
GEN-2006-026	502	GENROU (527901, 527902, 527903)	Hobbs 115kV(527891) Hobbs 230kV (527894)
GEN-2008-022	300	GE 2.5MW	Tap on Eddy County – Tolk 345kV line (G08-022-POI, 560007)
GEN-2010-006	180 Summer 205 Winter	GENROU	Jones_bus2 230kV(526337)
ASGI-2010-010	42	GENSAL	Lovington 115kV (528334)
ASGI-2010-020	30	Nordex 2.5MW	Tap LE-Tatum to LE-Crsroads 69kV (AS10-020-POI, 560360)
ASGI-2010-021	15	Mitsubishi MPS-1000A 1.0MW	Tap LE-Saundrtp to LE-Anderson 69kV (ASGI-021-POI, 560364)
GEN-2010-046	56	GENSAL	Tuco 230kV (525830)
ASGI-2011-001	27.3	Suzlon 2.1MW	Lovington 115kV (528334)
ASGI-2011-003	10	Sany 2.0MW	Hendricks 69kV (525943)
ASGI-2011-004	19.8	Sany 1.8MW	Crosby 69kV (525915)
GEN-2011-025	80	GE 1.6MW	Tap on Floyd County - Crosby County 115kV line (G11-025-POI, 562004)
GEN-2011-045	180 Summer 205 Winter	GENROU	Jones_bus2 230kV (526337)
GEN-2011-046	23 Summer 27 Winter	GENROU	Quay County 115kV (524472)
GEN-2011-048	165 Summer 175 Winter	GENROU	Mustang 230kV (527151)
GEN-2012-001	61.2	CCWE 3.6MW (WT4)	Tap Grassland to Borden 230kV (526679)
ASGI-2012-002	18	Vestas 1.65MW V82	Clovis 115kV (524808)
GEN-2012-009	15 MW increase (Pgen=165MW)	GENROU	Mustang 230kV (527151)

Table 2-3 (Continued)
Previously Queued Nearby Interconnection Projects Included

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2012-010	15 MW increase (Pgen=165MW)	GENROU	Mustang 230kV (527151)
GEN-2012-020	478	GE 1.68MW	Tuco 230kV (525830)
GEN-2012-034	7 MW increase (Pgen=172MW)	GENROU	Mustang 230kV (527151)
GEN-2012-035	7 MW increase (Pgen=172MW)	GENROU	Mustang 230kV (527151)
GEN-2012-036	7 MW increase (Pgen=172MW Summer/185MW	GENROU	Mustang 230kV (527151)
GEN-2012-037	196 Summer 203 Winter	GENROU	Tuco 345kV (525832)
ASGI-2012-002	18	Vestas 1.65MW V82	Clovis 115kV (524808)
GEN-2013-016	191 Summer 203 Winter	GENROU (583456)	Tuco 345kV (525832)
ASGI-2013-002	18.4	Siemens 2.3MW VS (583613)	Tucumcari 115kV (524509)
ASGI-2013-003	18.4	Siemens 2.3MW VS (583623)	Clovis 115kV (524808)
ASGI-2013-005	19.8	Vestas V82 1.65MW (583283)	FE-Clovis 115kV (524808)
ASGI-2013-006	2	Gamesa G114 2MW (583813)	Erskine 115kV (526109)
GEN-2013-022	25	Solaron 500kW (583313)	Caprock 115kV (524486)
GEN-2014-012	186 Summer 225 Winter	GENROU (527001,527002, 527003)	Tap Hobbs (527896) to Andrews (528604) 230kV (562493)
ASGI-2014-001	2.3	GE 107m 2.3MW (583816)	Erskine 69kV (526109)

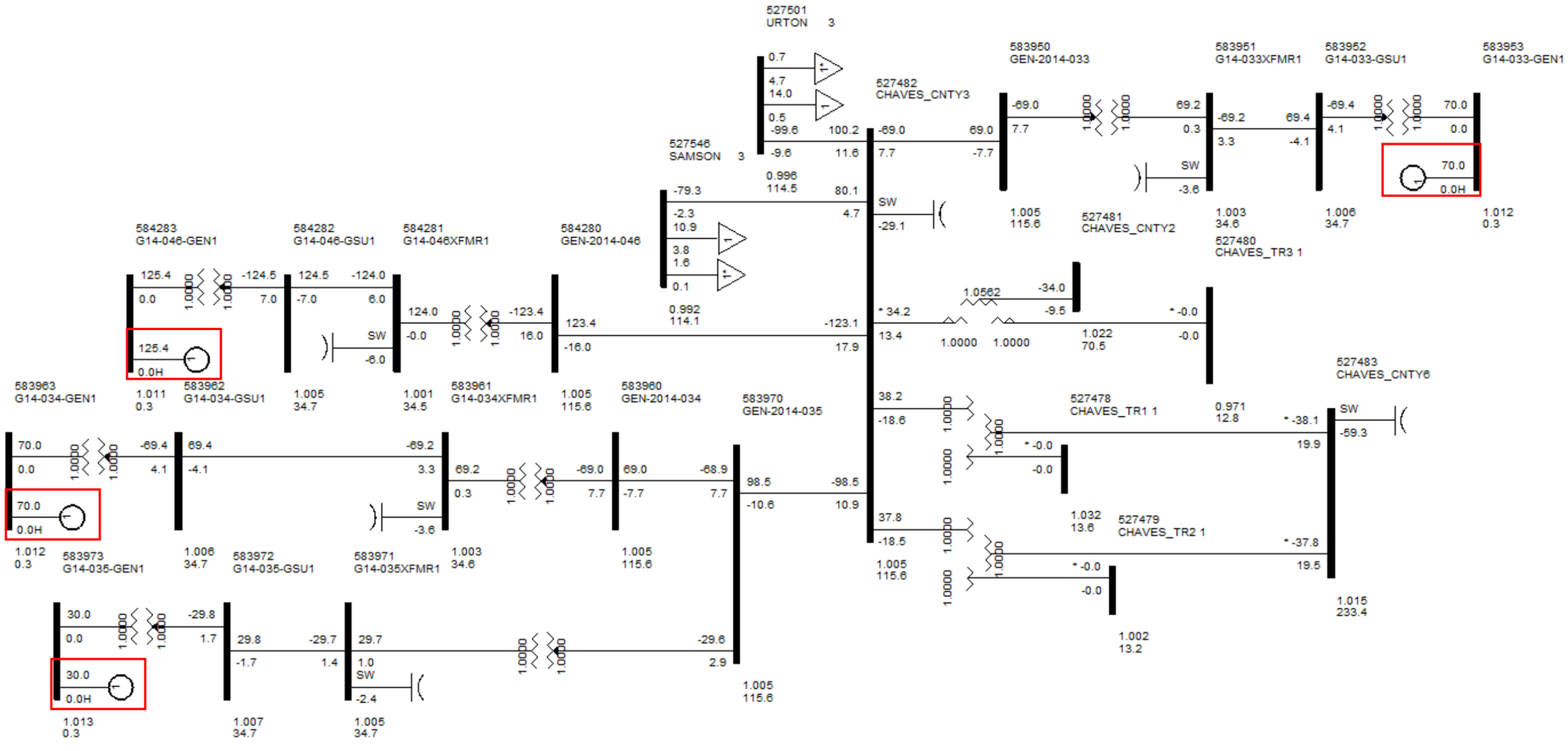


Figure 2-1. Power flow one-line diagram for interconnection projects at the Chaves County 115 kV POI (GEN-2014-033, GEN-2014-034, GEN-2014-035, and GEN-2014-046).

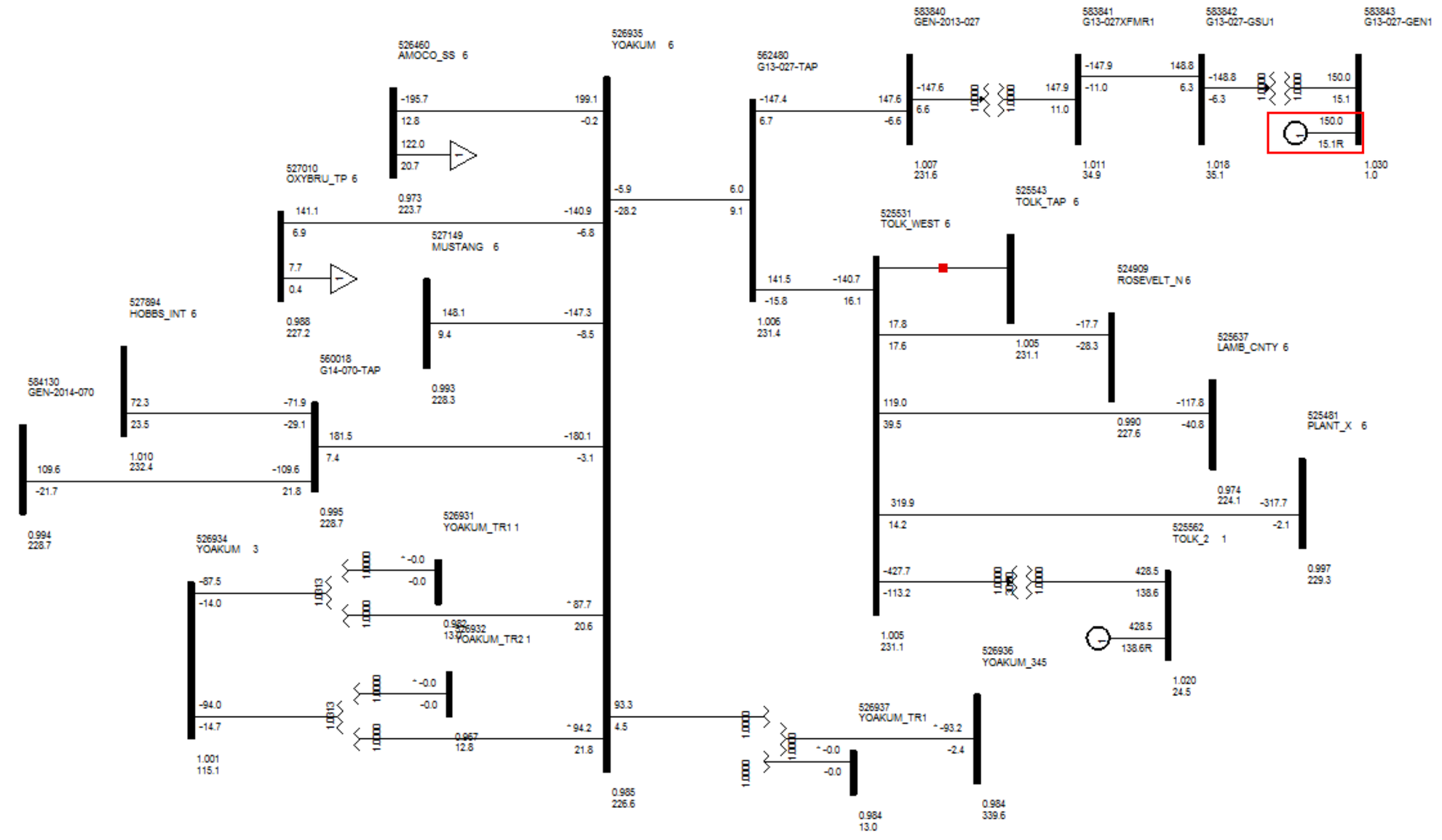


Figure 2-2. Power flow one-line diagram for interconnection project at the Tap Tolk to Yoakum 230 kV POI (GEN-2013-027).

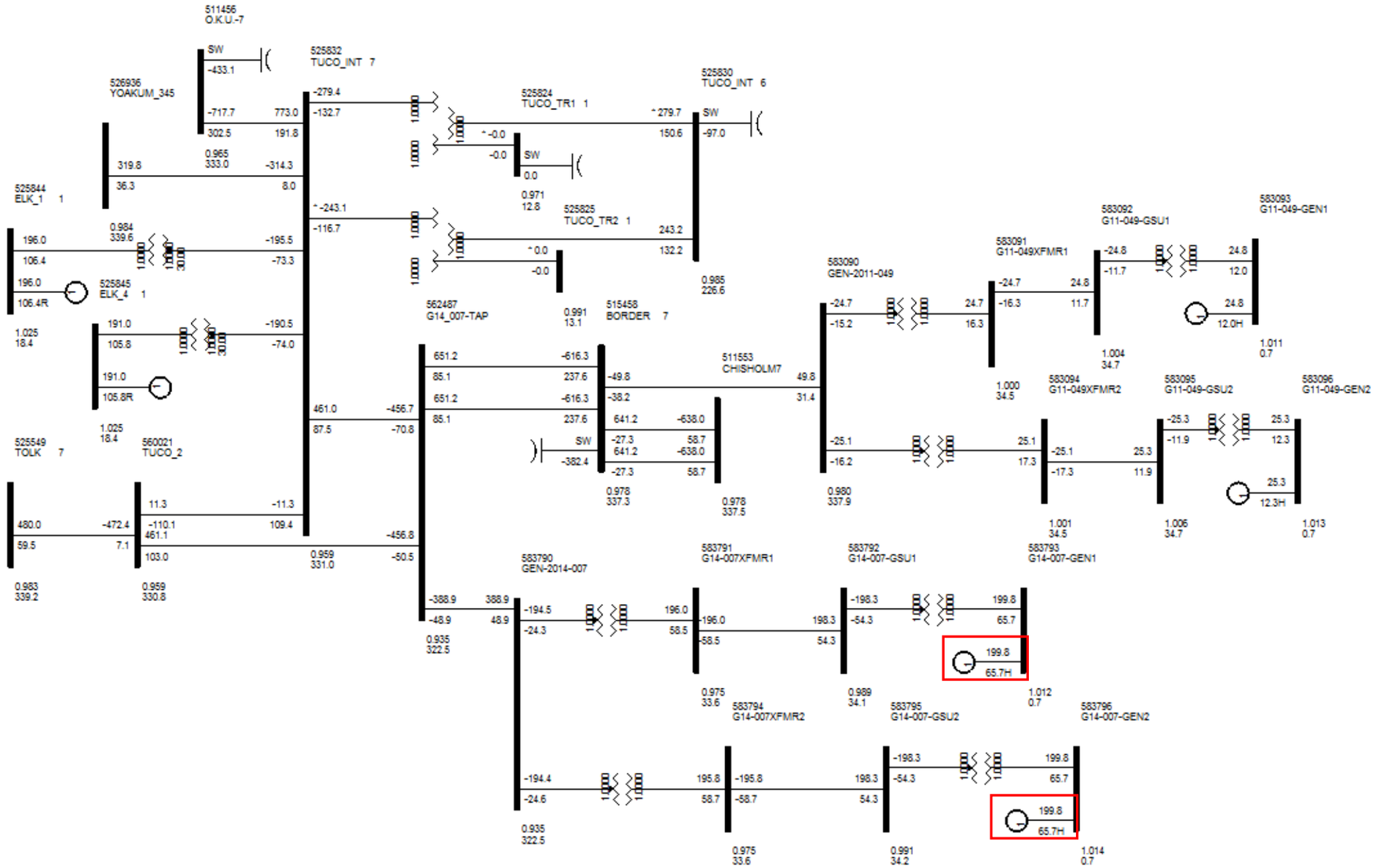


Figure 2-3. Power flow one-line diagram for interconnection project at the Tap Tuco to Border 345 kV POI (GEN-2014-007).

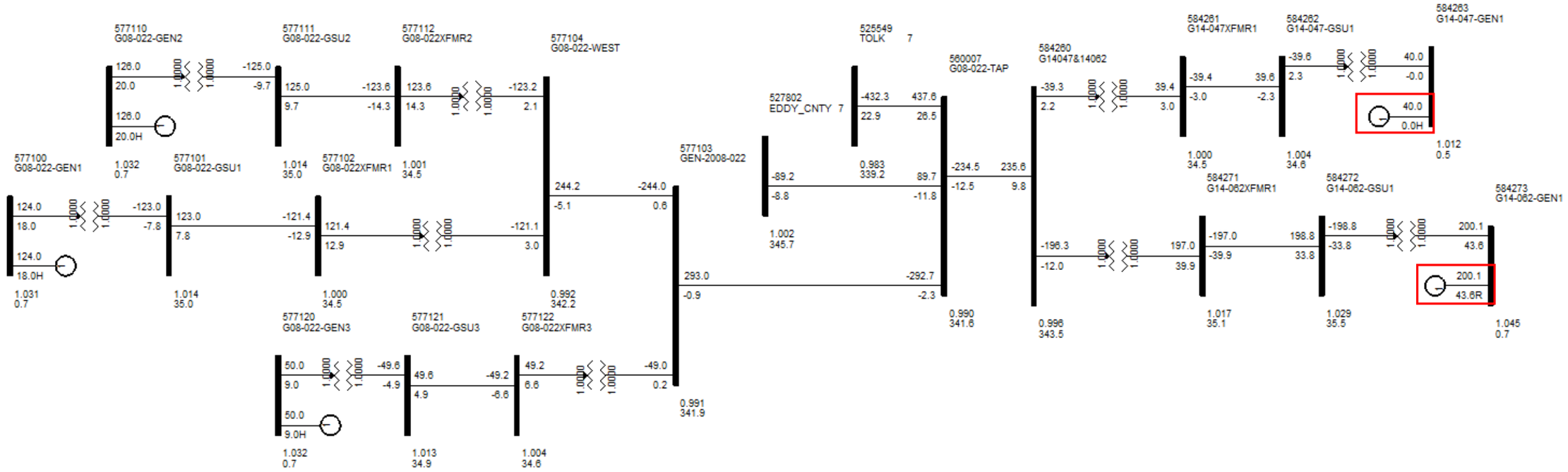


Figure 2-4. Power flow one-line diagram for interconnection project at the Tap Tolk – Eddy County 345 kV POI (GEN-2014-047 and GEN-2014-062).

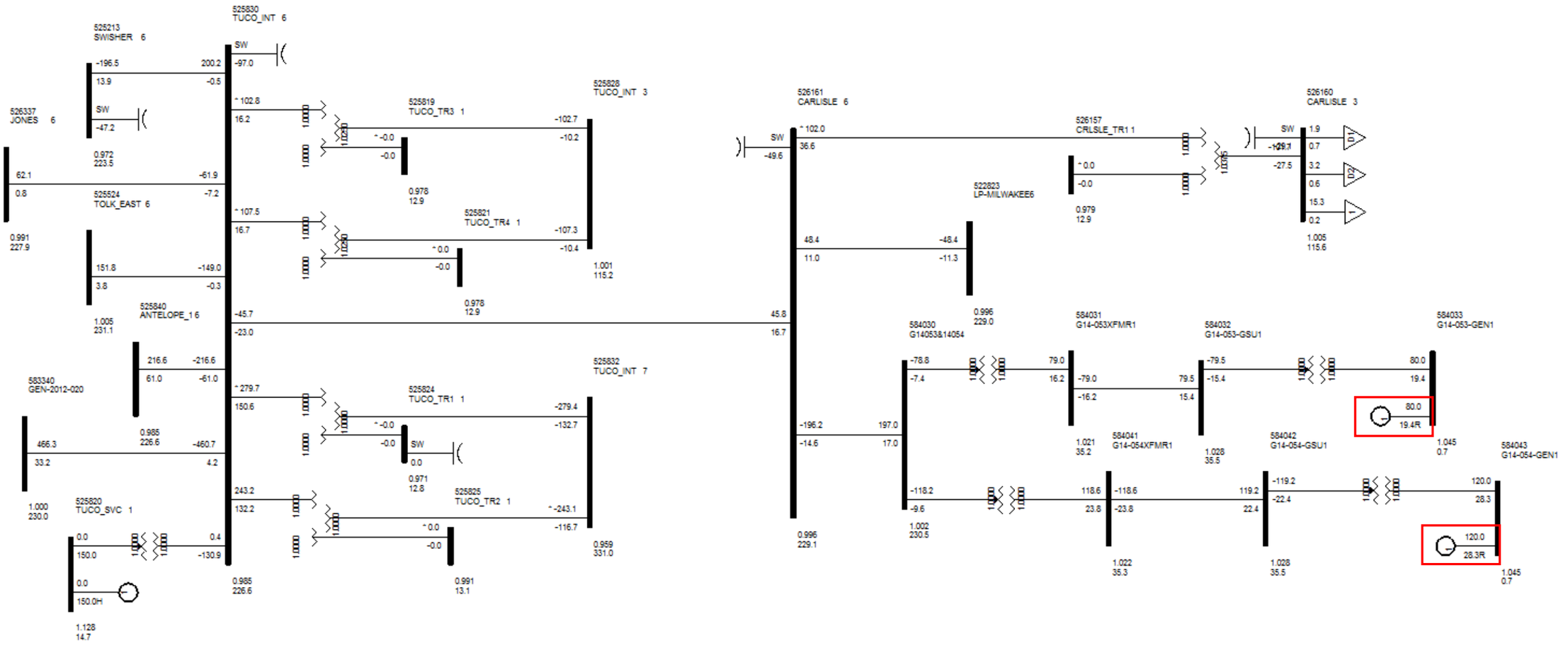


Figure 2-5. Power flow one-line diagram for interconnection project at the Carlisle 230 kV POI (GEN-2014-053 and GEN-2014-054).

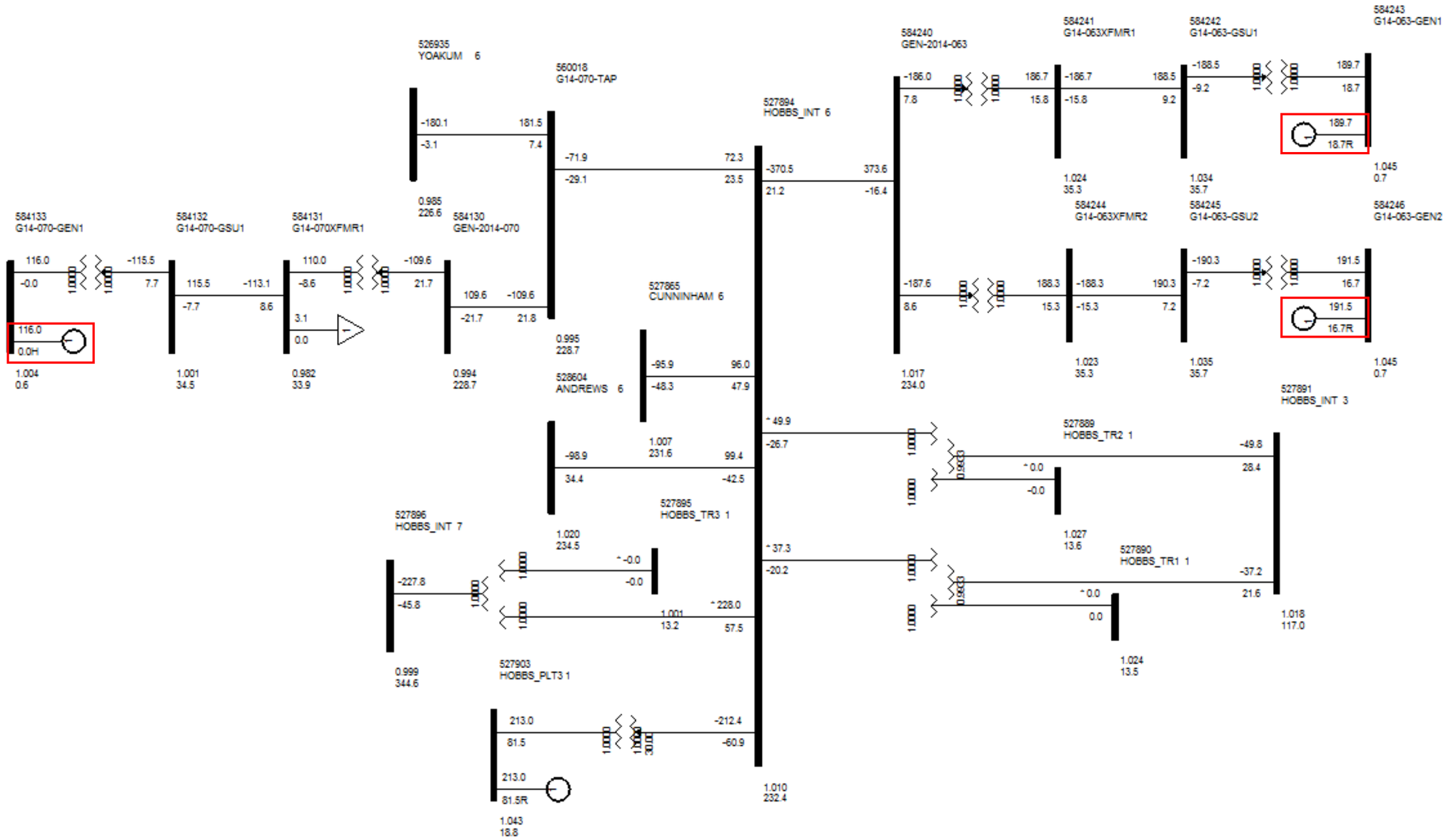


Figure 2-6. Power flow one-line diagram for interconnection project at the Hobbs 230 kV POI and the Hobbs to Yoakum 230 kV POI (GEN-2014-063 and GEN-2014-070).

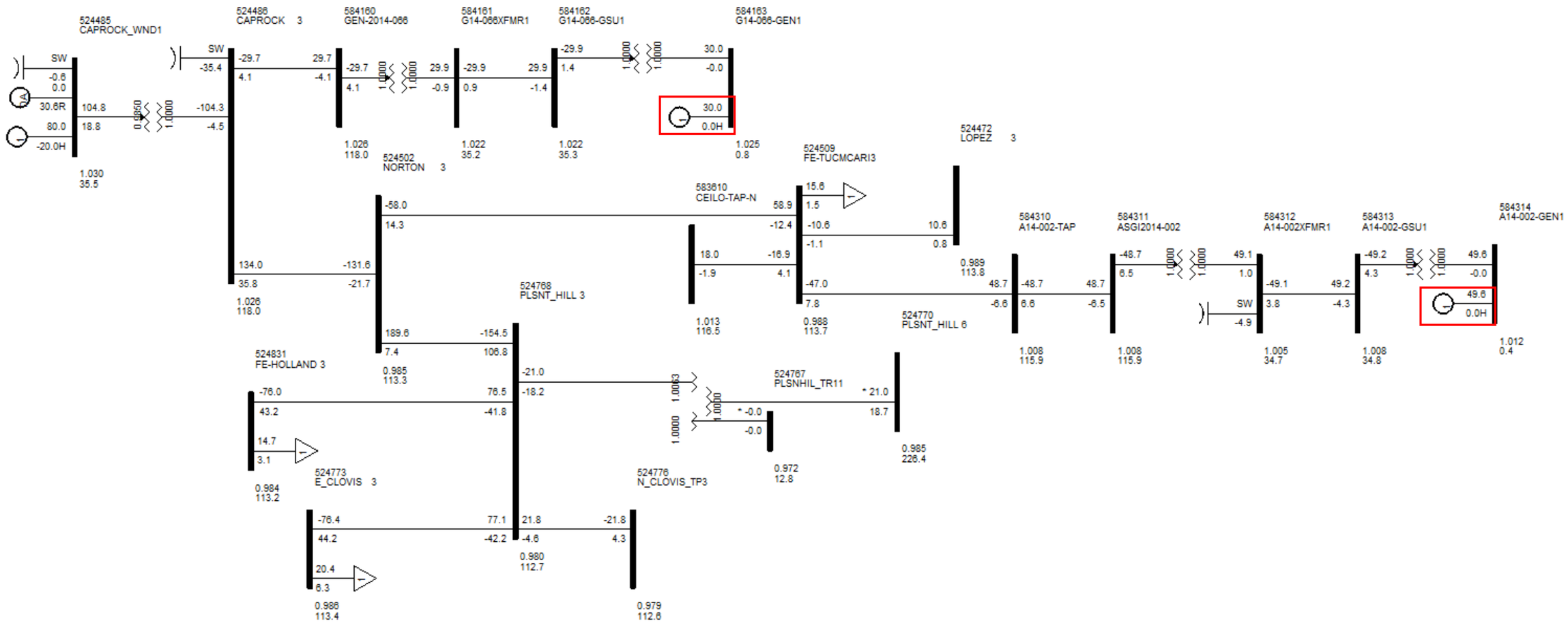


Figure 2-7. Power flow one-line diagram for interconnection project at the Norton 115 kV and Santa Rosa Tap – Tucumcari 69 kV POIs (GEN-2014-066 and ASGI-2014-002).

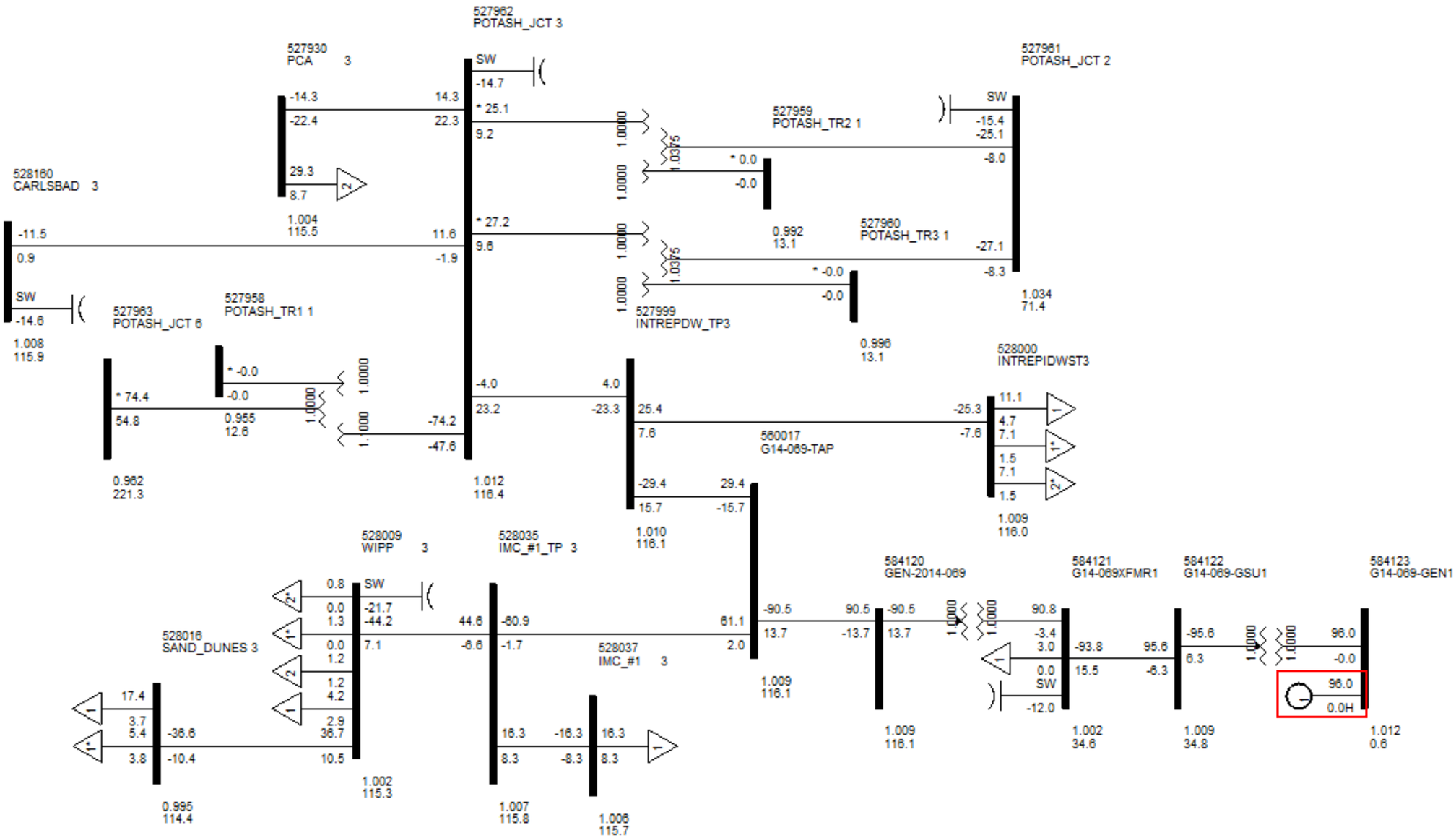


Figure 2-8. Power flow one-line diagram for interconnection project at the Tap Potash Junction – Livingston Ridge 115 kV POI (GEN-2014-069).

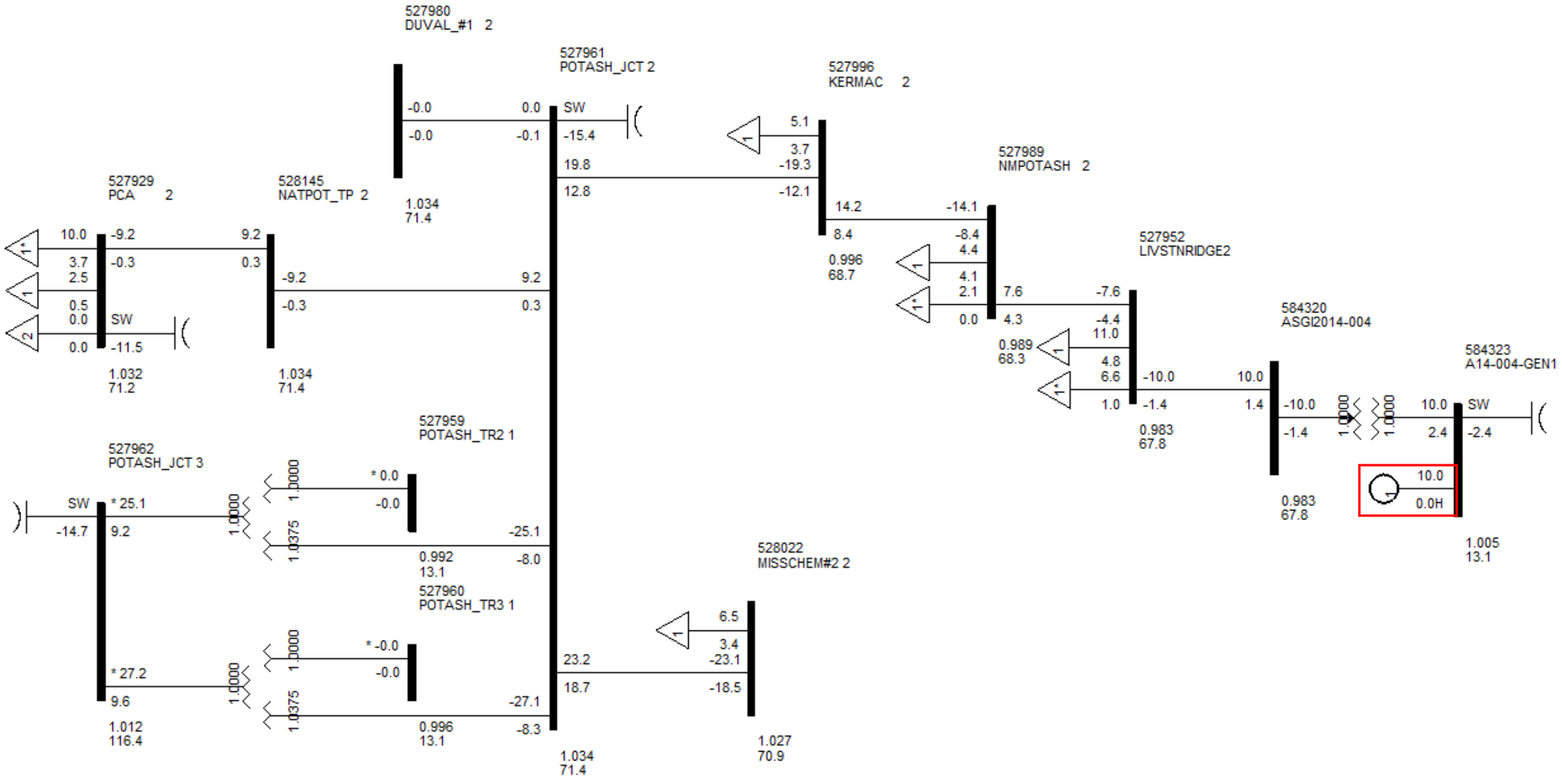


Figure 2-9. Power flow one-line diagram for interconnection project at the Livingston Ridge 115[5] kV POI (ASGI-2014-004).

[5] SPP has indicated that the POI is planned to be converted from 69 kV to 115 kV

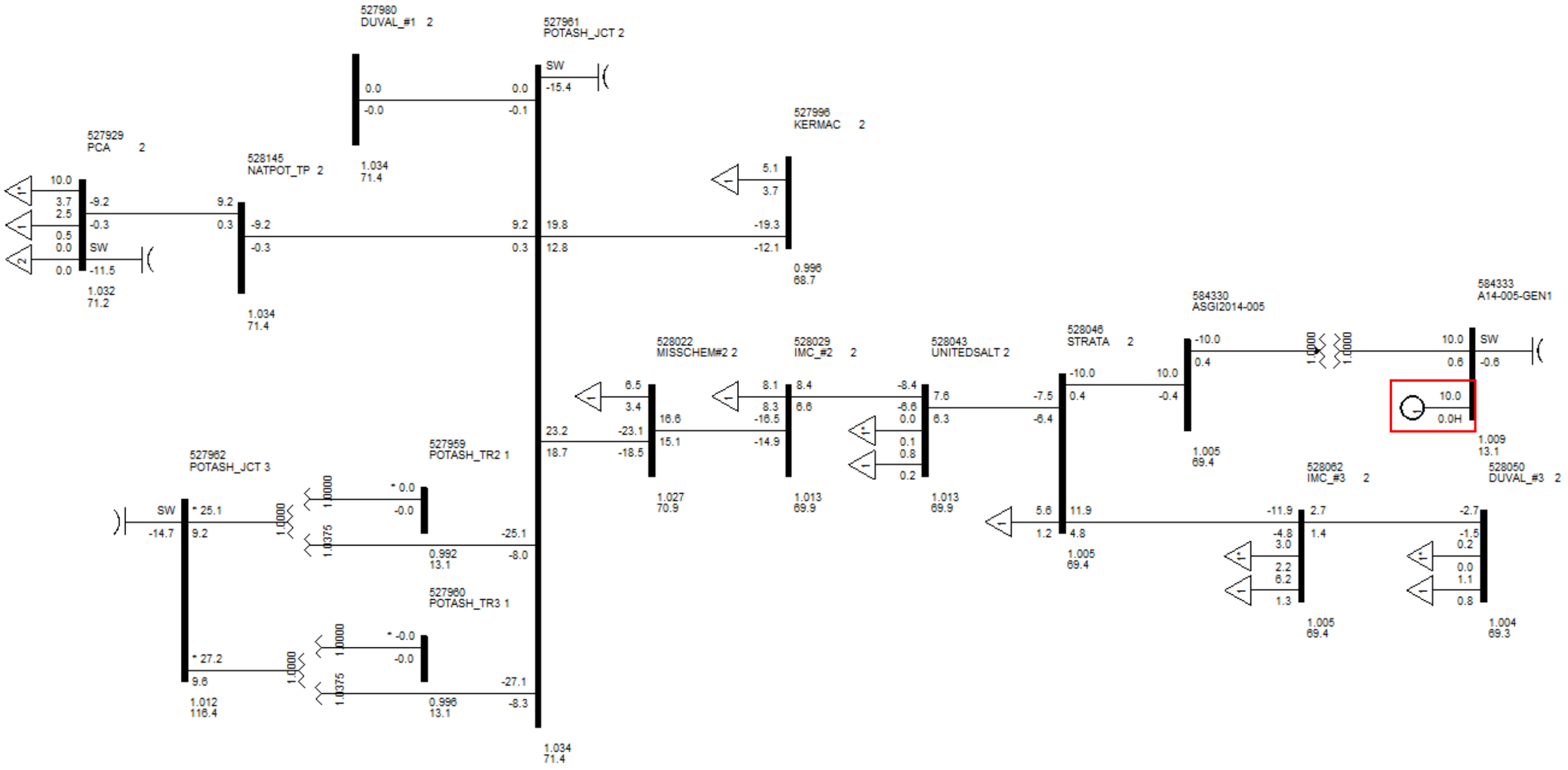


Figure 2-10. Power flow one-line diagram for interconnection project at the Strata 69 kV POI (ASGI-2014-005).

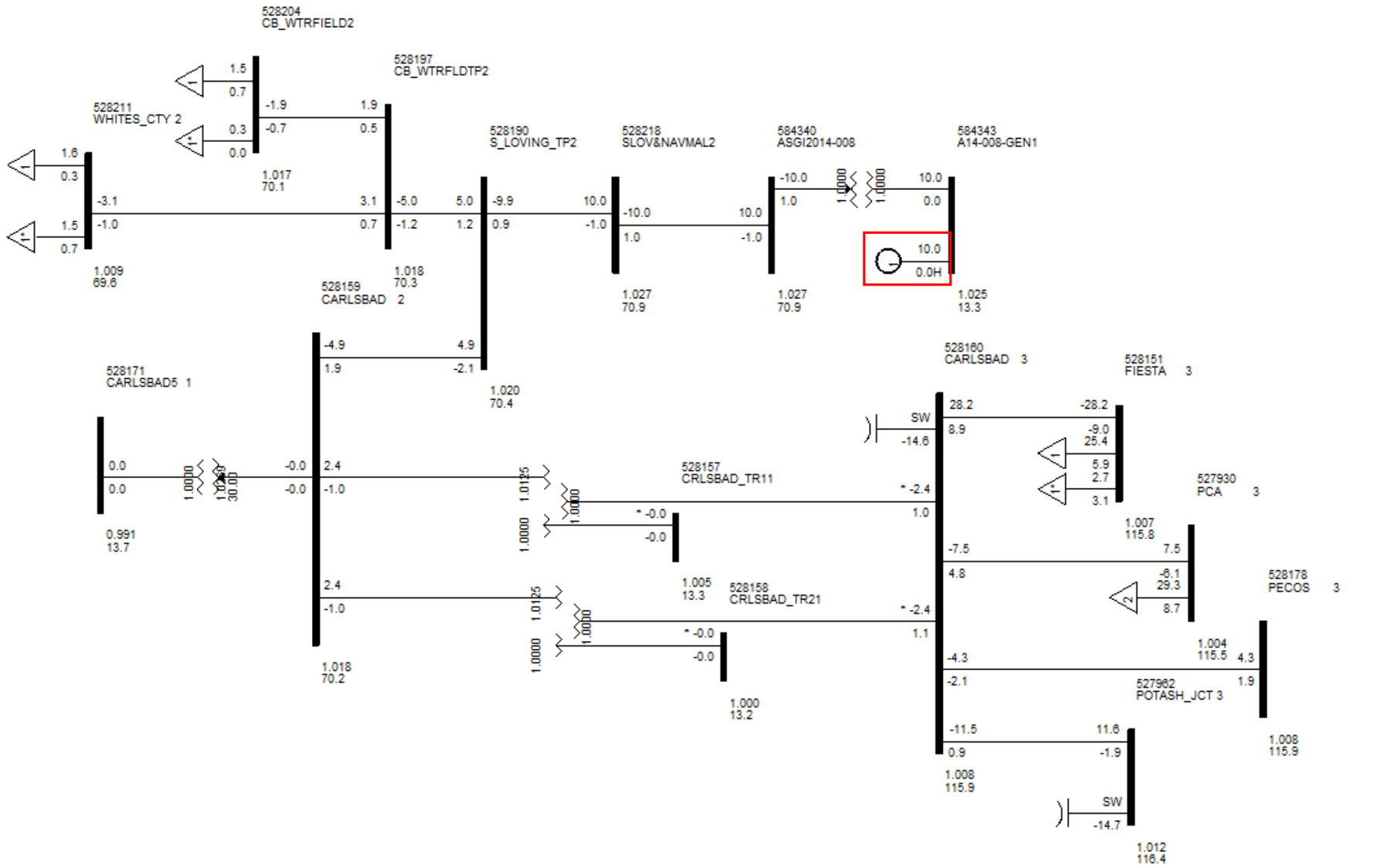


Figure 2-11. Power flow one-line diagram for interconnection project at the South Loving 69 kV POI (ASGI-2014-008).

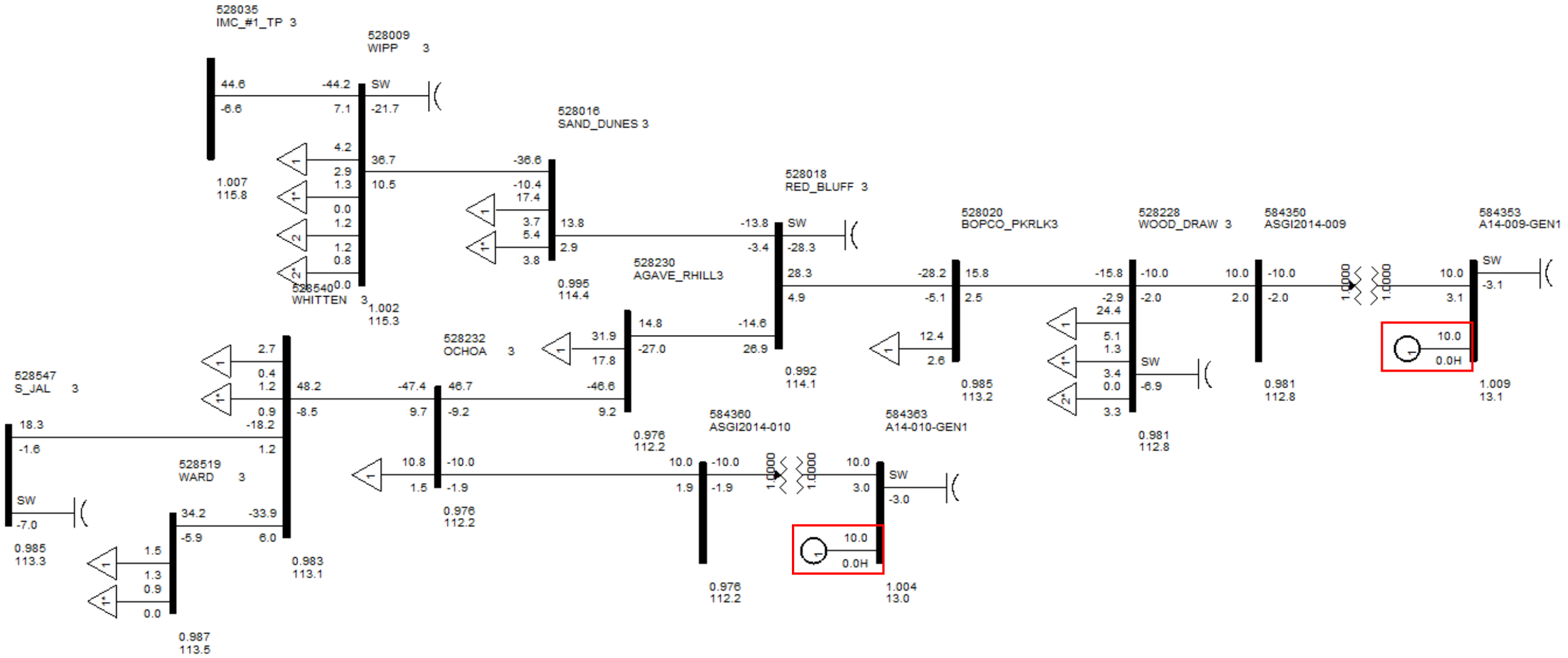


Figure 2-12. Power flow one-line diagram for interconnection project at the Wood Draw 115 kV and Ochoa 115 kV POIs (ASGI-2014-009 and ASGI-2014-010).

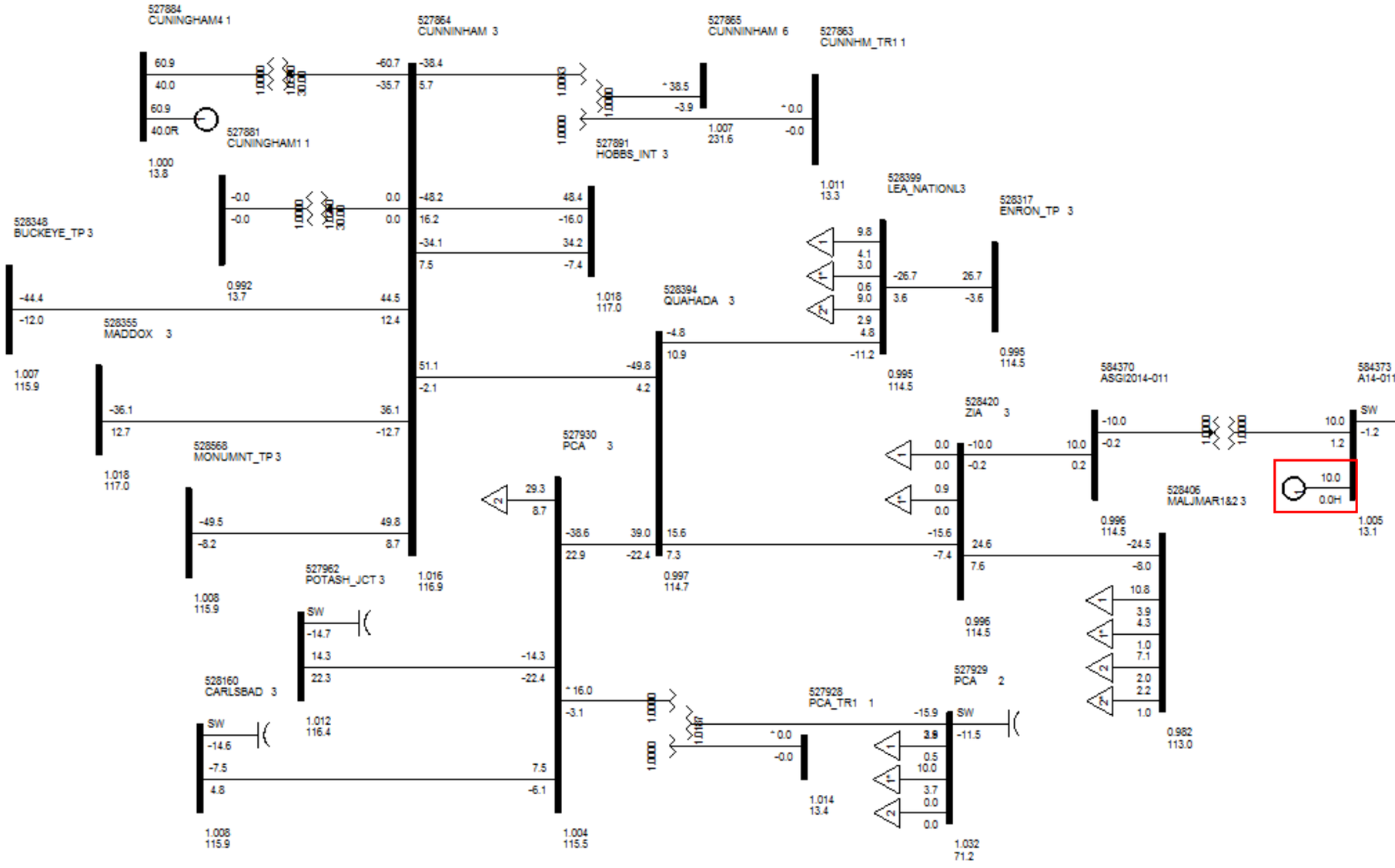


Figure 2-13. Power flow one-line diagram for interconnection project at the Zia 115 kV POI (ASGI-2014-011).

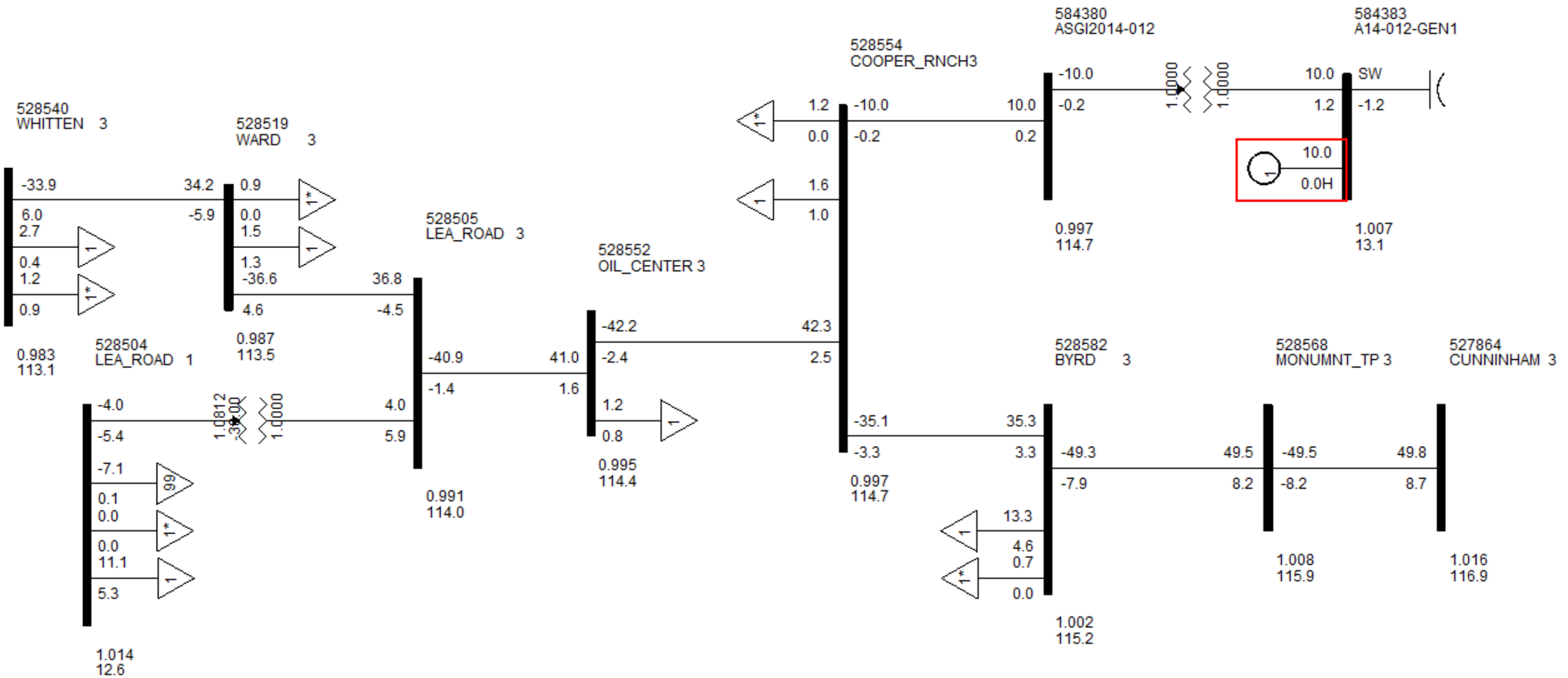


Figure 2-14. Power flow one-line diagram for interconnection project at the Cooper Ranch 115 kV POI (ASGI-2014-012).

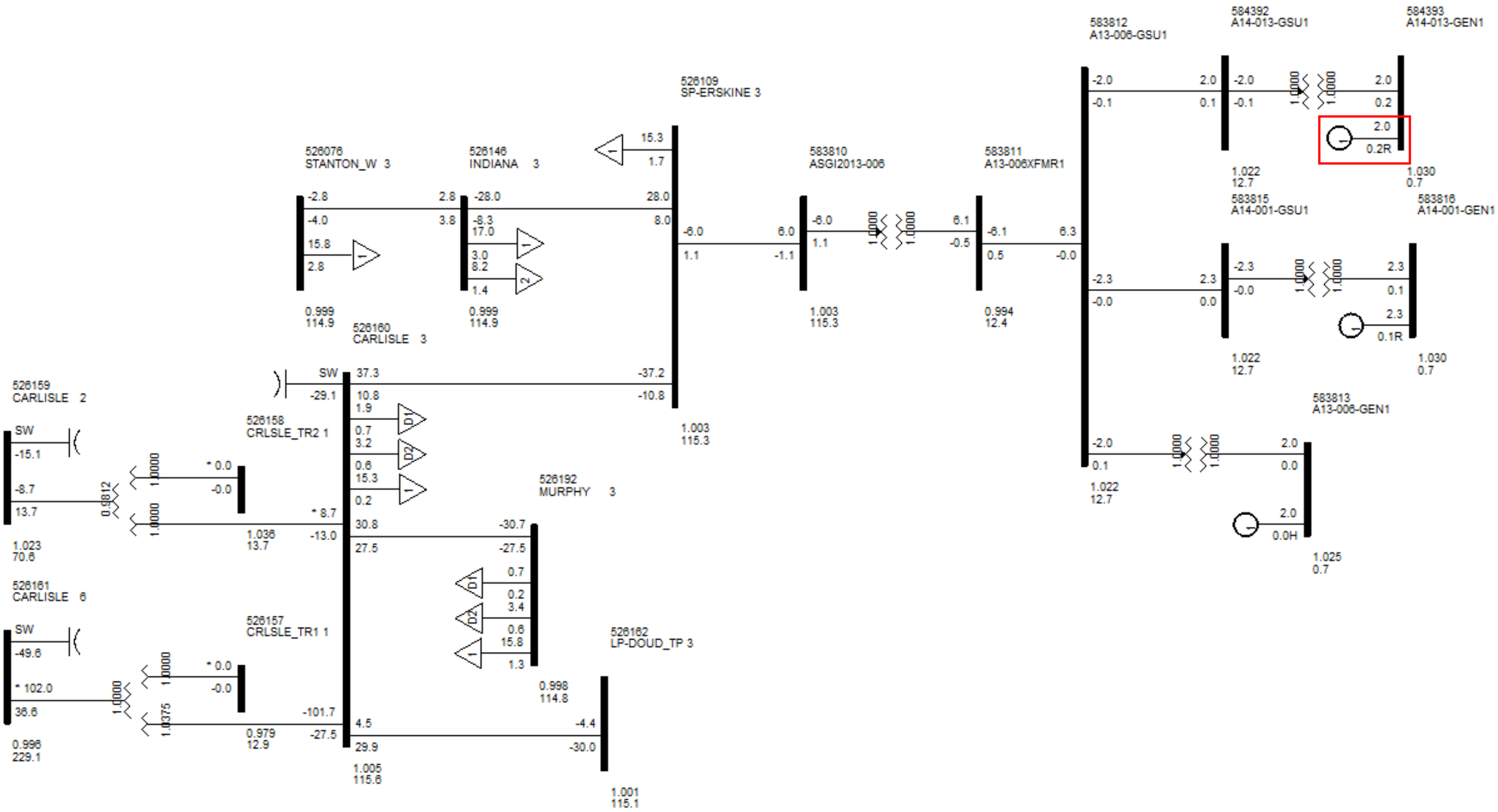


Figure 2-15. Power flow one-line diagram for interconnection project at the Erksine – Wolfforth – Reese Sub 115 kV POI (ASGI-2014-013).

Table 2-4
Case List with Contingency Description

Cont. No.	Cont. Name	Description
1	FLT01-3PH	**3 phase fault on Chaves County 115kV (527482) to Samson 115kV (527546) CKT 1, near Chaves County.**
		a. Apply fault at the Chaves County 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	**3 phase fault on Chaves County 115kV (527482) to Urton 115kV (527501) CKT 1, near Chaves County.**
		a. Apply fault at the Chaves County 11kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
3	FLT03-3PH	**3 phase fault on the Chaves County 115kV (527482) to Chaves County 230kV (527483) to Chaves County 13.2kV (527478) XFMR CKT 1, near Chaves County 115kV.**
		a. Apply fault at the Chaves County 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
4	FLT04-3PH	**3 phase fault on the Eddy North 115kV (527798) to Eddy South 230kV (527800) to Eddy 13.2kV (527797) XFMR CKT 1, near Eddy North 115kV.**
		a. Apply fault at the Eddy North 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
5	FLT05-3PH	**3 phase fault on Chaves County 230kV (527483) to San Juan Tap 230kV (524885) CKT 1, near Chaves County.**
		a. Apply fault at the Chaves County 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT06-3PH	**3 phase fault on Chaves County 230kV (527483) to Eddy North 230kV (527799) CKT 1, near Chaves County.**
		a. Apply fault at the Chaves County 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
7	FLT07-3PH	**3 phase fault on the Eddy North 230kV (527799) to Eddy South 115kV (527793) to Eddy 13.2kV (527795) XFMR CKT 2, near Eddy North 230kV.**
		a. Apply fault at the Eddy North 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
8	FLT08-3PH	**3 phase fault on the Eddy North 230kV (527799) to Eddy County 345kV (527802) to Eddy 13.2kV (527796) XFMR CKT 1, near Eddy North 230kV.**
		a. Apply fault at the Eddy North 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
9	FLT09-3PH	**3 phase fault on Eddy South 230kV (527800) to Cunningham 230kV (527865) CKT 1, near Eddy South.**
		a. Apply fault at the Eddy South 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
10	FLT10-3PH	**3 phase fault on Eddy South 230kV (527800) to 7 Rivers 230kV (528095) CKT 1, near Eddy South.**
		a. Apply fault at the Eddy South 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT11-3PH	**3 phase fault on the 7Rivers 230kV (528095) to 7Rivers 115kV (528094) to 7Rivers 13.2kV (528090) XFMR CKT 1, near 7Rivers 230kV.**
		a. Apply fault at the 7Rivers 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
12	FLT12-3PH	**3 phase fault on the Pecos 230kV (528179) to Pecos 115kV (528178) to Pecos 13.2kV (528176) XFMR CKT 1, near Pecos 230kV.**
		a. Apply fault at the Pecos 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
13	FLT13-3PH	**3 phase fault on the Potash 230kV (527963) to Potash 115kV (527962) to Potash 13.2kV (527958) XFMR CKT 1, near Potash 230kV.**
		a. Apply fault at the Potash 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
14	FLT14-3PH	**3 phase fault on Cunningham 230kV (527865) to Potash Jct 230kV (527963) CKT 1, near Cunnigham.**
		a. Apply fault at the Cunningham 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15	FLT15-3PH	**3 phase fault on Cunningham 230kV (527865) to Hobbs 230kV (527894) CKT 1, near Cunnigham.**
		a. Apply fault at the Cunningham 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT16-3PH	**3 phase fault on the Cunningham 230kV (527865) to Cunningham 115kV (527864) to Cunningham 13.2kV (527863) XFMR CKT 1, near Cunningham 230kV.**
		a. Apply fault at the Cunningham 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
17	FLT17-3PH	**3 phase fault on Potash Jct 69kV (527961) to MISSCHEM#2 69kV (528022) CKT 1, near Potash Jct.**
		a. Apply fault at the Potash Jct 69kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT18-3PH	**3 phase fault on Potash Jct 69kV (527961) to NATPOT Tap 69kV (528145) CKT 1, near Potash Jct.**
		a. Apply fault at the Potash Jct 69kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
19	FLT19-3PH	**3 phase fault on Strata 69kV (528046) to United Salt 69kV (528043) CKT 1, near Strata.**
		a. Apply fault at the Strata 69kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT20-3PH	**3 phase fault on Strata 69kV (528046) to IMC#3 69kV (528062) CKT 1, near Strata.**
		a. Apply fault at the Strata 69kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT21-3PH	**3 phase fault on the Carlsbad 69kV (528159) to Carlsbad 115kV (528160) to Pecos 13.2kV (528157) XFMR CKT 1, near Carlsbad 69kV.**
		a. Apply fault at the Carlsbad 69kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
22	FLT22-3PH	**3 phase fault on Potash Jct 115kV (527962) to PCA 115kV (527930) CKT 1, near Potash Jct.**
		a. Apply fault at the Potash Jct 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
23	FLT23-3PH	**3 phase fault on Potash Jct 115kV (527962) to Carlsbad 115kV (528160) CKT 1, near Potash Jct.**
		a. Apply fault at the Potash Jct 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT24-3PH	**3 phase fault on Potash Jct 115kV (527962) to Intrepdw Tap 115kV (527999) CKT 1, near Potash Jct.**
		a. Apply fault at the Potash Jct 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25	FLT25-3PH	**3 phase fault on the Potash Jct 115kV (527962) to Potash Jct 69kV (527961) to Potash Jct 13.2kV (527959) XFMR CKT 1, near Potash Jct 115kV.**
		a. Apply fault at the Potash Jct 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
26	FLT26-3PH	**3 phase fault on G14-069 Tap 115kV (560017) to Intrepdw Tap 115kV (527999) CKT 1, near G14-069 Tap.**
		a. Apply fault at the G14-069 Tap 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT27-3PH	**3 phase fault on G14-069 Tap 115kV (560017) to IMC#1Tap 115kV (528035) CKT 1, near G14-069 Tap.**
		a. Apply fault at the G14-069 Tap 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
28	FLT28-3PH	**3 phase fault on Red Bluff (A14-009) 115kV (528018) to Sand Dunes 115kV (528016) CKT 1, near Red Bluff.**
		a. Apply fault at the Red Bluff 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
29	FLT29-3PH	**3 phase fault on Red Bluff (A14-009) 115kV (528018) to Road Runner 115kV (528025) CKT 1, near Red Bluff.**
		a. Apply fault at the Red Bluff 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
30	FLT30-3PH	**3 phase fault on Road Runner 115kV (528025) to Agave 115kV (528230) CKT 1, near Road Runner.**
		a. Apply fault at the Road Runner 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
31	FLT31-3PH	**3 phase fault on the Road Runner 115kV (528025) to Road Runner 230kV (528027) Road Runner 13.2kV (528023) XFMR CKT 1, near Road Runner 115kV.**
		a. Apply fault at the Road Runner 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
32	FLT32-3PH	**3 phase fault on Ochoa 115kV (528232) to Agave 115kV (528230) CKT 1, near Ochoa**
		a. Apply fault at the Ochoa 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
33	FLT33-3PH	**3 phase fault on Ochoa 115kV (528232) to Whitten 115kV (528540) CKT 1, near Ochoa**
		a. Apply fault at the Ochoa 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
34	FLT34-3PH	**3 phase fault on Whitten 115kV (528540) to Ward 115kV (528519) CKT 1, near Whitten**
		a. Apply fault at the Whitten 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
35	FLT35-3PH	**3 phase fault on Whitten 115kV (528540) to S_Jal 115kV (528547) CKT 1, near Whitten**
		a. Apply fault at the Whitten 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
36	FLT36-3PH	**3 phase fault on Cooper Ranch 115kV (528554) to Oil Center 115kV (528552) CKT 1, near Cooper Ranch**
		a. Apply fault at the Cooper Ranch 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
37	FLT37-3PH	**3 phase fault on Cooper Ranch 115kV (528554) to Byrd 115kV (528582) CKT 1, near Cooper Ranch**
		a. Apply fault at the Cooper Ranch 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
38	FLT38-3PH	**3 phase fault on Cunningham 115kV (527864) to Hobbs 115kV (527891) CKT 1, near Cunningham.**
		a. Apply fault at the Cunningham 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
39	FLT39-3PH	**3 phase fault on Cunningham 115kV (527864) to Buckeye Tap 115kV (528348) CKT 1, near Cunningham.**
		a. Apply fault at the Cunningham 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
40	FLT40-3PH	**3 phase fault on Cunningham 115kV (527864) to Maddox 115kV (528355) CKT 1, near Cunningham.**
		a. Apply fault at the Cunningham 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
41	FLT41-3PH	**3 phase fault on Cunningham 115kV (527864) to Quahada 115kV (528394) CKT 1, near Cunningham.**
		a. Apply fault at the Cunningham 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
42	FLT42-3PH	**3 phase fault on Cunningham 115kV (527864) to Monument Tap 115kV (528568) CKT 1, near Cunningham.**
		a. Apply fault at the Cunningham 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
43	FLT43-3PH	**3 phase fault on Quahada 115kV (528394) to PCA 115kV (527930) CKT 1, near Quahada.**
		a. Apply fault at the Quahada 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
44	FLT44-3PH	**3 phase fault on Quahada 115kV (528394) to LEA National 115kV (528399) CKT 1, near Quahada.**
		a. Apply fault at the Quahada 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
45	FLT45-3PH	**3 phase fault on Maddox 115kV (528355) to Pearle 115kV (528392) CKT 1, near Maddox.**
		a. Apply fault at the Maddox 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
46	FLT46-3PH	**3 phase fault on Maddox 115kV (528355) to Sanger SW 115kV (528463) CKT 1, near Maddox.**
		a. Apply fault at the Maddox 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
47	FLT47-3PH	**3 phase fault on Maddox 115kV (528355) to Monument 115kV (528491) CKT 1, near Maddox.**
		a. Apply fault at the Maddox 115kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
48	FLT48-3PH	**3 phase fault on G08-022 Tap 345kV (560007) to Eddy County 345kV (527802) CKT 1, near G08-022 Tap.**
		a. Apply fault at the G08-022 Tap 345kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
49	FLT49-3PH	**3 phase fault on G08-022 Tap 345kV (560007) to Tolk 345kV (525549) CKT 1, near G08-022 Tap.**
		a. Apply fault at the G08-022 Tap 345kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
50	FLT50-3PH	**3 phase fault on the Tolk Tap 230kV (525543) to Tolk 345kV (525549) to Tolk 13.2kV (525537) XFMR CKT 1, near Tolk Tap 230kV.**
		a. Apply fault at the Tolk Tap 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted transformer.
51	FLT51-3PH	**3 phase fault on the GEN-2013-027 (562480) to Tolk West (525531) 230 kV line, near GEN-2013-027.**
		a. Apply fault at the GEN-2013-027 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
52	FLT52-SB	**Single phase fault with stuck breaker on the Tolk West (525531) to GEN-2013-027 (562480) 230 kV line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. At 5 cycles, open GEN-2013-027 end of the faulted line.
		c. At 15 cycles, clear the fault and open Tolk West end of the line in (b) and trip Tolk West (525531) to Plant X (525481) 230 kV line.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
53	FLT53-3PH	**3 phase fault on the GEN-2013-027 (562480) to Yoakum (526935) 230 kV line, near GEN-2013-027.**
		a. Apply fault at the GEN-2013-027 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
54	FLT54-SB	**Single phase fault with stuck breaker on the Yoakum (526935) to GEN-2013-027 (562480) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230kV bus.
		b. At 5 cycles, open GEN-2013-027 end of the faulted line.
		c. At 15 cycles, clear the fault and open Yoakum end of the line in (b) and trip Yoakum (526935) to Yoakum 115 (526934)/13.2 kV (526931) transformer circuit #1.
55	FLT55-3PH	**3 phase fault on the Yoakum (526935) to Amoco-SS (526460) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
56	FLT56-3PH	**3 phase fault on the Yoakum (526935) to OxyBru Tap (527010) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
57	FLT57-3PH	**3 phase fault on the Yoakum (526935) to Mustang (527149) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
58	FLT58-3PH	**3 phase fault on the Yoakum (526935) to G14-070-TAP (560018) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
59	FLT59-3PH	**3 phase fault on the Yoakum 230 kV (526935) to Yoakum 115 kV (526934)/13.2 kV (526931) transformer circuit #1, near Yoakum.**
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer and remove fault.
60	FLT60-PO	**(Prior Outage) Yoakum (526935) – Amoco-SS (526460) 230 kV out of service then 3 phase fault on the Yoakum 230 kV (526935) to Yoakum 115 kV (526934)/13.2 kV (526934) transformer circuit #1, near Yoakum.**
		Switch Yoakum (526935) – Amoco-SS (526460) out of service then solve.
		a. Apply fault at the Yoakum 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer and remove fault.
61	FLT61-SB	**Single phase fault with stuck breaker on the Yoakum (526935) to Amoco-SS (526460) 230 kV line, near Yoakum.**
		a. Apply fault at the Yoakum 230kV bus.
		b. At 5 cycles, open Amoco-SS end of the faulted line.
		c. At 15 cycles, clear the fault and trip Yoakum 230 kV (526935) bus.
62	FLT62-3PH	**3 phase fault on Tolk West 230kV (525531) to Roosevelt 230kV (524909) CKT 2, near Tolk West.**
		a. Apply fault at the Tolk West 230kV bus.
		b. Clear fault after 5 cycles and trip the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
63	FLT63-SB	**Single phase fault with stuck breaker on the Tolk West (525531) to Roosevelt N (524909) 230 kV line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. At 5 cycles, open Roosevelt N end of the faulted line.
		c. At 15 cycles, clear the fault and open Tolk West end of the line in (b) and trip Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line.
64	FLT64-3PH	**3 phase fault on the Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
65	FLT65-SB	**Single phase fault with stuck breaker on the Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. At 5 cycles, open Plant X end of the faulted line.
		c. At 15 cycles, clear the fault and open Tolk West end of the line in (b) and trip Tolk West (525531) to Tolk Tap (525543) 230 kV bus tie line.
66	FLT66-3PH	**3 phase fault on the Tolk 345 kV (525549) to Tolk Tap 230 kV (525543)/ 13.2 kV (525537) transformer, near Tolk 345 kV.**
		a. Apply fault at the Tolk 345 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer.
67	FLT67-3PH	**3 phase fault on the Tolk West (525531) to Lamb Co (525637) 230 kV line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
68	FLT68-SB	**Single phase fault with stuck breaker on the Tolk West (525531) to Lamb Co (525637) 230 kV line, near Tolk West.**
		a. Apply fault at the Tolk West 230 kV bus.
		b. At 5 cycles, open Lamb Co end of the faulted line.
		c. At 15 cycles, and then clear the fault and open Tolk West end of the line in (b) and trip Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line.
69	FLT69-PO	**(Prior Outage) Tolk West (525531) – Plant X (525481) 230 kV circuit #1 out of service then 3 phase fault on the Tolk East 230 kV (525524) to Plant X (525481) 230 kV circuit #2, near Tolk East.**
		Switch Tolk West (525531) – Plant X (525481) 230 kV circuit #1 out of service then solve.
		a. Apply fault at the Tolk East 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
70	FLT70-SB	**Single phase fault with stuck breaker on the Tolk East (525524) to Plant X (525481) 230 kV line circuit #2, near Tolk East.**
		a. Apply fault at the Tolk East 230 kV bus.
		b. At 5 cycles, open Plant X end of the faulted line.
		c. At 15 cycles, clear the fault and open Tolk West end of the line in (b) and trip Tolk East (525524) to TUCO (525830) 230 kV line.
71	FLT71-3PH	**3 phase fault on the SP-Erskine (526109) to Indiana (526146) 115kV line, near SP-Erskine.**
		a. Apply fault at the near SP-Erskine 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
72	FLT72-3PH	**3 phase fault on the SP-Erskine (526109) to Carlisle (526160) 115kV line, near SP-Erskine.**
		a. Apply fault at the near SP-Erskine 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
73	FLT73-3PH	**3 phase fault on the Tuco (525828) to Hale County (525454) 115kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
74	FLT74-3PH	**3 phase fault on the Tuco (525828) to Floyd County (525780) 115kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
75	FLT75-3PH	**3 phase fault on the Tuco (525828) to Stanton West (526076) 115kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
76	FLT76-3PH	**3 phase fault on the Tuco (525828) to Lubbock West (526298) 115kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
77	FLT77-3PH	**3 phase fault on the Carlisle (526160) to LP-Doud Tap (526162) 115kV line circuit 1, near Carlisle.**
		a. Apply fault at the Carlisle 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
78	FLT78-3PH	**3 phase fault on the Carlisle (526160) to Murphy (526192) 115kV line circuit 1, near Carlisle.**
		a. Apply fault at the Carlisle 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
79	FLT79-3PH	**3 phase fault on the Carlisle (526161) to LP-Milwaukee (522823) 230kV line circuit 1, near Carlisle.**
		a. Apply fault at the Carlisle 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
80	FLT80-3PH	**3 phase fault on the Carlisle (526161) to Tuco (525830) 230kV line circuit 1, near Carlisle.**
		a. Apply fault at the Carlisle 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
81	FLT81-3PH	**3 phase fault on the Carlisle (526160) 115kV to Carlisle (526161) 230kV/(526157) 13.2kV ckt 1 transformer at the 115kV bus.**
		a. Apply fault at the Carlisle 115kV bus.
		b. Clear fault after 5 cycles by tripping the transformer
82	FLT82-3PH	**3 phase fault on the Tuco (525828) 115kV to Tuco (525830) 230kV/(525821) 13.2kV ckt 1 transformer at the 115kV bus.**
		a. Apply fault at the Tuco 115kV bus.
		b. Clear fault after 5 cycles by tripping the transformer

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
83	FLT83-3PH	**3 phase fault on the LP-Milkaukee (522823) 230kV to LP-Milkaukee (522828) 69kV/(522827) 13.5kV ckt 1 transformer at the 230kV bus.**
		a. Apply fault at the LP-Milkaukee 230kV bus.
		b. Clear fault after 5 cycles by tripping the transformer
84	FLT84-3PH	**3 phase fault on the G14-007 Tap (562487) to Tuco (525832) 345kV line circuit 1, near G14-007 Tap.**
		a. Apply fault at the G14-007 Tap 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
85	FLT85-3PH	**3 phase fault on the G14-007 Tap (562487) to Border (515458) 345kV line circuit 1, near G14-007 Tap.**
		a. Apply fault at the G14-007 Tap 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
86	FLT86-3PH	**3 phase fault on the Border (515458) to Chisholm (511553) 345kV line circuit 1, near Border.**
		a. Apply fault at the Border 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
87	FLT87-3PH	**3 phase fault on the Tuco (525832) to OKU (511456) 345kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
88	FLT88-3PH	**3 phase fault on the Tuco (525832) 345kV to Tuco (525830) 230kV/(525824) 13.2kV ckt 1 transformer at the 345kV bus.**
		a. Apply fault at the Tuco 345kV bus.
		b. Clear fault after 5 cycles by tripping the transformer
89	FLT89-3PH	**3 phase fault on the Tuco (525830) to Swisher (525213) 230kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
90	FLT90-3PH	**3 phase fault on the Tuco (525830) to Tolk East (525524) 230kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
91	FLT91-3PH	**3 phase fault on the Tuco (525830) to Jones (526337) 230kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
92	FLT92-3PH	**3 phase fault on the Tuco (525830) 230kV to Tuco (525828) 115kV/(525821) 13.2kV ckt 1 transformer at the 230kV bus.**
		a. Apply fault at the Tuco 230kV bus.
		b. Clear fault after 5 cycles by tripping the transformer
93	FLT93-3PH	**3 phase fault on the Jones (526337) to LP-Holly (522870) 230kV line circuit 1, near Jones.**
		a. Apply fault at the Jones 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
94	FLT94-3PH	**3 phase fault on the Jones (526337) to Lubbock South (526269) 230kV line circuit 2, near Jones.**
		a. Apply fault at the Jones 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
95	FLT95-3PH	**3 phase fault on the Jones (526337) to Lubbock East (526299) 230kV line circuit 1, near Jones.**
		a. Apply fault at the Jones 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
96	FLT96-3PH	**3 phase fault on the Jones (526337) to Grassland (526677) 230kV line circuit 1, near Jones.**
		a. Apply fault at the Jones 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
97	FLT97-3PH	**3 phase fault on the Swisher (525213) to Amarillo South (524415) 230kV line circuit 1, near Swisher.**
		a. Apply fault at the Swisher 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
98	FLT98-PO	**(Prior Outage) TUCO (525830) 230kV to TUCO (525828) 115kV/(525819) 13.2kV transformer CKT 2. Then 3 phase fault on the TUCO (525830) 230kV to TUCO (525828) 115kV/(525821) 13.2kV transformer CKT 1, near TUCO 115kV.**
		a. Prior outage TUCO (525830) 230kV to TUCO (525828) 115kV/(525819) 13.2kV transformer CKT 2 (solve network for steady state solution).
		b. 3 phase fault on the TUCO (525830) 230kV to TUCO (525828) 115kV/(525821) 13.2kV transformer CKT 1, near TUCO 115kV.
		c. Leave fault on for 5 cycles, then trip the faulted transformer.
99	FLT99-3PH	**3 phase fault on the Norton (524502) to FE-Tucumcari (524509) 115kV line, near Norton.**
		a. Apply fault at the Norton 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
100	FLT100-3PH	**3 phase fault on the Pleasant Hill (524768) to E Clovis (524773) 115kV line, near Pleasant Hill.**
		a. Apply fault at the Pleasant Hill 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
101	FLT101-3PH	**3 phase fault on the Pleasant Hill (524768) to N Clovis Tap (524776) 115kV line, near Pleasant Hill.**
		a. Apply fault at the Pleasant Hill 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
102	FLT102-3PH	**3 phase fault on the Pleasant Hill (524768) to FE-Holland (524831) 115kV line, near Pleasant Hill.**
		a. Apply fault at the Pleasant Hill 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
103	FLT103-3PH	**3 phase fault on the Pleasant Hill (524770) 230kV to Pleasant Hill (524768) 115kV/(524767) 13.2kV transformer, near Pleasant Hill 230kV.**
		a. Apply fault at the Pleasant Hill 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer.
104	FLT104-3PH	**3 phase fault on the Pleasant Hill (524770) to Oasis (524875) 230kV line, near Pleasant Hill.**
		a. Apply fault at the Pleasant Hill 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
105	FLT105-3PH	**3 phase fault on the Pleasant Hill (524770) to Roosevelt (524909) 230kV line, near Pleasant Hill.**
		a. Apply fault at the Pleasant Hill 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
106	FLT106-3PH	**3 phase fault on the Oasis (524875) 230kV to Oasis (524874) 115kV/(524872) 13.2kV transformer, near Oasis 230kV.**
		a. Apply fault at the Oasis 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer.
107	FLT107-3PH	**3 phase fault on the FE-Clovis Int (524808) to N Clovis Tap (524776) 115kV line, near FE-Clovis Int.**
		a. Apply fault at the near FE-Clovis Int 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
108	FLT108-3PH	**3 phase fault on the FE-Clovis Int (524808) to W Clovis (524784) 115kV line, near FE-Clovis Int.**
		a. Apply fault at the near FE-Clovis Int 115kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
109	FLT109-SB	**Single phase fault with stuck breaker (4K125) on the Hobbs (527894) to Andrews (528604) 230 kV circuit #1 line, near Hobbs.**
		a. Apply fault at the Hobbs 230 kV bus.
		b. At 5 cycles, open Andrews end of the faulted line.
		c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs Plt (527903.
110	FLT110-SB	**Single phase fault with stuck breaker (4K120) on the Hobbs (527894) to Andrews (528604) 230 kV circuit #1 line, near Hobbs.**
		a. Apply fault at the Hobbs 230 kV bus.
		b. At 5 cycles, open Andrews end of the faulted line.
		c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs (527894) to Cunnigham (527865) and Hobbs to G14-070-TAP (560018).
111	FLT111-SB	**Single phase fault with stuck breaker on the Potash Jct (527962) to Carlsbad (528180) 115kV circuit #1 line, near Potash Jct.**
		a. Apply fault at the Potash Jct 115kV bus.
		b. At 5 cycles, open Carlsbad end of the faulted line.
		c. At 18 cycles, clear the fault and Potash Jct(527962) bus.
112	FLT112-3PH	**3 phase fault on the Hobbs (527894) to G14-070-TAP (560018) 230 kV line, near Hobbs.**
		a. Apply fault at the Hobbs 230 kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
113	FLT113-3PH	**3 phase fault on the G14-007 Tap (562487) to Tuco_2 (560021) 345kV line circuit 1, near G14-007 Tap.**
		a. Apply fault at the G14-007 Tap 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
114	FLT114-3PH	**3 phase fault on the Chisholm (511553) to Wooward (515375) 345kV line circuit 1, near Chisholm.**
		a. Apply fault at the Chisholm 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
115	FLT115-3PH	**3 phase fault on the Chisholm (511553) to Gracemont (515800) 345kV line circuit 1, near Chisholm.**
		a. Apply fault at the Chisholm 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
116	FLT116-3PH	**3 phase fault on the Tuco (525832) to Tuco_2 (560021) 345kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco (525832) 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
117	FLT117-3PH	**3 phase fault on the Tuco (525832) to Yoakam (526936) 345kV line circuit 1, near Tuco.**
		a. Apply fault at the Tuco (525832) 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
118	FLT118-3PH	**3 phase fault on the Tuco_2 (560021) to Tolk (525549) 345kV line circuit 1, near Tuco_2.**
		a. Apply fault at the Tuco_2 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
119	FLT119-PO	**(Prior Outage) Border (515458) – Chisholm (511553) 345kV circuit #2 out of service then 3 phase fault on the Border (515458) 345kV to Chisholm (511553) 345kV circuit #1, near Border.**
		Switch Border (515458) – Chisholm (511553) 345kV circuit #2 out of service then solve.
		a. Apply fault at the Border 345kV bus.
		b. Clear fault after 5 cycles by tripping Border (515458) 345kV to Chisholm (511553) 345kV circuit #1.
120	FLT120-PO	**(Prior Outage) Tuco 2 (560021) – G14_007-Tap (562487) 345kV circuit #1 out of service then 3 phase fault on the Tolk (525549) 345kV to Tuco 2 (560021) 345kV circuit #1, near Tolk.**
		Switch Tuco 2 (560021) – G14_007-Tap (562487) 345kV circuit #1 out of service then solve.
		a. Apply fault at the Tolk 345kV bus.
		b. Clear fault after 5 cycles by tripping Tolk (525549) 345kV to Tuco 2 (560021) 345kV circuit #1.
121	FLT121-PO	**(Prior Outage) Tuco 2 (560021) – G14_007-Tap (562487) 345kV circuit #1 out of service then 3 phase fault on the Tuco (525832) 345kV to Yoakum (526936) 345kV circuit #1, near Tuco.**
		Switch Tuco 2 (560021) – G14_007-Tap (562487) 345kV circuit #1 out of service then solve.
		a. Apply fault at the Tuco (525832) 345kV bus.
		b. Clear fault after 5 cycles by tripping Tuco (525832) 345kV to Yoakum (526936) 345kV circuit #1.
122	FLT-122-3PH	**3 phase fault on the FE-Tucumcari (524509) to Lopez (524472) 1155 kV line, near FE-Tucumcari.**
		a. Apply fault at the FE-Tucumcari 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
123	FLT123-3PH	**3 phase fault on the Tolk (525549) to Potter County (523961) 345 kV line, near Tolk.**
		a. Apply fault at the Tolk 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
124	FLT124-3PH	**3 phase fault on the Chisholm (511553) to Potter County (523961) 345 kV line, near Chisholm.**
		a. Apply fault at the Chisholm 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
125	FLT125-3PH	**3 phase fault on the Potter County (523961) to GEN-2014-038-Tap (560011) 345 kV line, near Potter County.**
		a. Apply fault at the Potter County 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 2-4 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description
126	FLT126-3PH	**3 phase fault on the Potter County 345kV (523961) to 230kV (523959) to 13.2kV (523957) transformer, near Potter County 345kV.**
		a. Apply fault at the Potter County 345kV bus.
		b. Clear fault after 5 cycles by tripping the faulted transformer.
127	FLT127-3PH	**3 phase fault on the Hobbs (527894) to GEN-2014-070-TAP (560018) 230 kV line, near GEN-2014-070-TAP.**
		a. Apply fault at the GEN-2014-070-TAP 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
128	FLT128-3PH	**3 phase fault on the Yoakum (526935) to GEN-2014-070-TAP (560018) 230 kV line, near GEN-2014-070-TAP.**
		a. Apply fault at the GEN-2014-070-TAP 230kV bus.
		b. Clear fault after 5 cycles by tripping the faulted line.
		c. Wait 20 cycles, and then re-close the line in (b) back into the fault.
		d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

SECTION 3: STABILITY ANALYSIS

The objective of the Stability Analysis was to determine the impacts of the generator interconnections on the stability and voltage recovery on the SPP transmission system. If problems with stability or voltage recovery were identified the need for reactive compensation or system upgrades were investigated.

3.1 Approach

SPP provided MEPPI with the following three .sav cases:

- 2015 Summer Peak
- 2015 Winter Peak
- 2025 Summer Peak

Each case was examined prior to the Stability Analysis to ensure the case contained the proposed study projects and any previously queued projects listed in Tables 2-2 and 2-3 respectively. There was no suspect power flow data in the study area. The dynamic datasets were also verified and stable initial system conditions (i.e., "flat lines") were achieved. Three-phase and single phase-to-ground faults listed in Table 2-4 were examined. Single-phase fault impedances were calculated for each season to result in a voltage of approximately 60% of the pre-fault voltage. Refer to Table 3-1 for a list of the calculated single-phase fault impedances used for this analysis.

Table 3-1
Calculated Single-Phase Fault Impedances

Cont. No.*	Cont. Name	Single-Phase Fault Impedance (MVA)		
		2015 Summer	2015 Winter	2025 Summer
52	FLT52-SB	-7281.3	-6875.0	-8500.0
54	FLT54-SB	-4437.5	-3625.0	-4437.5
61	FLT61-SB	-4437.5	-3625.0	-4437.5
63	FLT63-SB	-7281.3	-6875.0	-8500.0
65	FLT65-SB	-7281.3	-6875.0	-8500.0
68	FLT68-SB	-7281.3	-6875.0	-8500.0
70	FLT70-SB	-7281.3	-6875.0	-8500.0
109	FLT109-SB	-4843.8	-4234.4	-5250.0
110	FLT110-SB	-4843.8	-4234.4	-5250.0
111	FLT111-SB	-1125.0	-1062.5	-1750.0

*Refer to Table 2-4 for a description of the contingency scenerio

Bus voltages, machine rotor angles, and previously queued generation in the study area were monitored in addition to bus voltages and machine rotor angles in the following areas:

- 520 AEPW
- 524 OKGE
- 525 WFEC
- 526 SPS
- 531 MIDW
- 534 SUNC
- 536 WERE

The results of the analysis determined if reactive compensation or system upgrades were required to obtain acceptable system performance. If additional reactive compensation was required, the size, type, and location were determined. The proposed reactive reinforcements would ensure the wind or solar farm meets FERC Order 661A low voltage requirements and return the wind or solar farm to its pre-disturbance operating voltage. If the results indicated the need for fast responding reactive support, dynamic support such as an SVC or STATCOM was investigated. If tripping of the prior queued projects was observed during the stability analysis (for under/over voltage or under/over frequency) the simulations were re-ran with the prior queued project's voltage and frequency tripping disabled.

3.2 Stability Analysis Results

The Stability Analysis determined that there were multiple contingencies that resulted in system instability, generation tripping offline, or low bus voltages below 0.7 p.u. for the 2015 Summer

Peak, 2015 Winter Peak, and 2025 Summer Peak conditions when all generation interconnection requests were at 100% output.

Refer to Table 3-2 for a summary of the Stability Analysis results for the cases listed in Table 2-4. Table 3-2 is a summary of the stability results for the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions and states whether the system remained stable and if acceptable voltage recovery was observed (i.e. voltage recovers between 0.7 p.u. and 1.2 p.u.) after the fault was cleared. If high or low voltages were observed the number of buses failing the voltage criteria is listed.

Table 3-2
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
1	FLT01-3PH	No	No	Yes	No	No	Yes	No	No	Yes
2	FLT02-3PH	No	No	Yes	No	No	Yes	No	No	Yes
3	FLT03-3PH	System Instability			System Instability			System Instability		
4	FLT04-3PH	No	No	Yes	No	No	Yes	No	No	Yes
5	FLT05-3PH	System Instability			System Instability			System Instability		
6	FLT06-3PH	System Instability			System Instability			System Instability		
7	FLT07-3PH	No	No	Yes	No	No	Yes	No	No	Yes
8	FLT08-3PH	No	Yes (28)	Yes	No	Yes (27)	Yes	No	No	Yes
9	FLT09-3PH	No	Yes (27)	Yes	No	Yes (26)	Yes	No	No	Yes
10	FLT10-3PH	No	No	Yes	No	No	Yes	No	No	Yes
11	FLT11-3PH	No	No	Yes	No	No	Yes	No	No	Yes
12	FLT12-3PH	No	No	Yes	No	No	Yes	No	No	Yes
13	FLT13-3PH	No	No	Yes	No	No	Yes	No	No	Yes
14	FLT14-3PH	No	No	Yes	No	No	Yes	No	No	Yes
15	FLT15-3PH	No	No	Yes	No	No	Yes	No	No	Yes
16	FLT16-3PH	No	No	Yes	No	No	Yes	No	No	Yes
17	FLT17-3PH	No	No	Yes	No	No	Yes	No	No	Yes
18	FLT18-3PH	No	No	Yes	No	No	Yes	No	No	Yes
19	FLT19-3PH	No	No	Yes	No	No	Yes	No	No	Yes
20	FLT20-3PH	No	No	Yes	No	No	Yes	No	No	Yes
21	FLT21-3PH	No	No	Yes	No	No	Yes	No	No	Yes
22	FLT22-3PH	No	No	Yes	No	No	Yes	No	No	Yes
23	FLT23-3PH	No	No	Yes	No	No	Yes	No	No	Yes
24	FLT24-3PH	No	No	Yes	No	No	Yes	No	No	Yes
25	FLT25-3PH	No	No	Yes	No	No	Yes	No	No	Yes
26	FLT26-3PH	No	Yes (4)	Yes	No	Yes (6)	Yes	No	No	Yes
27	FLT27-3PH	No	No	Yes	No	No	Yes	No	No	Yes
28	FLT28-3PH	No	No	Yes	No	No	Yes	No	No	Yes
29	FLT29-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes

Table 3-2 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
30	FLT30-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes
31	FLT31-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes
32	FLT32-3PH	No	No	Yes	No	No	Yes	No	No	Yes
33	FLT33-3PH	No	No	Yes	No	No	Yes	No	No	Yes
34	FLT34-3PH	No	No	Yes	No	No	Yes	No	No	Yes
35	FLT35-3PH	No	No	Yes	No	No	Yes	No	No	Yes
36	FLT36-3PH	No	No	Yes	No	No	Yes	No	No	Yes
37	FLT37-3PH	No	No	Yes	No	No	Yes	No	No	Yes
38	FLT38-3PH	No	No	Yes	No	No	Yes	No	No	Yes
39	FLT39-3PH	No	No	Yes	No	No	Yes	No	No	Yes
40	FLT40-3PH	No	No	Yes	No	No	Yes	No	No	Yes
41	FLT41-3PH	No	No	Yes	No	No	Yes	No	No	Yes
42	FLT42-3PH	No	No	Yes	No	No	Yes	No	No	Yes
43	FLT43-3PH	No	No	Yes	No	No	Yes	No	No	Yes
44	FLT44-3PH	No	No	Yes	No	No	Yes	No	No	Yes
45	FLT45-3PH	No	No	Yes	No	No	Yes	No	No	Yes
46	FLT46-3PH	No	No	Yes	No	No	Yes	No	No	Yes
47	FLT47-3PH	No	No	Yes	No	No	Yes	No	No	Yes
48	FLT48-3PH	No	No	Yes	No	No	Yes	No	No	Yes
49	FLT49-3PH	No	No	Yes	No	No	Yes	No	No	Yes
50	FLT50-3PH	No	No	Yes	No	No	Yes	No	No	Yes
51	FLT51-3PH	No	No	Yes	No	No	Yes	No	No	Yes
52	FLT52-SB	Yes (9)	No	Yes	Yes (9)	No	Yes	Yes (8)	No	Yes
53	FLT53-3PH	No	No	Yes	No	No	Yes	No	No	Yes
54	FLT54-SB	No	No	Yes	No	No	Yes	No	No	Yes
55	FLT55-3PH	No	No	Yes	No	No	Yes	No	No	Yes
56	FLT56-3PH	No	No	Yes	No	No	Yes	No	No	Yes
57	FLT57-3PH	No	No	Yes	No	No	Yes	No	No	Yes
58	FLT58-3PH	No	No	Yes	No	No	Yes	No	No	Yes
59	FLT59-3PH	No	No	Yes	No	No	Yes	No	No	Yes
60	FLT60-PO	No	No	Yes	No	No	Yes	No	No	Yes
61	FLT61-SB	No	No	Yes	No	No	Yes	No	No	Yes
62	FLT62-3PH	Yes (11)	No	Yes	Yes (11)	No	Yes	Yes (11)	No	Yes
63	FLT63-SB	Yes (8)	No	Yes	Yes (9)	No	Yes	Yes (6)	No	Yes
64	FLT64-3PH	Yes (11)	No	Yes	Yes (11)	No	Yes	Yes (11)	No	Yes
65	FLT65-SB	Yes (8)	No	Yes	Yes (9)	No	Yes	Yes (9)	No	Yes
66	FLT66-3PH	No	No	Yes	No	No	Yes	No	No	Yes
67	FLT67-3PH	Yes (11)	No	Yes	Yes (10)	No	Yes	Yes (11)	No	Yes
68	FLT68-SB	System Instability			System Instability			System Instability		
69	FLT69-PO	No	No	Yes	Yes (3)	No	Yes	No	No	Yes
70	FLT70-SB	Yes (9)	No	Yes	Yes (9)	No	Yes	No	No	Yes
71	FLT71-3PH	No	No	Yes	No	No	Yes	No	No	Yes
72	FLT72-3PH	No	No	Yes	No	No	Yes	No	No	Yes
73	FLT73-3PH	No	No	Yes	No	No	Yes	No	No	Yes
74	FLT74-3PH	No	No	Yes	No	No	Yes	No	No	Yes
75	FLT75-3PH	No	No	Yes	No	No	Yes	No	No	Yes

Table 3-2 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
76	FLT76-3PH	No	No	Yes	No	No	Yes	No	No	Yes
77	FLT77-3PH	No	No	Yes	No	No	Yes	No	No	Yes
78	FLT78-3PH	No	No	Yes	No	No	Yes	No	No	Yes
79	FLT79-3PH	No	No	Yes	No	No	Yes	No	No	Yes
80	FLT80-3PH	No	No	Yes	No	No	Yes	No	No	Yes
81	FLT81-3PH	No	No	Yes	No	No	Yes	No	No	Yes
82	FLT82-3PH	No	No	Yes	No	No	Yes	No	No	Yes
83	FLT83-3PH	No	No	Yes	No	No	Yes	No	No	Yes
84	FLT84-3PH	System Instability			System Instability			No	No	Yes
85	FLT85-3PH	System Instability			System Instability			No	No	Yes
86	FLT86-3PH	No	No	Yes	System Instability			No	No	Yes
87	FLT87-3PH	System Instability			System Instability			No	No	Yes
88	FLT88-3PH	No	No	Yes	No	No	Yes	No	No	Yes
89	FLT89-3PH	No	No	Yes	No	No	Yes	No	No	Yes
90	FLT90-3PH	No	No	Yes	No	No	Yes	No	No	Yes
91	FLT91-3PH	No	No	Yes	No	No	Yes	No	No	Yes
92	FLT92-3PH	No	No	Yes	No	No	Yes	No	No	Yes
93	FLT93-3PH	No	No	Yes	No	No	Yes	No	No	Yes
94	FLT94-3PH	No	No	Yes	No	No	Yes	No	No	Yes
95	FLT95-3PH	No	No	Yes	No	No	Yes	No	No	Yes
96	FLT96-3PH	No	No	Yes	No	No	Yes	No	No	Yes
97	FLT97-3PH	No	No	Yes	No	No	Yes	No	No	Yes
98	FLT98-PO	No	No	Yes	No	No	Yes	No	No	Yes
99	FLT99-3PH	System Instability			System Instability			System Instability		
100	FLT100-3PH	Yes (9)	No	Yes	Yes (11)	No	Yes	Yes (11)	No	Yes
101	FLT101-3PH	Yes (9)	No	Yes	Yes (9)	No	Yes	Yes (9)	No	Yes
102	FLT102-3PH	Yes (11)	No	Yes	Yes (9)	No	Yes	Yes (11)	No	Yes
103	FLT103-3PH	Yes (6)	No	Yes	Yes (6)	No	Yes	Yes (2)	No	Yes
104	FLT104-3PH	Yes (9)	No	Yes	Yes (9)	No	Yes	Yes (8)	No	Yes
105	FLT105-3PH	Yes (9)	No	Yes	Yes (9)	No	Yes	Yes (8)	No	Yes
106	FLT106-3PH	Yes (6)	No	Yes	Yes (6)	No	Yes	Yes (3)	No	Yes
107	FLT107-3PH	No	No	Yes	Yes (2)	No	Yes	No	No	Yes
108	FLT108-3PH	No	No	Yes	No	No	Yes	No	No	Yes
109	FLT109-SB	No	No	Yes	No	No	Yes	No	No	Yes
110	FLT110-SB	No	No	Yes	No	No	Yes	No	No	Yes
111	FLT111-SB	No	No	Yes	No	No	Yes	No	No	Yes
112	FLT112-3PH	No	No	Yes	No	No	Yes	No	No	Yes
113	FLT113-3PH	System Instability			System Instability			No	No	Yes
114	FLT114-3PH	System Instability			System Instability			No	No	Yes
115	FLT115-3PH	System Instability			System Instability			No	No	Yes
116	FLT116-3PH	No	No	Yes	No	No	Yes	No	No	Yes
117	FLT117-3PH	No	No	Yes	No	No	Yes	No	No	Yes
118	FLT118-3PH	No	No	Yes	No	No	Yes	No	No	Yes
119	FLT119-PO	No	No	Yes	No	No	Yes	No	No	Yes
120	FLT120-PO	No	No	Yes	No	No	Yes	No	No	Yes

Table 3-2 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
121	FLT121-PO	No	No	Yes	No	No	Yes	No	No	Yes
122	FLT122-3PH	System Instability			System Instability			System Instability		
123	FLT123-3PH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
124	FLT124-3PH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
125	FLT125-3PH	No	No	Yes	No	No	Yes	No	No	Yes
126	FLT126-3PH	No	No	Yes	No	No	Yes	No	No	Yes
127	FLT127-3PH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
128	FLT128-3PH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Several upgrades were required to resolve system violations. Refer to Table 3-3 for a list of contingencies that resulted in system violations and the required upgrade that was implemented.

Contingencies near the Chaves County POI resulted in the Chaves County generation tripping offline. Dynamic reactors were added to the Chaves County 115 kV bus. The limiting contingency for 2015 Summer Peak and Winter Peak conditions was FLT05-3PH, which required a 120 Mvar reactive device to mitigate all violations. The limiting contingency for the 2025 Summer Peak condition was also FLT05-3PH, which needed a 100 Mvar reactive device to mitigate all violations. Refer to Figure 3-1 for a comparison plot of the real power of GEN-2014-033 for FLT05-3PH for the 2015 Summer Peak case with and without upgrades.

Table 3-3
Contingencies Resulting in Upgrades

Fault	Short Description	Caprock Upgrade	Potter Co-Tolk & Potter Co-Chisholm Upgrade	Dynamic Reactors
FLT03-3PH	Chaves 115/230kV XFMR			X (120 Mvar at Chaves)
FLT05-3PH	Chaves-San Juan 230kV			X (120 Mvar at Chaves)
FLT06-3PH	Chaves-Eddy Co 230kV			X (120 Mvar at Chaves)
FLT08-3PH	Eddy Co 230kV/345kV XFMR			X (120 Mvar at Chaves)
FLT09-3PH	Eddy-Cunningham 230kV			X (120 Mvar at Chaves)
FLT26-3PH	G1469T-InterpidTap 115kV			X (50 Mvar at G14-069)
FLT52-SB	Tolk-G1327T 230kV	X		
FLT62-3PH	Tolk-Roosevelt 230kV	X		
FLT63-SB	Tolk-Roosevelt 230kV	X		
FLT64-3PH	Tolk-PlantX 230kV	X		
FLT65-SB	Tolk-PlantX 230kV	X		
FLT67-3PH	Tolk-Lamb Co 230kV	X		
FLT68-SB	Tolk-Lamb Co 230kV	X		
FLT70-SB	Tolk-PlantX 230kV	X		
FLT84-3PH	G1407T-Tuco 345kV		X	
FLT85-3PH	G1407-Border 345kV		X (disable SLNOS1 model)	
FLT87-3PH	Tuco-OKU 345kV		X	
FLT99-3PH	Norton-FE-Tucumcari 115kV	X		
FLT100-3PH	Pleasant Hill-Clovis 115kV	X		

Table 3-3 (Continued)
Contingencies Resulting in Upgrades

Fault	Short Description	Caprock Upgrade	Potter Co-Tolk & Potter Co-Chisholm Upgrade	Dynamic Reactors
FLT101-3PH	Pleasant Hill-ClovisT 115kV	X		
FLT102-3PH	Pleasant Hill-FE-Holland 115kV	X		
FLT103-3PH	Pleasant Hill 230/115kV XFMR	X		
FLT104-3PH	Pleasant Hill-Oasis 230kV	X		
FLT105-3PH	Pleasant Hill-Roosevelt 230kV	X		
FLT106-3PH	Oasis 115/230kV XFMR	X		
FLT113-3PH	G1407T-Tuco 345kV		X	
FLT114-3PH	Chisholm-Woodward 345kV		X	
FLT115-3PH	Chisholm-Gracemont 345kV		X (disable SLNOS1 model)	
FLT122-3PH	FE-Tucumcari-Lopez 115kV	X		

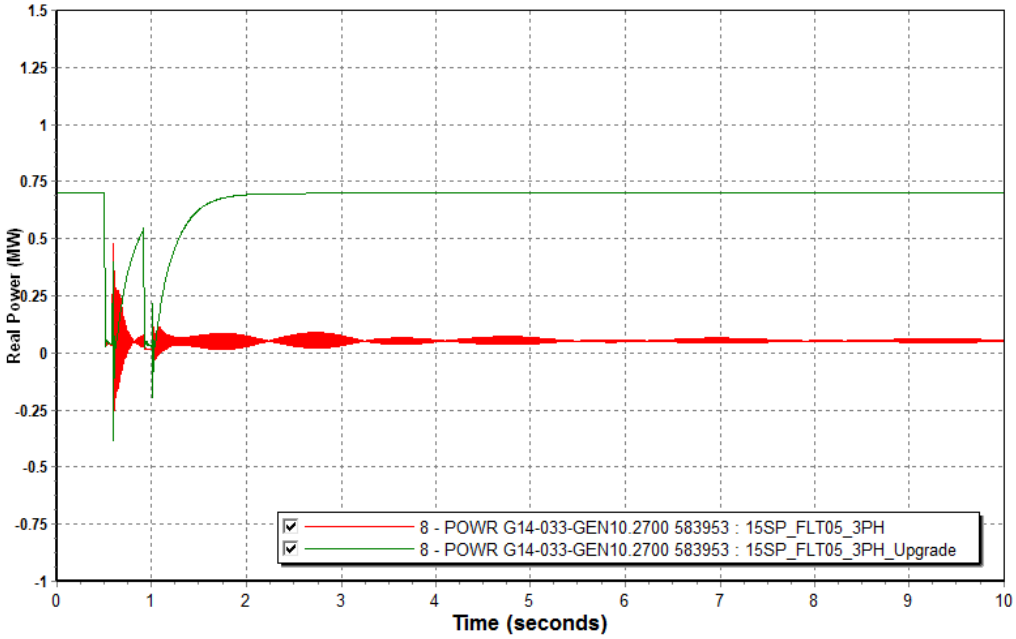


Figure 3-1. Comparison plot of real power (MW) for FLT05-3PH with and without upgrades for GEN-2014-033 (Chaves POI).

Contingency FLT26-3PH resulted in voltage violations near GEN-2014-069 of above 1.2 p.u. after the fault was cleared for 2015 Summer Peak and 2015 Winter Peak conditions. Dynamic reactors (50 Mvar) were added to the GEN-2014-069-Tap 115 kV bus in order to reduce the voltage violations.

Normal three-phase faults and stuck breaker contingencies near the Tolk substation resulted in several low voltages and generation tripping offline. The following upgrades (Caprock Upgrade) were implemented to resolve system violations:

- Conversion and rebuild of the existing Norton-Pleasant Hill 115 kV line to a 230 kV circuit
- Add a 230/115kV transformer at Norton
- Model corrections at Caprock wind farm[6]
- Add an additional 18 Mvar fast switched capacitor at the Caprock Wind 34.5kV bus
- Add a total of 8.4 Mvar switched capacitors on the GEN-2014-066 34.5kV bus and apply the extended ride-through option

[6] Model corrections included modeling the Caprock wind farm on a 600 V bus and modeling the plant's reactive compensation equipment including switch shunts, fast switched shunts, and dynamic reactive devices on the 34.5kV bus

- Add a total of 10.8 Mvar switched capacitors and an 8 Mvar STATCOM on the ASGI-2014-002 34.5kV bus

Refer to Figure 3-2 for a comparison plot of select bus voltages for FLT105-3PH for the 2015 Winter Peak case with and without upgrades. The listed upgrades were required to mitigate violations for all study years and seasons. Note with the required upgrades, system recovery was improved for buses with low voltages less than 0.7 p.u. and the voltage recovery was determined to be acceptable.

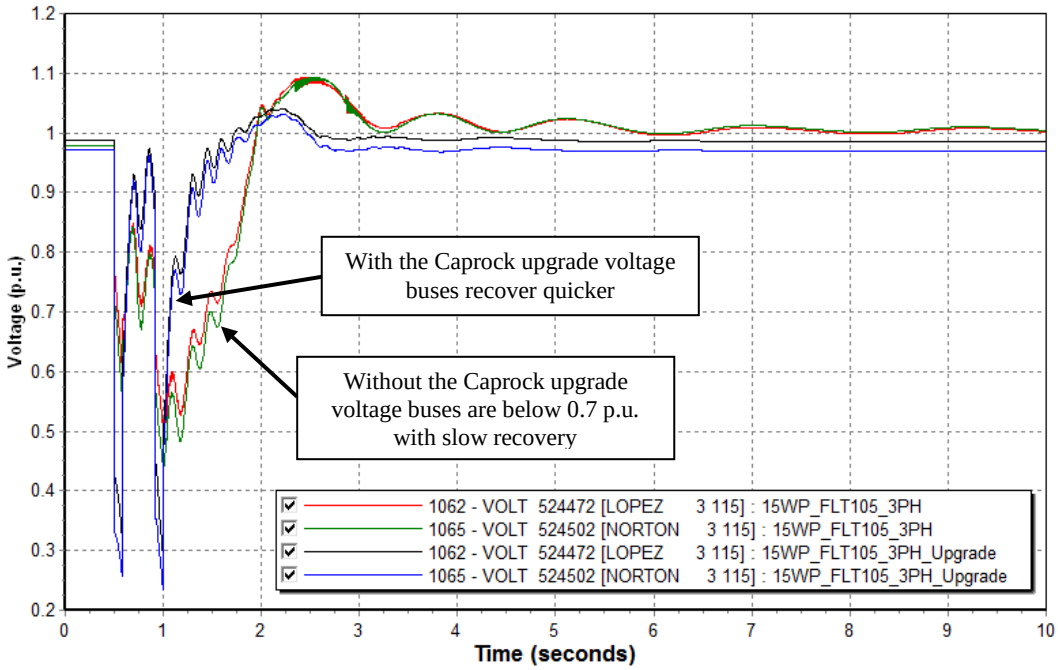


Figure 3-2. Comparison plot of select bus voltages for FLT105-3PH for the 2015 Winter Peak case with and without upgrades.

Several contingencies near the Tuco substation resulted in system instability. Two transmission lines, a Tolk – Potter County 345 kV line and a Chisholm – Potter County 345 kV line were added to mitigate violations (Potter Co-Tolk & Potter Co-Chisholm Upgrade). Both lines were required to mitigate violations for all study years and seasons.

Contingency FLT85-3PH and FLT115-3PH resulted in the SNLOS1 relay at the Tuco to OKU 345 kV circuit tripping for all study years and seasons. Parameters for the relay will need to be examined and adjusted accordingly[7].

After all of the required upgrades were implemented, the Stability Analysis was re-simulated to determine system stability. With the required upgrades, the Stability Analysis determined that that there was no wind turbine tripping or system instability as a result of interconnecting all study projects at 100% output. Refer to Table 3-4 for a summary of the Stability Analysis results with all upgrades implemented.

Table 3-4
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions with All Upgrades

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
1	FLT01-3PH	No	No	Yes	No	No	Yes	No	No	Yes
2	FLT02-3PH	No	No	Yes	No	No	Yes	No	No	Yes
3	FLT03-3PH	No	No	Yes	No	No	Yes	No	No	Yes
4	FLT04-3PH	No	No	Yes	No	No	Yes	No	No	Yes
5	FLT05-3PH	No	No	Yes	No	No	Yes	No	No	Yes
6	FLT06-3PH	No	No	Yes	No	No	Yes	No	No	Yes
7	FLT07-3PH	No	No	Yes	No	No	Yes	No	No	Yes
8	FLT08-3PH	No	No	Yes	No	No	Yes	No	No	Yes
9	FLT09-3PH	No	No	Yes	No	No	Yes	No	No	Yes
10	FLT10-3PH	No	No	Yes	No	No	Yes	No	No	Yes
11	FLT11-3PH	No	No	Yes	No	No	Yes	No	No	Yes
12	FLT12-3PH	No	No	Yes	No	No	Yes	No	No	Yes
13	FLT13-3PH	No	No	Yes	No	No	Yes	No	No	Yes
14	FLT14-3PH	No	No	Yes	No	No	Yes	No	No	Yes
15	FLT15-3PH	No	No	Yes	No	No	Yes	No	No	Yes
16	FLT16-3PH	No	No	Yes	No	No	Yes	No	No	Yes
17	FLT17-3PH	No	No	Yes	No	No	Yes	No	No	Yes
18	FLT18-3PH	No	No	Yes	No	No	Yes	No	No	Yes
19	FLT19-3PH	No	No	Yes	No	No	Yes	No	No	Yes
20	FLT20-3PH	No	No	Yes	No	No	Yes	No	No	Yes
21	FLT21-3PH	No	No	Yes	No	No	Yes	No	No	Yes
22	FLT22-3PH	No	No	Yes	No	No	Yes	No	No	Yes
23	FLT23-3PH	No	No	Yes	No	No	Yes	No	No	Yes
24	FLT24-3PH	No	No	Yes	No	No	Yes	No	No	Yes
25	FLT25-3PH	No	No	Yes	No	No	Yes	No	No	Yes
26	FLT26-3PH	No	No	Yes	No	No	Yes	No	No	Yes
27	FLT27-3PH	No	No	Yes	No	No	Yes	No	No	Yes

[7] SPP indicated more analysis will be performed on the settings of the out-of-step relays in the Interconnection Facilities Study.

Table 3-4 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions with All Upgrades

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
28	FLT28-3PH	No	No	Yes	No	No	Yes	No	No	Yes
29	FLT29-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes
30	FLT30-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes
31	FLT31-3PH	N/A	N/A	N/A	No	No	Yes	No	No	Yes
32	FLT32-3PH	No	No	Yes	No	No	Yes	No	No	Yes
33	FLT33-3PH	No	No	Yes	No	No	Yes	No	No	Yes
34	FLT34-3PH	No	No	Yes	No	No	Yes	No	No	Yes
35	FLT35-3PH	No	No	Yes	No	No	Yes	No	No	Yes
36	FLT36-3PH	No	No	Yes	No	No	Yes	No	No	Yes
37	FLT37-3PH	No	No	Yes	No	No	Yes	No	No	Yes
38	FLT38-3PH	No	No	Yes	No	No	Yes	No	No	Yes
39	FLT39-3PH	No	No	Yes	No	No	Yes	No	No	Yes
40	FLT40-3PH	No	No	Yes	No	No	Yes	No	No	Yes
41	FLT41-3PH	No	No	Yes	No	No	Yes	No	No	Yes
42	FLT42-3PH	No	No	Yes	No	No	Yes	No	No	Yes
43	FLT43-3PH	No	No	Yes	No	No	Yes	No	No	Yes
44	FLT44-3PH	No	No	Yes	No	No	Yes	No	No	Yes
45	FLT45-3PH	No	No	Yes	No	No	Yes	No	No	Yes
46	FLT46-3PH	No	No	Yes	No	No	Yes	No	No	Yes
47	FLT47-3PH	No	No	Yes	No	No	Yes	No	No	Yes
48	FLT48-3PH	No	No	Yes	No	No	Yes	No	No	Yes
49	FLT49-3PH	No	No	Yes	No	No	Yes	No	No	Yes
50	FLT50-3PH	No	No	Yes	No	No	Yes	No	No	Yes
51	FLT51-3PH	No	No	Yes	No	No	Yes	No	No	Yes
52	FLT52-SB	No	No	Yes	No	No	Yes	No	No	Yes
53	FLT53-3PH	No	No	Yes	No	No	Yes	No	No	Yes
54	FLT54-SB	No	No	Yes	No	No	Yes	No	No	Yes
55	FLT55-3PH	No	No	Yes	No	No	Yes	No	No	Yes
56	FLT56-3PH	No	No	Yes	No	No	Yes	No	No	Yes
57	FLT57-3PH	No	No	Yes	No	No	Yes	No	No	Yes
58	FLT58-3PH	No	No	Yes	No	No	Yes	No	No	Yes
59	FLT59-3PH	No	No	Yes	No	No	Yes	No	No	Yes
60	FLT60-PO	No	No	Yes	No	No	Yes	No	No	Yes
61	FLT61-SB	No	No	Yes	No	No	Yes	No	No	Yes
62	FLT62-3PH	Yes[1] (10)	No	Yes	Yes[1] (11)	No	Yes	Yes[1] (10)	No	Yes
63	FLT63-SB	No	No	Yes	No	No	Yes	No	No	Yes
64	FLT64-3PH	Yes[1] (8)	No	Yes	Yes[1] (10)	No	Yes	Yes[1] (8)	No	Yes
65	FLT65-SB	No	No	Yes	No	No	Yes	No	No	Yes
66	FLT66-3PH	No	No	Yes	No	No	Yes	No	No	Yes
67	FLT67-3PH	Yes[1] (8)	No	Yes	Yes[1] (10)	No	Yes	Yes[1] (8)	No	Yes
68	FLT68-SB	No	No	Yes	No	No	Yes	No	No	Yes
69	FLT69-PO	No	No	Yes	No	No	Yes	No	No	Yes
70	FLT70-SB	No	No	Yes	No	No	Yes	No	No	Yes
71	FLT71-3PH	No	No	Yes	No	No	Yes	No	No	Yes

Note [1]: Low voltages were still observed below 0.7 p.u. for multiple contingencies even with the upgrades. The Caprock Upgrade helped improve the system recovery near the Caprock substation and the voltage recovery was determined to be acceptable.

Table 3-4 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions with All Upgrades

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
72	FLT72-3PH	No	No	Yes	No	No	Yes	No	No	Yes
73	FLT73-3PH	No	No	Yes	No	No	Yes	No	No	Yes
74	FLT74-3PH	No	No	Yes	No	No	Yes	No	No	Yes
75	FLT75-3PH	No	No	Yes	No	No	Yes	No	No	Yes
76	FLT76-3PH	No	No	Yes	No	No	Yes	No	No	Yes
77	FLT77-3PH	No	No	Yes	No	No	Yes	No	No	Yes
78	FLT78-3PH	No	No	Yes	No	No	Yes	No	No	Yes
79	FLT79-3PH	No	No	Yes	No	No	Yes	No	No	Yes
80	FLT80-3PH	No	No	Yes	No	No	Yes	No	No	Yes
81	FLT81-3PH	No	No	Yes	No	No	Yes	No	No	Yes
82	FLT82-3PH	No	No	Yes	No	No	Yes	No	No	Yes
83	FLT83-3PH	No	No	Yes	No	No	Yes	No	No	Yes
84	FLT84-3PH	No	No	Yes	No	No	Yes	No	No	Yes
85	FLT85-3PH	No	No	Yes	No	No	Yes	No	No	Yes
86	FLT86-3PH	No	No	Yes	No	No	Yes	No	No	Yes
87	FLT87-3PH	No	No	Yes	No	No	Yes	No	No	Yes
88	FLT88-3PH	No	No	Yes	No	No	Yes	No	No	Yes
89	FLT89-3PH	No	No	Yes	No	No	Yes	No	No	Yes
90	FLT90-3PH	No	No	Yes	No	No	Yes	No	No	Yes
91	FLT91-3PH	No	No	Yes	No	No	Yes	No	No	Yes
92	FLT92-3PH	No	No	Yes	No	No	Yes	No	No	Yes
93	FLT93-3PH	No	No	Yes	No	No	Yes	No	No	Yes
94	FLT94-3PH	No	No	Yes	No	No	Yes	No	No	Yes
95	FLT95-3PH	No	No	Yes	No	No	Yes	No	No	Yes
96	FLT96-3PH	No	No	Yes	No	No	Yes	No	No	Yes
97	FLT97-3PH	No	No	Yes	No	No	Yes	No	No	Yes
98	FLT98-PO	No	No	Yes	No	No	Yes	No	No	Yes
99	FLT99-3PH	No	No	Yes	No	No	Yes	No	No	Yes
100	FLT100-3PH	No	No	Yes	No	No	Yes	No	No	Yes
101	FLT101-3PH	Yes[1] (2)	No	Yes	Yes[1] (2)	No	Yes	Yes[1] (2)	No	Yes
102	FLT102-3PH	No	No	Yes	No	No	Yes	No	No	Yes
103	FLT103-3PH	Yes[1] (6)	No	Yes	Yes[1] (6)	No	Yes	Yes[1] (2)	No	Yes
104	FLT104-3PH	Yes[1] (8)	No	Yes	Yes[1] (8)	No	Yes	Yes[1] (8)	No	Yes
105	FLT105-3PH	Yes[1] (8)	No	Yes	Yes[1] (9)	No	Yes	Yes[1] (8)	No	Yes
106	FLT106-3PH	Yes[1] (2)	No	Yes	Yes[1] (3)	No	Yes	Yes[1] (2)	No	Yes
107	FLT107-3PH	No	No	Yes	No	No	Yes	No	No	Yes
108	FLT108-3PH	No	No	Yes	No	No	Yes	No	No	Yes
109	FLT109-SB	No	No	Yes	No	No	Yes	No	No	Yes
110	FLT110-SB	No	No	Yes	No	No	Yes	No	No	Yes
111	FLT111-SB	No	No	Yes	No	No	Yes	No	No	Yes
112	FLT112-3PH	No	No	Yes	No	No	Yes	No	No	Yes
113	FLT113-3PH	No	No	Yes	No	No	Yes	No	No	Yes
114	FLT114-3PH	No	No	Yes	No	No	Yes	No	No	Yes
115	FLT115-3PH	No	No	Yes	No	No	Yes	No	No	Yes

Note [1]: Low voltages were still observed below 0.7 p.u. for multiple contingencies even with the upgrades. The Caprock Upgrade helped improve the system recovery near the Caprock substation and the voltage recovery was determined to be acceptable.

Table 3-4 (Continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions with All Upgrades

Cont. No.	Cont. Name	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?	Recovers between 0.70 and 1.20 p.u.?		Stable?
		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.		Less than .70 p.u.	Greater than 1.20 p.u.	
116	FLT116-3PH	No	No	Yes	No	No	Yes	No	No	Yes
117	FLT117-3PH	No	No	Yes	No	No	Yes	No	No	Yes
118	FLT118-3PH	No	No	Yes	No	No	Yes	No	No	Yes
119	FLT119-PO	No	No	Yes	No	No	Yes	No	No	Yes
120	FLT120-PO	No	No	Yes	No	No	Yes	No	No	Yes
121	FLT121-PO	No	No	Yes	No	No	Yes	No	No	Yes
122	FLT122-3PH	No	No	Yes	No	No	Yes	No	No	Yes
123	FLT123-3PH	No	No	Yes	No	No	Yes	No	No	Yes
124	FLT124-3PH	No	No	Yes	No	No	Yes	No	No	Yes
125	FLT125-3PH	No	No	Yes	No	No	Yes	No	No	Yes
126	FLT126-3PH	No	No	Yes	No	No	Yes	No	No	Yes
127	FLT127-3PH	No	No	Yes	No	No	Yes	No	No	Yes
128	FLT128-3PH	No	No	Yes	No	No	Yes	No	No	Yes

Refer to Appendix B, Appendix C, and Appendix D for a complete set of plots for all contingencies for 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions, respectively.

SECTION 4: SHORT CIRCUIT ANALYSIS

The objective of this task is to quantify the three-phase to ground fault currents for the 2025 Summer Peak season for each interconnecting generator.

4.1 Approach

The short-circuit analysis will assess breaker adequacy and fault duties for the generator interconnection bus and five buses away from the point of interconnection. MEPPI will assume no outages to find maximum short-circuit currents that flow through the breaker. The Automatic Sequencing Fault Calculation (ASCC) function in PSS/E was utilized to perform this task. FLAT conditions were applied to pre-fault conditions and the following adjustments were utilized:

- All synchronous and asynchronous machine P and Q output was set to zero
- All transformer tap ratios were set to 1.0 p.u. and all phase shift angles were set to zero
- All generator reactance's were fixed to the subtransient reactance
- All line charging was set to zero
- All shunts were set to zero
- All loads were set to zero
- All pre-fault bus voltages were set to 1.0 p.u. and a phase shift angle of zero

Note upgrades found to be necessary for the Stability Analysis were included in the Short-Circuit Analysis.

4.2 Short Circuit Results

The maximum fault current for each bus is provided. Refer to Tables 4-1 through 4-18 for the short circuit currents calculated for each study project.

Table 4-1
Short Circuit Analysis for Study Project GEN-2013-027

Study Generator GEN-2013-027				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
511468	L.E.S.-7	345	520	12.21
511553	CHISHOLM7	345	520	13.71
515458	BORDER 7	345	524	10.98
523959	POTTER_CO 6	230	526	23.40
523961	POTTER_CO 7	345	526	11.85
524267	BUSHLAND 6	230	526	10.36
524296	SPNSPUR_WND7	345	526	5.86
524415	AMA_SOUTH 6	230	526	13.86
524502	NORTON 3	115	526	4.93
524622	DEAFSMITH 3	115	526	12.83
524623	DEAFSMITH 6	230	526	9.50
524669	DS-#20 3	115	526	4.84
524746	CASTRO_CNTY3	115	526	10.37
524764	NORRIS_TP 3	115	526	10.54
524768	PLSNT_HILL 3	115	526	9.56
524770	PLSNT_HILL 6	230	526	6.38
524773	E_CLOVIS 3	115	526	8.66
524776	N_CLOVIS_TP3	115	526	6.53
524821	CURRY 2	69	526	4.35
524822	CURRY 3	115	526	10.57
524831	FE-HOLLAND 3	115	526	8.53
524838	FE-CLOVIS2 3	115	526	9.99
524874	OASIS 3	115	526	9.71
524875	OASIS 6	230	526	7.75
524885	SN_JUAN_TAP6	230	526	4.82
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
524923	PORTALES 2	69	526	7.17
524924	PORTALES 3	115	526	7.33
524935	KILGORE 3	115	526	6.00
524977	MARKET_ST 3	115	526	5.56
525018	EMULESH&VLY3	115	526	5.88
525019	EMU&VLY_TP 3	115	526	6.46
525028	BAILEYCO 3	115	526	6.40
525056	BC-EARTH 3	115	526	8.92
525124	HART_INDUST3	115	526	7.71
525192	KRESS_INT 3	115	526	11.37
525212	SWISHER 3	115	526	10.47
525213	SWISHER 6	230	526	10.62
525326	COX 3	115	526	6.06
525414	LAMTON 3	115	526	8.00
525440	LC-S_OLTON 3	115	526	7.69
525453	HALE_CNTY 2	69	526	6.99
525454	HALE_CNTY 3	115	526	10.42
525460	NEWHART 3	115	526	15.63
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22

Study Generator GEN-2013-027				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
525549	TOLK 7	345	526	12.61
525594	SUDANRURAL 3	115	526	4.80
525607	NEW_AMHERST2	69	526	3.23
525608	NEW_AMHERST3	115	526	5.34
525614	W_LITLFLDTP3	115	526	8.30
525615	W_LITTLFLD 3	115	526	7.75
525620	LTFLD_S&CTY2	69	526	4.35
525635	LAMB_CNTY 2	69	526	6.26
525636	LAMB_CNTY 3	115	526	9.77
525637	LAMB_CNTY 6	230	526	5.69
525650	LC-LITTLFLD2	69	526	5.18
525687	LC-LUMSCHAP2	69	526	4.83
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
526019	HOCKLEY 2	69	526	5.17
526020	HOCKLEY 3	115	526	5.54
526036	LC-OPDYKE 3	115	526	5.78
526161	CARLISLE 6	230	526	14.10
526269	LUBBCK_STH 6	230	526	19.46
526337	JONES 6	230	526	21.50
526352	LEHMAN 3	115	526	4.89
526424	PACIFIC 3	115	526	8.86
526434	SUNDOWN 3	115	526	10.55
526435	SUNDOWN 6	230	526	11.12
526445	AMOCO_TP 3	115	526	9.91
526460	AMOCO_SS 6	230	526	9.75
526491	LG-CLAUENE 3	115	526	7.74
526524	WOLFFORTH 3	115	526	11.66
526525	WOLFFORTH 6	230	526	13.92
526735	TERRY_CNTY 2	69	526	6.88
526736	TERRY_CNTY 3	115	526	10.13
526784	AMOCOWASSON6	230	526	13.88
526792	PRENTICE 3	115	526	5.83
526928	LE-PLNSINT 3	115	526	9.16
526934	YOAKUM 3	115	526	16.20
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
526944	LG-PLAINS 3	115	526	7.35
527010	OXYBRU_TP 6	230	526	13.98
527018	BENNETT 3	115	526	12.98
527036	SHELL_C2 3	115	526	12.72
527041	ARCO_TP 3	115	526	12.89
527046	ARCO_WILRD 3	115	526	10.36
527047	OXY_WILRD 3	115	526	10.39
527051	ODC_TP 3	115	526	13.00
527062	SHELL_CO2 3	115	526	15.69
527080	EL_PASO 3	115	526	15.46
527105	SAN_ANDS_TP3	115	526	16.32
527125	DENVER_CTY 2	69	526	8.60
527130	DENVER_N 3	115	526	20.58
527136	DENVER_S 3	115	526	20.58
527146	MUSTANG 3	115	526	22.17

Study Generator GEN-2013-027				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527149	MUSTANG 6	230	526	15.64
527151	GS-MUSTANG 6	230	526	15.64
527194	LG-PLSHILL 3	115	526	7.47
527201	SEAGRAVES 2	69	526	5.38
527202	SEAGRAVES 3	115	526	8.46
527238	ROZ 3	115	526	9.27
527242	AMERADA 3	115	526	9.37
527262	SULPHUR 3	115	526	5.62
527275	SEMINOLE 3	115	526	11.42
527276	SEMINOLE 6	230	526	7.26
527286	XTO_RUSSEL 3	115	526	10.01
527322	GAINES 3	115	526	8.55
527340	DOSS 3	115	526	7.15
527363	HIGG 3	115	526	10.19
527800	EDDY_SOUTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
528027	RDRUNNER 7	345	526	3.86
528185	NLOV_PLT 7	345	526	4.56
528334	LE-LOVINTON3	115	526	8.54
528355	MADDOX 3	115	526	27.42
528435	MILLEN 3	115	526	11.63
528604	ANDREWS 6	230	526	7.14
528610	GAINES_GEN 6	230	526	8.61
528611	GAINESGENTP6	230	526	10.05
528626	LE-PLNSINT 2	69	526	3.57
528740	LE-PLANS_TP2	69	526	2.74
560007	G08-022-TAP	345	526	6.65
560011	G14-038T	345	526	10.95
560015	G14-067-TAP	230	526	9.48
560016	G14-068-TAP	230	526	9.48
560018	G14-070-TAP	230	526	9.39
560021	TUCO_2	345	526	15.60
560023	NORTON 6	230	526	3.34
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
577103	GEN-2008-022	345	526	6.17
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583840	GEN-2013-027	230	526	9.15
584130	GEN-2014-070	230	526	9.27
584140	GEN-2014-067	230	526	7.28
584150	GEN-2014-068	230	526	8.75
584240	GEN-2014-063	345	526	8.25
584260	G14047&14062	345	526	5.28
599891	OKLAUN 7	345	998	4.04
599955	PNM-DC6	230	999	9.38

Table 4-2
Short Circuit Analysis for Study Project GEN-2014-007

Study Generator GEN-2014-007				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511423	FLE TAP4	138	520	8.55
511437	COMANC-4	138	520	17.68
511439	LWSTAP 4	138	520	11.28
511456	O.K.U.-7	345	520	5.14
511458	ELKCTY-4	138	520	12.34
511466	L.E.S.-2	69	520	16.39
511467	L.E.S.-4	138	520	23.71
511468	L.E.S.-7	345	520	12.21
511474	SHERID4	138	520	12.04
511486	ELGINJT4	138	520	9.94
511490	ELKCITY6	230	520	8.30
511494	COMMTAP4	138	520	20.84
511541	SWEETWT6	230	520	9.02
511542	BUFFCK6	230	520	6.52
511544	DEMPSEY6	230	520	5.93
511547	ROARK6	230	520	4.81
511553	CHISHOLM7	345	520	13.71
511557	CHISHOLM6	230	520	12.76
514785	WOODWRD4	138	524	21.06
514796	IODINE-4	138	524	7.12
514801	MINCO 7	345	524	16.57
514901	CIMARON7	345	524	31.07
515136	SUNNYSD7	345	524	9.72
515375	WWRDEHV7	345	524	22.19
515376	WWRDEHV4	138	524	26.11
515394	KEENAN 4	138	524	9.12
515398	OUSPRT 4	138	524	9.69
515407	TATONGA7	345	524	17.09
515444	MCNOWND7	345	524	16.52
515458	BORDER 7	345	524	10.98
515549	MNCWND37	345	524	11.11
515554	BVRCNTY7	345	524	16.03
515800	GRACMNT7	345	524	15.76
515802	GRACMNT4	138	524	28.55
520814	ANADARK4	138	525	32.67
521089	WASHITA4	138	525	27.99
522823	LP-MILWAKEE6	230	526	13.63
522828	LP-MILWAKEE2	69	526	8.42
522861	LP-SOUTHEST6	230	526	17.47
522866	LP-COOK 2	69	526	35.19
522870	LP-HOLLY 6	230	526	17.22
522888	LP-WADSWRTH6	230	526	12.76
523097	HITCHLAND 7	345	526	17.24
523309	MOORE_CNTY 6	230	526	6.77
523779	STLN-DEMARC6	230	526	7.88
523869	CHAN/TASCOS6	230	526	3.88
523959	POTTER_CO 6	230	526	23.40
523961	POTTER_CO 7	345	526	11.85
523979	HARRNG_EST 6	230	526	27.96
524010	ROLLHILLS 6	230	526	20.93
524044	NICHOLS 6	230	526	27.03
524267	BUSHLAND 6	230	526	10.36
524296	SPNSPUR_WND7	345	526	5.86
524365	RANDALL 6	230	526	14.75
524414	AMA_SOUTH 3	115	526	17.01
524415	AMA_SOUTH 6	230	526	13.86
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38

Study Generator GEN-2014-007				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
525192	KRESS_INT 3	115	526	11.37
525212	SWISHER 3	115	526	10.47
525213	SWISHER 6	230	526	10.62
525326	COX 3	115	526	6.06
525414	LAMTON 3	115	526	8.00
525453	HALE_CNTY 2	69	526	6.99
525454	HALE_CNTY 3	115	526	10.42
525460	NEWHART 3	115	526	15.63
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525549	TOLK 7	345	526	12.61
525637	LAMB_CNTY 6	230	526	5.69
525731	SP-ABERNTHY2	69	526	3.03
525738	HALECENTER 2	69	526	2.47
525779	FLOYD_CNTY 2	69	526	5.57
525780	FLOYD_CNTY 3	115	526	6.65
525816	TUCO_INT2 2	69	526	4.69
525826	TUCO_INT 2	69	526	7.97
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
525853	LH-WIL&ELLN2	69	526	2.59
525885	SP-NEWDEAL 2	69	526	3.40
525926	CROSBY 3	115	526	5.16
526076	STANTON_W 3	115	526	9.38
526109	SP-ERSKINE 3	115	526	11.65
526146	INDIANA 3	115	526	9.80
526159	CARLISLE 2	69	526	2.58
526160	CARLISLE 3	115	526	13.63
526161	CARLISLE 6	230	526	14.10
526162	LP-DOUD_TP 3	115	526	11.93
526192	MURPHY 3	115	526	10.87
526268	LUBBCK_STH 3	115	526	19.39
526269	LUBBCK_STH 6	230	526	19.46
526297	LUBBCK_EST 2	69	526	8.10
526298	LUBBCK_EST 3	115	526	15.65
526299	LUBBCK_EST 6	230	526	13.68
526337	JONES 6	230	526	21.50
526435	SUNDOWN 6	230	526	11.12
526460	AMOCO_SS 6	230	526	9.75
526524	WOLFFORTH 3	115	526	11.66
526525	WOLFFORTH 6	230	526	13.92
526676	GRASSLAND 3	115	526	6.19
526677	GRASSLAND 6	230	526	6.58
526679	CIRRUS_WND 6	230	526	5.10
526784	AMOCOWASSON6	230	526	13.88
526792	PRENTICE 3	115	526	5.83
526928	LE-PLNSINT 3	115	526	9.16
526934	YOAKUM 3	115	526	16.20
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
527010	OXYBRU_TP 6	230	526	13.98
527041	ARCO_TP 3	115	526	12.89

Study Generator GEN-2014-007				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527146	MUSTANG 3	115	526	22.17
527149	MUSTANG 6	230	526	15.64
527151	GS-MUSTANG 6	230	526	15.64
527194	LG-PLSHILL 3	115	526	7.47
527276	SEMINOLE 6	230	526	7.26
527799	EDDY_NORTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527962	POTASH_JCT 3	115	526	15.22
527965	KIOWA 7	345	526	5.81
528027	RDRUNNER 7	345	526	3.86
528185	NLOV_PLT 7	345	526	4.56
528611	GAINESGENTP6	230	526	10.05
532796	WICHITA7	345	536	23.89
539800	CLARKCOUNTY7	345	534	12.53
539801	THISTLE7	345	534	15.94
539804	THISTLE4	138	534	16.45
560000	G11-14-TAP	345	524	14.71
560007	G08-022-TAP	345	526	6.65
560011	G14-038T	345	526	10.95
560013	G14-057T	345	520	9.12
560015	G14-067-TAP	230	526	9.48
560016	G14-068-TAP	230	526	9.48
560018	G14-070-TAP	230	526	9.39
560021	TUCO_2	345	526	15.60
562004	G11-025-TAP	115	526	5.85
562075	G11-051-TAP	345	524	17.68
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
577103	GEN-2008-022	345	526	6.17
577104	G08-022-WEST	345	526	5.67
579351	GEN-2007-062	345	524	8.83
579358	G07-062-HV-2	345	524	6.68
581112	GEN-2011-014	345	524	10.73
582019	GEN-2011-019	345	524	22.19
582020	GEN-2011-020	345	524	22.19
583090	GEN-2011-049	345	524	8.78
583110	GEN-2011-051	345	524	17.68
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583820	GEN-2013-035	345	524	11.67
583840	GEN-2013-027	230	526	9.15
583990	GEN-2014-049	345	534	7.87
584020	GEN-2014-052	345	524	7.28
584030	G14053&14054	230	526	8.40
584060	GEN-2014-056	345	524	8.26
584070	GEN-2014-057	345	520	6.17
584130	GEN-2014-070	230	526	9.27
584240	GEN-2014-063	345	526	8.25
584260	G14047&14062	345	526	5.28
584290	GEN-2014-038	345	526	9.83
590001	OKLEHV24	138	998	4.79
590003	OKLEHV14	138	998	4.80
599891	OKLAUN 7	345	998	4.04
599955	PNM-DC6	230	999	9.38

Table 4-3
Short Circuit Analysis for Study Projects GEN-2014-033, GEN-2014-034, GEN-2014-035, and GEN-2014-046

Study Generator GEN-2014-033, GEN-2014-034, GEN-2014-035, GEN-2014-046				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524768	PLSNT_HILL 3	115	526	9.56
524770	PLSNT_HILL 6	230	526	6.38
524797	PERIMETER 3	115	526	6.29
524863	FE-CHZPLT 3	115	526	7.73
524874	OASIS 3	115	526	9.71
524875	OASIS 6	230	526	7.75
524885	SN_JUAN_TAP6	230	526	4.82
524889	SN_JUAN_WND6	230	526	4.61
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
524924	PORTALES 3	115	526	7.33
525549	TOLK 7	345	526	12.61
527482	CHAVES_CNTY3	115	526	6.78
527483	CHAVES_CNTY6	230	526	4.34
527501	URTON 3	115	526	5.66
527508	PRICE 3	115	526	5.24
527515	CV-PINE 3	115	526	4.84
527522	ROSWELL_CTY3	115	526	5.34
527528	RIAC_TP 2	69	526	3.45
527534	BRASHER_TP 3	115	526	5.55
527536	BRASHER 3	115	526	5.06
527540	CAPITAN 2	69	526	2.25
527541	CAPITAN 3	115	526	4.66
527546	SAMSON 3	115	526	5.34
527552	RIAC 2	69	526	3.06
527563	ROSWLL_INT 2	69	526	3.61
527564	ROSWLL_INT 3	115	526	5.59
527575	SW_4702 2	69	526	3.28
527589	CV-ORCHARD 2	69	526	2.03
527597	TWEEDY 3	115	526	5.16

Study Generator GEN-2014-033, GEN-2014-034, GEN-2014-035, GEN-2014-046				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527711	EAGLE_CREEK3	115	526	7.31
527786	ATOKA 3	115	526	7.04
527793	EDDY_STH 3	115	526	11.12
527798	EDDY_NTH 3	115	526	11.12
527799	EDDY_NORTH 6	230	526	8.07
527800	EDDY_SOUTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527821	CV-DAYTON 3	115	526	6.94
527828	CV-12MH 3	115	526	10.62
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527894	HOBBS_INT 6	230	526	19.87
527963	POTASH_JCT 6	230	526	6.99
528070	CV-AZMESA 3	115	526	7.37
528094	7-RIVERS 3	115	526	8.23
528095	7-RIVERS 6	230	526	6.10
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528226	HOPI_SUB 3	115	526	6.75
560007	G08-022-TAP	345	526	6.65
560023	NORTON 6	230	526	3.34
577103	GEN-2008-022	345	526	6.17
583950	GEN-2014-033	115	526	6.78
583960	GEN-2014-034	115	526	6.27
583970	GEN-2014-035	115	526	6.43
584260	G14047&14062	345	526	5.28
584280	GEN-2014-046	115	526	5.72
599960	EPTNP-D6	230	999	8.07

Table 4-4
Short Circuit Analysis for Study Projects GEN-2014-047 and GEN-2014-062

Study Generator GEN-2014-047 and GEN-2014-062				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
511468	L.E.S.-7	345	520	12.21
511490	ELKCITY6	230	520	8.30
511541	SWEETWT6	230	520	9.02
511553	CHISHOLM7	345	520	13.71
511557	CHISHOLM6	230	520	12.76
514801	MINCO 7	345	524	16.57
515375	WWRDEHV7	345	524	22.19
515376	WWRDEHV4	138	524	26.11
515458	BORDER 7	345	524	10.98
515800	GRACMNT7	345	524	15.76
515802	GRACMNT4	138	524	28.55
523095	HITCHLAND 6	230	526	15.26
523097	HITCHLAND 7	345	526	17.24
523101	NOBLE_WND 7	345	526	17.16
523112	NOVUS1 7	345	526	16.90
523221	XIT_INTG 6	230	526	2.61
523267	PRINGLE 6	230	526	4.52
523308	MOORE_E 3	115	526	10.77
523309	MOORE_CNTY 6	230	526	6.77
523853	FINNEY 7	345	526	12.01
523869	CHAN/TASCOS6	230	526	3.88
523959	POTTER_CO 6	230	526	23.40
523961	POTTER_CO 7	345	526	11.85
523977	HARRNG_WST 6	230	526	27.96
523978	HARRNG_MID 6	230	526	27.96
523979	HARRNG_EST 6	230	526	27.96
524007	ROLLHILLS 3	115	526	19.85
524010	ROLLHILLS 6	230	526	20.93
524266	BUSHLAND 3	115	526	9.55
524267	BUSHLAND 6	230	526	10.36
524290	WILDOR2_JUS6	230	526	6.92
524296	SPNSPUR_WND7	345	526	5.86
524623	DEAFSMITH 6	230	526	9.50
524770	PLSNT_HILL 6	230	526	6.38
524875	OASIS 6	230	526	7.75
524885	SN_JUAN_TAP6	230	526	4.82
524889	SN_JUAN_WND6	230	526	4.61
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38

Study Generator GEN-2014-047 and GEN-2014-062				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524915	SW_4K33 6	230	526	9.38
525213	SWISHER 6	230	526	10.62
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525549	TOLK 7	345	526	12.61
525636	LAMB_CNTY 3	115	526	9.77
525637	LAMB_CNTY 6	230	526	5.69
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
526161	CARLISLE 6	230	526	14.10
526337	JONES 6	230	526	21.50
526435	SUNDOWN 6	230	526	11.12
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
527482	CHAVES_CNTY3	115	526	6.78
527483	CHAVES_CNTY6	230	526	4.34
527501	URTON 3	115	526	5.66
527508	PRICE 3	115	526	5.24
527546	SAMSON 3	115	526	5.34
527597	TWEEDY 3	115	526	5.16
527711	EAGLE_CREEK3	115	526	7.31
527786	ATOKA 3	115	526	7.04
527793	EDDY_STH 3	115	526	11.12
527798	EDDY_NTH 3	115	526	11.12
527799	EDDY_NORTH 6	230	526	8.07
527800	EDDY_SOUTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527821	CV-DAYTON 3	115	526	6.94
527828	CV-12MH 3	115	526	10.62
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527963	POTASH_JCT 6	230	526	6.99

Study Generator GEN-2014-047 and GEN-2014-062				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528070	CV-AZMESA 3	115	526	7.37
528094	7-RIVERS 3	115	526	8.23
528095	7-RIVERS 6	230	526	6.10
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528226	HOPI_SUB 3	115	526	6.75
539801	THISTLE7	345	534	15.94
560000	G11-14-TAP	345	524	14.71
560007	G08-022-TAP	345	526	6.65
560010	G14-037-TAP	345	526	16.90
560011	G14-038T	345	526	10.95
560015	G14-067-TAP	230	526	9.48
560016	G14-068-TAP	230	526	9.48
560021	TUCO_2	345	526	15.60
562075	G11-051-TAP	345	524	17.68
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
576395	GEN-2010-014	345	526	12.21
577103	GEN-2008-022	345	526	6.17
577104	G08-022-WEST	345	526	5.67
579351	GEN-2007-062	345	524	8.83
581148	GEN-2011-022	345	526	9.83
582019	GEN-2011-019	345	524	22.19
582020	GEN-2011-020	345	524	22.19
583090	GEN-2011-049	345	524	8.78
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583840	GEN-2013-027	230	526	9.15
583950	GEN-2014-033	115	526	6.78
583970	GEN-2014-035	115	526	6.43
584140	GEN-2014-067	230	526	7.28
584260	G14047&14062	345	526	5.28
584280	GEN-2014-046	115	526	5.72
584290	GEN-2014-038	345	526	9.83
599891	OKLAUN 7	345	998	4.04
599955	PNM-DC6	230	999	9.38
599960	EPTNP-D6	230	999	8.07

Table 4-5
Short Circuit Analysis for Study Projects GEN-2014-053 and GEN-2014-054

Study Generator GEN-2014-053 and GEN-2014-054				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
511467	L.E.S.-4	138	520	23.71
511468	L.E.S.-7	345	520	12.21
511553	CHISHOLM7	345	520	13.71
515458	BORDER 7	345	524	10.98
515800	GRACMNT7	345	524	15.76
522810	LP-ERSKINE 2	69	526	13.91
522819	LP-NORTHEST2	69	526	13.15
522822	LP-NORTHWST2	69	526	4.64
522823	LP-MILWAKEE6	230	526	13.63
522828	LP-MILWAKEE2	69	526	8.42
522832	LP-VICKSBRG2	69	526	14.53
522836	LP-THOMPSON2	69	526	13.11
522840	LP-MCCULLGH2	69	526	13.27
522844	LP-COOP 2	69	526	22.06
522849	LP-CHALKER 2	69	526	14.15
522853	LP-SLATON 2	69	526	22.24
522857	LP-SOUTHEST2	69	526	22.87
522861	LP-SOUTHEST6	230	526	17.47
522866	LP-COOK 2	69	526	35.19
522870	LP-HOLLY 6	230	526	17.22
522875	LP-BRANDON 2	69	526	12.71
522879	LP-WADSWRTH2	69	526	22.85
522884	LP-OLIVER 2	69	526	12.59
522888	LP-WADSWRTH6	230	526	12.76
523551	HUTCHISON 6	230	526	7.28
523771	GRAPEVINE 6	230	526	5.90
523959	POTTER_CO 6	230	526	23.40
523961	POTTER_CO 7	345	526	11.85
523977	HARRNG_WST 6	230	526	27.96
523978	HARRNG_MID 6	230	526	27.96
524043	NICHOLS 3	115	526	31.35
524044	NICHOLS 6	230	526	27.03
524364	RANDALL 3	115	526	21.45
524365	RANDALL 6	230	526	14.75
524377	FARMERS 3	115	526	15.46
524397	ARROWHEAD 3	115	526	13.83
524404	OWENSCORN 3	115	526	15.13
524414	AMA_SOUTH 3	115	526	17.01
524415	AMA_SOUTH 6	230	526	13.86
524544	SPRING_DRW 3	115	526	6.42
524623	DEAFSMITH 6	230	526	9.50
524746	CASTRO_CNTY3	115	526	10.37
524770	PLSNT_HILL 6	230	526	6.38
524875	OASIS 6	230	526	7.75
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
525019	EMU&VLY_TP 3	115	526	6.46
525056	BC-EARTH 3	115	526	8.92
525124	HART_INDUST3	115	526	7.71
525179	TULIA_TP 3	115	526	6.35
525191	KRESS_INT 2	69	526	4.45
525192	KRESS_INT 3	115	526	11.37
525212	SWISHER 3	115	526	10.47
525213	SWISHER 6	230	526	10.62
525225	KRESS_RURAL3	115	526	6.33
525272	KISER 3	115	526	5.18
525291	PLAINVW_TP 2	69	526	6.55
525298	S_PLAINVEW 2	69	526	2.59
525325	COX 2	69	526	3.39
525326	COX 3	115	526	6.06
525413	LAMTON 2	69	526	5.28
525414	LAMTON 3	115	526	8.00
525432	SP-HALFWAY 2	69	526	5.92

Study Generator GEN-2014-053 and GEN-2014-054				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
525440	LC-S_OLTON 3	115	526	7.69
525453	HALE_CNTY 2	69	526	6.99
525454	HALE_CNTY 3	115	526	10.42
525460	NEWHART 3	115	526	15.63
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525549	TOLK 7	345	526	12.61
525614	W_LITLFLDTP3	115	526	8.30
525637	LAMB_CNTY 6	230	526	5.69
525724	COUNTYLINE 2	69	526	2.21
525731	SP-ABERNTHY2	69	526	3.03
525738	HALECENTER 2	69	526	2.47
525745	LH-HALECTR 2	69	526	2.44
525769	BARWISE 2	69	526	3.90
525779	FLOYD_CNTY 2	69	526	5.57
525780	FLOYD_CNTY 3	115	526	6.65
525790	FLOYDADA_TP2	69	526	2.55
525811	LH-HARMONY 2	69	526	4.42
525816	TUCO_INT2 2	69	526	4.69
525826	TUCO_INT 2	69	526	7.97
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
525853	LH-WIL&ELLN2	69	526	2.59
525860	SP-BECTON 2	69	526	2.29
525885	SP-NEWDEAL 2	69	526	3.40
525892	WHITE&MONRO2	69	526	2.56
525925	CROSBY 2	69	526	4.87
525926	CROSBY 3	115	526	5.16
526020	HOCKLEY 3	115	526	5.54
526036	LC-OPDYKE 3	115	526	5.78
526076	STANTON_W 3	115	526	9.38
526109	SP-ERSKINE 3	115	526	11.65
526130	SP-CARLISLE2	69	526	2.12
526146	INDIANA 3	115	526	9.80
526159	CARLISLE 2	69	526	2.58
526160	CARLISLE 3	115	526	13.63
526161	CARLISLE 6	230	526	14.10
526162	LP-DOUD_TP 3	115	526	11.93
526176	LP-DOUD 3	115	526	9.23
526184	SW_6878 2	69	526	2.17
526192	MURPHY 3	115	526	10.87
526199	SP-FRANKFRD3	115	526	9.81
526205	IVORY 2	69	526	3.94
526213	ALLEN 3	115	526	10.85
526221	BATTON_N 2	69	526	1.78
526228	BATTON_S 2	69	526	2.72
526236	LP-WHEELOCK3	115	526	8.67
526243	SP-QUAKER 3	115	526	9.84
526256	IVORY_TP 2	69	526	3.94
526267	LUBBCK_STH 2	69	526	4.37
526268	LUBBCK_STH 3	115	526	19.39
526269	LUBBCK_STH 6	230	526	19.46
526284	PLANTERS 2	69	526	6.36
526297	LUBBCK_EST 2	69	526	8.10
526298	LUBBCK_EST 3	115	526	15.65
526299	LUBBCK_EST 6	230	526	13.68
526310	CLUTTER 2	69	526	5.48
526337	JONES 6	230	526	21.50
526361	COCHRAN 3	115	526	6.05

Study Generator GEN-2014-053 and GEN-2014-054				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
526424	PACIFIC 3	115	526	8.86
526434	SUNDOWN 3	115	526	10.55
526435	SUNDOWN 6	230	526	11.12
526445	AMOCO_TP 3	115	526	9.91
526452	AMOCO_CRYO 3	115	526	6.25
526460	AMOCO_SS 6	230	526	9.75
526469	SP-YUMA 2	69	526	3.01
526475	YUMA_INT 3	115	526	11.18
526481	SP-WOLF_TP 3	115	526	11.38
526483	SP-WOLFORTH3	115	526	8.79
526484	LG-LEVELAND3	115	526	8.95
526491	LG-CLAUENE 3	115	526	7.74
526506	LG-DOCWEBR 2	69	526	4.90
526524	WOLFFORTH 3	115	526	11.66
526525	WOLFFORTH 6	230	526	13.92
526562	SLATON 2	69	526	2.49
526602	SP-WOODROW 3	115	526	9.49
526656	LYNN_CNTY 3	115	526	5.68
526676	GRASSLAND 3	115	526	6.19
526677	GRASSLAND 6	230	526	6.58
526679	CIRRUS_WND 6	230	526	5.10
526694	GRAHAM 3	115	526	2.68
526735	TERRY_CNTY 2	69	526	6.88
526736	TERRY_CNTY 3	115	526	10.13
526747	LG-BROWNFLD2	69	526	3.54
526792	PRENTICE 3	115	526	5.83
526934	YOAKUM 3	115	526	16.20
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
527010	OXYBRU_TP 6	230	526	13.98
527080	EL_PASO 3	115	526	15.46
527125	DENVER_CTY 2	69	526	8.60
527130	DENVER_N 3	115	526	20.58
527136	DENVER_S 3	115	526	20.58
527146	MUSTANG 3	115	526	22.17
527149	MUSTANG 6	230	526	15.64
527202	SEAGRAVES 3	115	526	8.46
527212	DIAMONDBACK3	115	526	3.03
527261	SULPHUR 2	69	526	3.35
527262	SULPHUR 3	115	526	5.62
527286	XTO_RUSSEL 3	115	526	10.01
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527965	KIOWA 7	345	526	5.81
560007	G08-022-TAP	345	526	6.65
560013	G14-057T	345	520	9.12
560015	G14-067-TAP	230	526	9.48
560016	G14-068-TAP	230	526	9.48
560018	G14-070-TAP	230	526	9.39
560021	TUCO_2	345	526	15.60
562004	G11-025-TAP	115	526	5.85
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
581137	GEN-2011-025	115	526	5.85
583090	GEN-2011-049	345	524	8.78
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583810	ASGI2013-006	115	526	11.65
584030	G14053&14054	230	526	8.40
584140	GEN-2014-067	230	526	7.28
584150	GEN-2014-068	230	526	8.75
590001	OKLEHV24	138	998	4.79
590003	OKLEHV14	138	998	4.80
599891	OKLAUN 7	345	998	4.04
599955	PNM-DC6	230	999	9.38

Table 4-6
Short Circuit Analysis for Study Project GEN-2014-063

Study Generator GEN-2014-063				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
511468	L.E.S.-7	345	520	12.21
515458	BORDER 7	345	524	10.98
524885	SN_JUAN_TAP6	230	526	4.82
524909	ROSEVELT_N 6	230	526	9.38
525213	SWISHER 6	230	526	10.62
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525549	TOLK 7	345	526	12.61
525637	LAMB_CNTY 6	230	526	5.69
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
526161	CARLISLE 6	230	526	14.10
526337	JONES 6	230	526	21.50
526434	SUNDOWN 3	115	526	10.55
526435	SUNDOWN 6	230	526	11.12
526460	AMOCO_SS 6	230	526	9.75
526525	WOLFFORTH 6	230	526	13.92
526736	TERRY_CNTY 3	115	526	10.13
526784	AMOCOWASSON6	230	526	13.88
526792	PRENTICE 3	115	526	5.83
526928	LE-PLNSINT 3	115	526	9.16
526934	YOAKUM 3	115	526	16.20
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
526944	LG-PLAINS 3	115	526	7.35
527010	OXYBRU_TP 6	230	526	13.98
527018	BENNETT 3	115	526	12.98
527024	ALLRED_SUB 3	115	526	7.79
527030	ALRDCRTZ_TP3	115	526	8.56
527041	ARCO_TP 3	115	526	12.89
527047	OXY_WILRD 3	115	526	10.39
527062	SHELL_CO2 3	115	526	15.69
527068	SHELLC3_TP 3	115	526	10.48
527080	EL_PASO 3	115	526	15.46
527125	DENVER_CTY 2	69	526	8.60
527130	DENVER_N 3	115	526	20.58
527136	DENVER_S 3	115	526	20.58
527146	MUSTANG 3	115	526	22.17
527149	MUSTANG 6	230	526	15.64
527151	GS-MUSTANG 6	230	526	15.64
527194	LG-PLSHILL 3	115	526	7.47
527202	SEAGRAVES 3	115	526	8.46
527275	SEMINOLE 3	115	526	11.42
527276	SEMINOLE 6	230	526	7.26
527284	RUSSELL 3	115	526	9.07
527286	XTO_RUSSEL 3	115	526	10.01
527300	AM_FRAC 3	115	526	9.42
527322	GAINES 3	115	526	8.55
527323	OXY_WSTSEM 3	115	526	6.42
527325	OXY_WSEM_TP3	115	526	8.46
527360	MAPCO 3	115	526	10.33
527362	JOHNSON_DRW3	115	526	10.56
527363	HIGG 3	115	526	10.19
527482	CHAVES_CNTY3	115	526	6.78
527483	CHAVES_CNTY6	230	526	4.34
527564	ROSWLL_INT 3	115	526	5.59
527597	TWEEDY 3	115	526	5.16

Study Generator GEN-2014-063				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527707	ARTESIA 3	115	526	6.73
527710	EAGLE_CREEK2	69	526	2.32
527711	EAGLE_CREEK3	115	526	7.31
527715	NAVAJO_2TP 3	115	526	6.97
527736	NAVAJO_5TP 3	115	526	6.93
527786	ATOKA 3	115	526	7.04
527793	EDDY_STH 3	115	526	11.12
527798	EDDY_NTH 3	115	526	11.12
527799	EDDY_NORTH 6	230	526	8.07
527800	EDDY_SOUTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527821	CV-DAYTON 3	115	526	6.94
527828	CV-12MH 3	115	526	10.62
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527929	PCA 2	69	526	6.18
527930	PCA 3	115	526	11.25
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527980	DUVAL_#1 2	69	526	5.68
527996	KERMAC 2	69	526	2.93
527999	INTREPDW_TP3	115	526	12.63
528000	INTREPIDWST3	115	526	10.79
528018	RED_BLUFF 3	115	526	7.82
528022	MISSCHEM#2 2	69	526	6.61
528025	RDRUNNER 3	115	526	8.64
528027	RDRUNNER 7	345	526	3.86
528040	BATTLE_AXE 3	115	526	3.41
528070	CV-AZMESA 3	115	526	7.37
528093	7-RIVERS 2	69	526	2.39
528094	7-RIVERS 3	115	526	8.23
528095	7-RIVERS 6	230	526	6.10
528109	CV-LAKEWOOD3	115	526	6.37
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528145	NATPOT_TP 2	69	526	8.54
528151	FIESTA 3	115	526	9.48
528159	CARLSBAD 2	69	526	4.40
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528182	NORTH_LOVNG3	115	526	8.46
528185	NLOV_PLT 7	345	526	4.56
528192	SOUTH_LOVNG3	115	526	6.51
528222	CHINA_DRAW 3	115	526	7.45
528223	CHINA_DRAW 7	345	526	3.72
528226	HOPI_SUB 3	115	526	6.75
528230	AGAVE_RHILL3	115	526	6.03
528317	ENRON_TP 3	115	526	6.81
528318	ENRON 3	115	526	5.92
528325	LE-WAITS 3	115	526	6.69
528334	LE-LOVINTON3	115	526	8.54
528337	WILDCAT_WND	115	526	8.54
528341	LE-SANANDRS3	115	526	6.43
528348	BUCKEYE_TP 3	115	526	8.36
528355	MADDOX 3	115	526	27.42
528385	BUCKEYE 3	115	526	7.51

Study Generator GEN-2014-063				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528392	PEARLE 3	115	526	6.36
528394	QUAHADA 3	115	526	8.11
528399	LEA_NATIONL3	115	526	6.85
528406	MALJMAR1&2 3	115	526	3.22
528413	TAYLOR 3	115	526	14.53
528420	ZIA 3	115	526	6.56
528435	MILLEN 3	115	526	11.63
528442	NE_HOBBS 3	115	526	11.92
528449	W_BENDER 3	115	526	14.91
528463	SANGER_SW 3	115	526	16.11
528470	E_SANGER 3	115	526	12.68
528480	OXY_S_HOBBS3	115	526	11.04
528484	SW_4J44 3	115	526	11.22
528491	MONUMENT 3	115	526	15.59
528498	W_HOBBS 3	115	526	11.79
528533	DRINKARD_TP3	115	526	7.80
528554	COOPER_RNCH3	115	526	6.10
528568	MONUMNT_TP 3	115	526	9.98
528575	OXYPERMIAN 3	115	526	15.45
528582	BYRD 3	115	526	7.58
528589	DRINKARD 3	115	526	7.95
528602	ANDREWS 3	115	526	10.57
528603	NA_ENRICH 3	115	526	10.26
528604	ANDREWS 6	230	526	7.14
528605	TARGA 3	115	526	8.20
528610	GAINES_GEN 6	230	526	8.61
528611	GAINESGENTP6	230	526	10.05
528617	LE-WAITS 2	69	526	3.28
528618	LE-LOVINTON2	69	526	6.86
528622	LE-SANANDRS2	69	526	5.24
528626	LE-PLNSINT 2	69	526	3.57
528630	LE-BUCKEYE 2	69	526	3.76
528638	LE-SAUNDRTP2	69	526	3.55
528650	LE-SAUNDERS2	69	526	1.96
528667	LE-MHOON 2	69	526	4.37
528671	LE-S_LOVITN2	69	526	3.52
528675	LE-FAMARISS2	69	526	3.25
528679	LE-REED 2	69	526	4.51
528683	LE-MCDONALD2	69	526	2.47
528699	LE-GRAY 2	69	526	3.99
528703	LE-DENTN_TP2	69	526	3.72
528707	LE-DENTON 2	69	526	3.78
528714	LE-FORT_SW 2	69	526	3.08
528759	LE-TP51 2	69	526	2.49
528774	LE-ERF 2	69	526	4.76
528775	LE-ERF 3	115	526	10.56
528792	LE-TEXACO 3	115	526	7.25
560007	G08-022-TAP	345	526	6.65
560017	G14-069-TAP	115	526	10.35
560018	G14-070-TAP	230	526	9.39
560021	TUCO_2	345	526	15.60
560364	AS10-021-TAP	69	526	2.64
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583840	GEN-2013-027	230	526	9.15
584130	GEN-2014-070	230	526	9.27
584240	GEN-2014-063	345	526	8.25
584370	ASGI2014-011	115	526	6.56
599891	OKLAUN 7	345	998	4.04
599960	EPTNP-D6	230	999	8.07

Table 4-7
Short Circuit Analysis for Study Project GEN-2014-066

Study Generator GEN-2014-066				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524472	LOPEZ 3	115	526	2.98
524477	CAMPBELL_ST3	115	526	2.97
524486	CAPROCK 3	115	526	4.00
524502	NORTON 3	115	526	4.93
524509	FE-TUCMCARI3	115	526	3.28
524662	PARMER_CO 3	115	526	4.12
524669	DS-#20 3	115	526	4.84
524764	NORRIS_TP 3	115	526	10.54
524768	PLSNT_HILL 3	115	526	9.56
524770	PLSNT_HILL 6	230	526	6.38
524773	E_CLOVIS 3	115	526	8.66
524776	N_CLOVIS_TP3	115	526	6.53
524777	N_CLOVIS 3	115	526	5.96
524783	W_CLOVIS 2	69	526	2.41
524784	W_CLOVIS 3	115	526	5.80
524790	CANNON_TP 3	115	526	5.64
524797	PERIMETER 3	115	526	6.29
524801	NORRIS 3	115	526	9.68
524808	FE-CLVS_INT3	115	526	6.21
524821	CURRY 2	69	526	4.35
524822	CURRY 3	115	526	10.57
524831	FE-HOLLAND 3	115	526	8.53
524838	FE-CLOVIS2 3	115	526	9.99
524846	FARWELL 2	69	526	2.08
524863	FE-CHZPLT 3	115	526	7.73
524874	OASIS 3	115	526	9.71
524875	OASIS 6	230	526	7.75

Study Generator GEN-2014-066				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524885	SN_JUAN_TAP6	230	526	4.82
524889	SN_JUAN_WND6	230	526	4.61
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
524924	PORTALES 3	115	526	7.33
525019	EMU&VLY_TP 3	115	526	6.46
525027	BAILEYCO 2	69	526	5.57
525028	BAILEYCO 3	115	526	6.40
525040	BAILEY_PMP 3	115	526	4.91
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525637	LAMB_CNTY 6	230	526	5.69
527483	CHAVES_CNTY6	230	526	4.34
560023	NORTON 6	230	526	3.34
562480	G13-027-TAP	230	526	10.23
583280	ASGI2012-002	115	526	1.05
583610	CEILO-TAP-N	115	526	0.48
583620	CIELO-TAP-S	115	526	1.05
584160	GEN-2014-066	115	526	3.93
584310	A14-002-TAP	115	526	1.31
584311	ASGI2014-002	115	526	1.29
599955	PNM-DC6	230	999	9.38

Table 4-8
Short Circuit Analysis for Study Project GEN-2014-069

Study Generator GEN-2014-069				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
526936	YOAKUM_345	345	526	9.15
527793	EDDY_STH 3	115	526	11.12
527800	EDDY_SOUTH 6	230	526	8.07
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527929	PCA 2	69	526	6.18
527930	PCA 3	115	526	11.25
527943	CV-LUSK 2	69	526	2.24
527953	LIVSTNRIDGE3	115	526	7.01
527955	SAGE_BRUSH 3	115	526	4.36
527957	LAGARTO 3	115	526	4.33
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527980	DUVAL_#1 2	69	526	5.68
527989	NMPOTASH 2	69	526	2.53
527996	KERMAC 2	69	526	2.93
527999	INTREPDW_TP3	115	526	12.63
528000	INTREPIDWST3	115	526	10.79
528009	WIPP 3	115	526	6.59
528016	SAND_DUNES 3	115	526	6.44
528018	RED_BLUFF 3	115	526	7.82
528022	MISSCHEM#2 2	69	526	6.61
528025	RDRUNNER 3	115	526	8.64

Study Generator GEN-2014-069				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528027	RDRUNNER 7	345	526	3.86
528029	IMC_#2 2	69	526	4.21
528035	IMC_#1_TP 3	115	526	8.98
528037	IMC_#1 3	115	526	8.08
528070	CV-AZMESA 3	115	526	7.37
528095	7-RIVERS 6	230	526	6.10
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528145	NATPOT_TP 2	69	526	8.54
528151	FIESTA 3	115	526	9.48
528159	CARLSBAD 2	69	526	4.40
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528182	NORTH_LOVNG3	115	526	8.46
528185	NLOV_PLT 7	345	526	4.56
528190	S_LOVING_TP2	69	526	2.73
528223	CHINA_DRAW 7	345	526	3.72
528226	HOPI_SUB 3	115	526	6.75
528394	QUAHADA 3	115	526	8.11
528399	LEA_NATIONL3	115	526	6.85
528420	ZIA 3	115	526	6.56
528596	CARDINAL 3	115	526	7.48
560017	G14-069-TAP	115	526	10.35
584120	GEN-2014-069	115	526	10.23
584320	ASGI2014-004	115	526	7.01

Table 4-9
Short Circuit Analysis for Study Project GEN-2014-070

Study Generator GEN-2014-070				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
511468	L.E.S.-7	345	520	12.21
515458	BORDER 7	345	524	10.98
524770	PLSNT_HILL 6	230	526	6.38
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
525213	SWISHER 6	230	526	10.62
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525531	TOLK_WEST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525549	TOLK 7	345	526	12.61
525636	LAMB_CNTY 3	115	526	9.77
525637	LAMB_CNTY 6	230	526	5.69
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
526036	LC-OPDYKE 3	115	526	5.78
526161	CARLISLE 6	230	526	14.10
526269	LUBBCK_STH 6	230	526	19.46
526337	JONES 6	230	526	21.50
526352	LEHMAN 3	115	526	4.89
526424	PACIFIC 3	115	526	8.86
526434	SUNDOWN 3	115	526	10.55
526435	SUNDOWN 6	230	526	11.12
526445	AMOCO_TP 3	115	526	9.91
526460	AMOCO_SS 6	230	526	9.75
526491	LG-CLAUENE 3	115	526	7.74
526524	WOLFFORTH 3	115	526	11.66
526525	WOLFFORTH 6	230	526	13.92
526735	TERRY_CNTY 2	69	526	6.88
526736	TERRY_CNTY 3	115	526	10.13
526784	AMOCOWASSON6	230	526	13.88
526792	PRENTICE 3	115	526	5.83
526928	LE-PLNSINT 3	115	526	9.16
526934	YOAKUM 3	115	526	16.20
526935	YOAKUM 6	230	526	17.67
526936	YOAKUM_345	345	526	9.15
526944	LG-PLAINS 3	115	526	7.35
527010	OXYBRU_TP 6	230	526	13.98
527018	BENNETT 3	115	526	12.98
527030	ALRDCRTZ_TP3	115	526	8.56
527036	SHELL_C2 3	115	526	12.72
527041	ARCO_TP 3	115	526	12.89
527046	ARCO_WILRD 3	115	526	10.36
527047	OXY_WILRD 3	115	526	10.39
527051	ODC_TP 3	115	526	13.00

Study Generator GEN-2014-070				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527062	SHELL_CO2 3	115	526	15.69
527080	EL_PASO 3	115	526	15.46
527105	SAN_ANDS_TP3	115	526	16.32
527125	DENVER_CTY 2	69	526	8.60
527130	DENVER_N 3	115	526	20.58
527136	DENVER_S 3	115	526	20.58
527146	MUSTANG 3	115	526	22.17
527149	MUSTANG 6	230	526	15.64
527151	GS-MUSTANG 6	230	526	15.64
527194	LG-PLSHILL 3	115	526	7.47
527201	SEAGRAVES 2	69	526	5.38
527202	SEAGRAVES 3	115	526	8.46
527238	ROZ 3	115	526	9.27
527242	AMERADA 3	115	526	9.37
527262	SULPHUR 3	115	526	5.62
527275	SEMINOLE 3	115	526	11.42
527276	SEMINOLE 6	230	526	7.26
527284	RUSSELL 3	115	526	9.07
527286	XTO_RUSSEL 3	115	526	10.01
527322	GAINES 3	115	526	8.55
527325	OXY_WSEM_TP3	115	526	8.46
527340	DOSS 3	115	526	7.15
527360	MAPCO 3	115	526	10.33
527362	JOHNSON_DRW3	115	526	10.56
527363	HIGG 3	115	526	10.19
527483	CHAVES_CNTY6	230	526	4.34
527597	TWEEDY 3	115	526	5.16
527711	EAGLE_CREEK3	115	526	7.31
527793	EDDY_STH 3	115	526	11.12
527798	EDDY_NTH 3	115	526	11.12
527799	EDDY_NORTH 6	230	526	8.07
527800	EDDY_SOUTH 6	230	526	8.07
527802	EDDY_CNTY 7	345	526	4.51
527828	CV-12MH 3	115	526	10.62
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527930	PCA 3	115	526	11.25
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527999	INTREPDW_TP3	115	526	12.63
528025	RDRUNNER 3	115	526	8.64
528027	RDRUNNER 7	345	526	3.86
528094	7-RIVERS 3	115	526	8.23
528095	7-RIVERS 6	230	526	6.10
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42

Study Generator GEN-2014-070				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528182	NORTH_LOVNG3	115	526	8.46
528185	NLOV_PLT 7	345	526	4.56
528223	CHINA_DRAW 7	345	526	3.72
528317	ENRON_TP 3	115	526	6.81
528325	LE-WAITS 3	115	526	6.69
528334	LE-LOVINTON3	115	526	8.54
528337	WILDCAT_WND	115	526	8.54
528348	BUCKEYE_TP 3	115	526	8.36
528355	MADDOX 3	115	526	27.42
528385	BUCKEYE 3	115	526	7.51
528392	PEARLE 3	115	526	6.36
528394	QUAHADA 3	115	526	8.11
528399	LEA_NATIONL3	115	526	6.85
528413	TAYLOR 3	115	526	14.53
528420	ZIA 3	115	526	6.56
528435	MILLEN 3	115	526	11.63
528442	NE_HOBBS 3	115	526	11.92
528463	SANGER_SW 3	115	526	16.11
528484	SW_4J44 3	115	526	11.22
528491	MONUMENT 3	115	526	15.59
528498	W_HOBBS 3	115	526	11.79
528568	MONUMNT_TP 3	115	526	9.98
528575	OXYPERMIAN 3	115	526	15.45
528582	BYRD 3	115	526	7.58
528602	ANDREWS 3	115	526	10.57
528603	NA_ENRICH 3	115	526	10.26
528604	ANDREWS 6	230	526	7.14
528610	GAINES_GEN 6	230	526	8.61
528611	GAINESGENTP6	230	526	10.05
528617	LE-WAITS 2	69	526	3.28
528618	LE-LOVINTON2	69	526	6.86
528626	LE-PLNSINT 2	69	526	3.57
528638	LE-SAUNDRTP2	69	526	3.55
528667	LE-MHOON 2	69	526	4.37
528675	LE-FAMARISS2	69	526	3.25
528679	LE-REED 2	69	526	4.51
528699	LE-GRAY 2	69	526	3.99
528740	LE-PLANS_TP2	69	526	2.74
528775	LE-ERF 3	115	526	10.56
528792	LE-TEXACO 3	115	526	7.25
560016	G14-068-TAP	230	526	9.48
560018	G14-070-TAP	230	526	9.39
560021	TUCO_2	345	526	15.60
562480	G13-027-TAP	230	526	10.23
562487	G14_007-TAP	345	526	10.90
583340	GEN-2012-020	230	526	9.47
583790	GEN-2014-007	345	526	10.90
583840	GEN-2013-027	230	526	9.15
584130	GEN-2014-070	230	526	9.27
584240	GEN-2014-063	345	526	8.25
599891	OKLAUN 7	345	998	4.04
599960	EPTNP-D6	230	999	8.07

Table 4-10
Short Circuit Analysis for Study Project ASGI-2014-002

Study Generator ASGI-2014-002				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524472	LOPEZ 3	115	526	2.98
524477	CAMPBELL_ST3	115	526	2.97
524486	CAPROCK 3	115	526	4.00
524502	NORTON 3	115	526	4.93
524509	FE-TUCMCARI3	115	526	3.28
524669	DS-#20 3	115	526	4.84
524764	NORRIS_TP 3	115	526	10.54
524768	PLSNT_HILL 3	115	526	9.56
524770	PLSNT_HILL 6	230	526	6.38
524773	E_CLOVIS 3	115	526	8.66
524776	N_CLOVIS_TP3	115	526	6.53
524777	N_CLOVIS 3	115	526	5.96
524784	W_CLOVIS 3	115	526	5.80
524808	FE-CLVS_INT3	115	526	6.21
524821	CURRY 2	69	526	4.35
524822	CURRY 3	115	526	10.57
524831	FE-HOLLAND 3	115	526	8.53

Study Generator ASGI-2014-002				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
524838	FE-CLOVIS2 3	115	526	9.99
524874	OASIS 3	115	526	9.71
524875	OASIS 6	230	526	7.75
524885	SN_JUAN_TAP6	230	526	4.82
524908	ROOSEVELT 3	115	526	10.49
524909	ROSEVELT_N 6	230	526	9.38
524911	ROSEVELT_S 6	230	526	9.38
524915	SW_4K33 6	230	526	9.38
525028	BAILEYCO 3	115	526	6.40
525531	TOLK_WEST 6	230	526	32.22
560023	NORTON 6	230	526	3.34
583280	ASGI2012-002	115	526	1.05
583610	CEILO-TAP-N	115	526	0.48
584160	GEN-2014-066	115	526	3.93
584310	A14-002-TAP	115	526	1.31
584311	ASGI2014-002	115	526	1.29

Table 4-11
Short Circuit Analysis for Study Project ASGI-2014-004

Study Generator ASGI-2014-004				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527930	PCA 3	115	526	11.25
527953	LIVSTNRIDGE3	115	526	7.01
527955	SAGE_BRUSH 3	115	526	4.36
527957	LAGARTO 3	115	526	4.33
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527999	INTREPDW_TP3	115	526	12.63
528000	INTREPIDWST3	115	526	10.79
528009	WIPP 3	115	526	6.59
528016	SAND_DUNES 3	115	526	6.44
528018	RED_BLUFF 3	115	526	7.82
528020	BOPCO_PKRLK3	115	526	5.39
528025	RDRUNNER 3	115	526	8.64
528027	RDRUNNER 7	345	526	3.86

Study Generator ASGI-2014-004				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528035	IMC_#1_TP 3	115	526	8.98
528037	IMC_#1 3	115	526	8.08
528040	BATTLE_AXE 3	115	526	3.41
528160	CARLSBAD 3	115	526	10.87
528228	WOOD_DRAW 3	115	526	4.88
528230	AGAVE_RHILL3	115	526	6.03
528512	EUNICE 3	115	526	6.09
528526	TEAGUE 3	115	526	5.83
528533	DRINKARD_TP3	115	526	7.80
528547	S_JAL 3	115	526	5.28
528596	CARDINAL 3	115	526	7.48
528603	NA_ENRICH 3	115	526	10.26
528605	TARGA 3	115	526	8.20
560017	G14-069-TAP	115	526	10.35
584120	GEN-2014-069	115	526	10.23
584320	ASGI2014-004	115	526	7.01

Table 4-12
Short Circuit Analysis for Study Project ASGI-2014-005

Study Generator ASGI-2014-005				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527980	DUVAL_#1 2	69	526	5.68
527996	KERMAC 2	69	526	2.93
528022	MISSCHEM#2 2	69	526	6.61
528029	IMC_#2 2	69	526	4.21
528043	UNITEDSALT 2	69	526	4.04
528046	STRATA 2	69	526	2.93
528050	DUVAL_#3 2	69	526	2.42
528056	IMC_#4 2	69	526	2.08
528062	IMC_#3 2	69	526	2.91
528145	NATPOT_TP 2	69	526	8.54
584330	ASGI2014-005	69	526	2.93

Table 4-13
Short Circuit Analysis for Study Project ASGI-2014-008

Study Generator ASGI-2014-008				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527793	EDDY_STH 3	115	526	11.12
527929	PCA 2	69	526	6.18
527930	PCA 3	115	526	11.25
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527999	INTREPDW_TP3	115	526	12.63
528070	CV-AZMESA 3	115	526	7.37
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528151	FIESTA 3	115	526	9.48

Study Generator ASGI-2014-008				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528159	CARLSBAD 2	69	526	4.40
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528190	S_LOVING_TP2	69	526	2.73
528197	CB_WTRFLDTP2	69	526	2.41
528204	CB_WTRFIELD2	69	526	1.75
528211	WHITES_CTY 2	69	526	1.24
528218	SLOV&NAVMAL2	69	526	1.73
528226	HOPI_SUB 3	115	526	6.75
528394	QUAHADA 3	115	526	8.11
584340	ASGI2014-008	69	526	1.73

Table 4-14
Short Circuit Analysis for Study Project ASGI-2014-009

Study Generator ASGI-2014-009				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527793	EDDY_STH 3	115	526	11.12
527896	HOBBS_INT 7	345	526	8.62
527953	LIVSTNRIDGE3	115	526	7.01
527962	POTASH_JCT 3	115	526	15.22
527965	KIOWA 7	345	526	5.81
528009	WIPP 3	115	526	6.59
528016	SAND_DUNES 3	115	526	6.44
528018	RED_BLUFF 3	115	526	7.82
528020	BOPCO_PKRLK3	115	526	5.39
528025	RDRUNNER 3	115	526	8.64
528027	RDRUNNER 7	345	526	3.86
528040	BATTLE_AXE 3	115	526	3.41
528070	CV-AZMESA 3	115	526	7.37
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47

Study Generator ASGI-2014-009				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45
528179	PECOS 6	230	526	6.42
528182	NORTH_LOVNG3	115	526	8.46
528185	NLOV_PLT 7	345	526	4.56
528192	SOUTH_LOVNG3	115	526	6.51
528222	CHINA_DRAW 3	115	526	7.45
528223	CHINA_DRAW 7	345	526	3.72
528226	HOPI_SUB 3	115	526	6.75
528228	WOOD_DRAW 3	115	526	4.88
528230	AGAVE_RHILL3	115	526	6.03
528232	OCHOA 3	115	526	5.99
528246	YESO_HILLS 3	115	526	2.70
584350	ASGI2014-009	115	526	4.88

Table 4-15
Short Circuit Analysis for Study Project ASGI-2014-010

Study Generator ASGI-2014-010				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527896	HOBBS_INT 7	345	526	8.62
527962	POTASH_JCT 3	115	526	15.22
527965	KIOWA 7	345	526	5.81
528009	WIPP 3	115	526	6.59
528016	SAND_DUNES 3	115	526	6.44
528018	RED_BLUFF 3	115	526	7.82
528020	BOPCO_PKRLK3	115	526	5.39
528025	RDRUNNER 3	115	526	8.64
528027	RDRUNNER 7	345	526	3.86
528040	BATTLE_AXE 3	115	526	3.41
528185	NLOV_PLT 7	345	526	4.56
528228	WOOD_DRAW 3	115	526	4.88
528230	AGAVE_RHILL3	115	526	6.03

Study Generator ASGI-2014-010				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528232	OCHOA 3	115	526	5.99
528239	PNDEROSATP 3	115	526	5.48
528240	PONDEROSA 3	115	526	3.95
528505	LEA_ROAD 3	115	526	5.21
528519	WARD 3	115	526	5.00
528526	TEAGUE 3	115	526	5.83
528540	WHITTEN 3	115	526	5.85
528547	S_JAL 3	115	526	5.28
528552	OIL_CENTER 3	115	526	5.65
528561	DOLLARHIDE 3	115	526	4.14
528564	TOBOSOFLATS3	115	526	3.20
528596	CARDINAL 3	115	526	7.48
584360	ASGI2014-010	115	526	5.99

Table 4-16
Short Circuit Analysis for Study Project ASGI-2014-011

Study Generator ASGI-2014-011				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527284	RUSSELL 3	115	526	9.07
527286	XTO_RUSSEL 3	115	526	10.01
527362	JOHNSON_DRW3	115	526	10.56
527363	HIGG 3	115	526	10.19
527793	EDDY_STH 3	115	526	11.12
527798	EDDY_NTH 3	115	526	11.12
527799	EDDY_NORTH 6	230	526	8.07
527800	EDDY_SOUTH 6	230	526	8.07
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527896	HOBBS_INT 7	345	526	8.62
527929	PCA 2	69	526	6.18
527930	PCA 3	115	526	11.25
527943	CV-LUSK 2	69	526	2.24
527961	POTASH_JCT 2	69	526	8.58
527962	POTASH_JCT 3	115	526	15.22
527963	POTASH_JCT 6	230	526	6.99
527965	KIOWA 7	345	526	5.81
527980	DUVAL_#1 2	69	526	5.68
527996	KERMAC 2	69	526	2.93
527999	INTREPDW_TP3	115	526	12.63
528000	INTREPIDWST3	115	526	10.79
528022	MISSCHEM#2 2	69	526	6.61
528027	RDRUNNER 7	345	526	3.86
528070	CV-AZMESA 3	115	526	7.37
528095	7-RIVERS 6	230	526	6.10
528132	OCOTILLO 3	115	526	6.07
528137	N_CANAL 3	115	526	8.47
528145	NATPOT_TP 2	69	526	8.54
528151	FIESTA 3	115	526	9.48
528159	CARLSBAD 2	69	526	4.40
528160	CARLSBAD 3	115	526	10.87
528178	PECOS 3	115	526	11.45

Study Generator ASGI-2014-011				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528179	PECOS 6	230	526	6.42
528185	NLOV_PLT 7	345	526	4.56
528190	S_LOVING_TP2	69	526	2.73
528226	HOPI_SUB 3	115	526	6.75
528317	ENRON_TP 3	115	526	6.81
528318	ENRON 3	115	526	5.92
528325	LE-WAITS 3	115	526	6.69
528334	LE-LOVINTON3	115	526	8.54
528337	WILDCAT_WND	115	526	8.54
528341	LE-SANANDRS3	115	526	6.43
528348	BUCKEYE_TP 3	115	526	8.36
528355	MADDOX 3	115	526	27.42
528385	BUCKEYE 3	115	526	7.51
528392	PEARLE 3	115	526	6.36
528394	QUAHADA 3	115	526	8.11
528399	LEA_NATIONL3	115	526	6.85
528406	MALJMAR1&2 3	115	526	3.22
528420	ZIA 3	115	526	6.56
528435	MILLEN 3	115	526	11.63
528442	NE_HOBBS 3	115	526	11.92
528463	SANGER_SW 3	115	526	16.11
528484	SW_4J44 3	115	526	11.22
528491	MONUMENT 3	115	526	15.59
528498	W_HOBBS 3	115	526	11.79
528554	COOPER_RNCH3	115	526	6.10
528568	MONUMNT_TP 3	115	526	9.98
528575	OXYPERMIAN 3	115	526	15.45
528582	BYRD 3	115	526	7.58
528611	GAINESGENTP6	230	526	10.05
528618	LE-LOVINTON2	69	526	6.86
528792	LE-TEXACO 3	115	526	7.25
560017	G14-069-TAP	115	526	10.35
560018	G14-070-TAP	230	526	9.39
584240	GEN-2014-063	345	526	8.25
584370	ASGI2014-011	115	526	6.56

Table 4-17
Short Circuit Analysis for Study Project ASGI-2014-012

Study Generator ASGI-2014-012				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
527363	HIGG 3	115	526	10.19
527800	EDDY_SOUTH 6	230	526	8.07
527864	CUNNINHAM 3	115	526	29.44
527865	CUNNINHAM 6	230	526	17.77
527891	HOBBS_INT 3	115	526	32.74
527894	HOBBS_INT 6	230	526	19.87
527930	PCA 3	115	526	11.25
527963	POTASH_JCT 6	230	526	6.99
528239	PNDEROSATP 3	115	526	5.48
528334	LE-LOVINTON3	115	526	8.54
528348	BUCKEYE_TP 3	115	526	8.36
528355	MADDOX 3	115	526	27.42
528385	BUCKEYE 3	115	526	7.51
528392	PEARLE 3	115	526	6.36
528394	QUAHADA 3	115	526	8.11
528399	LEA_NATIONL3	115	526	6.85
528420	ZIA 3	115	526	6.56

Study Generator ASGI-2014-012				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
528435	MILLEN 3	115	526	11.63
528463	SANGER_SW 3	115	526	16.11
528484	SW_4J44 3	115	526	11.22
528491	MONUMENT 3	115	526	15.59
528498	W_HOBBS 3	115	526	11.79
528505	LEA_ROAD 3	115	526	5.21
528519	WARD 3	115	526	5.00
528533	DRINKARD_TP3	115	526	7.80
528540	WHITTEN 3	115	526	5.85
528547	S_JAL 3	115	526	5.28
528552	OIL_CENTER 3	115	526	5.65
528554	COOPER_RNCH3	115	526	6.10
528568	MONUMNT_TP 3	115	526	9.98
528582	BYRD 3	115	526	7.58
528792	LE-TEXACO 3	115	526	7.25
584380	ASGI2014-012	115	526	6.10

Table 4-18
Short Circuit Analysis for Study Project ASGI-2014-013

Study Generator ASGI-2014-013				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
511456	O.K.U.-7	345	520	5.14
522822	LP-NORTHWST2	69	526	4.64
522823	LP-MILWAKEE6	230	526	13.63
522828	LP-MILWAKEE2	69	526	8.42
522832	LP-VICKSBRG2	69	526	14.53
522857	LP-SOUTHEST2	69	526	22.87
522861	LP-SOUTHEST6	230	526	17.47
522870	LP-HOLLY 6	230	526	17.22
524415	AMA_SOUTH 6	230	526	13.86
524911	ROSEVELT_S 6	230	526	9.38
525192	KRESS_INT 3	115	526	11.37
525212	SWISHER 3	115	526	10.47
525213	SWISHER 6	230	526	10.62
525326	COX 3	115	526	6.06
525414	LAMTON 3	115	526	8.00
525453	HALE_CNTY 2	69	526	6.99
525454	HALE_CNTY 3	115	526	10.42
525461	NEWHART 6	230	526	11.94
525480	PLANT_X 3	115	526	26.48
525481	PLANT_X 6	230	526	29.51
525524	TOLK_EAST 6	230	526	32.22
525543	TOLK_TAP 6	230	526	32.22
525731	SP-ABERNTHY2	69	526	3.03
525738	HALECENTER 2	69	526	2.47
525779	FLOYD_CNTY 2	69	526	5.57
525780	FLOYD_CNTY 3	115	526	6.65
525816	TUCO_INT2 2	69	526	4.69
525826	TUCO_INT 2	69	526	7.97
525828	TUCO_INT 3	115	526	20.65
525830	TUCO_INT 6	230	526	25.11
525832	TUCO_INT 7	345	526	15.93
525840	ANTELOPE_1 6	230	526	24.88
525853	LH-WIL&ELLN2	69	526	2.59
525885	SP-NEWDEAL 2	69	526	3.40
525926	CROSBY 3	115	526	5.16
526076	STANTON_W 3	115	526	9.38
526109	SP-ERSKINE 3	115	526	11.65
526130	SP-CARLISLE2	69	526	2.12

Study Generator ASGI-2014-013				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
526146	INDIANA 3	115	526	9.80
526159	CARLISLE 2	69	526	2.58
526160	CARLISLE 3	115	526	13.63
526161	CARLISLE 6	230	526	14.10
526162	LP-DOUD_TP 3	115	526	11.93
526176	LP-DOUD 3	115	526	9.23
526184	SW_6878 2	69	526	2.17
526192	MURPHY 3	115	526	10.87
526199	SP-FRANKFRD3	115	526	9.81
526213	ALLEN 3	115	526	10.85
526221	BATTON_N 2	69	526	1.78
526228	BATTON_S 2	69	526	2.72
526243	SP-QUAKER 3	115	526	9.84
526268	LUBBCK_STH 3	115	526	19.39
526269	LUBBCK_STH 6	230	526	19.46
526297	LUBBCK_EST 2	69	526	8.10
526298	LUBBCK_EST 3	115	526	15.65
526299	LUBBCK_EST 6	230	526	13.68
526337	JONES 6	230	526	21.50
526434	SUNDOWN 3	115	526	10.55
526435	SUNDOWN 6	230	526	11.12
526460	AMOCO_SS 6	230	526	9.75
526469	SP-YUMA 2	69	526	3.01
526475	YUMA_INT 3	115	526	11.18
526481	SP-WOLF_TP 3	115	526	11.38
526483	SP-WOLFORTH3	115	526	8.79
526524	WOLFFORTH 3	115	526	11.66
526525	WOLFFORTH 6	230	526	13.92
526677	GRASSLAND 6	230	526	6.58
526736	TERRY_CNTY 3	115	526	10.13
526936	YOAKUM_345	345	526	9.15
560021	TUCO_2	345	526	15.60
562004	G11-025-TAP	115	526	5.85
562487	G14_007-TAP	345	526	10.90
583340	GEN-2012-020	230	526	9.47
583810	ASGI2013-006	115	526	11.65
584030	G14053&14054	230	526	8.40

SECTION 5: POWER FACTOR ANALYSIS

The objective of this task is to quantify the power factor at the point of interconnection for the wind farms during base case and system contingencies. SPP transmission planning practice requires interconnecting generation projects to maintain the power factor (pf) at the Point of Interconnection (POI) within +/- 0.95 pf for system intact conditions and for post-contingency conditions. This is analyzed by having the wind farm maintain a prescribed voltage schedule at the point of interconnection of 1.0 p.u. voltage, or if the pre-project voltage is higher than 1.0 p.u., to maintain the pre-project voltage schedule.

The 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak power flows provided by SPP were examined prior to the Power Factor Analysis to ensure they contained the proposed study project modeled at 100% of the nameplate rating and any previously queued projects listed in Table 2-2. There was no suspect power flow data in the study area. The proposed study project and any previously queued projects at the same point of interconnection were turned off during the power factor analysis. The wind farm(s) were then replaced by a generator modeled at the high side bus with the same real power (MW) capability as the wind farm(s) and open limits for the reactive power set points (Mvar). The generator was set to hold the POI scheduled bus voltage. All N-1, three-phase fault contingencies from Table 2-4 were then applied and the reactive power required to maintain the bus voltage was recorded.

5.1 Approach

Upgrades found to be necessary in the Stability Analysis were implemented for the Power Factor Analysis.

GEN-2013-027 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 150 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2013-027 generator were disabled. The pre-project voltage at the POI (Tap Tolk to Yoakum 230 kV – Bus 562480) for the 2015 Summer Peak and 2015 Winter Peak condition is 1.01 p.u., and for the 2025 Summer Peak condition is 1.00 p.u. The scheduled voltage for the POI was set accordingly for each study year.

GEN-2014-007 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 399.6 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-007 generator were disabled. The pre-project voltage at the POI (Tap Tuco to Border 345 kV – Bus 562487) for all study years was less than 1.00 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

GEN-2014-033, GEN-2014-034, GEN-2014-035, and GEN-2014-046 were disabled and generators were placed at the study project's point of interconnect bus. The generators were modeled with PGEN = 70 MW for GEN-2014-033 and GEN-2014-034, PGEN = 30 MW for GEN-2014-035, and PGEN=125.4 MW for GEN-2014-046. QMin = -9999 Mvar, and QMax = 9999 Mvar for all generators. All buses and transformers connected from the study project's POI bus to the generators were disabled. The pre-project voltage at the POI (Chaves County 115 kV – Bus 527482) for the 2015 Summer Peak condition is 1.00 p.u., and the 2015 Winter Peak condition and 2025 Summer Peak condition is 0.99 p.u. The scheduled voltage for the POI was set 1.0 p.u. for each study year.

GEN-2014-047 and GEN-2014-062 were disabled and generators were placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 40 MW for GEN-2014-047 and PGEN= 200.1 MW for GEN-2014-062. QMin = -9999 Mvar, and QMax = 9999 Mvar for both generators. All buses and transformers connected from the study project's POI bus to the generators were disabled. The pre-project voltage at the POI (Tap Tolk to Eddy County 345 kV – Bus 560007) for all study years was less than 1.00 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

GEN-2014-053 and GEN-2014-054 were disabled and generators were placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 80 MW for GEN-2014-053 and PGEN= 120 MW for GEN-2014-054. QMin = -9999 Mvar, and QMax = 9999 Mvar for both generators. All buses and transformers connected from the study project's POI bus to the generators were disabled. The pre-project voltage at the POI (Carlisle 230 kV – Bus 526161) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

GEN-2014-063 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 381 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-063 generator were disabled. The pre-project voltage at the POI (Hobbs 230 kV– Bus 527894) for the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak condition is 1.01 p.u. The scheduled voltage for the POI was set accordingly for each study year.

GEN-2014-066 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 30 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-066 generator were disabled. The pre-project voltage at the POI (Norton 115 kV– Bus 524486) for the 2015 Summer Peak and 2025 Summer Peak condition is 1.03 p.u., and the

2015 Winter Peak condition is 1.02 p.u. The scheduled voltage for the POI was set accordingly for each study year.

GEN-2014-069 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 96 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-069 generator were disabled. The pre-project voltage at the POI (Tap Postash Junction – Livingston Ridge 115 kV– Bus 527999) for the 2015 Summer Peak condition is 1.01 p.u., 2015 Winter Peak condition is 0.99 p.u., and the 2025 Summer Peak condition is 0.98 p.u. The scheduled voltage for the POI was set accordingly for each study year.

GEN-2014-070 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 116 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-070 generator were disabled. The pre-project voltage at the POI (Tap Hobbs - Yoakum 230 kV– Bus 560018) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-002 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 49.6 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-002 generator were disabled. The pre-project voltage at the POI (Santa Rosa Tap – Tucumcari 115 kV – Bus 524509) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-004 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-004 generator were disabled. The pre-project voltage at the POI (Livingston Ridge 115 kV – Bus 527952) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-005 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-005 generator were disabled. The pre-project voltage at the POI (Strata 69 kV – Bus 528046) for the 2015 Summer Peak condition is 1.01 p.u., 2015 Winter Peak condition is 1.00 p.u., and the 2025 Summer Peak condition is 0.98 p.u. The scheduled voltage for the POI was set accordingly for each study year.

ASGI-2014-008 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-008 generator were disabled. The pre-project voltage at the POI (South Loving 69 kV – Bus 528218) for the 2015 Summer Peak condition is 1.03 p.u., and 2015 Winter Peak and 2025 Summer Peak condition is 1.02 p.u. The scheduled voltage for the POI was set accordingly for each study year.

ASGI-2014-009 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-009 generator were disabled. The pre-project voltage at the POI (Wood Draw 115 kV – Bus 528228) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-010 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-010 generator were disabled. The pre-project voltage at the POI (Ochoa 115 kV – Bus 528232) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-011 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-011 generator were disabled. The pre-project voltage at the POI (Zia 115 kV – Bus 528420) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-012 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 10 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-012 generator were disabled. The pre-project voltage at the POI (Cooper Ranch 115 kV – Bus 528554) for all study years was less than 1.0 p.u. Therefore, the scheduled voltage for the POI was set 1.0 p.u. for each study year.

ASGI-2014-013 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 2 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the ASGI-2014-013 generator were disabled. The pre-project voltage at the POI (Erksine –

Wolfforth - Reese 115 kV – Bus 526109) for the 2015 Summer Peak and 2015 Winter Peak condition is 1.00 p.u., and the 2025 Summer Peak condition is 1.01 p.u. The scheduled voltage for the POI was set accordingly for each study year.

5.2 Power Factor Analysis Results

The power factor was calculated for the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak condition. The following tables show the power factor results for the study generators:

- Table 5-1: Power Factor Analysis for GEN-2013-027
- Table 5-2: Power Factor Analysis for GEN-2014-007
- Table 5-3: Power Factor Analysis for the Chaves County POI
- Table 5-4: Power Factor Analysis for Tap Tolk – Eddy County POI
- Table 5-5: Power Factor Analysis for the Carlisle POI
- Table 5-6: Power Factor Analysis for GEN-2014-063
- Table 5-7: Power Factor Analysis for GEN-2014-066
- Table 5-8: Power Factor Analysis for GEN-2014-069
- Table 5-9: Power Factor Analysis for GEN-2014-070
- Table 5-10: Power Factor Analysis for ASGI-2014-002
- Table 5-11: Power Factor Analysis for ASGI-2014-004
- Table 5-12: Power Factor Analysis for ASGI-2014-005
- Table 5-13: Power Factor Analysis for ASGI-2014-008
- Table 5-14: Power Factor Analysis for ASGI-2014-009
- Table 5-15: Power Factor Analysis for ASGI-2014-010
- Table 5-16: Power Factor Analysis for ASGI-2014-011
- Table 5-17: Power Factor Analysis for ASGI-2014-012
- Table 5-18: Power Factor Analysis for ASGI-2014-013

Note that a positive Q (Mvar) output illustrates that the generator is absorbing reactive power from the system, implying a leading power factor; a negative Q (Mvar) illustrates that the generator is supplying reactive power to the system, implying a lagging power factor.

Table 5-1
Power Factor Analysis: GEN-2013-027

Power Factor Analysis for GEN-2013-027 (150 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.65	
1	FLT01-3PH	0.999	Lagging	-7.42	0.968	Leading	38.96	0.983	Leading	27.61	
2	FLT02-3PH	0.999	Lagging	-7.41	0.968	Leading	38.95	0.983	Leading	27.60	
3	FLT03-3PH	0.999	Lagging	-7.48	0.968	Leading	38.98	0.983	Leading	27.64	
4	FLT04-3PH	0.999	Lagging	-7.42	0.968	Leading	38.96	0.984	Leading	27.44	
5	FLT05-3PH	0.999	Lagging	-7.24	0.968	Leading	38.82	0.985	Leading	26.47	
6	FLT06-3PH	0.999	Lagging	-6.76	0.968	Leading	38.58	0.984	Leading	26.75	
7	FLT07-3PH	0.999	Lagging	-7.42	0.968	Leading	38.96	0.984	Leading	27.47	
8	FLT08-3PH	0.999	Lagging	-6.77	0.968	Leading	38.79	0.987	Leading	24.70	
9	FLT09-3PH	0.998	Lagging	-8.41	0.968	Leading	39.01	0.983	Leading	27.90	
10	FLT10-3PH	0.999	Lagging	-7.26	0.968	Leading	38.86	0.985	Leading	26.50	
11	FLT11-3PH	0.999	Lagging	-7.48	0.968	Leading	38.95	0.984	Leading	27.49	
12	FLT12-3PH	0.999	Lagging	-7.56	0.968	Leading	38.95	0.984	Leading	27.41	
13	FLT13-3PH	0.999	Lagging	-7.43	0.968	Leading	38.97	0.986	Leading	25.57	
14	FLT14-3PH	0.998	Lagging	-8.31	0.968	Leading	39.01	0.985	Leading	26.14	
15	FLT15-3PH	0.998	Lagging	-8.31	0.968	Leading	38.98	0.986	Leading	25.51	
16	FLT16-3PH	0.999	Lagging	-7.44	0.968	Leading	38.94	0.984	Leading	27.59	
17	FLT17-3PH	0.999	Lagging	-7.90	0.968	Leading	38.98	0.984	Leading	27.59	
18	FLT18-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.69	
19	FLT19-3PH	0.999	Lagging	-7.60	0.968	Leading	38.97	0.983	Leading	27.59	
20	FLT20-3PH	0.999	Lagging	-7.71	0.968	Leading	38.97	0.984	Leading	27.59	
21	FLT21-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.65	
22	FLT22-3PH	0.999	Lagging	-7.48	0.968	Leading	38.95	0.983	Leading	27.87	
23	FLT23-3PH	0.999	Lagging	-7.49	0.968	Leading	38.97	0.983	Leading	27.72	
24	FLT24-3PH	0.999	Lagging	-7.44	0.968	Leading	38.96	0.984	Leading	27.48	
25	FLT25-3PH	0.999	Lagging	-7.48	0.968	Leading	38.96	0.983	Leading	27.62	
26	FLT26-3PH	0.999	Lagging	-7.51	0.968	Leading	38.96	0.984	Leading	27.55	
27	FLT27-3PH	0.999	Lagging	-7.34	0.968	Leading	38.96	0.984	Leading	26.93	
28	FLT28-3PH	0.999	Lagging	-7.44	0.968	Leading	38.97	0.984	Leading	27.54	
29	FLT29-3PH	N/A			0.968	Leading	38.97	0.983	Leading	27.61	
30	FLT30-3PH	N/A			0.968	Leading	38.96	0.983	Leading	28.13	
31	FLT31-3PH	N/A			0.968	Leading	38.90	0.983	Leading	28.31	
32	FLT32-3PH	0.999	Lagging	-7.60	0.968	Leading	39.00	0.983	Leading	27.67	
33	FLT33-3PH	0.999	Lagging	-7.61	0.968	Leading	39.00	0.983	Leading	27.65	
34	FLT34-3PH	0.999	Lagging	-7.51	0.968	Leading	38.98	0.984	Leading	27.00	
35	FLT35-3PH	0.999	Lagging	-7.48	0.968	Leading	38.97	0.984	Leading	27.57	
36	FLT36-3PH	0.999	Lagging	-7.54	0.968	Leading	38.98	0.985	Leading	26.63	
37	FLT37-3PH	0.999	Lagging	-7.53	0.968	Leading	38.98	0.984	Leading	26.75	
38	FLT38-3PH	0.999	Lagging	-7.48	0.968	Leading	38.97	0.983	Leading	27.64	
39	FLT39-3PH	0.999	Lagging	-7.79	0.969	Leading	38.41	0.984	Leading	27.29	
40	FLT40-3PH	0.999	Lagging	-7.46	0.968	Leading	38.97	0.983	Leading	27.64	
41	FLT41-3PH	0.999	Lagging	-7.60	0.968	Leading	38.99	0.984	Leading	27.38	
42	FLT42-3PH	0.999	Lagging	-7.57	0.968	Leading	38.97	0.985	Leading	26.55	
43	FLT43-3PH	0.999	Lagging	-7.66	0.968	Leading	39.00	0.984	Leading	27.50	
44	FLT44-3PH	0.999	Lagging	-7.49	0.968	Leading	38.96	0.983	Leading	27.69	
45	FLT45-3PH	0.999	Lagging	-7.57	0.968	Leading	39.00	0.984	Leading	27.38	

Table 5-1 (Continued)
Power Factor Analysis: GEN-2013-027

Power Factor Analysis for GEN-2013-027 (150 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
46	FLT46-3PH	0.998	Lagging	-8.35	0.970	Leading	37.68	0.985	Leading	26.71	
47	FLT47-3PH	0.999	Lagging	-7.62	0.968	Leading	38.70	0.984	Leading	27.32	
48	FLT48-3PH	0.999	Lagging	-6.83	0.968	Leading	38.71	0.987	Leading	24.65	
49	FLT49-3PH	0.991	Lagging	-20.39	0.974	Leading	34.98	0.982	Leading	28.71	
50	FLT50-3PH	0.999	Lagging	-7.70	0.975	Leading	34.40	0.989	Leading	22.42	
51	FLT51-3PH	1.000	Lagging	-2.84	1.000	Leading	3.88	1.000	Lagging	-0.59	
52	FLT53-3PH	1.000	Leading	2.54	0.959	Leading	44.53	0.969	Leading	38.52	
53	FLT55-3PH	0.998	Lagging	-9.72	0.965	Leading	40.71	0.981	Leading	29.53	
54	FLT56-3PH	0.998	Lagging	-9.39	0.968	Leading	38.67	0.987	Leading	24.89	
55	FLT57-3PH	0.998	Lagging	-9.74	0.969	Leading	38.35	0.987	Leading	24.59	
56	FLT58-3PH	0.998	Lagging	-9.02	0.973	Leading	35.59	0.988	Leading	23.26	
57	FLT59-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.65	
58	FLT62-3PH	0.999	Lagging	-7.48	0.968	Leading	38.98	0.984	Leading	27.52	
59	FLT64-3PH	0.999	Lagging	-7.37	0.969	Leading	38.23	0.984	Leading	27.27	
60	FLT66-3PH	0.999	Lagging	-7.70	0.975	Leading	34.40	0.989	Leading	22.42	
61	FLT67-3PH	0.998	Lagging	-8.37	0.969	Leading	37.93	0.986	Leading	25.66	
62	FLT71-3PH	0.999	Lagging	-7.41	0.968	Leading	39.06	0.983	Leading	27.86	
63	FLT72-3PH	0.999	Lagging	-7.38	0.968	Leading	39.12	0.983	Leading	27.97	
64	FLT73-3PH	0.999	Lagging	-7.50	0.968	Leading	38.99	0.983	Leading	27.77	
65	FLT74-3PH	0.999	Lagging	-7.47	0.968	Leading	38.93	0.983	Leading	27.68	
66	FLT75-3PH	0.999	Lagging	-7.51	0.968	Leading	38.86	0.984	Leading	27.50	
67	FLT76-3PH	0.999	Lagging	-7.48	0.968	Leading	38.93	0.983	Leading	27.65	
68	FLT77-3PH	0.999	Lagging	-8.03	0.969	Leading	38.45	0.984	Leading	27.27	
69	FLT78-3PH	0.999	Lagging	-7.14	0.967	Leading	39.26	0.983	Leading	28.12	
70	FLT79-3PH	0.999	Lagging	-7.40	0.968	Leading	38.97	0.983	Leading	27.79	
71	FLT80-3PH	0.999	Lagging	-7.51	0.968	Leading	39.07	0.984	Leading	27.31	
72	FLT81-3PH	0.999	Lagging	-8.00	0.969	Leading	37.95	0.984	Leading	27.17	
73	FLT82-3PH	0.999	Lagging	-7.50	0.968	Leading	38.94	0.983	Leading	27.60	
74	FLT83-3PH	0.999	Lagging	-7.40	0.968	Leading	38.98	0.983	Leading	27.78	
75	FLT84-3PH	0.999	Lagging	-7.69	0.968	Leading	38.89	0.983	Leading	27.64	
76	FLT85-3PH	0.998	Lagging	-8.77	0.969	Leading	38.56	0.983	Leading	27.86	
77	FLT86-3PH	0.999	Lagging	-7.44	0.968	Leading	39.16	0.983	Leading	27.76	
78	FLT87-3PH	0.997	Lagging	-11.15	0.970	Leading	37.40	0.983	Leading	28.07	
79	FLT88-3PH	0.999	Lagging	-7.88	0.969	Leading	38.22	0.984	Leading	27.27	
80	FLT89-3PH	0.999	Lagging	-7.67	0.968	Leading	39.06	0.983	Leading	28.06	
81	FLT90-3PH	0.999	Lagging	-7.39	0.970	Leading	37.87	0.985	Leading	26.29	
82	FLT91-3PH	0.999	Lagging	-7.42	0.968	Leading	38.84	0.983	Leading	27.65	
83	FLT92-3PH	0.999	Lagging	-7.50	0.968	Leading	38.94	0.983	Leading	27.60	
84	FLT93-3PH	0.999	Lagging	-7.53	0.968	Leading	38.88	0.983	Leading	27.62	
85	FLT94-3PH	0.999	Lagging	-7.45	0.968	Leading	39.06	0.983	Leading	27.60	
86	FLT95-3PH	0.999	Lagging	-7.72	0.968	Leading	38.80	0.984	Leading	27.39	
87	FLT96-3PH	0.999	Lagging	-7.53	0.968	Leading	38.95	0.983	Leading	27.63	
88	FLT97-3PH	0.999	Lagging	-7.76	0.968	Leading	38.73	0.983	Leading	27.61	
89	FLT99-3PH	0.999	Lagging	-7.26	0.969	Leading	38.80	0.983	Leading	27.64	
90	FLT100-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.64	

Table 5-1 (Continued)
Power Factor Analysis: GEN-2013-027

Power Factor Analysis for GEN-2013-027 (150 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.999	Lagging	-7.47	0.968	Leading	38.96	0.983	Leading	27.64	
92	FLT102-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.64	
93	FLT103-3PH	0.999	Lagging	-7.49	0.968	Leading	38.95	0.983	Leading	27.61	
94	FLT104-3PH	0.999	Lagging	-7.46	0.968	Leading	38.96	0.983	Leading	27.63	
95	FLT105-3PH	0.999	Lagging	-7.49	0.968	Leading	38.97	0.983	Leading	27.65	
96	FLT106-3PH	0.999	Lagging	-7.54	0.968	Leading	38.89	0.983	Leading	27.63	
97	FLT107-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.65	
98	FLT108-3PH	0.999	Lagging	-7.47	0.968	Leading	38.95	0.983	Leading	27.63	
99	FLT112-3PH	0.998	Lagging	-10.28	0.972	Leading	35.98	0.989	Leading	22.43	
100	FLT113-3PH	0.999	Lagging	-7.47	0.968	Leading	39.12	0.983	Leading	27.76	
101	FLT114-3PH	0.999	Lagging	-7.47	0.968	Leading	38.97	0.983	Leading	27.65	
102	FLT115-3PH	0.998	Lagging	-8.58	0.970	Leading	37.59	0.984	Leading	27.42	
103	FLT116-3PH	0.999	Lagging	-7.18	0.967	Leading	39.54	0.983	Leading	27.80	
104	FLT117-3PH	0.996	Lagging	-13.10	0.964	Leading	41.64	0.986	Leading	25.44	
105	FLT118-3PH	0.999	Lagging	-7.69	0.971	Leading	36.81	0.985	Leading	25.99	
106	FLT122-3PH	0.999	Lagging	-7.47	0.972	Leading	36.83	0.986	Leading	25.99	
107	FLT123-3PH	0.998	Lagging	-10.03	0.973	Leading	35.75	0.985	Leading	26.09	
108	FLT124-3PH	0.998	Lagging	-8.36	0.971	Leading	37.08	0.984	Leading	26.74	
109	FLT125-3PH	0.998	Lagging	-8.83	0.971	Leading	36.81	0.984	Leading	26.89	
110	FLT126-3PH	0.999	Lagging	-7.73	0.969	Leading	38.16	0.984	Leading	27.41	

Table 5-2
Power Factor Analysis: GEN-2014-007

Power Factor Analysis for GEN-2014-007 (399.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
0	Base	0.892	Lagging	-202.26	0.913	Lagging	-178.18	1.000	Leading	12.00
1	FLT01-3PH	0.892	Lagging	-202.08	0.913	Lagging	-178.05	1.000	Leading	11.93
2	FLT02-3PH	0.892	Lagging	-202.19	0.913	Lagging	-178.20	1.000	Leading	11.73
3	FLT03-3PH	0.892	Lagging	-202.27	0.914	Lagging	-177.96	1.000	Leading	11.34
4	FLT04-3PH	0.892	Lagging	-202.48	0.913	Lagging	-178.05	1.000	Leading	10.80
5	FLT05-3PH	0.893	Lagging	-201.91	0.914	Lagging	-177.30	0.999	Leading	13.14
6	FLT06-3PH	0.897	Lagging	-197.11	0.919	Lagging	-171.51	0.999	Leading	14.93
7	FLT07-3PH	0.892	Lagging	-202.45	0.913	Lagging	-178.06	1.000	Leading	10.95
8	FLT08-3PH	0.896	Lagging	-198.57	0.917	Lagging	-174.25	0.999	Leading	13.44
9	FLT09-3PH	0.891	Lagging	-203.81	0.913	Lagging	-178.55	1.000	Leading	11.28
10	FLT10-3PH	0.891	Lagging	-203.07	0.912	Lagging	-179.30	1.000	Leading	6.33
11	FLT11-3PH	0.892	Lagging	-202.83	0.912	Lagging	-179.20	1.000	Leading	9.04
12	FLT12-3PH	0.890	Lagging	-204.27	0.912	Lagging	-179.81	1.000	Leading	11.79
13	FLT13-3PH	0.893	Lagging	-201.72	0.914	Lagging	-177.73	1.000	Leading	0.96
14	FLT14-3PH	0.891	Lagging	-203.25	0.913	Lagging	-178.73	1.000	Leading	0.54
15	FLT15-3PH	0.891	Lagging	-203.96	0.913	Lagging	-178.76	1.000	Leading	5.86
16	FLT16-3PH	0.892	Lagging	-202.31	0.913	Lagging	-178.28	1.000	Leading	12.02
17	FLT17-3PH	0.892	Lagging	-202.31	0.913	Lagging	-178.28	1.000	Leading	12.02
18	FLT18-3PH	0.892	Lagging	-202.27	0.913	Lagging	-178.13	1.000	Leading	12.03
19	FLT19-3PH	0.893	Lagging	-202.27	0.913	Lagging	-178.18	1.000	Leading	12.06
20	FLT20-3PH	0.892	Lagging	-202.29	0.912	Lagging	-178.28	1.000	Leading	12.13
21	FLT21-3PH	0.892	Lagging	-202.26	0.913	Lagging	-178.18	1.000	Leading	12.00
22	FLT22-3PH	0.892	Lagging	-202.79	0.913	Lagging	-178.69	1.000	Leading	12.58
23	FLT23-3PH	0.892	Lagging	-202.29	0.914	Lagging	-177.92	1.000	Leading	12.25
24	FLT24-3PH	0.893	Lagging	-200.88	0.913	Lagging	-178.78	1.000	Leading	3.03
25	FLT25-3PH	0.892	Lagging	-202.63	0.913	Lagging	-178.37	1.000	Leading	11.32
26	FLT26-3PH	0.893	Lagging	-200.92	0.912	Lagging	-179.21	1.000	Leading	6.04
27	FLT27-3PH	0.891	Lagging	-203.14	0.914	Lagging	-177.78	1.000	Leading	0.09
28	FLT28-3PH	0.892	Lagging	-202.51	0.914	Lagging	-177.80	1.000	Leading	11.30
29	FLT29-3PH	N/A			0.913	Lagging	-178.26	1.000	Leading	11.92
30	FLT30-3PH	N/A			0.913	Lagging	-178.01	1.000	Leading	12.15
31	FLT31-3PH	N/A			0.911	Lagging	-180.33	1.000	Lagging	-5.97
32	FLT32-3PH	0.893	Lagging	-201.81	0.914	Lagging	-177.93	1.000	Leading	12.07
33	FLT33-3PH	0.893	Lagging	-201.87	0.913	Lagging	-178.00	1.000	Leading	12.00
34	FLT34-3PH	0.892	Lagging	-202.22	0.913	Lagging	-178.06	1.000	Leading	6.83
35	FLT35-3PH	0.892	Lagging	-202.15	0.913	Lagging	-178.15	1.000	Leading	11.35
36	FLT36-3PH	0.892	Lagging	-202.58	0.913	Lagging	-178.40	1.000	Leading	2.32
37	FLT37-3PH	0.892	Lagging	-202.59	0.913	Lagging	-178.42	1.000	Leading	2.97
38	FLT38-3PH	0.892	Lagging	-202.23	0.913	Lagging	-178.15	1.000	Leading	11.90
39	FLT39-3PH	0.890	Lagging	-204.75	0.912	Lagging	-180.18	1.000	Leading	8.17
40	FLT40-3PH	0.892	Lagging	-202.28	0.913	Lagging	-178.15	1.000	Leading	12.05
41	FLT41-3PH	0.892	Lagging	-202.39	0.913	Lagging	-178.35	1.000	Leading	10.31
42	FLT42-3PH	0.891	Lagging	-203.08	0.913	Lagging	-178.76	1.000	Leading	0.36
43	FLT43-3PH	0.892	Lagging	-202.52	0.913	Lagging	-178.25	1.000	Leading	11.46
44	FLT44-3PH	0.892	Lagging	-202.35	0.913	Lagging	-178.24	1.000	Leading	12.25
45	FLT45-3PH	0.892	Lagging	-202.50	0.913	Lagging	-178.32	1.000	Leading	9.35

Table 5-2 (Continued)
Power Factor Analysis: GEN-2014-007

Power Factor Analysis for GEN-2014-007 (399.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.890	Lagging	-204.80	0.912	Lagging	-180.30	1.000	Leading	8.97
47	FLT47-3PH	0.892	Lagging	-202.95	0.913	Lagging	-178.81	1.000	Leading	10.47
48	FLT48-3PH	0.892	Lagging	-202.75	0.913	Lagging	-178.34	1.000	Leading	10.23
49	FLT49-3PH	0.878	Lagging	-217.77	0.907	Lagging	-185.07	1.000	Leading	6.60
50	FLT50-3PH	0.872	Lagging	-224.01	0.887	Lagging	-208.20	0.999	Leading	16.75
51	FLT51-3PH	0.883	Lagging	-212.42	0.910	Lagging	-182.29	1.000	Leading	9.41
52	FLT53-3PH	0.890	Lagging	-204.37	0.914	Lagging	-177.06	0.999	Leading	13.34
53	FLT55-3PH	0.886	Lagging	-209.26	0.911	Lagging	-180.46	1.000	Leading	9.94
54	FLT56-3PH	0.892	Lagging	-202.90	0.913	Lagging	-178.25	1.000	Leading	10.94
55	FLT57-3PH	0.891	Lagging	-203.14	0.913	Lagging	-178.53	1.000	Leading	10.74
56	FLT58-3PH	0.890	Lagging	-204.56	0.911	Lagging	-180.73	1.000	Leading	9.86
57	FLT59-3PH	0.892	Lagging	-202.26	0.913	Lagging	-178.18	1.000	Leading	12.00
58	FLT62-3PH	0.892	Lagging	-202.42	0.913	Lagging	-178.71	1.000	Leading	11.23
59	FLT64-3PH	0.889	Lagging	-206.11	0.910	Lagging	-182.25	1.000	Leading	10.19
60	FLT66-3PH	0.872	Lagging	-224.01	0.887	Lagging	-208.20	0.999	Leading	16.75
61	FLT67-3PH	0.891	Lagging	-203.40	0.912	Lagging	-179.70	1.000	Leading	9.68
62	FLT71-3PH	0.891	Lagging	-203.98	0.912	Lagging	-179.20	1.000	Leading	12.15
63	FLT72-3PH	0.890	Lagging	-204.73	0.912	Lagging	-179.65	1.000	Leading	11.92
64	FLT73-3PH	0.890	Lagging	-204.47	0.913	Lagging	-178.97	1.000	Leading	10.49
65	FLT74-3PH	0.892	Lagging	-202.76	0.913	Lagging	-178.98	1.000	Leading	11.22
66	FLT75-3PH	0.893	Lagging	-201.83	0.913	Lagging	-177.99	1.000	Leading	12.16
67	FLT76-3PH	0.892	Lagging	-202.34	0.913	Lagging	-178.34	1.000	Leading	11.96
68	FLT77-3PH	0.896	Lagging	-197.70	0.914	Lagging	-177.34	1.000	Leading	11.66
69	FLT78-3PH	0.896	Lagging	-198.08	0.916	Lagging	-175.46	1.000	Leading	11.77
70	FLT79-3PH	0.894	Lagging	-200.04	0.914	Lagging	-177.28	1.000	Leading	12.09
71	FLT80-3PH	0.890	Lagging	-204.83	0.911	Lagging	-181.12	1.000	Leading	10.96
72	FLT81-3PH	0.893	Lagging	-200.85	0.914	Lagging	-177.01	1.000	Leading	9.39
73	FLT82-3PH	0.891	Lagging	-203.28	0.913	Lagging	-178.97	1.000	Leading	11.12
74	FLT83-3PH	0.894	Lagging	-199.98	0.914	Lagging	-177.22	1.000	Leading	10.15
75	FLT84-3PH	0.888	Lagging	-207.09	0.905	Lagging	-187.75	1.000	Lagging	-7.99
76	FLT85-3PH	0.809	Lagging	-290.45	0.836	Lagging	-262.62	0.987	Lagging	-66.12
77	FLT86-3PH	0.913	Lagging	-178.05	0.932	Lagging	-155.71	0.996	Leading	34.20
78	FLT87-3PH	0.576	Lagging	-567.20	0.582	Lagging	-558.10	0.911	Lagging	-181.21
79	FLT88-3PH	0.880	Lagging	-215.58	0.906	Lagging	-186.12	1.000	Leading	0.17
80	FLT89-3PH	0.876	Lagging	-219.85	0.901	Lagging	-192.10	1.000	Lagging	-0.30
81	FLT90-3PH	0.898	Lagging	-195.65	0.915	Lagging	-176.36	0.999	Leading	14.94
82	FLT91-3PH	0.901	Lagging	-192.37	0.918	Lagging	-172.95	1.000	Leading	11.95
83	FLT92-3PH	0.891	Lagging	-203.28	0.913	Lagging	-178.97	1.000	Leading	11.12
84	FLT93-3PH	0.891	Lagging	-203.28	0.911	Lagging	-181.26	1.000	Leading	12.35
85	FLT94-3PH	0.892	Lagging	-202.18	0.914	Lagging	-177.68	1.000	Leading	12.08
86	FLT95-3PH	0.886	Lagging	-209.01	0.907	Lagging	-185.11	1.000	Leading	0.09
87	FLT96-3PH	0.891	Lagging	-203.93	0.913	Lagging	-178.47	1.000	Leading	11.92
88	FLT97-3PH	0.860	Lagging	-237.18	0.889	Lagging	-205.52	1.000	Lagging	-5.92
89	FLT99-3PH	0.914	Lagging	-177.40	0.932	Lagging	-155.71	0.998	Leading	26.33
90	FLT100-3PH	0.892	Lagging	-202.34	0.913	Lagging	-178.15	1.000	Leading	11.98

Table 5-2 (Continued)
Power Factor Analysis: GEN-2014-007

Power Factor Analysis for GEN-2014-007 (399.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.892	Lagging	-202.59	0.913	Lagging	-178.38	1.000	Leading	11.76
92	FLT102-3PH	0.892	Lagging	-202.33	0.913	Lagging	-178.12	1.000	Leading	11.99
93	FLT103-3PH	0.891	Lagging	-203.17	0.913	Lagging	-178.06	1.000	Leading	11.58
94	FLT104-3PH	0.892	Lagging	-202.54	0.913	Lagging	-178.28	1.000	Leading	11.81
95	FLT105-3PH	0.892	Lagging	-202.67	0.913	Lagging	-178.37	1.000	Leading	11.71
96	FLT106-3PH	0.891	Lagging	-203.86	0.911	Lagging	-180.67	1.000	Leading	10.09
97	FLT107-3PH	0.892	Lagging	-202.32	0.913	Lagging	-178.20	1.000	Leading	11.98
98	FLT108-3PH	0.892	Lagging	-202.54	0.913	Lagging	-178.60	1.000	Leading	11.44
99	FLT112-3PH	0.890	Lagging	-205.09	0.911	Lagging	-180.93	1.000	Leading	9.27
100	FLT113-3PH	0.911	Lagging	-180.32	0.929	Lagging	-159.75	0.999	Leading	17.14
101	FLT114-3PH	0.892	Lagging	-202.26	0.913	Lagging	-178.18	1.000	Leading	12.00
102	FLT115-3PH	0.860	Lagging	-237.58	0.881	Lagging	-214.17	0.999	Leading	16.09
103	FLT116-3PH	0.883	Lagging	-212.50	0.908	Lagging	-183.90	1.000	Leading	0.70
104	FLT117-3PH	0.911	Lagging	-180.79	0.916	Lagging	-175.33	0.998	Leading	25.48
105	FLT118-3PH	0.927	Lagging	-162.29	0.940	Lagging	-145.69	0.995	Leading	39.19
106	FLT122-3PH	0.891	Lagging	-203.90	0.919	Lagging	-171.84	0.999	Leading	14.12
107	FLT123-3PH	0.713	Lagging	-393.35	0.761	Lagging	-340.37	0.971	Lagging	-97.63
108	FLT124-3PH	0.803	Lagging	-296.45	0.819	Lagging	-280.47	0.996	Lagging	-37.22
109	FLT125-3PH	0.776	Lagging	-324.88	0.790	Lagging	-309.68	0.992	Lagging	-49.79
110	FLT126-3PH	0.859	Lagging	-237.96	0.872	Lagging	-224.39	1.000	Leading	3.73

Table 5-3
Power Factor Analysis: Chaves County POI

Power Factor Analysis for Chaves County Generators (295.4 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
1	FLT01-3PH	0.983	Leading	54.46	0.996	Leading	25.40	0.995	Leading	29.70	
2	FLT02-3PH	0.984	Leading	53.59	0.996	Leading	24.86	0.996	Leading	28.05	
3	FLT03-3PH	0.991	Leading	40.05	0.999	Leading	13.24	0.997	Leading	21.68	
4	FLT04-3PH	0.982	Leading	56.35	0.996	Leading	27.04	0.995	Leading	28.78	
5	FLT05-3PH	0.983	Leading	54.88	0.995	Leading	29.28	0.992	Leading	37.31	
6	FLT06-3PH	0.981	Leading	59.00	0.997	Leading	22.41	0.993	Leading	34.36	
7	FLT07-3PH	0.982	Leading	56.58	0.996	Leading	27.13	0.995	Leading	29.24	
8	FLT08-3PH	0.984	Leading	52.92	0.996	Leading	26.30	0.997	Leading	21.65	
9	FLT09-3PH	0.984	Leading	52.69	0.996	Leading	26.95	0.995	Leading	30.91	
10	FLT10-3PH	0.982	Leading	56.68	0.996	Leading	26.03	0.995	Leading	30.45	
11	FLT11-3PH	0.982	Leading	56.94	0.996	Leading	25.82	0.995	Leading	29.22	
12	FLT12-3PH	0.982	Leading	56.49	0.996	Leading	25.91	0.994	Leading	31.72	
13	FLT13-3PH	0.981	Leading	58.18	0.996	Leading	27.31	0.994	Leading	32.21	
14	FLT14-3PH	0.985	Leading	52.35	0.996	Leading	26.45	0.998	Leading	20.26	
15	FLT15-3PH	0.984	Leading	53.02	0.996	Leading	26.99	0.994	Leading	31.44	
16	FLT16-3PH	0.981	Leading	57.69	0.996	Leading	27.18	0.994	Leading	31.97	
17	FLT17-3PH	0.984	Leading	52.70	0.996	Leading	27.14	0.994	Leading	31.96	
18	FLT18-3PH	0.981	Leading	57.67	0.996	Leading	27.16	0.994	Leading	31.89	
19	FLT19-3PH	0.982	Leading	56.72	0.996	Leading	27.16	0.994	Leading	31.87	
20	FLT20-3PH	0.982	Leading	57.60	0.996	Leading	27.15	0.994	Leading	31.89	
21	FLT21-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
22	FLT22-3PH	0.982	Leading	57.52	0.996	Leading	27.01	0.994	Leading	31.79	
23	FLT23-3PH	0.981	Leading	57.75	0.996	Leading	27.42	0.994	Leading	31.70	
24	FLT24-3PH	0.981	Leading	58.28	0.996	Leading	26.98	0.994	Leading	32.31	
25	FLT25-3PH	0.981	Leading	57.66	0.996	Leading	27.15	0.994	Leading	31.87	
26	FLT26-3PH	0.981	Leading	58.11	0.996	Leading	26.85	0.994	Leading	32.21	
27	FLT27-3PH	0.982	Leading	57.43	0.996	Leading	26.94	0.994	Leading	32.26	
28	FLT28-3PH	0.981	Leading	57.63	0.996	Leading	27.14	0.994	Leading	31.90	
29	FLT29-3PH	N/A			0.996	Leading	27.16	0.994	Leading	31.92	
30	FLT30-3PH	N/A			0.996	Leading	27.26	0.994	Leading	32.24	
31	FLT31-3PH	N/A			0.996	Leading	27.62	0.994	Leading	32.12	
32	FLT32-3PH	0.981	Leading	57.85	0.996	Leading	27.15	0.994	Leading	31.92	
33	FLT33-3PH	0.981	Leading	57.85	0.996	Leading	27.15	0.994	Leading	31.90	
34	FLT34-3PH	0.981	Leading	57.72	0.996	Leading	27.16	0.994	Leading	31.70	
35	FLT35-3PH	0.981	Leading	57.71	0.996	Leading	27.16	0.994	Leading	31.86	
36	FLT36-3PH	0.981	Leading	57.73	0.996	Leading	27.14	0.994	Leading	31.62	
37	FLT37-3PH	0.981	Leading	57.72	0.996	Leading	27.15	0.994	Leading	31.65	
38	FLT38-3PH	0.981	Leading	57.69	0.996	Leading	27.16	0.994	Leading	31.89	
39	FLT39-3PH	0.981	Leading	57.64	0.996	Leading	27.16	0.994	Leading	32.02	
40	FLT40-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.91	
41	FLT41-3PH	0.981	Leading	57.76	0.996	Leading	27.14	0.994	Leading	31.66	
42	FLT42-3PH	0.981	Leading	57.73	0.996	Leading	27.13	0.994	Leading	31.61	
43	FLT43-3PH	0.981	Leading	57.95	0.996	Leading	27.24	0.994	Leading	31.77	
44	FLT44-3PH	0.981	Leading	57.74	0.996	Leading	27.19	0.994	Leading	31.94	
45	FLT45-3PH	0.981	Leading	57.72	0.996	Leading	27.14	0.994	Leading	31.62	

Table 5-3 (Continued)
Power Factor Analysis: Chaves County POI

Power Factor Analysis for Chaves County Generators (295.4 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
46	FLT46-3PH	0.982	Leading	57.62	0.996	Leading	27.16	0.994	Leading	32.01	
47	FLT47-3PH	0.981	Leading	57.66	0.996	Leading	27.15	0.994	Leading	31.91	
48	FLT48-3PH	0.984	Leading	52.92	0.996	Leading	26.30	0.997	Leading	21.59	
49	FLT49-3PH	0.992	Leading	37.06	0.998	Lagging	-18.17	0.998	Leading	19.42	
50	FLT50-3PH	0.985	Leading	52.29	0.996	Leading	25.91	0.996	Leading	27.80	
51	FLT51-3PH	0.982	Leading	57.25	0.996	Leading	27.27	0.994	Leading	32.36	
52	FLT53-3PH	0.981	Leading	57.67	0.996	Leading	27.07	0.994	Leading	31.11	
53	FLT55-3PH	0.982	Leading	57.29	0.996	Leading	27.25	0.994	Leading	32.34	
54	FLT56-3PH	0.981	Leading	57.66	0.996	Leading	27.16	0.994	Leading	31.92	
55	FLT57-3PH	0.981	Leading	57.66	0.996	Leading	27.16	0.994	Leading	31.92	
56	FLT58-3PH	0.982	Leading	57.28	0.996	Leading	27.19	0.994	Leading	32.44	
57	FLT59-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
58	FLT62-3PH	0.982	Leading	57.01	0.997	Leading	23.62	0.995	Leading	29.04	
59	FLT64-3PH	0.981	Leading	57.62	0.996	Leading	27.05	0.994	Leading	31.75	
60	FLT66-3PH	0.985	Leading	52.29	0.996	Leading	25.91	0.996	Leading	27.80	
61	FLT67-3PH	0.982	Leading	57.59	0.996	Leading	27.07	0.995	Leading	30.19	
62	FLT71-3PH	0.981	Leading	57.67	0.996	Leading	27.16	0.994	Leading	31.91	
63	FLT72-3PH	0.981	Leading	57.67	0.996	Leading	27.16	0.994	Leading	31.92	
64	FLT73-3PH	0.981	Leading	57.64	0.996	Leading	27.16	0.994	Leading	31.94	
65	FLT74-3PH	0.981	Leading	57.67	0.996	Leading	27.17	0.994	Leading	31.92	
66	FLT75-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.87	
67	FLT76-3PH	0.981	Leading	57.67	0.996	Leading	27.16	0.994	Leading	31.90	
68	FLT77-3PH	0.981	Leading	57.69	0.996	Leading	27.16	0.994	Leading	31.86	
69	FLT78-3PH	0.981	Leading	57.68	0.996	Leading	27.17	0.994	Leading	31.92	
70	FLT79-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
71	FLT80-3PH	0.981	Leading	57.67	0.996	Leading	27.15	0.994	Leading	31.88	
72	FLT81-3PH	0.981	Leading	57.70	0.996	Leading	27.15	0.994	Leading	31.87	
73	FLT82-3PH	0.981	Leading	57.66	0.996	Leading	27.16	0.994	Leading	31.92	
74	FLT83-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.91	
75	FLT84-3PH	0.982	Leading	57.62	0.996	Leading	27.14	0.994	Leading	31.94	
76	FLT85-3PH	0.982	Leading	57.31	0.996	Leading	27.10	0.994	Leading	32.08	
77	FLT86-3PH	0.981	Leading	57.63	0.996	Leading	27.14	0.994	Leading	31.94	
78	FLT87-3PH	0.982	Leading	56.66	0.996	Leading	26.79	0.994	Leading	32.17	
79	FLT88-3PH	0.981	Leading	57.71	0.996	Leading	27.11	0.994	Leading	31.75	
80	FLT89-3PH	0.982	Leading	57.53	0.996	Leading	27.17	0.994	Leading	32.06	
81	FLT90-3PH	0.981	Leading	57.70	0.996	Leading	27.10	0.994	Leading	31.35	
82	FLT91-3PH	0.981	Leading	57.67	0.996	Leading	27.17	0.994	Leading	31.90	
83	FLT92-3PH	0.981	Leading	57.66	0.996	Leading	27.16	0.994	Leading	31.92	
84	FLT93-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
85	FLT94-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.89	
86	FLT95-3PH	0.981	Leading	57.66	0.996	Leading	27.15	0.994	Leading	31.92	
87	FLT96-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
88	FLT97-3PH	0.982	Leading	57.56	0.996	Leading	27.10	0.994	Leading	31.84	
89	FLT99-3PH	0.983	Leading	56.00	0.994	Leading	32.13	0.994	Leading	31.50	
90	FLT100-3PH	0.982	Leading	57.35	0.996	Leading	26.88	0.994	Leading	31.48	

Table 5-3 (Continued)
Power Factor Analysis: Chaves County POI

Power Factor Analysis for Chaves County Generators (295.4 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.982	Leading	57.44	0.996	Leading	26.96	0.994	Leading	31.57	
92	FLT102-3PH	0.982	Leading	57.36	0.996	Leading	26.90	0.994	Leading	31.49	
93	FLT103-3PH	0.983	Leading	55.45	0.996	Leading	24.99	0.995	Leading	28.92	
94	FLT104-3PH	0.982	Leading	56.92	0.996	Leading	25.66	0.995	Leading	30.96	
95	FLT105-3PH	0.983	Leading	55.80	0.996	Leading	25.23	0.995	Leading	30.27	
96	FLT106-3PH	0.982	Leading	56.82	0.995	Leading	29.70	0.994	Leading	31.80	
97	FLT107-3PH	0.982	Leading	57.59	0.996	Leading	27.22	0.994	Leading	31.85	
98	FLT108-3PH	0.981	Leading	57.98	0.995	Leading	28.28	0.994	Leading	33.19	
99	FLT112-3PH	0.982	Leading	57.55	0.996	Leading	27.27	0.994	Leading	31.88	
100	FLT113-3PH	0.981	Leading	57.63	0.996	Leading	27.15	0.994	Leading	31.94	
101	FLT114-3PH	0.981	Leading	57.68	0.996	Leading	27.16	0.994	Leading	31.90	
102	FLT115-3PH	0.982	Leading	57.62	0.996	Leading	27.11	0.994	Leading	31.90	
103	FLT116-3PH	0.981	Leading	57.66	0.996	Leading	27.15	0.994	Leading	31.91	
104	FLT117-3PH	0.982	Leading	56.51	0.996	Leading	27.17	0.994	Leading	32.19	
105	FLT118-3PH	0.981	Leading	57.70	0.996	Leading	27.23	0.994	Leading	31.75	
106	FLT122-3PH	0.981	Leading	58.12	0.994	Leading	32.11	0.994	Leading	31.56	
107	FLT123-3PH	0.982	Leading	56.70	0.996	Leading	26.97	0.994	Leading	32.11	
108	FLT124-3PH	0.981	Leading	57.78	0.996	Leading	27.17	0.994	Leading	31.76	
109	FLT125-3PH	0.981	Leading	57.65	0.996	Leading	27.11	0.994	Leading	31.84	
110	FLT126-3PH	0.981	Leading	57.90	0.996	Leading	27.12	0.994	Leading	31.70	

Table 5-4
Power Factor Analysis: Tap Tolk – Eddy County POI

Power Factor Analysis for Tap Tolk - Eddy County Generators (240.1 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.996	Lagging	-22.70	0.999	Lagging	-13.07	1.000	Lagging	-2.44	
1	FLT01-3PH	0.996	Lagging	-22.62	0.999	Lagging	-13.02	1.000	Lagging	-2.46	
2	FLT02-3PH	0.996	Lagging	-22.63	0.999	Lagging	-13.03	1.000	Lagging	-2.48	
3	FLT03-3PH	0.996	Lagging	-22.72	0.999	Lagging	-13.07	1.000	Lagging	-2.49	
4	FLT04-3PH	0.995	Lagging	-22.96	0.998	Lagging	-13.21	1.000	Lagging	-2.47	
5	FLT05-3PH	0.996	Lagging	-22.26	0.999	Lagging	-12.53	1.000	Lagging	-3.36	
6	FLT06-3PH	0.996	Lagging	-20.95	0.999	Lagging	-11.32	1.000	Lagging	-3.07	
7	FLT07-3PH	0.995	Lagging	-22.93	0.998	Lagging	-13.20	1.000	Lagging	-2.47	
8	FLT08-3PH	0.999	Lagging	-12.56	1.000	Lagging	-4.58	1.000	Leading	3.59	
9	FLT09-3PH	0.996	Lagging	-21.14	0.999	Lagging	-12.54	1.000	Lagging	-2.72	
10	FLT10-3PH	0.995	Lagging	-23.39	0.998	Lagging	-13.94	1.000	Lagging	-2.76	
11	FLT11-3PH	0.996	Lagging	-22.79	0.998	Lagging	-13.20	1.000	Lagging	-2.59	
12	FLT12-3PH	0.995	Lagging	-22.90	0.998	Lagging	-13.21	1.000	Lagging	-2.44	
13	FLT13-3PH	0.996	Lagging	-22.68	0.999	Lagging	-13.02	1.000	Lagging	-3.05	
14	FLT14-3PH	0.996	Lagging	-21.23	0.999	Lagging	-12.11	0.999	Lagging	-7.79	
15	FLT15-3PH	0.996	Lagging	-21.32	0.999	Lagging	-12.28	1.000	Lagging	-2.85	
16	FLT16-3PH	0.996	Lagging	-22.75	0.999	Lagging	-13.12	1.000	Lagging	-2.43	
17	FLT17-3PH	0.996	Lagging	-22.76	0.999	Lagging	-13.11	1.000	Lagging	-2.43	
18	FLT18-3PH	0.996	Lagging	-22.71	0.999	Lagging	-13.07	1.000	Lagging	-2.44	
19	FLT19-3PH	0.996	Lagging	-22.77	0.999	Lagging	-13.07	1.000	Lagging	-2.44	
20	FLT20-3PH	0.996	Lagging	-22.76	0.999	Lagging	-13.08	1.000	Lagging	-2.45	
21	FLT21-3PH	0.996	Lagging	-22.70	0.999	Lagging	-13.07	1.000	Lagging	-2.44	
22	FLT22-3PH	0.996	Lagging	-22.77	0.999	Lagging	-13.14	1.000	Lagging	-2.41	
23	FLT23-3PH	0.996	Lagging	-22.65	0.999	Lagging	-13.04	1.000	Lagging	-2.43	
24	FLT24-3PH	0.996	Lagging	-22.51	0.999	Lagging	-13.12	1.000	Lagging	-2.94	
25	FLT25-3PH	0.996	Lagging	-22.74	0.999	Lagging	-13.09	1.000	Lagging	-2.48	
26	FLT26-3PH	0.996	Lagging	-22.34	0.999	Lagging	-13.12	1.000	Lagging	-2.77	
27	FLT27-3PH	0.995	Lagging	-23.19	0.999	Lagging	-13.15	1.000	Lagging	-3.11	
28	FLT28-3PH	0.996	Lagging	-22.81	0.999	Lagging	-13.06	1.000	Lagging	-2.48	
29	FLT29-3PH	N/A			0.999	Lagging	-13.06	1.000	Lagging	-2.45	
30	FLT30-3PH	N/A			0.999	Lagging	-12.97	1.000	Lagging	-2.44	
31	FLT31-3PH	N/A			0.998	Lagging	-13.43	1.000	Lagging	-3.46	
32	FLT32-3PH	0.996	Lagging	-22.32	0.999	Lagging	-12.81	1.000	Lagging	-2.45	
33	FLT33-3PH	0.996	Lagging	-22.32	0.999	Lagging	-12.83	1.000	Lagging	-2.44	
34	FLT34-3PH	0.996	Lagging	-22.61	0.999	Lagging	-12.99	1.000	Lagging	-2.74	
35	FLT35-3PH	0.996	Lagging	-22.63	0.999	Lagging	-13.02	1.000	Lagging	-2.48	
36	FLT36-3PH	0.996	Lagging	-22.63	0.999	Lagging	-13.01	1.000	Lagging	-3.00	
37	FLT37-3PH	0.996	Lagging	-22.65	0.999	Lagging	-13.03	1.000	Lagging	-2.96	
38	FLT38-3PH	0.996	Lagging	-22.67	0.999	Lagging	-13.06	1.000	Lagging	-2.45	
39	FLT39-3PH	0.995	Lagging	-23.01	0.998	Lagging	-13.30	1.000	Lagging	-2.65	
40	FLT40-3PH	0.996	Lagging	-22.71	0.999	Lagging	-13.08	1.000	Lagging	-2.44	
41	FLT41-3PH	0.996	Lagging	-22.44	0.999	Lagging	-12.92	1.000	Lagging	-2.56	
42	FLT42-3PH	0.996	Lagging	-22.66	0.999	Lagging	-13.02	1.000	Lagging	-3.11	
43	FLT43-3PH	0.996	Lagging	-22.34	0.999	Lagging	-12.85	1.000	Lagging	-2.51	
44	FLT44-3PH	0.996	Lagging	-22.68	0.999	Lagging	-13.07	1.000	Lagging	-2.43	
45	FLT45-3PH	0.996	Lagging	-22.54	0.999	Lagging	-12.97	1.000	Lagging	-2.61	

Table 5-4 (Continued)
Power Factor Analysis: Tap Tolk – Eddy County POI

Power Factor Analysis for Tap Tolk - Eddy County Generators (240.1 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.995	Lagging	-23.06	0.998	Lagging	-13.36	1.000	Lagging	-2.60
47	FLT47-3PH	0.996	Lagging	-22.79	0.999	Lagging	-13.14	1.000	Lagging	-2.53
48	FLT48-3PH	0.995	Lagging	-23.96	0.998	Lagging	-15.98	0.999	Lagging	-7.80
49	FLT49-3PH	0.989	Lagging	-35.23	0.990	Lagging	-34.03	0.985	Lagging	-42.16
50	FLT50-3PH	0.986	Lagging	-40.79	0.988	Lagging	-37.88	1.000	Lagging	-2.87
51	FLT51-3PH	0.995	Lagging	-23.93	0.998	Lagging	-13.48	1.000	Lagging	-2.28
52	FLT53-3PH	0.995	Lagging	-22.87	0.999	Lagging	-12.94	1.000	Lagging	-2.91
53	FLT55-3PH	0.995	Lagging	-24.29	0.998	Lagging	-13.60	1.000	Lagging	-2.45
54	FLT56-3PH	0.996	Lagging	-22.81	0.999	Lagging	-13.05	1.000	Lagging	-2.49
55	FLT57-3PH	0.996	Lagging	-22.83	0.999	Lagging	-13.08	1.000	Lagging	-2.50
56	FLT58-3PH	0.995	Lagging	-24.34	0.998	Lagging	-14.73	1.000	Lagging	-2.47
57	FLT59-3PH	0.996	Lagging	-22.70	0.999	Lagging	-13.07	1.000	Lagging	-2.44
58	FLT62-3PH	0.996	Lagging	-22.72	0.998	Lagging	-13.21	1.000	Lagging	-2.57
59	FLT64-3PH	0.995	Lagging	-23.34	0.998	Lagging	-13.69	1.000	Lagging	-2.81
60	FLT66-3PH	0.986	Lagging	-40.79	0.988	Lagging	-37.88	1.000	Lagging	-2.87
61	FLT67-3PH	0.995	Lagging	-22.93	0.998	Lagging	-13.31	1.000	Lagging	-2.92
62	FLT71-3PH	0.995	Lagging	-22.86	0.999	Lagging	-13.15	1.000	Lagging	-2.44
63	FLT72-3PH	0.995	Lagging	-22.92	0.998	Lagging	-13.19	1.000	Lagging	-2.46
64	FLT73-3PH	0.996	Lagging	-22.81	0.999	Lagging	-13.12	1.000	Lagging	-2.48
65	FLT74-3PH	0.996	Lagging	-22.72	0.999	Lagging	-13.14	1.000	Lagging	-2.47
66	FLT75-3PH	0.996	Lagging	-22.65	0.999	Lagging	-13.02	1.000	Lagging	-2.42
67	FLT76-3PH	0.996	Lagging	-22.75	0.999	Lagging	-13.10	1.000	Lagging	-2.45
68	FLT77-3PH	0.996	Lagging	-22.38	0.999	Lagging	-12.91	1.000	Lagging	-2.45
69	FLT78-3PH	0.996	Lagging	-22.44	0.999	Lagging	-12.91	1.000	Lagging	-2.46
70	FLT79-3PH	0.996	Lagging	-22.49	0.999	Lagging	-12.97	1.000	Lagging	-2.44
71	FLT80-3PH	0.995	Lagging	-23.04	0.998	Lagging	-13.43	1.000	Lagging	-2.47
72	FLT81-3PH	0.996	Lagging	-22.37	0.999	Lagging	-12.81	1.000	Lagging	-2.58
73	FLT82-3PH	0.996	Lagging	-22.68	0.999	Lagging	-13.09	1.000	Lagging	-2.42
74	FLT83-3PH	0.996	Lagging	-22.49	0.999	Lagging	-12.97	1.000	Lagging	-2.55
75	FLT84-3PH	0.995	Lagging	-25.10	0.998	Lagging	-15.25	1.000	Lagging	-3.68
76	FLT85-3PH	0.989	Lagging	-35.61	0.995	Lagging	-24.55	0.999	Lagging	-8.63
77	FLT86-3PH	0.995	Lagging	-24.16	0.998	Lagging	-14.37	1.000	Lagging	-3.74
78	FLT87-3PH	0.969	Lagging	-61.26	0.984	Lagging	-42.78	0.998	Lagging	-13.36
79	FLT88-3PH	0.995	Lagging	-25.08	0.998	Lagging	-15.09	1.000	Lagging	-3.48
80	FLT89-3PH	0.995	Lagging	-24.01	0.998	Lagging	-14.11	1.000	Lagging	-3.05
81	FLT90-3PH	0.995	Lagging	-23.39	0.998	Lagging	-13.89	1.000	Lagging	-3.25
82	FLT91-3PH	0.996	Lagging	-22.49	0.999	Lagging	-12.73	1.000	Lagging	-2.45
83	FLT92-3PH	0.996	Lagging	-22.68	0.999	Lagging	-13.09	1.000	Lagging	-2.42
84	FLT93-3PH	0.996	Lagging	-22.78	0.998	Lagging	-13.30	1.000	Lagging	-2.42
85	FLT94-3PH	0.996	Lagging	-22.65	0.999	Lagging	-13.02	1.000	Lagging	-2.43
86	FLT95-3PH	0.995	Lagging	-23.23	0.998	Lagging	-13.68	1.000	Lagging	-3.13
87	FLT96-3PH	0.996	Lagging	-22.82	0.999	Lagging	-13.09	1.000	Lagging	-2.45
88	FLT97-3PH	0.994	Lagging	-26.39	0.998	Lagging	-15.74	1.000	Lagging	-3.95
89	FLT99-3PH	0.995	Lagging	-22.89	0.999	Lagging	-13.79	1.000	Lagging	-1.55
90	FLT100-3PH	0.996	Lagging	-22.73	0.998	Lagging	-13.08	1.000	Lagging	-2.45

Table 5-4 (Continued)
Power Factor Analysis: Tap Tolk – Eddy County POI

Power Factor Analysis for Tap Tolk - Eddy County Generators (240.1 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.996	Lagging	-22.72	0.999	Lagging	-13.09	1.000	Lagging	-2.46	
92	FLT102-3PH	0.996	Lagging	-22.72	0.999	Lagging	-13.08	1.000	Lagging	-2.45	
93	FLT103-3PH	0.995	Lagging	-22.88	0.999	Lagging	-13.12	1.000	Lagging	-2.50	
94	FLT104-3PH	0.996	Lagging	-22.71	0.999	Lagging	-13.06	1.000	Lagging	-2.47	
95	FLT105-3PH	0.996	Lagging	-22.77	0.999	Lagging	-13.12	1.000	Lagging	-2.46	
96	FLT106-3PH	0.995	Lagging	-23.00	0.998	Lagging	-13.38	1.000	Lagging	-2.57	
97	FLT107-3PH	0.996	Lagging	-22.71	0.999	Lagging	-13.08	1.000	Lagging	-2.45	
98	FLT108-3PH	0.996	Lagging	-22.70	0.999	Lagging	-13.11	1.000	Lagging	-2.48	
99	FLT112-3PH	0.995	Lagging	-23.44	0.998	Lagging	-13.96	1.000	Lagging	-2.60	
100	FLT113-3PH	0.995	Lagging	-23.67	0.998	Lagging	-13.99	1.000	Lagging	-2.92	
101	FLT114-3PH	0.996	Lagging	-22.70	0.999	Lagging	-13.07	1.000	Lagging	-2.44	
102	FLT115-3PH	0.993	Lagging	-28.27	0.997	Lagging	-18.63	1.000	Lagging	-3.59	
103	FLT116-3PH	0.994	Lagging	-27.07	0.998	Lagging	-16.49	1.000	Lagging	-3.95	
104	FLT117-3PH	0.993	Lagging	-28.35	0.998	Lagging	-16.13	1.000	Lagging	-1.87	
105	FLT118-3PH	0.994	Lagging	-25.93	0.998	Lagging	-14.61	0.999	Lagging	-8.31	
106	FLT122-3PH	0.993	Lagging	-28.48	0.998	Lagging	-16.17	1.000	Lagging	-2.30	
107	FLT123-3PH	0.996	Lagging	-21.24	0.999	Lagging	-12.49	1.000	Lagging	-4.71	
108	FLT124-3PH	0.995	Lagging	-23.11	0.998	Lagging	-13.76	1.000	Lagging	-3.02	
109	FLT125-3PH	0.993	Lagging	-27.69	0.997	Lagging	-18.31	1.000	Lagging	-3.86	
110	FLT126-3PH	0.991	Lagging	-31.59	0.995	Lagging	-24.20	1.000	Lagging	-4.03	

Table 5-5
Power Factor Analysis: Carlisle POI

Power Factor Analysis for Carlisle County Generators (200 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.999	Leading	8.98	0.999	Leading	8.53	0.905	Lagging	-94.04	
1	FLT01-3PH	0.999	Leading	9.00	0.999	Leading	8.53	0.905	Lagging	-94.05	
2	FLT02-3PH	0.999	Leading	8.98	0.999	Leading	8.51	0.905	Lagging	-94.05	
3	FLT03-3PH	0.999	Leading	8.98	0.999	Leading	8.58	0.905	Lagging	-94.05	
4	FLT04-3PH	0.999	Leading	8.96	0.999	Leading	8.54	0.905	Lagging	-94.13	
5	FLT05-3PH	0.999	Leading	8.98	0.999	Leading	8.45	0.904	Lagging	-94.55	
6	FLT06-3PH	0.999	Leading	9.53	0.999	Leading	8.93	0.904	Lagging	-94.41	
7	FLT07-3PH	0.999	Leading	8.96	0.999	Leading	8.54	0.905	Lagging	-94.12	
8	FLT08-3PH	0.999	Leading	9.49	0.999	Leading	8.89	0.902	Lagging	-95.58	
9	FLT09-3PH	0.999	Leading	8.79	0.999	Leading	8.57	0.905	Lagging	-93.93	
10	FLT10-3PH	0.999	Leading	8.87	0.999	Leading	8.30	0.904	Lagging	-94.61	
11	FLT11-3PH	0.999	Leading	8.91	0.999	Leading	8.41	0.905	Lagging	-94.11	
12	FLT12-3PH	0.999	Leading	8.73	0.999	Leading	8.34	0.905	Lagging	-94.15	
13	FLT13-3PH	0.999	Leading	9.06	0.999	Leading	8.59	0.903	Lagging	-95.15	
14	FLT14-3PH	0.999	Leading	8.88	0.999	Leading	8.63	0.903	Lagging	-94.88	
15	FLT15-3PH	0.999	Leading	8.81	0.999	Leading	8.61	0.903	Lagging	-95.20	
16	FLT16-3PH	0.999	Leading	8.99	0.999	Leading	8.52	0.905	Lagging	-94.08	
17	FLT17-3PH	0.999	Leading	8.81	0.999	Leading	8.52	0.905	Lagging	-94.08	
18	FLT18-3PH	0.999	Leading	8.98	0.999	Leading	8.54	0.905	Lagging	-94.02	
19	FLT19-3PH	0.999	Leading	8.82	0.999	Leading	8.53	0.905	Lagging	-94.07	
20	FLT20-3PH	0.999	Leading	8.81	0.999	Leading	8.54	0.905	Lagging	-94.08	
21	FLT21-3PH	0.999	Leading	8.98	0.999	Leading	8.53	0.905	Lagging	-94.04	
22	FLT22-3PH	0.999	Leading	8.91	0.999	Leading	8.47	0.905	Lagging	-93.94	
23	FLT23-3PH	0.999	Leading	8.98	0.999	Leading	8.56	0.905	Lagging	-94.00	
24	FLT24-3PH	0.999	Leading	9.16	0.999	Leading	8.46	0.905	Lagging	-94.13	
25	FLT25-3PH	0.999	Leading	8.94	0.999	Leading	8.51	0.905	Lagging	-94.05	
26	FLT26-3PH	0.999	Leading	9.15	0.999	Leading	8.42	0.905	Lagging	-94.09	
27	FLT27-3PH	0.999	Leading	8.87	0.999	Leading	8.56	0.904	Lagging	-94.46	
28	FLT28-3PH	0.999	Leading	8.95	0.999	Leading	8.57	0.905	Lagging	-94.09	
29	FLT29-3PH	N/A			0.999	Leading	8.53	0.905	Lagging	-94.05	
30	FLT30-3PH	N/A			0.999	Leading	8.56	0.905	Lagging	-93.85	
31	FLT31-3PH	N/A			0.999	Leading	8.25	0.905	Lagging	-93.89	
32	FLT32-3PH	0.999	Leading	9.04	0.999	Leading	8.59	0.905	Lagging	-94.02	
33	FLT33-3PH	0.999	Leading	9.03	0.999	Leading	8.58	0.905	Lagging	-94.04	
34	FLT34-3PH	0.999	Leading	8.98	0.999	Leading	8.55	0.904	Lagging	-94.35	
35	FLT35-3PH	0.999	Leading	9.00	0.999	Leading	8.54	0.905	Lagging	-94.07	
36	FLT36-3PH	0.999	Leading	8.93	0.999	Leading	8.51	0.904	Lagging	-94.55	
37	FLT37-3PH	0.999	Leading	8.93	0.999	Leading	8.51	0.904	Lagging	-94.49	
38	FLT38-3PH	0.999	Leading	8.98	0.999	Leading	8.54	0.905	Lagging	-94.04	
39	FLT39-3PH	0.999	Leading	8.57	0.999	Leading	8.11	0.904	Lagging	-94.59	
40	FLT40-3PH	0.999	Leading	8.98	0.999	Leading	8.54	0.905	Lagging	-94.04	
41	FLT41-3PH	0.999	Leading	8.96	0.999	Leading	8.53	0.905	Lagging	-94.16	
42	FLT42-3PH	0.999	Leading	8.86	0.999	Leading	8.47	0.904	Lagging	-94.60	
43	FLT43-3PH	0.999	Leading	8.94	0.999	Leading	8.55	0.905	Lagging	-94.08	
44	FLT44-3PH	0.999	Leading	8.97	0.999	Leading	8.52	0.905	Lagging	-94.02	
45	FLT45-3PH	0.999	Leading	8.94	0.999	Leading	8.53	0.905	Lagging	-94.15	

Table 5-5 (Continued)
Power Factor Analysis: Carlisle POI

Power Factor Analysis for Carlisle County Generators (200 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.999	Leading	8.47	0.999	Leading	7.94	0.903	Lagging	-94.99
47	FLT47-3PH	0.999	Leading	8.85	0.999	Leading	8.38	0.904	Lagging	-94.30
48	FLT48-3PH	0.999	Leading	8.76	0.999	Leading	8.17	0.902	Lagging	-95.60
49	FLT49-3PH	1.000	Leading	4.86	0.999	Leading	6.49	0.906	Lagging	-93.70
50	FLT50-3PH	1.000	Lagging	-0.29	1.000	Lagging	-2.23	0.902	Lagging	-95.62
51	FLT51-3PH	0.999	Leading	7.73	0.999	Leading	8.32	0.904	Lagging	-94.47
52	FLT53-3PH	0.999	Leading	8.35	0.999	Leading	7.43	0.901	Lagging	-96.04
53	FLT55-3PH	1.000	Leading	5.25	0.999	Leading	6.75	0.893	Lagging	-100.93
54	FLT56-3PH	0.999	Leading	8.58	0.999	Leading	8.47	0.903	Lagging	-95.01
55	FLT57-3PH	0.999	Leading	8.50	0.999	Leading	8.40	0.903	Lagging	-95.16
56	FLT58-3PH	0.999	Leading	8.10	0.999	Leading	7.26	0.901	Lagging	-96.13
57	FLT59-3PH	0.999	Leading	8.98	0.999	Leading	8.53	0.905	Lagging	-94.04
58	FLT62-3PH	0.999	Leading	8.96	0.999	Leading	8.43	0.905	Lagging	-94.10
59	FLT64-3PH	0.999	Leading	8.28	0.999	Leading	7.55	0.905	Lagging	-93.86
60	FLT66-3PH	1.000	Lagging	-0.29	1.000	Lagging	-2.23	0.902	Lagging	-95.62
61	FLT67-3PH	0.999	Leading	7.72	0.999	Leading	7.47	0.892	Lagging	-101.19
62	FLT71-3PH	0.998	Leading	13.32	0.998	Leading	11.21	0.928	Lagging	-80.21
63	FLT72-3PH	0.997	Leading	15.44	0.998	Leading	12.88	0.937	Lagging	-74.51
64	FLT73-3PH	0.999	Leading	8.80	0.999	Leading	8.08	0.906	Lagging	-93.21
65	FLT74-3PH	0.999	Leading	8.94	0.999	Leading	7.47	0.905	Lagging	-93.99
66	FLT75-3PH	1.000	Leading	5.75	1.000	Leading	5.60	0.900	Lagging	-96.83
67	FLT76-3PH	0.999	Leading	8.93	0.999	Leading	7.86	0.905	Lagging	-93.96
68	FLT77-3PH	0.992	Leading	25.96	0.997	Leading	14.32	0.909	Lagging	-91.77
69	FLT78-3PH	0.991	Leading	27.50	0.995	Leading	20.29	0.951	Lagging	-64.85
70	FLT79-3PH	0.993	Leading	24.49	0.994	Leading	22.89	0.976	Lagging	-44.32
71	FLT80-3PH	1.000	Lagging	-0.73	1.000	Lagging	-0.27	0.879	Lagging	-108.30
72	FLT81-3PH	0.968	Leading	51.43	0.971	Leading	49.53	0.980	Lagging	-40.76
73	FLT82-3PH	1.000	Leading	5.95	0.999	Leading	7.33	0.896	Lagging	-98.98
74	FLT83-3PH	0.992	Leading	24.79	0.993	Leading	23.19	0.950	Lagging	-65.82
75	FLT84-3PH	1.000	Leading	6.06	1.000	Leading	5.81	0.905	Lagging	-94.09
76	FLT85-3PH	1.000	Lagging	-5.62	1.000	Lagging	-4.09	0.905	Lagging	-94.23
77	FLT86-3PH	0.999	Leading	9.26	0.999	Leading	8.99	0.905	Lagging	-94.04
78	FLT87-3PH	0.986	Lagging	-33.35	0.994	Lagging	-22.29	0.902	Lagging	-95.81
79	FLT88-3PH	0.997	Leading	16.50	0.998	Leading	13.67	0.904	Lagging	-94.53
80	FLT89-3PH	0.999	Leading	7.58	1.000	Leading	3.80	0.904	Lagging	-94.41
81	FLT90-3PH	0.999	Leading	10.04	0.999	Leading	6.67	0.904	Lagging	-94.35
82	FLT91-3PH	0.997	Leading	14.21	0.999	Leading	8.32	0.905	Lagging	-94.03
83	FLT92-3PH	1.000	Leading	5.95	0.999	Leading	7.33	0.896	Lagging	-98.98
84	FLT93-3PH	1.000	Leading	3.88	1.000	Leading	1.50	0.910	Lagging	-91.20
85	FLT94-3PH	0.999	Leading	8.71	0.999	Leading	9.04	0.909	Lagging	-91.56
86	FLT95-3PH	1.000	Leading	0.96	1.000	Leading	0.04	0.857	Lagging	-120.34
87	FLT96-3PH	0.999	Leading	7.67	0.999	Leading	8.08	0.903	Lagging	-95.31
88	FLT97-3PH	1.000	Leading	3.84	1.000	Leading	4.52	0.905	Lagging	-94.13
89	FLT99-3PH	0.999	Leading	8.94	0.999	Leading	8.55	0.905	Lagging	-94.05
90	FLT100-3PH	0.999	Leading	8.97	0.999	Leading	8.55	0.905	Lagging	-94.04

Table 5-5 (Continued)
Power Factor Analysis: Carlisle POI

Power Factor Analysis for Carlisle County Generators (200 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.999	Leading	8.94	0.999	Leading	8.51	0.905	Lagging	-94.03
92	FLT102-3PH	0.999	Leading	8.97	0.999	Leading	8.55	0.905	Lagging	-94.04
93	FLT103-3PH	0.999	Leading	8.87	0.999	Leading	8.61	0.905	Lagging	-94.07
94	FLT104-3PH	0.999	Leading	8.94	0.999	Leading	8.50	0.905	Lagging	-94.05
95	FLT105-3PH	0.999	Leading	8.93	0.999	Leading	8.48	0.905	Lagging	-94.04
96	FLT106-3PH	0.999	Leading	8.78	0.999	Leading	8.18	0.905	Lagging	-94.08
97	FLT107-3PH	0.999	Leading	8.97	0.999	Leading	8.53	0.905	Lagging	-94.04
98	FLT108-3PH	0.999	Leading	8.97	0.999	Leading	8.46	0.905	Lagging	-94.05
99	FLT112-3PH	0.999	Leading	8.12	0.999	Leading	7.55	0.900	Lagging	-96.61
100	FLT113-3PH	0.999	Leading	9.14	0.999	Leading	8.61	0.905	Lagging	-94.02
101	FLT114-3PH	0.999	Leading	8.98	0.999	Leading	8.53	0.905	Lagging	-94.04
102	FLT115-3PH	1.000	Lagging	-5.05	1.000	Lagging	-6.16	0.905	Lagging	-94.05
103	FLT116-3PH	0.998	Leading	12.73	0.998	Leading	11.03	0.905	Lagging	-94.00
104	FLT117-3PH	0.999	Leading	6.58	1.000	Leading	6.20	0.903	Lagging	-95.11
105	FLT118-3PH	0.999	Leading	9.08	0.999	Leading	7.08	0.904	Lagging	-94.45
106	FLT122-3PH	0.999	Leading	9.06	0.999	Leading	9.44	0.904	Lagging	-94.35
107	FLT123-3PH	0.995	Lagging	-20.42	0.998	Lagging	-14.11	0.895	Lagging	-99.71
108	FLT124-3PH	1.000	Lagging	-2.43	1.000	Lagging	-3.76	0.904	Lagging	-94.30
109	FLT125-3PH	0.999	Lagging	-8.33	0.999	Lagging	-9.38	0.905	Lagging	-94.28
110	FLT126-3PH	1.000	Leading	4.62	1.000	Leading	1.79	0.905	Lagging	-94.13

Table 5-6
Power Factor Analysis: GEN-2014-063

Power Factor Analysis for GEN-2014-063 (381 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	1.000	Lagging	-10.77	1.000	Lagging	-10.33	0.995	Lagging	-36.96	
1	FLT01-3PH	1.000	Lagging	-10.63	1.000	Lagging	-10.21	0.995	Lagging	-37.07	
2	FLT02-3PH	1.000	Lagging	-10.61	1.000	Lagging	-10.21	0.995	Lagging	-37.13	
3	FLT03-3PH	1.000	Lagging	-10.82	1.000	Lagging	-10.37	0.995	Lagging	-37.00	
4	FLT04-3PH	1.000	Lagging	-10.75	1.000	Lagging	-10.28	0.995	Lagging	-39.43	
5	FLT05-3PH	1.000	Lagging	-10.06	1.000	Lagging	-9.27	0.995	Lagging	-36.94	
6	FLT06-3PH	1.000	Lagging	-8.27	1.000	Lagging	-7.08	0.995	Lagging	-37.11	
7	FLT07-3PH	1.000	Lagging	-10.75	1.000	Lagging	-10.28	0.995	Lagging	-39.11	
8	FLT08-3PH	1.000	Lagging	-8.19	1.000	Lagging	-6.47	0.995	Lagging	-38.44	
9	FLT09-3PH	0.999	Lagging	-15.21	0.999	Lagging	-12.11	0.994	Lagging	-41.42	
10	FLT10-3PH	1.000	Lagging	-10.30	1.000	Lagging	-10.10	0.992	Lagging	-49.24	
11	FLT11-3PH	1.000	Lagging	-10.98	1.000	Lagging	-10.51	0.995	Lagging	-39.91	
12	FLT12-3PH	1.000	Lagging	-11.58	1.000	Lagging	-10.64	0.994	Lagging	-41.03	
13	FLT13-3PH	0.999	Lagging	-12.15	1.000	Lagging	-10.93	0.984	Lagging	-69.57	
14	FLT14-3PH	0.999	Lagging	-16.90	0.999	Lagging	-16.84	0.983	Lagging	-70.61	
15	FLT15-3PH	1.000	Leading	5.38	1.000	Leading	4.25	0.977	Lagging	-84.02	
16	FLT16-3PH	0.999	Lagging	-12.78	0.999	Lagging	-12.41	0.995	Lagging	-38.69	
17	FLT17-3PH	0.999	Lagging	-12.16	1.000	Lagging	-10.42	0.995	Lagging	-36.98	
18	FLT18-3PH	1.000	Lagging	-10.79	1.000	Lagging	-10.35	0.995	Lagging	-36.83	
19	FLT19-3PH	0.999	Lagging	-12.15	1.000	Lagging	-10.33	0.995	Lagging	-36.97	
20	FLT20-3PH	0.999	Lagging	-12.16	1.000	Lagging	-10.34	0.995	Lagging	-36.96	
21	FLT21-3PH	1.000	Lagging	-10.77	1.000	Lagging	-10.33	0.995	Lagging	-36.97	
22	FLT22-3PH	1.000	Lagging	-10.90	1.000	Lagging	-10.50	0.996	Lagging	-35.72	
23	FLT23-3PH	1.000	Lagging	-10.75	1.000	Lagging	-10.29	0.996	Lagging	-35.75	
24	FLT24-3PH	1.000	Lagging	-10.29	1.000	Lagging	-10.48	0.992	Lagging	-48.14	
25	FLT25-3PH	1.000	Lagging	-10.82	1.000	Lagging	-10.37	0.995	Lagging	-37.80	
26	FLT26-3PH	1.000	Lagging	-9.73	1.000	Lagging	-10.66	0.993	Lagging	-44.97	
27	FLT27-3PH	0.999	Lagging	-17.27	1.000	Lagging	-10.98	0.988	Lagging	-59.41	
28	FLT28-3PH	0.999	Lagging	-12.09	1.000	Lagging	-9.98	0.995	Lagging	-38.14	
29	FLT29-3PH	N/A			1.000	Lagging	-10.95	0.995	Lagging	-37.66	
30	FLT30-3PH	N/A			0.999	Lagging	-13.63	0.995	Lagging	-39.77	
31	FLT31-3PH	N/A			0.999	Lagging	-15.68	0.991	Lagging	-52.41	
32	FLT32-3PH	1.000	Lagging	-8.22	1.000	Lagging	-9.30	0.995	Lagging	-37.63	
33	FLT33-3PH	1.000	Lagging	-8.23	1.000	Lagging	-9.44	0.995	Lagging	-36.96	
34	FLT34-3PH	1.000	Lagging	-12.03	1.000	Lagging	-10.27	0.991	Lagging	-50.63	
35	FLT35-3PH	1.000	Lagging	-8.94	1.000	Lagging	-10.55	0.996	Lagging	-35.63	
36	FLT36-3PH	0.999	Lagging	-13.76	1.000	Lagging	-11.62	0.988	Lagging	-59.53	
37	FLT37-3PH	0.999	Lagging	-12.80	1.000	Lagging	-11.10	0.989	Lagging	-57.05	
38	FLT38-3PH	1.000	Lagging	-10.40	1.000	Lagging	-10.01	0.995	Lagging	-36.46	
39	FLT39-3PH	1.000	Lagging	-11.60	1.000	Lagging	-11.58	0.995	Lagging	-38.69	
40	FLT40-3PH	1.000	Lagging	-10.92	1.000	Lagging	-10.49	0.995	Lagging	-37.58	
41	FLT41-3PH	1.000	Lagging	-10.31	1.000	Lagging	-9.94	0.994	Lagging	-40.76	
42	FLT42-3PH	0.999	Lagging	-14.47	0.999	Lagging	-12.19	0.987	Lagging	-61.86	
43	FLT43-3PH	1.000	Lagging	-10.03	1.000	Lagging	-9.64	0.994	Lagging	-40.61	
44	FLT44-3PH	1.000	Lagging	-10.71	1.000	Lagging	-10.34	0.995	Lagging	-37.45	
45	FLT45-3PH	1.000	Lagging	-10.36	1.000	Lagging	-9.84	0.994	Lagging	-40.49	

Table 5-6 (Continued)
Power Factor Analysis: GEN-2014-063

Power Factor Analysis for GEN-2014-063 (381 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.999	Lagging	-14.73	0.999	Lagging	-14.26	0.994	Lagging	-42.18
47	FLT47-3PH	0.999	Lagging	-14.97	0.999	Lagging	-14.69	0.994	Lagging	-42.42
48	FLT48-3PH	1.000	Lagging	-8.41	1.000	Lagging	-6.71	0.995	Lagging	-38.59
49	FLT49-3PH	0.991	Lagging	-51.18	0.993	Lagging	-44.78	0.992	Lagging	-47.80
50	FLT50-3PH	0.999	Lagging	-12.66	0.999	Lagging	-13.01	0.995	Lagging	-38.97
51	FLT51-3PH	0.999	Lagging	-16.18	0.999	Lagging	-13.51	0.995	Lagging	-39.98
52	FLT53-3PH	0.999	Lagging	-14.78	0.999	Lagging	-15.28	0.995	Lagging	-40.06
53	FLT55-3PH	1.000	Lagging	-10.76	1.000	Lagging	-8.63	0.995	Lagging	-36.62
54	FLT56-3PH	0.999	Lagging	-13.80	1.000	Lagging	-10.68	0.994	Lagging	-40.58
55	FLT57-3PH	0.999	Lagging	-14.29	1.000	Lagging	-11.15	0.994	Lagging	-41.04
56	FLT58-3PH	0.999	Lagging	-13.92	0.998	Lagging	-20.93	0.997	Lagging	-29.03
57	FLT59-3PH	1.000	Lagging	-10.77	1.000	Lagging	-10.33	0.995	Lagging	-36.96
58	FLT62-3PH	1.000	Lagging	-10.80	1.000	Lagging	-10.57	0.995	Lagging	-36.99
59	FLT64-3PH	1.000	Lagging	-11.23	1.000	Lagging	-11.08	0.995	Lagging	-37.08
60	FLT66-3PH	0.999	Lagging	-12.66	0.999	Lagging	-13.01	0.995	Lagging	-38.97
61	FLT67-3PH	0.999	Lagging	-12.57	1.000	Lagging	-11.47	0.995	Lagging	-39.22
62	FLT71-3PH	1.000	Lagging	-10.73	1.000	Lagging	-10.25	0.995	Lagging	-36.62
63	FLT72-3PH	1.000	Lagging	-10.71	1.000	Lagging	-10.20	0.995	Lagging	-36.49
64	FLT73-3PH	1.000	Lagging	-10.67	1.000	Lagging	-10.34	0.995	Lagging	-36.90
65	FLT74-3PH	1.000	Lagging	-10.73	1.000	Lagging	-10.42	0.995	Lagging	-36.94
66	FLT75-3PH	1.000	Lagging	-10.82	1.000	Lagging	-10.42	0.995	Lagging	-37.02
67	FLT76-3PH	1.000	Lagging	-10.80	1.000	Lagging	-10.38	0.995	Lagging	-36.96
68	FLT77-3PH	1.000	Lagging	-11.41	1.000	Lagging	-10.87	0.995	Lagging	-37.43
69	FLT78-3PH	1.000	Lagging	-10.17	1.000	Lagging	-9.84	0.996	Lagging	-36.16
70	FLT79-3PH	1.000	Lagging	-10.60	1.000	Lagging	-10.23	0.995	Lagging	-36.73
71	FLT80-3PH	1.000	Lagging	-10.95	1.000	Lagging	-10.45	0.995	Lagging	-37.37
72	FLT81-3PH	1.000	Lagging	-11.43	1.000	Lagging	-11.47	0.995	Lagging	-37.75
73	FLT82-3PH	1.000	Lagging	-10.73	1.000	Lagging	-10.36	0.995	Lagging	-36.95
74	FLT83-3PH	1.000	Lagging	-10.59	1.000	Lagging	-10.23	0.995	Lagging	-36.80
75	FLT84-3PH	1.000	Lagging	-11.26	1.000	Lagging	-10.96	0.995	Lagging	-37.43
76	FLT85-3PH	0.999	Lagging	-13.34	0.999	Lagging	-13.30	0.995	Lagging	-38.40
77	FLT86-3PH	1.000	Lagging	-10.40	1.000	Lagging	-9.99	0.995	Lagging	-37.00
78	FLT87-3PH	0.999	Lagging	-19.92	0.999	Lagging	-18.05	0.995	Lagging	-38.78
79	FLT88-3PH	0.999	Lagging	-13.28	0.999	Lagging	-12.43	0.995	Lagging	-38.02
80	FLT89-3PH	1.000	Lagging	-10.46	1.000	Lagging	-10.66	0.995	Lagging	-36.84
81	FLT90-3PH	1.000	Lagging	-11.83	1.000	Lagging	-11.52	0.995	Lagging	-37.77
82	FLT91-3PH	1.000	Lagging	-10.52	1.000	Lagging	-10.25	0.995	Lagging	-36.96
83	FLT92-3PH	1.000	Lagging	-10.73	1.000	Lagging	-10.36	0.995	Lagging	-36.95
84	FLT93-3PH	1.000	Lagging	-10.89	1.000	Lagging	-10.55	0.995	Lagging	-36.95
85	FLT94-3PH	1.000	Lagging	-10.75	1.000	Lagging	-10.17	0.995	Lagging	-36.97
86	FLT95-3PH	1.000	Lagging	-11.28	1.000	Lagging	-10.89	0.995	Lagging	-37.80
87	FLT96-3PH	1.000	Lagging	-10.88	1.000	Lagging	-10.37	0.995	Lagging	-36.99
88	FLT97-3PH	1.000	Lagging	-11.79	1.000	Lagging	-11.22	0.995	Lagging	-37.28
89	FLT99-3PH	1.000	Lagging	-10.76	1.000	Lagging	-10.32	0.995	Lagging	-36.52
90	FLT100-3PH	1.000	Lagging	-10.80	1.000	Lagging	-10.35	0.995	Lagging	-36.97

Table 5-6 (Continued)
Power Factor Analysis: GEN-2014-063

Power Factor Analysis for GEN-2014-063 (381 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	1.000	Lagging	-10.78	1.000	Lagging	-10.33	0.995	Lagging	-36.97
92	FLT102-3PH	1.000	Lagging	-10.80	1.000	Lagging	-10.34	0.995	Lagging	-36.97
93	FLT103-3PH	1.000	Lagging	-10.93	1.000	Lagging	-10.40	0.995	Lagging	-37.01
94	FLT104-3PH	1.000	Lagging	-10.75	1.000	Lagging	-10.30	0.995	Lagging	-36.97
95	FLT105-3PH	1.000	Lagging	-10.85	1.000	Lagging	-10.42	0.995	Lagging	-36.98
96	FLT106-3PH	1.000	Lagging	-11.07	1.000	Lagging	-10.65	0.995	Lagging	-37.07
97	FLT107-3PH	1.000	Lagging	-10.78	1.000	Lagging	-10.34	0.995	Lagging	-36.96
98	FLT108-3PH	1.000	Lagging	-10.77	1.000	Lagging	-10.35	0.995	Lagging	-36.99
99	FLT112-3PH	1.000	Lagging	-3.85	1.000	Lagging	-9.69	0.998	Lagging	-21.11
100	FLT113-3PH	1.000	Lagging	-10.45	1.000	Lagging	-10.12	0.995	Lagging	-36.89
101	FLT114-3PH	1.000	Lagging	-10.77	1.000	Lagging	-10.33	0.995	Lagging	-36.96
102	FLT115-3PH	0.999	Lagging	-14.80	0.999	Lagging	-15.10	0.995	Lagging	-37.85
103	FLT116-3PH	1.000	Lagging	-8.91	1.000	Lagging	-8.97	0.995	Lagging	-36.67
104	FLT117-3PH	1.000	Lagging	-2.02	1.000	Lagging	-3.61	0.992	Lagging	-47.94
105	FLT118-3PH	0.999	Lagging	-14.38	0.999	Lagging	-14.07	0.995	Lagging	-37.96
106	FLT122-3PH	1.000	Lagging	-10.51	1.000	Lagging	-10.35	0.995	Lagging	-36.94
107	FLT123-3PH	0.998	Lagging	-22.08	0.999	Lagging	-20.61	0.994	Lagging	-40.93
108	FLT124-3PH	0.999	Lagging	-15.28	0.999	Lagging	-15.32	0.995	Lagging	-38.61
109	FLT125-3PH	0.999	Lagging	-16.66	0.999	Lagging	-16.89	0.995	Lagging	-38.76
110	FLT126-3PH	0.999	Lagging	-12.10	0.999	Lagging	-12.14	0.995	Lagging	-37.27

Table 5-7
Power Factor Analysis: GEN-2014-066

Power Factor Analysis for GEN-2014-066 (30 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.659	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
1	FLT01-3PH	0.659	Lagging	-34.25	0.749	Lagging	-26.52	0.610	Lagging	-39.02	
2	FLT02-3PH	0.659	Lagging	-34.27	0.749	Lagging	-26.53	0.609	Lagging	-39.02	
3	FLT03-3PH	0.666	Lagging	-33.57	0.749	Lagging	-26.57	0.608	Lagging	-39.15	
4	FLT04-3PH	0.660	Lagging	-34.19	0.741	Lagging	-27.18	0.609	Lagging	-39.02	
5	FLT05-3PH	0.642	Lagging	-35.87	0.728	Lagging	-28.26	0.567	Lagging	-43.61	
6	FLT06-3PH	0.645	Lagging	-35.58	0.724	Lagging	-28.57	0.603	Lagging	-39.68	
7	FLT07-3PH	0.660	Lagging	-34.19	0.741	Lagging	-27.18	0.609	Lagging	-39.02	
8	FLT08-3PH	0.662	Lagging	-33.96	0.745	Lagging	-26.87	0.608	Lagging	-39.21	
9	FLT09-3PH	0.662	Lagging	-33.97	0.742	Lagging	-27.11	0.610	Lagging	-38.99	
10	FLT10-3PH	0.659	Lagging	-34.27	0.749	Lagging	-26.56	0.609	Lagging	-39.06	
11	FLT11-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.609	Lagging	-39.02	
12	FLT12-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
13	FLT13-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.609	Lagging	-39.04	
14	FLT14-3PH	0.662	Lagging	-33.98	0.743	Lagging	-27.03	0.608	Lagging	-39.15	
15	FLT15-3PH	0.662	Lagging	-33.99	0.743	Lagging	-27.06	0.610	Lagging	-39.01	
16	FLT16-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
17	FLT17-3PH	0.659	Lagging	-34.23	0.750	Lagging	-26.45	0.610	Lagging	-39.01	
18	FLT18-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
19	FLT19-3PH	0.659	Lagging	-34.19	0.750	Lagging	-26.46	0.609	Lagging	-39.03	
20	FLT20-3PH	0.659	Lagging	-34.25	0.749	Lagging	-26.51	0.610	Lagging	-39.01	
21	FLT21-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
22	FLT22-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
23	FLT23-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
24	FLT24-3PH	0.660	Lagging	-34.18	0.750	Lagging	-26.46	0.609	Lagging	-39.03	
25	FLT25-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
26	FLT26-3PH	0.660	Lagging	-34.16	0.750	Lagging	-26.46	0.609	Lagging	-39.03	
27	FLT27-3PH	0.659	Lagging	-34.26	0.750	Lagging	-26.48	0.609	Lagging	-39.04	
28	FLT28-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
29	FLT29-3PH	N/A			0.750	Lagging	-26.46	0.610	Lagging	-39.02	
30	FLT30-3PH	N/A			0.741	Lagging	-27.18	0.610	Lagging	-39.02	
31	FLT31-3PH	N/A			0.750	Lagging	-26.49	0.609	Lagging	-39.04	
32	FLT32-3PH	0.660	Lagging	-34.15	0.741	Lagging	-27.15	0.610	Lagging	-39.02	
33	FLT33-3PH	0.660	Lagging	-34.15	0.741	Lagging	-27.16	0.610	Lagging	-39.02	
34	FLT34-3PH	0.660	Lagging	-34.18	0.741	Lagging	-27.18	0.610	Lagging	-39.02	
35	FLT35-3PH	0.660	Lagging	-34.19	0.741	Lagging	-27.19	0.610	Lagging	-39.02	
36	FLT36-3PH	0.660	Lagging	-34.18	0.741	Lagging	-27.18	0.609	Lagging	-39.03	
37	FLT37-3PH	0.660	Lagging	-34.18	0.741	Lagging	-27.18	0.609	Lagging	-39.02	
38	FLT38-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
39	FLT39-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.48	0.609	Lagging	-39.02	
40	FLT40-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
41	FLT41-3PH	0.660	Lagging	-34.16	0.741	Lagging	-27.17	0.610	Lagging	-39.01	
42	FLT42-3PH	0.660	Lagging	-34.18	0.741	Lagging	-27.18	0.609	Lagging	-39.03	
43	FLT43-3PH	0.660	Lagging	-34.14	0.741	Lagging	-27.16	0.610	Lagging	-39.01	
44	FLT44-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
45	FLT45-3PH	0.660	Lagging	-34.17	0.741	Lagging	-27.18	0.610	Lagging	-39.02	

Table 5-7 (Continued)
Power Factor Analysis: GEN-2014-066

Power Factor Analysis for GEN-2014-066 (30 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
46	FLT46-3PH	0.659	Lagging	-34.22	0.750	Lagging	-26.49	0.609	Lagging	-39.02	
47	FLT47-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
48	FLT48-3PH	0.662	Lagging	-33.96	0.745	Lagging	-26.87	0.608	Lagging	-39.21	
49	FLT49-3PH	0.617	Lagging	-38.31	0.701	Lagging	-30.56	0.596	Lagging	-40.40	
50	FLT50-3PH	0.662	Lagging	-33.95	0.745	Lagging	-26.90	0.608	Lagging	-39.19	
51	FLT51-3PH	0.657	Lagging	-34.41	0.749	Lagging	-26.57	0.610	Lagging	-39.02	
52	FLT53-3PH	0.659	Lagging	-34.20	0.742	Lagging	-27.10	0.609	Lagging	-39.03	
53	FLT55-3PH	0.657	Lagging	-34.40	0.749	Lagging	-26.56	0.609	Lagging	-39.05	
54	FLT56-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
55	FLT57-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
56	FLT58-3PH	0.657	Lagging	-34.41	0.747	Lagging	-26.71	0.609	Lagging	-39.05	
57	FLT59-3PH	0.659	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
58	FLT62-3PH	0.661	Lagging	-34.10	0.733	Lagging	-27.82	0.600	Lagging	-40.02	
59	FLT64-3PH	0.659	Lagging	-34.24	0.749	Lagging	-26.51	0.609	Lagging	-39.05	
60	FLT66-3PH	0.662	Lagging	-33.95	0.745	Lagging	-26.90	0.608	Lagging	-39.19	
61	FLT67-3PH	0.659	Lagging	-34.27	0.748	Lagging	-26.58	0.598	Lagging	-40.22	
62	FLT71-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
63	FLT72-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.01	
64	FLT73-3PH	0.659	Lagging	-34.23	0.750	Lagging	-26.47	0.609	Lagging	-39.02	
65	FLT74-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
66	FLT75-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
67	FLT76-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
68	FLT77-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
69	FLT78-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.01	
70	FLT79-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
71	FLT80-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
72	FLT81-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.609	Lagging	-39.02	
73	FLT82-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.46	0.609	Lagging	-39.02	
74	FLT83-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
75	FLT84-3PH	0.659	Lagging	-34.24	0.749	Lagging	-26.50	0.609	Lagging	-39.03	
76	FLT85-3PH	0.657	Lagging	-34.45	0.747	Lagging	-26.67	0.609	Lagging	-39.09	
77	FLT86-3PH	0.659	Lagging	-34.23	0.750	Lagging	-26.49	0.609	Lagging	-39.03	
78	FLT87-3PH	0.652	Lagging	-34.88	0.744	Lagging	-26.97	0.608	Lagging	-39.15	
79	FLT88-3PH	0.660	Lagging	-34.16	0.741	Lagging	-27.16	0.610	Lagging	-39.01	
80	FLT89-3PH	0.658	Lagging	-34.31	0.749	Lagging	-26.50	0.609	Lagging	-39.05	
81	FLT90-3PH	0.660	Lagging	-34.16	0.742	Lagging	-27.14	0.609	Lagging	-39.04	
82	FLT91-3PH	0.659	Lagging	-34.20	0.741	Lagging	-27.18	0.610	Lagging	-39.02	
83	FLT92-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.46	0.609	Lagging	-39.02	
84	FLT93-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
85	FLT94-3PH	0.660	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
86	FLT95-3PH	0.659	Lagging	-34.21	0.750	Lagging	-26.48	0.609	Lagging	-39.02	
87	FLT96-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
88	FLT97-3PH	0.659	Lagging	-34.28	0.749	Lagging	-26.50	0.609	Lagging	-39.05	
89	FLT99-3PH	0.711	Lagging	-29.66	0.818	Lagging	-21.11	0.659	Lagging	-34.22	
90	FLT100-3PH	0.658	Lagging	-34.30	0.747	Lagging	-26.69	0.609	Lagging	-39.11	

Table 5-7 (Continued)
Power Factor Analysis: GEN-2014-066

Power Factor Analysis for GEN-2014-066 (30 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.663	Lagging	-33.85	0.744	Lagging	-26.95	0.613	Lagging	-38.66	
92	FLT102-3PH	0.658	Lagging	-34.30	0.746	Lagging	-26.76	0.609	Lagging	-39.12	
93	FLT103-3PH	0.653	Lagging	-34.77	0.729	Lagging	-28.21	0.604	Lagging	-39.63	
94	FLT104-3PH	0.647	Lagging	-35.35	0.745	Lagging	-26.86	0.599	Lagging	-40.09	
95	FLT105-3PH	0.640	Lagging	-36.04	0.727	Lagging	-28.36	0.595	Lagging	-40.53	
96	FLT106-3PH	0.644	Lagging	-35.63	0.740	Lagging	-27.27	0.594	Lagging	-40.60	
97	FLT107-3PH	0.660	Lagging	-34.16	0.749	Lagging	-26.54	0.610	Lagging	-38.98	
98	FLT108-3PH	0.658	Lagging	-34.37	0.748	Lagging	-26.62	0.608	Lagging	-39.15	
99	FLT112-3PH	0.659	Lagging	-34.28	0.748	Lagging	-26.59	0.610	Lagging	-39.02	
100	FLT113-3PH	0.659	Lagging	-34.23	0.750	Lagging	-26.49	0.609	Lagging	-39.03	
101	FLT114-3PH	0.659	Lagging	-34.19	0.750	Lagging	-26.46	0.610	Lagging	-39.02	
102	FLT115-3PH	0.659	Lagging	-34.24	0.749	Lagging	-26.51	0.609	Lagging	39.06	
103	FLT116-3PH	0.659	Lagging	-34.20	0.750	Lagging	-26.47	0.610	Lagging	-39.02	
104	FLT117-3PH	0.654	Lagging	-34.70	0.747	Lagging	-26.70	0.609	Lagging	-39.03	
105	FLT118-3PH	0.659	Lagging	-34.25	0.750	Lagging	-26.47	0.609	Lagging	-39.05	
106	FLT122-3PH	0.660	Lagging	-34.20	0.749	Lagging	-26.54	0.610	Lagging	-38.98	
107	FLT123-3PH	0.651	Lagging	-34.98	0.744	Lagging	-26.98	0.607	Lagging	-39.30	
108	FLT124-3PH	0.660	Lagging	-34.13	0.741	Lagging	-27.15	0.610	Lagging	-39.00	
109	FLT125-3PH	0.659	Lagging	-34.23	0.749	Lagging	-26.51	0.609	Lagging	-39.02	
110	FLT126-3PH	0.662	Lagging	-33.99	0.743	Lagging	-27.05	0.610	Lagging	-38.96	

Table 5-8
Power Factor Analysis: GEN-2014-069

Power Factor Analysis for GEN-2014-069 (96 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
1	FLT01-3PH	0.948	Leading	32.22	0.991	Lagging	-13.32	0.971	Lagging	-23.75	
2	FLT02-3PH	0.949	Leading	32.04	0.990	Lagging	-13.45	0.970	Lagging	-23.87	
3	FLT03-3PH	0.948	Leading	32.31	0.990	Lagging	-13.43	0.971	Lagging	-23.63	
4	FLT04-3PH	0.952	Leading	30.98	0.991	Lagging	-12.81	0.962	Lagging	-27.08	
5	FLT05-3PH	0.948	Leading	32.39	0.991	Lagging	-13.05	0.972	Lagging	-23.12	
6	FLT06-3PH	0.953	Leading	30.66	0.987	Lagging	-15.60	0.969	Lagging	-24.65	
7	FLT07-3PH	0.951	Leading	31.25	0.991	Lagging	-12.75	0.964	Lagging	-26.57	
8	FLT08-3PH	0.949	Leading	31.91	0.990	Lagging	-13.45	0.969	Lagging	-24.27	
9	FLT09-3PH	0.952	Leading	30.90	0.991	Lagging	-13.18	0.970	Lagging	-24.21	
10	FLT10-3PH	0.999	Leading	4.72	0.923	Lagging	-39.96	0.883	Lagging	-51.13	
11	FLT11-3PH	0.953	Leading	30.56	0.986	Lagging	-16.41	0.957	Lagging	-29.13	
12	FLT12-3PH	0.984	Leading	17.53	0.961	Lagging	-27.45	0.969	Lagging	-24.54	
13	FLT13-3PH	0.977	Lagging	-20.88	0.997	Lagging	-6.93	0.740	Lagging	-87.34	
14	FLT14-3PH	0.991	Lagging	-12.91	0.881	Lagging	-51.55	0.832	Lagging	-64.13	
15	FLT15-3PH	0.952	Leading	30.72	0.989	Lagging	-14.37	0.932	Lagging	-37.37	
16	FLT16-3PH	0.946	Leading	32.95	0.991	Lagging	-12.84	0.976	Lagging	-21.60	
17	FLT17-3PH	0.876	Leading	52.91	0.998	Leading	6.70	0.995	Leading	9.21	
18	FLT18-3PH	0.947	Leading	32.67	0.990	Lagging	-13.54	0.976	Lagging	-21.33	
19	FLT19-3PH	0.925	Leading	39.33	0.991	Lagging	-13.22	0.999	Lagging	-3.83	
20	FLT20-3PH	0.926	Leading	39.00	0.997	Lagging	-7.00	0.993	Lagging	-11.44	
21	FLT21-3PH	0.947	Leading	32.41	0.991	Lagging	-13.24	0.971	Lagging	-23.59	
22	FLT22-3PH	0.909	Leading	44.12	1.000	Lagging	-2.69	0.999	Lagging	-4.42	
23	FLT23-3PH	0.954	Leading	30.25	0.975	Lagging	-21.76	0.984	Lagging	-17.48	
24	FLT24-3PH	N/A*			N/A*			N/A*			
25	FLT25-3PH	0.946	Leading	32.96	0.990	Lagging	-13.42	0.965	Lagging	-25.90	
26	FLT26-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
27	FLT27-3PH	0.947	Leading	32.44	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
28	FLT28-3PH	0.949	Leading	-32.03	0.996	Lagging	-8.84	1.000	Lagging	-2.88	
29	FLT29-3PH	N/A			0.996	Lagging	-8.82	0.969	Lagging	-24.46	
30	FLT30-3PH	N/A			0.992	Lagging	-12.46	0.998	Lagging	-5.95	
31	FLT31-3PH	N/A			0.993	Leading	11.15	1.000	Leading	2.61	
32	FLT32-3PH	0.950	Leading	-31.55	0.976	Lagging	-21.62	0.968	Lagging	-24.81	
33	FLT33-3PH	0.950	Leading	-31.52	0.976	Lagging	-21.38	0.971	Lagging	-23.57	
34	FLT34-3PH	0.948	Leading	32.08	0.987	Lagging	-15.47	0.912	Lagging	-43.05	
35	FLT35-3PH	0.947	Leading	32.71	0.989	Lagging	-14.56	0.965	Lagging	-26.15	
36	FLT36-3PH	0.949	Leading	32.02	0.986	Lagging	-16.46	0.879	Lagging	-52.05	
37	FLT37-3PH	0.948	Leading	32.07	0.987	Lagging	-15.73	0.889	Lagging	-49.39	
38	FLT38-3PH	0.947	Leading	32.53	0.991	Lagging	-13.17	0.971	Lagging	-23.62	
39	FLT39-3PH	0.948	Leading	32.28	0.991	Lagging	-13.31	0.972	Lagging	-23.22	
40	FLT40-3PH	0.947	Leading	32.46	0.991	Lagging	-13.14	0.971	Lagging	-23.61	
41	FLT41-3PH	0.963	Leading	26.85	0.979	Lagging	-20.10	0.953	Lagging	-30.46	
42	FLT42-3PH	0.949	Leading	31.97	0.984	Lagging	-17.19	0.870	Lagging	-54.39	
43	FLT43-3PH	0.919	Leading	41.21	0.992	Lagging	-12.58	0.986	Lagging	-16.25	
44	FLT44-3PH	0.934	Leading	36.78	0.993	Lagging	-11.02	0.980	Lagging	-19.28	
45	FLT45-3PH	0.961	Leading	27.68	0.982	Lagging	-18.38	0.940	Lagging	-34.89	

Table 5-8 (Continued)
Power Factor Analysis: GEN-2014-069

Power Factor Analysis for GEN-2014-069 (96 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
46	FLT46-3PH	0.949	Leading	32.04	0.991	Lagging	-13.33	0.969	Lagging	-24.31	
47	FLT47-3PH	0.948	Leading	32.19	0.990	Lagging	-13.53	0.966	Lagging	-25.52	
48	FLT48-3PH	0.949	Leading	31.91	0.990	Lagging	-13.45	0.969	Lagging	-24.34	
49	FLT49-3PH	0.949	Leading	32.03	0.924	Lagging	-39.81	0.931	Lagging	-37.40	
50	FLT50-3PH	0.949	Leading	31.80	0.990	Lagging	-13.43	0.970	Lagging	-24.24	
51	FLT51-3PH	0.949	Leading	31.98	0.991	Lagging	-13.19	0.969	Lagging	-24.49	
52	FLT53-3PH	0.947	Leading	32.43	0.991	Lagging	-13.28	0.968	Lagging	-24.82	
53	FLT55-3PH	0.949	Leading	32.04	0.991	Lagging	-13.18	0.972	Lagging	-23.31	
54	FLT56-3PH	0.948	Leading	32.32	0.991	Lagging	-13.19	0.968	Lagging	-24.96	
55	FLT57-3PH	0.948	Leading	32.32	0.991	Lagging	-13.19	0.967	Lagging	-25.12	
56	FLT58-3PH	0.948	Leading	32.38	0.991	Lagging	-12.79	0.969	Lagging	-24.43	
57	FLT59-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
58	FLT62-3PH	0.947	Leading	32.43	0.991	Lagging	-13.26	0.971	Lagging	-23.54	
59	FLT64-3PH	0.947	Leading	32.47	0.991	Lagging	-13.23	0.971	Lagging	-23.64	
60	FLT66-3PH	0.949	Leading	31.80	0.990	Lagging	-13.43	0.970	Lagging	-24.24	
61	FLT67-3PH	0.947	Leading	32.50	0.991	Lagging	-13.22	0.969	Lagging	-24.35	
62	FLT71-3PH	0.947	Leading	32.42	0.991	Lagging	-13.22	0.971	Lagging	-23.46	
63	FLT72-3PH	0.947	Leading	32.42	0.991	Lagging	-13.22	0.972	Lagging	-23.42	
64	FLT73-3PH	0.947	Leading	32.42	0.991	Lagging	-13.21	0.971	Lagging	-23.55	
65	FLT74-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
66	FLT75-3PH	0.947	Leading	32.44	0.991	Lagging	-13.21	0.971	Lagging	-23.59	
67	FLT76-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
68	FLT77-3PH	0.947	Leading	32.44	0.991	Lagging	-13.21	0.971	Lagging	-23.72	
69	FLT78-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.972	Lagging	-23.31	
70	FLT79-3PH	0.947	Leading	32.44	0.991	Lagging	-13.22	0.971	Lagging	-23.50	
71	FLT80-3PH	0.947	Leading	32.41	0.991	Lagging	-13.22	0.971	Lagging	-23.72	
72	FLT81-3PH	0.947	Leading	32.48	0.991	Lagging	-13.21	0.971	Lagging	-23.83	
73	FLT82-3PH	0.947	Leading	32.44	0.991	Lagging	-13.21	0.971	Lagging	-23.57	
74	FLT83-3PH	0.947	Leading	32.44	0.991	Lagging	-13.22	0.971	Lagging	-23.53	
75	FLT84-3PH	0.947	Leading	32.40	0.991	Lagging	-13.21	0.970	Lagging	-23.85	
76	FLT85-3PH	0.948	Leading	32.31	0.991	Lagging	-13.18	0.969	Lagging	-24.44	
77	FLT86-3PH	0.947	Leading	32.41	0.991	Lagging	-13.21	0.971	Lagging	-23.44	
78	FLT87-3PH	0.948	Leading	32.21	0.991	Lagging	-13.16	0.969	Lagging	-24.67	
79	FLT88-3PH	0.947	Leading	32.40	0.991	Lagging	-13.25	0.970	Lagging	-24.12	
80	FLT89-3PH	0.948	Leading	32.38	0.991	Lagging	-13.20	0.971	Lagging	-23.55	
81	FLT90-3PH	0.947	Leading	32.48	0.991	Lagging	-13.25	0.970	Lagging	-23.91	
82	FLT91-3PH	0.947	Leading	32.40	0.991	Lagging	-13.21	0.971	Lagging	-23.57	
83	FLT92-3PH	0.947	Leading	32.44	0.991	Lagging	-13.21	0.971	Lagging	-23.57	
84	FLT93-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
85	FLT94-3PH	0.947	Leading	32.44	0.991	Lagging	-13.22	0.971	Lagging	-23.58	
86	FLT95-3PH	0.947	Leading	32.42	0.991	Lagging	-13.22	0.970	Lagging	-23.97	
87	FLT96-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.58	
88	FLT97-3PH	0.948	Leading	32.39	0.991	Lagging	-13.22	0.971	Lagging	-23.74	
89	FLT99-3PH	0.947	Leading	32.44	0.991	Lagging	-13.22	0.971	Lagging	-23.61	
90	FLT100-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.58	

Table 5-8 (Continued)
Power Factor Analysis: GEN-2014-069

Power Factor Analysis for GEN-2014-069 (96 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.58	
92	FLT102-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.58	
93	FLT103-3PH	0.947	Leading	32.44	0.991	Lagging	-13.23	0.971	Lagging	-23.61	
94	FLT104-3PH	0.947	Leading	32.43	0.991	Lagging	-13.21	0.971	Lagging	-23.57	
95	FLT105-3PH	0.947	Leading	32.44	0.991	Lagging	-13.23	0.971	Lagging	-23.59	
96	FLT106-3PH	0.947	Leading	32.45	0.991	Lagging	-13.24	0.971	Lagging	-23.67	
97	FLT107-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.58	
98	FLT108-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.59	
99	FLT112-3PH	0.947	Leading	32.42	0.991	Lagging	-12.99	0.970	Lagging	-23.86	
100	FLT113-3PH	0.947	Leading	32.42	0.991	Lagging	-13.21	0.971	Lagging	-23.55	
101	FLT114-3PH	0.947	Leading	32.43	0.991	Lagging	-13.22	0.971	Lagging	-23.57	
102	FLT115-3PH	0.947	Leading	32.43	0.991	Lagging	-13.21	0.970	Lagging	-24.09	
103	FLT116-3PH	0.948	Leading	32.35	0.991	Lagging	-13.21	0.972	Lagging	-23.42	
104	FLT117-3PH	0.951	Leading	31.23	0.991	Lagging	-13.13	0.956	Lagging	-29.62	
105	FLT118-3PH	0.946	Leading	32.83	0.991	Lagging	-13.30	0.970	Lagging	-24.04	
106	FLT122-3PH	0.947	Leading	32.42	0.991	Lagging	-13.28	0.971	Lagging	-23.56	
107	FLT123-3PH	0.946	Leading	32.93	0.991	Lagging	-13.23	0.966	Lagging	-25.76	
108	FLT124-3PH	0.947	Leading	32.53	0.991	Lagging	-13.24	0.969	Lagging	-24.45	
109	FLT125-3PH	0.947	Leading	32.52	0.991	Lagging	-13.23	0.969	Lagging	-24.54	
110	FLT126-3PH	0.948	Leading	32.35	0.991	Lagging	-13.25	0.971	Lagging	-23.71	

Table 5-9
Power Factor Analysis: GEN-2014-070

Power Factor Analysis for GEN-2014-070 (116 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.998	Leading	6.65	0.984	Leading	20.70	0.996	Lagging	-10.91	
1	FLT01-3PH	0.998	Leading	6.76	0.984	Leading	20.79	0.996	Lagging	-10.95	
2	FLT02-3PH	0.998	Leading	6.78	0.984	Leading	20.79	0.996	Lagging	-10.97	
3	FLT03-3PH	0.998	Leading	6.61	0.984	Leading	20.68	0.996	Lagging	-10.95	
4	FLT04-3PH	0.998	Leading	6.78	0.984	Leading	20.83	0.995	Lagging	-11.63	
5	FLT05-3PH	0.998	Leading	7.19	0.983	Leading	21.40	0.995	Lagging	-11.14	
6	FLT06-3PH	0.997	Leading	8.47	0.981	Leading	22.84	0.995	Lagging	-11.05	
7	FLT07-3PH	0.998	Leading	6.77	0.984	Leading	20.82	0.995	Lagging	-11.54	
8	FLT08-3PH	0.997	Leading	8.60	0.980	Leading	23.43	0.995	Lagging	-12.02	
9	FLT09-3PH	0.999	Leading	4.12	0.986	Leading	19.79	0.994	Lagging	-12.33	
10	FLT10-3PH	0.998	Leading	7.18	0.983	Leading	21.39	0.992	Lagging	-14.61	
11	FLT11-3PH	0.998	Leading	6.59	0.985	Leading	20.60	0.995	Lagging	-11.90	
12	FLT12-3PH	0.998	Leading	6.36	0.985	Leading	20.46	0.995	Lagging	-12.09	
13	FLT13-3PH	0.998	Leading	6.67	0.985	Leading	20.66	0.983	Lagging	-21.81	
14	FLT14-3PH	0.999	Leading	4.28	0.987	Leading	18.76	0.982	Lagging	-22.08	
15	FLT15-3PH	0.999	Leading	3.96	0.987	Leading	18.82	0.976	Lagging	-25.85	
16	FLT16-3PH	0.998	Leading	6.57	0.985	Leading	20.50	0.995	Lagging	-11.43	
17	FLT17-3PH	0.998	Leading	6.60	0.985	Leading	20.64	0.997	Lagging	-9.56	
18	FLT18-3PH	0.998	Leading	6.64	0.984	Leading	20.71	0.996	Lagging	-10.73	
19	FLT19-3PH	0.998	Leading	6.64	0.984	Leading	20.70	0.996	Lagging	-10.73	
20	FLT20-3PH	0.998	Leading	6.64	0.984	Leading	20.71	0.996	Lagging	-10.76	
21	FLT21-3PH	0.998	Leading	6.65	0.984	Leading	20.70	0.996	Lagging	-10.91	
22	FLT22-3PH	0.998	Leading	6.60	0.985	Leading	20.64	0.997	Lagging	-9.56	
23	FLT23-3PH	0.998	Leading	6.59	0.984	Leading	20.73	0.996	Lagging	-10.54	
24	FLT24-3PH	0.998	Leading	6.76	0.985	Leading	20.61	0.994	Lagging	-13.13	
25	FLT25-3PH	0.998	Leading	6.61	0.984	Leading	20.68	0.995	Lagging	-11.10	
26	FLT26-3PH	0.998	Leading	6.57	0.985	Leading	20.50	0.994	Lagging	-12.35	
27	FLT27-3PH	0.998	Leading	6.92	0.984	Leading	20.88	0.990	Lagging	-16.57	
28	FLT28-3PH	0.998	Leading	6.70	0.984	Leading	20.79	0.995	Lagging	-11.40	
29	FLT29-3PH	N/A			0.985	Leading	20.65	0.995	Lagging	-11.08	
30	FLT30-3PH	N/A			0.985	Leading	20.59	0.997	Lagging	-9.57	
31	FLT31-3PH	N/A			0.985	Leading	20.50	0.994	Lagging	-12.25	
32	FLT32-3PH	0.999	Leading	6.36	0.985	Leading	20.51	0.996	Lagging	-10.90	
33	FLT33-3PH	0.999	Leading	6.34	0.985	Leading	20.50	0.996	Lagging	-10.91	
34	FLT34-3PH	0.998	Leading	6.60	0.984	Leading	20.72	0.991	Lagging	-15.24	
35	FLT35-3PH	0.998	Leading	6.59	0.985	Leading	20.61	0.995	Lagging	-11.29	
36	FLT36-3PH	0.998	Leading	6.54	0.985	Leading	20.66	0.988	Lagging	-17.97	
37	FLT37-3PH	0.998	Leading	6.55	0.984	Leading	20.67	0.989	Lagging	-17.23	
38	FLT38-3PH	0.998	Leading	6.63	0.984	Leading	20.70	0.996	Lagging	-10.94	
39	FLT39-3PH	0.999	Leading	5.46	0.987	Leading	18.74	0.994	Lagging	-12.54	
40	FLT40-3PH	0.998	Leading	6.63	0.984	Leading	20.68	0.996	Lagging	-10.92	
41	FLT41-3PH	0.998	Leading	6.37	0.985	Leading	20.54	0.994	Lagging	-12.63	
42	FLT42-3PH	0.998	Leading	6.47	0.985	Leading	20.61	0.987	Lagging	-18.73	
43	FLT43-3PH	0.999	Leading	6.26	0.985	Leading	20.54	0.995	Lagging	-12.04	
44	FLT44-3PH	0.998	Leading	6.61	0.984	Leading	20.67	0.996	Lagging	-10.74	
45	FLT45-3PH	0.998	Leading	6.46	0.984	Leading	20.67	0.994	Lagging	-12.77	

Table 5-9 (Continued)
Power Factor Analysis: GEN-2014-070

Power Factor Analysis for GEN-2014-070 (116 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
46	FLT46-3PH	1.000	Leading	3.47	0.990	Leading	16.48	0.992	Lagging	-14.60	
47	FLT47-3PH	0.999	Leading	6.13	0.986	Leading	19.86	0.994	Lagging	-12.88	
48	FLT48-3PH	0.997	Leading	8.43	0.981	Leading	23.21	0.995	Lagging	-12.15	
49	FLT49-3PH	0.978	Lagging	-24.96	0.999	Lagging	-4.87	0.988	Lagging	-18.09	
50	FLT50-3PH	0.999	Leading	4.73	0.990	Leading	16.84	0.993	Lagging	-14.15	
51	FLT51-3PH	1.000	Lagging	-3.28	0.993	Leading	14.01	0.990	Lagging	-16.24	
52	FLT53-3PH	1.000	Lagging	-1.58	0.995	Leading	11.19	0.989	Lagging	-17.45	
53	FLT55-3PH	0.997	Leading	9.62	0.979	Leading	24.27	0.998	Lagging	-7.98	
54	FLT56-3PH	1.000	Leading	0.58	0.985	Leading	19.99	0.988	Lagging	-18.10	
55	FLT57-3PH	1.000	Lagging	-0.50	0.987	Leading	19.03	0.987	Lagging	-19.11	
56	FLT58-3PH	0.940	Leading	42.16	0.943	Leading	41.01	0.933	Leading	44.88	
57	FLT59-3PH	0.998	Leading	6.65	0.984	Leading	20.70	0.996	Lagging	-10.91	
58	FLT62-3PH	0.998	Leading	6.63	0.985	Leading	20.52	0.996	Lagging	-10.98	
59	FLT64-3PH	0.999	Leading	6.09	0.986	Leading	19.61	0.995	Lagging	-11.11	
60	FLT66-3PH	0.999	Leading	4.73	0.990	Leading	16.84	0.993	Lagging	-14.15	
61	FLT67-3PH	1.000	Leading	2.88	0.987	Leading	18.59	0.991	Lagging	-15.25	
62	FLT71-3PH	0.998	Leading	6.92	0.984	Leading	20.95	0.996	Lagging	-10.29	
63	FLT72-3PH	0.998	Leading	7.05	0.984	Leading	21.09	0.996	Lagging	-10.02	
64	FLT73-3PH	0.998	Leading	6.74	0.984	Leading	20.70	0.996	Lagging	-10.78	
65	FLT74-3PH	0.998	Leading	6.67	0.985	Leading	20.61	0.996	Lagging	-10.88	
66	FLT75-3PH	0.998	Leading	6.46	0.985	Leading	20.49	0.995	Lagging	-11.11	
67	FLT76-3PH	0.998	Leading	6.66	0.985	Leading	20.63	0.996	Lagging	-10.91	
68	FLT77-3PH	0.999	Leading	4.86	0.986	Leading	19.45	0.995	Lagging	-11.78	
69	FLT78-3PH	0.998	Leading	7.65	0.983	Leading	21.55	0.997	Lagging	-9.50	
70	FLT79-3PH	0.998	Leading	6.74	0.984	Leading	20.78	0.996	Lagging	-10.46	
71	FLT80-3PH	0.998	Leading	6.73	0.984	Leading	20.83	0.995	Lagging	-11.76	
72	FLT81-3PH	0.999	Leading	4.60	0.988	Leading	18.05	0.995	Lagging	-12.21	
73	FLT82-3PH	0.998	Leading	6.47	0.985	Leading	20.62	0.996	Lagging	-11.01	
74	FLT83-3PH	0.998	Leading	6.75	0.984	Leading	20.78	0.996	Lagging	-10.55	
75	FLT84-3PH	0.999	Leading	6.21	0.985	Leading	20.13	0.995	Lagging	-11.29	
76	FLT85-3PH	0.999	Leading	4.33	0.988	Leading	17.96	0.995	Lagging	-11.96	
77	FLT86-3PH	0.998	Leading	6.97	0.984	Leading	21.00	0.996	Lagging	-10.90	
78	FLT87-3PH	1.000	Lagging	-0.81	0.993	Leading	13.56	0.995	Lagging	-12.19	
79	FLT88-3PH	0.999	Leading	5.22	0.987	Leading	19.25	0.995	Lagging	-11.76	
80	FLT89-3PH	0.998	Leading	6.90	0.985	Leading	20.45	0.996	Lagging	-10.60	
81	FLT90-3PH	0.999	Leading	5.71	0.986	Leading	19.34	0.995	Lagging	-12.14	
82	FLT91-3PH	0.998	Leading	7.13	0.985	Leading	20.54	0.996	Lagging	-10.91	
83	FLT92-3PH	0.998	Leading	6.47	0.985	Leading	20.62	0.996	Lagging	-11.01	
84	FLT93-3PH	0.998	Leading	6.48	0.985	Leading	20.41	0.996	Lagging	-10.92	
85	FLT94-3PH	0.998	Leading	6.61	0.984	Leading	21.00	0.996	Lagging	-10.96	
86	FLT95-3PH	0.999	Leading	6.06	0.985	Leading	20.03	0.995	Lagging	-11.98	
87	FLT96-3PH	0.998	Leading	6.49	0.985	Leading	20.64	0.996	Lagging	-10.96	
88	FLT97-3PH	0.999	Leading	5.88	0.986	Leading	19.92	0.995	Lagging	-11.15	
89	FLT99-3PH	0.998	Leading	7.73	0.985	Leading	20.62	0.995	Lagging	-11.11	
90	FLT100-3PH	0.998	Leading	6.62	0.984	Leading	20.69	0.996	Lagging	-10.92	

Table 5-9 (Continued)
Power Factor Analysis: GEN-2014-070

Power Factor Analysis for GEN-2014-070 (116 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.998	Leading	6.64	0.984	Leading	20.70	0.996	Lagging	-10.92	
92	FLT102-3PH	0.998	Leading	6.62	0.984	Leading	20.70	0.996	Lagging	-10.92	
93	FLT103-3PH	0.998	Leading	6.52	0.985	Leading	20.66	0.996	Lagging	-10.98	
94	FLT104-3PH	0.998	Leading	6.66	0.984	Leading	20.72	0.996	Lagging	-10.92	
95	FLT105-3PH	0.998	Leading	6.58	0.985	Leading	20.63	0.996	Lagging	-10.93	
96	FLT106-3PH	0.998	Leading	6.41	0.985	Leading	20.41	0.996	Lagging	-11.04	
97	FLT107-3PH	0.998	Leading	6.64	0.984	Leading	20.70	0.996	Lagging	-10.91	
98	FLT108-3PH	0.998	Leading	6.65	0.984	Leading	20.67	0.996	Lagging	-10.94	
99	FLT112-3PH	0.990	Lagging	-16.55	1.000	Leading	2.59	0.934	Lagging	-44.26	
100	FLT113-3PH	0.998	Leading	6.86	0.984	Leading	20.88	0.996	Lagging	-10.81	
101	FLT114-3PH	0.998	Leading	6.65	0.984	Leading	20.70	0.996	Lagging	-10.91	
102	FLT115-3PH	1.000	Leading	3.39	0.990	Leading	16.50	0.995	Lagging	-11.71	
103	FLT116-3PH	0.998	Leading	8.08	0.983	Leading	21.91	0.996	Lagging	-10.61	
104	FLT117-3PH	0.998	Leading	7.53	0.978	Leading	24.74	0.985	Lagging	-20.47	
105	FLT118-3PH	0.999	Leading	4.01	0.989	Leading	17.30	0.994	Lagging	-12.41	
106	FLT122-3PH	0.998	Leading	8.08	0.984	Leading	21.33	0.994	Lagging	-12.57	
107	FLT123-3PH	1.000	Lagging	-2.48	0.995	Leading	11.35	0.992	Lagging	-14.86	
108	FLT124-3PH	1.000	Leading	3.16	0.990	Leading	16.27	0.994	Lagging	-12.58	
109	FLT125-3PH	1.000	Leading	2.01	0.992	Leading	14.84	0.994	Lagging	-12.65	
110	FLT126-3PH	0.999	Leading	5.67	0.987	Leading	19.13	0.995	Lagging	-11.23	

Table 5-10
Power Factor Analysis: ASGI-2014-002

Power Factor Analysis for ASGI-2014-002 (49.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
1	FLT01-3PH	0.952	Lagging	-15.91	0.967	Lagging	-13.06	0.937	Lagging	-18.52	
2	FLT02-3PH	0.952	Lagging	-15.93	0.967	Lagging	-13.08	0.937	Lagging	-18.52	
3	FLT03-3PH	0.956	Lagging	-15.18	0.971	Lagging	-12.22	0.936	Lagging	-18.68	
4	FLT04-3PH	0.953	Lagging	-15.84	0.967	Lagging	-12.99	0.937	Lagging	-18.52	
5	FLT05-3PH	0.939	Lagging	-18.17	0.954	Lagging	-15.56	0.900	Lagging	-24.06	
6	FLT06-3PH	0.944	Lagging	-17.39	0.955	Lagging	-15.35	0.932	Lagging	-19.25	
7	FLT07-3PH	0.953	Lagging	-15.84	0.967	Lagging	-12.99	0.937	Lagging	-18.52	
8	FLT08-3PH	0.954	Lagging	-15.59	0.969	Lagging	-12.64	0.936	Lagging	-18.72	
9	FLT09-3PH	0.954	Lagging	-15.60	0.968	Lagging	-12.91	0.937	Lagging	-18.49	
10	FLT10-3PH	0.952	Lagging	-15.93	0.967	Lagging	-13.11	0.937	Lagging	-18.56	
11	FLT11-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.52	
12	FLT12-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.52	
13	FLT13-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.54	
14	FLT14-3PH	0.954	Lagging	-15.61	0.968	Lagging	-12.82	0.936	Lagging	-18.66	
15	FLT15-3PH	0.954	Lagging	-15.62	0.968	Lagging	-12.86	0.937	Lagging	-18.51	
16	FLT16-3PH	0.953	Lagging	-15.86	0.967	Lagging	-13.01	0.937	Lagging	-18.52	
17	FLT17-3PH	0.953	Lagging	-15.79	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
18	FLT18-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
19	FLT19-3PH	0.952	Lagging	-15.91	0.967	Lagging	-13.00	0.937	Lagging	-18.53	
20	FLT20-3PH	0.952	Lagging	-15.87	0.967	Lagging	-13.00	0.937	Lagging	-18.50	
21	FLT21-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
22	FLT22-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.51	
23	FLT23-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
24	FLT24-3PH	0.953	Lagging	-15.83	0.967	Lagging	-13.00	0.937	Lagging	-18.53	
25	FLT25-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
26	FLT26-3PH	0.953	Lagging	-15.81	0.967	Lagging	-13.00	0.937	Lagging	-18.52	
27	FLT27-3PH	0.952	Lagging	-15.91	0.967	Lagging	-13.02	0.937	Lagging	-18.54	
28	FLT28-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52	
29	FLT29-3PH	N/A			0.967	Lagging	-13.00	0.937	Lagging	-18.51	
30	FLT30-3PH	N/A			0.967	Lagging	-12.99	0.937	Lagging	-18.51	
31	FLT31-3PH	N/A			0.967	Lagging	-13.04	0.937	Lagging	-18.54	
32	FLT32-3PH	0.953	Lagging	-15.79	0.968	Lagging	-12.96	0.937	Lagging	-18.51	
33	FLT33-3PH	0.953	Lagging	-15.79	0.968	Lagging	-12.96	0.937	Lagging	-18.51	
34	FLT34-3PH	0.953	Lagging	-15.84	0.967	Lagging	-12.99	0.937	Lagging	-18.52	
35	FLT35-3PH	0.953	Lagging	-15.84	0.967	Lagging	-12.99	0.937	Lagging	-18.51	
36	FLT36-3PH	0.953	Lagging	-15.83	0.967	Lagging	-12.99	0.937	Lagging	-18.52	
37	FLT37-3PH	0.953	Lagging	-15.84	0.967	Lagging	-12.99	0.937	Lagging	-18.52	
38	FLT38-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
39	FLT39-3PH	0.952	Lagging	-15.87	0.967	Lagging	-13.02	0.937	Lagging	-18.52	
40	FLT40-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
41	FLT41-3PH	0.953	Lagging	-15.81	0.967	Lagging	-12.97	0.937	Lagging	-18.51	
42	FLT42-3PH	0.953	Lagging	-15.83	0.967	Lagging	-12.99	0.937	Lagging	-18.53	
43	FLT43-3PH	0.953	Lagging	-15.79	0.968	Lagging	-12.96	0.937	Lagging	-18.51	
44	FLT44-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
45	FLT45-3PH	0.953	Lagging	-15.82	0.967	Lagging	-12.98	0.937	Lagging	-18.51	

Table 5-10 (Continued)
Power Factor Analysis: ASGI-2014-002

Power Factor Analysis for ASGI-2014-002 (49.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.952	Lagging	-15.88	0.967	Lagging	-13.03	0.937	Lagging	-18.52
47	FLT47-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.52
48	FLT48-3PH	0.954	Lagging	-15.59	0.969	Lagging	-12.64	0.936	Lagging	-18.73
49	FLT49-3PH	0.925	Lagging	-20.40	0.943	Lagging	-17.56	0.927	Lagging	-20.00
50	FLT50-3PH	0.954	Lagging	-15.58	0.969	Lagging	-12.68	0.936	Lagging	-18.70
51	FLT51-3PH	0.951	Lagging	-16.08	0.967	Lagging	-13.12	0.937	Lagging	-18.52
52	FLT53-3PH	0.953	Lagging	-15.85	0.968	Lagging	-12.90	0.937	Lagging	-18.53
53	FLT55-3PH	0.951	Lagging	-16.08	0.967	Lagging	-13.11	0.937	Lagging	-18.55
54	FLT56-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52
55	FLT57-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52
56	FLT58-3PH	0.951	Lagging	-16.08	0.966	Lagging	-13.28	0.937	Lagging	-18.55
57	FLT59-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51
58	FLT62-3PH	0.950	Lagging	-16.27	0.958	Lagging	-14.94	0.927	Lagging	-20.09
59	FLT64-3PH	0.952	Lagging	-15.89	0.967	Lagging	-13.05	0.937	Lagging	-18.55
60	FLT66-3PH	0.954	Lagging	-15.58	0.969	Lagging	-12.68	0.936	Lagging	-18.70
61	FLT67-3PH	0.952	Lagging	-15.93	0.967	Lagging	-13.13	0.929	Lagging	-19.83
62	FLT71-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.51
63	FLT72-3PH	0.953	Lagging	-15.86	0.967	Lagging	-13.01	0.937	Lagging	-18.51
64	FLT73-3PH	0.952	Lagging	-15.88	0.967	Lagging	-13.01	0.937	Lagging	-18.52
65	FLT74-3PH	0.953	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52
66	FLT75-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51
67	FLT76-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51
68	FLT77-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.52
69	FLT78-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51
70	FLT79-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51
71	FLT80-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.52
72	FLT81-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.52
73	FLT82-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52
74	FLT83-3PH	0.953	Lagging	-15.84	0.967	Lagging	-13.00	0.937	Lagging	-18.51
75	FLT84-3PH	0.952	Lagging	-15.90	0.967	Lagging	-13.04	0.937	Lagging	-18.53
76	FLT85-3PH	0.951	Lagging	-16.13	0.966	Lagging	-13.23	0.936	Lagging	-18.59
77	FLT86-3PH	0.952	Lagging	-15.89	0.967	Lagging	-13.03	0.937	Lagging	-18.53
78	FLT87-3PH	0.948	Lagging	-16.65	0.965	Lagging	-13.57	0.936	Lagging	-18.66
79	FLT88-3PH	0.953	Lagging	-15.81	0.967	Lagging	-12.97	0.937	Lagging	-18.51
80	FLT89-3PH	0.952	Lagging	-15.97	0.967	Lagging	-13.04	0.937	Lagging	-18.55
81	FLT90-3PH	0.953	Lagging	-15.81	0.968	Lagging	-12.94	0.937	Lagging	-18.54
82	FLT91-3PH	0.953	Lagging	-15.85	0.967	Lagging	-12.99	0.937	Lagging	-18.51
83	FLT92-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.00	0.937	Lagging	-18.52
84	FLT93-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.51
85	FLT94-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51
86	FLT95-3PH	0.952	Lagging	-15.86	0.967	Lagging	-13.02	0.937	Lagging	-18.52
87	FLT96-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51
88	FLT97-3PH	0.952	Lagging	-15.94	0.967	Lagging	-13.05	0.937	Lagging	-18.55
89	FLT99-3PH	N/A*			N/A*			N/A*		
90	FLT100-3PH	0.952	Lagging	-15.99	0.966	Lagging	-13.29	0.936	Lagging	-18.64

Table 5-10 (Continued)
Power Factor Analysis: ASGI-2014-002

Power Factor Analysis for ASGI-2014-002 (49.6 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.955	Lagging	-15.48	0.968	Lagging	-12.80	0.939	Lagging	-18.13	
92	FLT102-3PH	0.952	Lagging	-15.99	0.966	Lagging	-13.36	0.936	Lagging	-18.65	
93	FLT103-3PH	0.948	Lagging	-16.65	0.958	Lagging	-14.94	0.932	Lagging	-19.36	
94	FLT104-3PH	0.943	Lagging	-17.48	0.966	Lagging	-13.33	0.927	Lagging	-20.04	
95	FLT105-3PH	0.937	Lagging	-18.45	0.955	Lagging	-15.38	0.923	Lagging	-20.72	
96	FLT106-3PH	0.944	Lagging	-17.42	0.963	Lagging	-13.80	0.926	Lagging	-20.24	
97	FLT107-3PH	0.953	Lagging	-15.82	0.967	Lagging	-13.14	0.937	Lagging	-18.48	
98	FLT108-3PH	0.951	Lagging	-16.04	0.967	Lagging	-13.08	0.936	Lagging	-18.73	
99	FLT112-3PH	0.952	Lagging	-15.94	0.967	Lagging	-13.14	0.937	Lagging	-18.52	
100	FLT113-3PH	0.952	Lagging	-15.89	0.967	Lagging	-13.03	0.937	Lagging	-18.52	
101	FLT114-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.00	0.937	Lagging	-18.51	
102	FLT115-3PH	0.952	Lagging	-15.89	0.967	Lagging	-13.06	0.937	Lagging	-18.52	
103	FLT116-3PH	0.953	Lagging	-15.85	0.967	Lagging	-13.01	0.937	Lagging	-18.51	
104	FLT117-3PH	0.949	Lagging	-16.40	0.966	Lagging	-13.26	0.937	Lagging	-18.53	
105	FLT118-3PH	0.952	Lagging	-15.91	0.967	Lagging	-13.01	0.937	Lagging	-18.56	
106	FLT122-3PH	0.981	Lagging	-9.85	0.993	Lagging	-5.88	0.970	Lagging	-12.34	
107	FLT123-3PH	0.948	Lagging	-16.72	0.965	Lagging	-13.55	0.935	Lagging	-18.82	
108	FLT124-3PH	0.953	Lagging	-15.77	0.968	Lagging	-12.95	0.937	Lagging	-18.49	
109	FLT125-3PH	0.952	Lagging	-15.89	0.967	Lagging	-13.06	0.937	Lagging	-18.52	
110	FLT126-3PH	0.954	Lagging	-15.62	0.968	Lagging	-12.84	0.937	Lagging	-18.46	

Table 5-11
Power Factor Analysis: ASGI-2014-004

Power Factor Analysis for ASGI-2014-004 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44	
1	FLT01-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.53	
2	FLT02-3PH	0.777	Lagging	-8.11	0.942	Lagging	-3.55	0.076	Lagging	-130.59	
3	FLT03-3PH	0.777	Lagging	-8.10	0.942	Lagging	-3.55	0.076	Lagging	-130.46	
4	FLT04-3PH	0.774	Lagging	-8.18	0.943	Lagging	-3.52	0.075	Lagging	-132.09	
5	FLT05-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.53	0.076	Lagging	-130.45	
6	FLT06-3PH	0.774	Lagging	-8.19	0.939	Lagging	-3.67	0.076	Lagging	-131.12	
7	FLT07-3PH	0.775	Lagging	-8.16	0.943	Lagging	-3.52	0.076	Lagging	-131.84	
8	FLT08-3PH	0.776	Lagging	-8.13	0.942	Lagging	-3.57	0.076	Lagging	-131.59	
9	FLT09-3PH	0.773	Lagging	-8.21	0.942	Lagging	-3.55	0.076	Lagging	-131.02	
10	FLT10-3PH	0.722	Lagging	-9.59	0.903	Lagging	-4.75	0.070	Lagging	-142.70	
11	FLT11-3PH	0.773	Lagging	-8.21	0.937	Lagging	-3.73	0.075	Lagging	-133.18	
12	FLT12-3PH	0.744	Lagging	-8.99	0.915	Lagging	-4.42	0.076	Lagging	-130.94	
13	FLT13-3PH	0.676	Lagging	-10.91	0.936	Lagging	-3.77	0.063	Lagging	-157.61	
14	FLT14-3PH	0.687	Lagging	-10.56	0.884	Lagging	-5.28	0.067	Lagging	-149.61	
15	FLT15-3PH	0.772	Lagging	-8.23	0.940	Lagging	-3.62	0.076	Lagging	-132.00	
16	FLT16-3PH	0.778	Lagging	-8.06	0.943	Lagging	-3.52	0.077	Lagging	-130.07	
17	FLT17-3PH	0.870	Lagging	-5.66	0.976	Lagging	-2.22	0.084	Lagging	-118.41	
18	FLT18-3PH	0.793	Lagging	-7.68	0.902	Lagging	-4.79	0.077	Lagging	-129.50	
19	FLT19-3PH	0.830	Lagging	-6.72	0.943	Lagging	-3.53	0.081	Lagging	-122.95	
20	FLT20-3PH	0.819	Lagging	-7.00	0.976	Lagging	-2.21	0.081	Lagging	-123.42	
21	FLT21-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45	
22	FLT22-3PH	0.771	Lagging	-8.27	0.938	Lagging	-3.69	0.082	Lagging	-121.35	
23	FLT23-3PH	0.775	Lagging	-8.17	0.933	Lagging	-3.86	0.078	Lagging	-127.51	
24	FLT24-3PH	0.864	Lagging	-5.82	0.902	Lagging	-4.79	0.073	Lagging	-137.05	
25	FLT25-3PH	0.697	Lagging	-10.30	0.905	Lagging	-4.71	0.076	Lagging	-131.51	
26	FLT26-3PH	0.849	Lagging	-6.22	0.849	Lagging	-6.21	0.079	Lagging	-126.18	
27	FLT27-3PH	0.774	Lagging	-8.17	0.931	Lagging	-3.91	0.063	Lagging	-157.29	
28	FLT28-3PH	0.777	Lagging	-8.10	0.942	Lagging	-3.56	0.107	Lagging	-92.85	
29	FLT29-3PH	N/A			0.942	Lagging	-3.57	0.095	Lagging	-104.76	
30	FLT30-3PH	N/A			0.948	Lagging	-3.37	0.095	Lagging	-104.39	
31	FLT31-3PH	N/A			0.969	Lagging	-2.54	0.043	Lagging	-230.10	
32	FLT32-3PH	0.776	Lagging	-8.12	0.939	Lagging	-3.66	0.082	Lagging	-121.47	
33	FLT33-3PH	0.776	Lagging	-8.12	0.939	Lagging	-3.66	0.076	Lagging	-130.44	
34	FLT34-3PH	0.777	Lagging	-8.10	0.941	Lagging	-3.58	0.069	Lagging	-143.56	
35	FLT35-3PH	0.778	Lagging	-8.09	0.942	Lagging	-3.55	0.076	Lagging	-131.49	
36	FLT36-3PH	0.777	Lagging	-8.10	0.940	Lagging	-3.62	0.065	Lagging	-154.15	
37	FLT37-3PH	0.777	Lagging	-8.10	0.941	Lagging	-3.60	0.066	Lagging	-151.41	
38	FLT38-3PH	0.778	Lagging	-8.09	0.943	Lagging	-3.53	0.076	Lagging	-130.42	
39	FLT39-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.82	
40	FLT40-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.53	0.076	Lagging	-130.41	
41	FLT41-3PH	0.763	Lagging	-8.49	0.928	Lagging	-4.01	0.074	Lagging	-134.01	
42	FLT42-3PH	0.777	Lagging	-8.11	0.940	Lagging	-3.65	0.064	Lagging	-156.64	
43	FLT43-3PH	0.798	Lagging	-7.56	0.943	Lagging	-3.52	0.078	Lagging	-127.39	
44	FLT44-3PH	0.788	Lagging	-7.82	0.947	Lagging	-3.40	0.077	Lagging	-128.87	
45	FLT45-3PH	0.765	Lagging	-8.42	0.932	Lagging	-3.88	0.073	Lagging	-136.18	

Table 5-11 (Continued)
Power Factor Analysis: ASGI-2014-004

Power Factor Analysis for ASGI-2014-004 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.776	Lagging	-8.12	0.943	Lagging	-3.54	0.076	Lagging	-132.02
47	FLT47-3PH	0.777	Lagging	-8.11	0.942	Lagging	-3.55	0.075	Lagging	-132.92
48	FLT48-3PH	0.776	Lagging	-8.13	0.942	Lagging	-3.57	0.076	Lagging	-131.63
49	FLT49-3PH	0.781	Lagging	-8.00	0.901	Lagging	-4.82	0.074	Lagging	-135.21
50	FLT50-3PH	0.776	Lagging	-8.13	0.942	Lagging	-3.56	0.076	Lagging	-130.82
51	FLT51-3PH	0.776	Lagging	-8.13	0.943	Lagging	-3.54	0.076	Lagging	-130.87
52	FLT53-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.93
53	FLT55-3PH	0.776	Lagging	-8.12	0.943	Lagging	-3.54	0.077	Lagging	-130.28
54	FLT56-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-131.13
55	FLT57-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-131.20
56	FLT58-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.53	0.076	Lagging	-131.11
57	FLT59-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
58	FLT62-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
59	FLT64-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.47
60	FLT66-3PH	0.776	Lagging	-8.13	0.942	Lagging	-3.56	0.076	Lagging	-130.82
61	FLT67-3PH	0.778	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.77
62	FLT71-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.40
63	FLT72-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.38
64	FLT73-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
65	FLT74-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
66	FLT75-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
67	FLT76-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
68	FLT77-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.50
69	FLT78-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.34
70	FLT79-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.41
71	FLT80-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.50
72	FLT81-3PH	0.778	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.54
73	FLT82-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
74	FLT83-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.43
75	FLT84-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.60
76	FLT85-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.87
77	FLT86-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.48
78	FLT87-3PH	0.777	Lagging	-8.11	0.943	Lagging	-3.54	0.076	Lagging	-131.05
79	FLT88-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.65
80	FLT89-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.46
81	FLT90-3PH	0.778	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.56
82	FLT91-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
83	FLT92-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
84	FLT93-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
85	FLT94-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
86	FLT95-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.57
87	FLT96-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
88	FLT97-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.54
89	FLT99-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.44
90	FLT100-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45

Table 5-11 (Continued)
Power Factor Analysis: ASGI-2014-004

Power Factor Analysis for ASGI-2014-004 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
92	FLT102-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
93	FLT103-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
94	FLT104-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
95	FLT105-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
96	FLT106-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.47
97	FLT107-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
98	FLT108-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.45
99	FLT112-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.53	0.076	Lagging	-130.85
100	FLT113-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.51
101	FLT114-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.44
102	FLT115-3PH	0.777	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.68
103	FLT116-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.39
104	FLT117-3PH	0.774	Lagging	-8.18	0.942	Lagging	-3.55	0.075	Lagging	-133.54
105	FLT118-3PH	0.778	Lagging	-8.06	0.943	Lagging	-3.53	0.076	Lagging	-130.68
106	FLT122-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.58
107	FLT123-3PH	0.779	Lagging	-8.06	0.943	Lagging	-3.53	0.076	Lagging	-131.29
108	FLT124-3PH	0.778	Lagging	-8.08	0.943	Lagging	-3.54	0.076	Lagging	-130.76
109	FLT125-3PH	0.778	Lagging	-8.09	0.943	Lagging	-3.54	0.076	Lagging	-130.82
110	FLT126-3PH	0.777	Lagging	-8.10	0.943	Lagging	-3.54	0.076	Lagging	-130.52

Table 5-12
Power Factor Analysis: ASGI-2014-005

Power Factor Analysis for ASGI-2014-005 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
1	FLT01-3PH	0.926	Lagging	-4.08	0.969	Leading	2.54	0.646	Lagging	-11.82	
2	FLT02-3PH	0.926	Lagging	-4.09	0.969	Leading	2.53	0.645	Lagging	-11.84	
3	FLT03-3PH	0.926	Lagging	-4.07	0.969	Leading	2.53	0.647	Lagging	-11.80	
4	FLT04-3PH	0.922	Lagging	-4.19	0.969	Leading	2.57	0.629	Lagging	-12.35	
5	FLT05-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.648	Lagging	-11.76	
6	FLT06-3PH	0.922	Lagging	-4.20	0.973	Leading	2.36	0.641	Lagging	-11.98	
7	FLT07-3PH	0.923	Lagging	-4.16	0.968	Leading	2.57	0.632	Lagging	-12.27	
8	FLT08-3PH	0.925	Lagging	-4.12	0.970	Leading	2.51	0.635	Lagging	-12.17	
9	FLT09-3PH	0.921	Lagging	-4.23	0.969	Leading	2.53	0.642	Lagging	-11.94	
10	FLT10-3PH	0.859	Lagging	-5.96	0.998	Leading	0.65	0.528	Lagging	-16.08	
11	FLT11-3PH	0.921	Lagging	-4.22	0.975	Leading	2.28	0.620	Lagging	-12.65	
12	FLT12-3PH	0.890	Lagging	-5.12	0.991	Leading	1.32	0.640	Lagging	-12.01	
13	FLT13-3PH	0.781	Lagging	-8.01	0.977	Leading	2.20	0.449	Lagging	-19.91	
14	FLT14-3PH	0.807	Lagging	-7.33	1.000	Leading	0.12	0.456	Lagging	-19.52	
15	FLT15-3PH	0.920	Lagging	-4.25	0.972	Leading	2.44	0.603	Lagging	-13.23	
16	FLT16-3PH	0.928	Lagging	-4.02	0.968	Leading	2.58	0.649	Lagging	-11.72	
17	FLT17-3PH	N/A*			N/A*			N/A*			
18	FLT18-3PH	0.940	Lagging	-3.62	0.998	Leading	0.60	0.648	Lagging	-11.75	
19	FLT19-3PH	N/A*			N/A*			N/A*			
20	FLT20-3PH	0.911	Lagging	-4.52	0.699	Leading	10.22	0.918	Lagging	-4.31	
21	FLT21-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
22	FLT22-3PH	0.918	Lagging	-4.31	0.974	Leading	2.34	0.663	Lagging	-11.30	
23	FLT23-3PH	0.923	Lagging	-4.17	0.979	Leading	2.10	0.670	Lagging	-11.07	
24	FLT24-3PH	0.999	Leading	0.39	1.000	Leading	0.14	0.655	Lagging	-11.54	
25	FLT25-3PH	0.817	Lagging	-7.06	1.000	Leading	0.11	0.491	Lagging	-17.76	
26	FLT26-3PH	0.994	Lagging	-1.06	0.989	Lagging	-1.52	0.642	Lagging	-11.94	
27	FLT27-3PH	0.923	Lagging	-4.18	0.980	Leading	2.03	0.608	Lagging	-13.05	
28	FLT28-3PH	0.926	Lagging	-4.07	0.970	Leading	2.51	0.641	Lagging	-11.99	
29	FLT29-3PH	N/A			0.970	Leading	2.50	0.655	Lagging	-11.53	
30	FLT30-3PH	N/A			0.963	Leading	2.78	0.663	Lagging	-11.28	
31	FLT31-3PH	N/A			0.931	Leading	3.94	0.592	Lagging	-13.62	
32	FLT32-3PH	0.925	Lagging	-4.10	0.973	Leading	2.38	0.658	Lagging	-11.46	
33	FLT33-3PH	0.925	Lagging	-4.10	0.973	Leading	2.38	0.647	Lagging	-11.79	
34	FLT34-3PH	0.926	Lagging	-4.07	0.971	Leading	2.48	0.576	Lagging	-14.20	
35	FLT35-3PH	0.927	Lagging	-4.05	0.970	Leading	2.52	0.633	Lagging	-12.23	
36	FLT36-3PH	0.926	Lagging	-4.08	0.972	Leading	2.43	0.536	Lagging	-15.74	
37	FLT37-3PH	0.926	Lagging	-4.08	0.971	Leading	2.46	0.547	Lagging	-15.31	
38	FLT38-3PH	0.927	Lagging	-4.05	0.969	Leading	2.55	0.646	Lagging	-11.81	
39	FLT39-3PH	0.926	Lagging	-4.08	0.969	Leading	2.54	0.644	Lagging	-11.86	
40	FLT40-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.648	Lagging	-11.77	
41	FLT41-3PH	0.908	Lagging	-4.62	0.982	Leading	1.91	0.600	Lagging	-13.34	
42	FLT42-3PH	0.926	Lagging	-4.08	0.972	Leading	2.40	0.527	Lagging	-16.13	
43	FLT43-3PH	0.949	Lagging	-3.34	0.969	Leading	2.54	0.670	Lagging	-11.07	
44	FLT44-3PH	0.938	Lagging	-3.68	0.965	Leading	2.74	0.669	Lagging	-11.12	
45	FLT45-3PH	0.911	Lagging	-4.52	0.979	Leading	2.06	0.580	Lagging	-14.04	

Table 5-12 (Continued)
Power Factor Analysis: ASGI-2014-005

Power Factor Analysis for ASGI-2014-005 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.925	Lagging	-4.10	0.969	Leading	2.54	0.637	Lagging	-12.09
47	FLT47-3PH	0.926	Lagging	-4.08	0.969	Leading	2.53	0.634	Lagging	-12.19
48	FLT48-3PH	0.925	Lagging	-4.12	0.970	Leading	2.51	0.635	Lagging	-12.18
49	FLT49-3PH	0.930	Lagging	-3.96	0.997	Leading	0.73	0.589	Lagging	-13.72
50	FLT50-3PH	0.925	Lagging	-4.12	0.970	Leading	2.52	0.644	Lagging	-11.88
51	FLT51-3PH	0.925	Lagging	-4.11	0.969	Leading	2.54	0.643	Lagging	-11.91
52	FLT53-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.642	Lagging	-11.93
53	FLT55-3PH	0.925	Lagging	-4.10	0.969	Leading	2.54	0.646	Lagging	-11.80
54	FLT56-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.641	Lagging	-11.98
55	FLT57-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.640	Lagging	-12.00
56	FLT58-3PH	0.926	Lagging	-4.07	0.969	Leading	2.56	0.642	Lagging	-11.95
57	FLT59-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
58	FLT62-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
59	FLT64-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.80
60	FLT66-3PH	0.925	Lagging	-4.12	0.970	Leading	2.52	0.644	Lagging	-11.88
61	FLT67-3PH	0.927	Lagging	-4.05	0.969	Leading	2.55	0.644	Lagging	-11.88
62	FLT71-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.78
63	FLT72-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.78
64	FLT73-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
65	FLT74-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
66	FLT75-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
67	FLT76-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
68	FLT77-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.81
69	FLT78-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.648	Lagging	-11.77
70	FLT79-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.78
71	FLT80-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.81
72	FLT81-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.82
73	FLT82-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
74	FLT83-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
75	FLT84-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.83
76	FLT85-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.643	Lagging	-11.91
77	FLT86-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.80
78	FLT87-3PH	0.926	Lagging	-4.09	0.969	Leading	2.54	0.642	Lagging	-11.95
79	FLT88-3PH	0.926	Lagging	-4.06	0.969	Leading	2.54	0.645	Lagging	-11.86
80	FLT89-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.647	Lagging	-11.79
81	FLT90-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.83
82	FLT91-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.647	Lagging	-11.79
83	FLT92-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
84	FLT93-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
85	FLT94-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
86	FLT95-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.645	Lagging	-11.83
87	FLT96-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79
88	FLT97-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.646	Lagging	-11.82
89	FLT99-3PH	0.925	Lagging	-4.11	0.969	Leading	2.55	0.646	Lagging	-11.83
90	FLT100-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79

Table 5-12 (Continued)
Power Factor Analysis: ASGI-2014-005

Power Factor Analysis for ASGI-2014-005 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
92	FLT102-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
93	FLT103-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.80	
94	FLT104-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
95	FLT105-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
96	FLT106-3PH	0.927	Lagging	-4.06	0.969	Leading	2.55	0.646	Lagging	-11.80	
97	FLT107-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
98	FLT108-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
99	FLT112-3PH	0.926	Lagging	-4.07	0.969	Leading	2.56	0.644	Lagging	-11.87	
100	FLT113-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
101	FLT114-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.647	Lagging	-11.79	
102	FLT115-3PH	0.926	Lagging	-4.06	0.969	Leading	2.55	0.645	Lagging	-11.85	
103	FLT116-3PH	0.926	Lagging	-4.07	0.969	Leading	2.55	0.647	Lagging	-11.77	
104	FLT117-3PH	0.923	Lagging	-4.18	0.969	Leading	2.53	0.621	Lagging	-12.63	
105	FLT118-3PH	0.928	Lagging	-4.02	0.969	Leading	2.55	0.646	Lagging	-11.83	
106	FLT122-3PH	0.925	Lagging	-4.12	0.969	Leading	2.53	0.644	Lagging	-11.90	
107	FLT123-3PH	0.928	Lagging	-4.01	0.969	Leading	2.56	0.639	Lagging	-12.04	
108	FLT124-3PH	0.927	Lagging	-4.05	0.969	Leading	2.55	0.644	Lagging	-11.89	
109	FLT125-3PH	0.927	Lagging	-4.05	0.969	Leading	2.55	0.643	Lagging	-11.91	
110	FLT126-3PH	0.926	Lagging	-4.07	0.969	Leading	2.54	0.646	Lagging	-11.81	

Table 5-13
Power Factor Analysis: ASGI-2014-008

Power Factor Analysis for ASGI-2014-008 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
1	FLT01-3PH	0.998	Lagging	-0.70	0.987	Leading	1.65	0.992	Leading	1.30	
2	FLT02-3PH	0.997	Lagging	-0.73	0.987	Leading	1.62	0.992	Leading	1.28	
3	FLT03-3PH	0.998	Lagging	-0.68	0.987	Leading	1.64	0.991	Leading	1.33	
4	FLT04-3PH	0.996	Lagging	-0.94	0.986	Leading	1.69	0.998	Leading	0.65	
5	FLT05-3PH	0.998	Lagging	-0.66	0.986	Leading	1.69	0.991	Leading	1.36	
6	FLT06-3PH	0.996	Lagging	-0.92	0.992	Leading	1.28	0.994	Leading	1.08	
7	FLT07-3PH	0.996	Lagging	-0.89	0.986	Leading	1.71	0.997	Leading	0.75	
8	FLT08-3PH	0.997	Lagging	-0.73	0.987	Leading	1.62	0.996	Leading	0.86	
9	FLT09-3PH	0.996	Lagging	-0.86	0.987	Leading	1.65	0.993	Leading	1.21	
10	FLT10-3PH	0.943	Lagging	-3.53	0.991	Lagging	-1.31	0.966	Lagging	-2.68	
11	FLT11-3PH	0.991	Lagging	-1.36	0.998	Leading	0.56	0.999	Lagging	-0.44	
12	FLT12-3PH	0.850	Lagging	-6.20	0.940	Lagging	-3.64	0.999	Leading	0.47	
13	FLT13-3PH	0.999	Lagging	-0.35	0.984	Leading	1.81	0.998	Lagging	-0.65	
14	FLT14-3PH	0.946	Lagging	-3.41	0.999	Lagging	-0.42	0.938	Lagging	-3.71	
15	FLT15-3PH	0.997	Lagging	-0.77	0.987	Leading	1.61	0.997	Leading	0.78	
16	FLT16-3PH	0.998	Lagging	-0.64	0.986	Leading	1.69	0.991	Leading	1.38	
17	FLT17-3PH	1.000	Lagging	-0.20	0.978	Leading	2.11	0.962	Leading	2.82	
18	FLT18-3PH	0.997	Lagging	-0.71	0.986	Leading	1.67	0.992	Leading	1.26	
19	FLT19-3PH	0.999	Lagging	-0.51	0.986	Leading	1.66	0.974	Leading	2.33	
20	FLT20-3PH	0.999	Lagging	-0.52	0.984	Leading	1.80	0.982	Leading	1.92	
21	FLT21-3PH	0.998	Lagging	-0.68	0.993	Leading	1.16	0.997	Leading	0.72	
22	FLT22-3PH	0.991	Lagging	-1.32	0.995	Leading	1.03	0.997	Leading	0.71	
23	FLT23-3PH	0.998	Lagging	-0.55	0.966	Leading	2.68	0.999	Leading	0.46	
24	FLT24-3PH	1.000	Leading	0.06	0.996	Leading	0.95	0.983	Leading	1.86	
25	FLT25-3PH	0.997	Lagging	-0.71	0.987	Leading	1.63	0.994	Leading	1.14	
26	FLT26-3PH	0.998	Leading	0.57	0.999	Leading	0.37	0.984	Leading	1.79	
27	FLT27-3PH	0.997	Lagging	-0.81	0.992	Leading	1.24	0.992	Leading	1.25	
28	FLT28-3PH	0.998	Lagging	-0.69	0.987	Leading	1.64	0.993	Leading	1.22	
29	FLT29-3PH	N/A			0.987	Leading	1.63	0.990	Leading	1.42	
30	FLT30-3PH	N/A			0.983	Leading	1.88	0.971	Leading	2.45	
31	FLT31-3PH	N/A			0.963	Leading	2.81	0.998	Leading	0.69	
32	FLT32-3PH	0.998	Lagging	-0.61	0.988	Leading	1.56	0.989	Leading	1.47	
33	FLT33-3PH	0.998	Lagging	-0.61	0.988	Leading	1.56	0.991	Leading	1.33	
34	FLT34-3PH	0.998	Lagging	-0.65	0.987	Leading	1.63	0.999	Leading	0.42	
35	FLT35-3PH	0.998	Lagging	-0.65	0.987	Leading	1.65	0.993	Leading	1.16	
36	FLT36-3PH	0.998	Lagging	-0.65	0.988	Leading	1.58	1.000	Lagging	-0.16	
37	FLT37-3PH	0.998	Lagging	-0.65	0.987	Leading	1.61	1.000	Leading	0.00	
38	FLT38-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
39	FLT39-3PH	0.998	Lagging	-0.67	0.986	Leading	1.66	0.992	Leading	1.31	
40	FLT40-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34	
41	FLT41-3PH	0.996	Lagging	-0.88	0.990	Leading	1.40	0.997	Leading	0.71	
42	FLT42-3PH	0.998	Lagging	-0.65	0.988	Leading	1.56	1.000	Lagging	-0.30	
43	FLT43-3PH	1.000	Lagging	-0.31	0.986	Leading	1.69	0.989	Leading	1.50	
44	FLT44-3PH	0.999	Lagging	-0.49	0.985	Leading	1.76	0.988	Leading	1.59	
45	FLT45-3PH	0.996	Lagging	-0.85	0.989	Leading	1.46	0.999	Leading	0.46	

Table 5-13 (Continued)
Power Factor Analysis: ASGI-2014-008

Power Factor Analysis for ASGI-2014-008 (10 MW)										
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.998	Lagging	-0.68	0.986	Leading	1.66	0.993	Leading	1.22
47	FLT47-3PH	0.998	Lagging	-0.67	0.987	Leading	1.66	0.993	Leading	1.19
48	FLT48-3PH	0.997	Lagging	-0.73	0.987	Leading	1.62	0.996	Leading	0.86
49	FLT49-3PH	0.998	Lagging	-0.61	0.989	Lagging	-1.51	1.000	Lagging	-0.20
50	FLT50-3PH	0.997	Lagging	-0.73	0.987	Leading	1.63	0.992	Leading	1.27
51	FLT51-3PH	0.998	Lagging	-0.70	0.986	Leading	1.67	0.992	Leading	1.29
52	FLT53-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.992	Leading	1.28
53	FLT55-3PH	0.998	Lagging	-0.70	0.986	Leading	1.67	0.991	Leading	1.34
54	FLT56-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.992	Leading	1.26
55	FLT57-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.992	Leading	1.26
56	FLT58-3PH	0.998	Lagging	-0.68	0.986	Leading	1.68	0.992	Leading	1.27
57	FLT59-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
58	FLT62-3PH	0.998	Lagging	-0.66	0.986	Leading	1.66	0.991	Leading	1.34
59	FLT64-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
60	FLT66-3PH	0.997	Lagging	-0.73	0.987	Leading	1.63	0.992	Leading	1.27
61	FLT67-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.992	Leading	1.30
62	FLT71-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34
63	FLT72-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34
64	FLT73-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
65	FLT74-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
66	FLT75-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
67	FLT76-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
68	FLT77-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
69	FLT78-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34
70	FLT79-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34
71	FLT80-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
72	FLT81-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.32
73	FLT82-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
74	FLT83-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.34
75	FLT84-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.991	Leading	1.32
76	FLT85-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.992	Leading	1.29
77	FLT86-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
78	FLT87-3PH	0.998	Lagging	-0.68	0.986	Leading	1.67	0.992	Leading	1.27
79	FLT88-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.992	Leading	1.31
80	FLT89-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.991	Leading	1.33
81	FLT90-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.32
82	FLT91-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.991	Leading	1.33
83	FLT92-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
84	FLT93-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
85	FLT94-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
86	FLT95-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.32
87	FLT96-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33
88	FLT97-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.991	Leading	1.32
89	FLT99-3PH	0.998	Lagging	-0.67	0.986	Leading	1.72	0.991	Leading	1.32
90	FLT100-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33

Table 5-13 (Continued)
Power Factor Analysis: ASGI-2014-008

Power Factor Analysis for ASGI-2014-008 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
91	FLT101-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
92	FLT102-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
93	FLT103-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
94	FLT104-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
95	FLT105-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
96	FLT106-3PH	0.998	Lagging	-0.66	0.986	Leading	1.66	0.991	Leading	1.33	
97	FLT107-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
98	FLT108-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
99	FLT112-3PH	0.998	Lagging	-0.67	0.986	Leading	1.68	0.992	Leading	1.30	
100	FLT113-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
101	FLT114-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.991	Leading	1.33	
102	FLT115-3PH	0.998	Lagging	-0.66	0.986	Leading	1.67	0.992	Leading	1.31	
103	FLT116-3PH	0.998	Lagging	-0.67	0.986	Leading	1.67	0.991	Leading	1.34	
104	FLT117-3PH	0.997	Lagging	-0.78	0.986	Leading	1.66	0.995	Leading	1.00	
105	FLT118-3PH	0.998	Lagging	-0.62	0.986	Leading	1.67	0.991	Leading	1.33	
106	FLT122-3PH	0.997	Lagging	-0.78	0.986	Leading	1.72	0.992	Leading	1.31	
107	FLT123-3PH	0.998	Lagging	-0.61	0.986	Leading	1.68	0.992	Leading	1.25	
108	FLT124-3PH	0.998	Lagging	-0.65	0.986	Leading	1.67	0.992	Leading	1.30	
109	FLT125-3PH	0.998	Lagging	-0.65	0.986	Leading	1.67	0.992	Leading	1.29	
110	FLT126-3PH	0.998	Lagging	-0.67	0.986	Leading	1.66	0.991	Leading	1.32	

Table 5-14
Power Factor Analysis: ASGI-2014-009

Power Factor Analysis for ASGI-2014-009 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
0	Base	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
1	FLT01-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.18	0.096	Lagging	-103.77
2	FLT02-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.19	0.096	Lagging	-103.81
3	FLT03-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.71
4	FLT04-3PH	0.559	Lagging	-14.83	0.992	Lagging	-1.26	0.095	Lagging	-104.92
5	FLT05-3PH	0.560	Lagging	-14.80	0.993	Lagging	-1.22	0.096	Lagging	-103.92
6	FLT06-3PH	0.559	Lagging	-14.85	0.990	Lagging	-1.46	0.095	Lagging	-104.32
7	FLT07-3PH	0.559	Lagging	-14.83	0.992	Lagging	-1.24	0.095	Lagging	-104.74
8	FLT08-3PH	0.558	Lagging	-14.86	0.990	Lagging	-1.44	0.095	Lagging	-105.17
9	FLT09-3PH	0.555	Lagging	-15.00	0.991	Lagging	-1.34	0.095	Lagging	-104.24
10	FLT10-3PH	0.557	Lagging	-14.90	0.911	Lagging	-4.54	0.089	Lagging	-112.08
11	FLT11-3PH	0.559	Lagging	-14.82	0.997	Lagging	-0.83	0.094	Lagging	-105.87
12	FLT12-3PH	0.557	Lagging	-14.90	0.993	Leading	1.19	0.095	Lagging	-104.27
13	FLT13-3PH	0.545	Lagging	-15.39	0.997	Lagging	-0.79	0.082	Lagging	-120.99
14	FLT14-3PH	0.533	Lagging	-15.88	0.759	Lagging	-8.57	0.085	Lagging	-117.04
15	FLT15-3PH	0.553	Lagging	-15.08	0.987	Lagging	-1.60	0.094	Lagging	-105.97
16	FLT16-3PH	0.563	Lagging	-14.69	0.995	Lagging	-1.03	0.096	Lagging	-103.48
17	FLT17-3PH	0.562	Lagging	-14.72	0.997	Lagging	-0.80	0.100	Lagging	-99.79
18	FLT18-3PH	0.561	Lagging	-14.77	0.993	Lagging	-1.15	0.096	Lagging	-103.22
19	FLT19-3PH	0.562	Lagging	-14.70	0.993	Lagging	-1.15	0.100	Lagging	-99.42
20	FLT20-3PH	0.562	Lagging	-14.73	0.994	Lagging	-1.11	0.103	Lagging	-96.77
21	FLT21-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
22	FLT22-3PH	0.562	Lagging	-14.71	0.994	Lagging	-1.09	0.099	Lagging	-100.18
23	FLT23-3PH	0.562	Lagging	-14.73	0.994	Lagging	-1.08	0.097	Lagging	-103.01
24	FLT24-3PH	0.568	Lagging	-14.50	0.982	Lagging	-1.91	0.087	Lagging	-115.10
25	FLT25-3PH	0.561	Lagging	-14.77	0.993	Lagging	-1.15	0.095	Lagging	-104.28
26	FLT26-3PH	0.566	Lagging	-14.56	0.938	Lagging	-3.71	0.090	Lagging	-110.17
27	FLT27-3PH	0.282	Lagging	-34.04	0.960	Lagging	-2.92	0.077	Lagging	-130.27
28	FLT28-3PH	0.556	Lagging	-14.95	0.956	Leading	3.06	0.101	Lagging	-98.30
29	FLT29-3PH	N/A			0.900	Leading	4.84	0.128	Lagging	-77.59
30	FLT30-3PH	N/A			0.637	Leading	12.11	0.130	Lagging	-76.04
31	FLT31-3PH	N/A			0.309	Lagging	-30.73	0.055	Lagging	-182.84
32	FLT32-3PH	0.459	Lagging	-19.36	0.999	Leading	0.47	0.106	Lagging	-93.41
33	FLT33-3PH	0.460	Lagging	-19.29	0.999	Leading	0.32	0.096	Lagging	-103.70
34	FLT34-3PH	0.527	Lagging	-16.11	0.995	Lagging	-0.96	0.089	Lagging	-112.20
35	FLT35-3PH	0.524	Lagging	-16.27	0.996	Lagging	-0.85	0.094	Lagging	-105.51
36	FLT36-3PH	0.467	Lagging	-18.94	0.963	Lagging	-2.80	0.084	Lagging	-119.10
37	FLT37-3PH	0.491	Lagging	-17.74	0.979	Lagging	-2.10	0.085	Lagging	-117.05
38	FLT38-3PH	0.561	Lagging	-14.75	0.994	Lagging	-1.12	0.096	Lagging	-103.69
39	FLT39-3PH	0.559	Lagging	-14.82	0.993	Lagging	-1.20	0.096	Lagging	-103.91
40	FLT40-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.16	0.096	Lagging	-103.68
41	FLT41-3PH	0.552	Lagging	-15.12	0.988	Lagging	-1.56	0.093	Lagging	-106.65
42	FLT42-3PH	0.446	Lagging	-20.06	0.943	Lagging	-3.53	0.083	Lagging	-120.62
43	FLT43-3PH	0.548	Lagging	-15.26	0.988	Lagging	-1.54	0.096	Lagging	-103.60
44	FLT44-3PH	0.560	Lagging	-14.81	0.994	Lagging	-1.14	0.097	Lagging	-103.12
45	FLT45-3PH	0.555	Lagging	-14.99	0.990	Lagging	-1.40	0.092	Lagging	-107.72

Table 5-14 (Continued)
Power Factor Analysis: ASGI-2014-009

Power Factor Analysis for ASGI-2014-009 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.551	Lagging	-15.14	0.991	Lagging	-1.36	0.095	Lagging	-104.55
47	FLT47-3PH	0.546	Lagging	-15.35	0.988	Lagging	-1.54	0.095	Lagging	-105.05
48	FLT48-3PH	0.558	Lagging	-14.86	0.990	Lagging	-1.44	0.095	Lagging	-105.20
49	FLT49-3PH	0.567	Lagging	-14.49	0.974	Lagging	-2.34	0.094	Lagging	-106.13
50	FLT50-3PH	0.558	Lagging	-14.86	0.992	Lagging	-1.30	0.096	Lagging	-104.07
51	FLT51-3PH	0.558	Lagging	-14.87	0.993	Lagging	-1.23	0.096	Lagging	-104.08
52	FLT53-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.08	0.096	Lagging	-104.05
53	FLT55-3PH	0.559	Lagging	-14.85	0.993	Lagging	-1.21	0.096	Lagging	-103.60
54	FLT56-3PH	0.560	Lagging	-14.80	0.994	Lagging	-1.14	0.096	Lagging	-104.22
55	FLT57-3PH	0.560	Lagging	-14.80	0.994	Lagging	-1.14	0.095	Lagging	-104.28
56	FLT58-3PH	0.560	Lagging	-14.79	0.992	Lagging	-1.25	0.096	Lagging	-104.12
57	FLT59-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
58	FLT62-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.14	0.096	Lagging	-103.72
59	FLT64-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.13	0.096	Lagging	-103.71
60	FLT66-3PH	0.558	Lagging	-14.86	0.992	Lagging	-1.30	0.096	Lagging	-104.07
61	FLT67-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.13	0.096	Lagging	-103.95
62	FLT71-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.66
63	FLT72-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.65
64	FLT73-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
65	FLT74-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
66	FLT75-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.15	0.096	Lagging	-103.70
67	FLT76-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
68	FLT77-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.14	0.096	Lagging	-103.74
69	FLT78-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.61
70	FLT79-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.67
71	FLT80-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.16	0.096	Lagging	-103.75
72	FLT81-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.14	0.096	Lagging	-103.78
73	FLT82-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
74	FLT83-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.68
75	FLT84-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.16	0.096	Lagging	-103.89
76	FLT85-3PH	0.560	Lagging	-14.80	0.993	Lagging	-1.20	0.096	Lagging	-104.10
77	FLT86-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.16	0.096	Lagging	-103.74
78	FLT87-3PH	0.559	Lagging	-14.82	0.992	Lagging	-1.24	0.095	Lagging	-104.29
79	FLT88-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.16	0.096	Lagging	-103.85
80	FLT89-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.16	0.096	Lagging	-103.73
81	FLT90-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.13	0.096	Lagging	-103.76
82	FLT91-3PH	0.560	Lagging	-14.79	0.994	Lagging	-1.14	0.096	Lagging	-103.70
83	FLT92-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
84	FLT93-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
85	FLT94-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
86	FLT95-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.80
87	FLT96-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
88	FLT97-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.16	0.096	Lagging	-103.78
89	FLT99-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.15	0.096	Lagging	-103.70
90	FLT100-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70

Table 5-14 (Continued)
Power Factor Analysis: ASGI-2014-009

Power Factor Analysis for ASGI-2014-009 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
92	FLT102-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
93	FLT103-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.15	0.096	Lagging	-103.70
94	FLT104-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
95	FLT105-3PH	0.560	Lagging	-14.78	0.994	Lagging	-1.15	0.096	Lagging	-103.70
96	FLT106-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.14	0.096	Lagging	-103.70
97	FLT107-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
98	FLT108-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
99	FLT112-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.20	0.096	Lagging	-104.07
100	FLT113-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.16	0.096	Lagging	-103.76
101	FLT114-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
102	FLT115-3PH	0.560	Lagging	-14.78	0.993	Lagging	-1.15	0.096	Lagging	-103.70
103	FLT116-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.17	0.096	Lagging	-103.66
104	FLT117-3PH	0.556	Lagging	-14.96	0.991	Lagging	-1.36	0.094	Lagging	-106.34
105	FLT118-3PH	0.562	Lagging	-14.71	0.995	Lagging	-1.00	0.096	Lagging	-103.73
106	FLT122-3PH	0.562	Lagging	-14.70	0.993	Lagging	-1.20	0.096	Lagging	-103.71
107	FLT123-3PH	0.562	Lagging	-14.70	0.995	Lagging	-1.00	0.095	Lagging	-104.26
108	FLT124-3PH	0.561	Lagging	-14.76	0.994	Lagging	-1.11	0.096	Lagging	-103.91
109	FLT125-3PH	0.561	Lagging	-14.77	0.994	Lagging	-1.12	0.096	Lagging	-103.98
110	FLT126-3PH	0.560	Lagging	-14.79	0.993	Lagging	-1.18	0.096	Lagging	-103.76

Table 5-15
Power Factor Analysis: ASGI-2014-010

Power Factor Analysis for ASGI-2014-010 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
0	Base	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
1	FLT01-3PH	0.317	Lagging	-29.90	0.640	Lagging	-11.99	0.058	Lagging	-171.09
2	FLT02-3PH	0.317	Lagging	-29.90	0.640	Lagging	-12.01	0.058	Lagging	-171.13
3	FLT03-3PH	0.318	Lagging	-29.86	0.642	Lagging	-11.93	0.058	Lagging	-171.02
4	FLT04-3PH	0.316	Lagging	-30.03	0.634	Lagging	-12.20	0.058	Lagging	-172.34
5	FLT05-3PH	0.317	Lagging	-29.95	0.636	Lagging	-12.14	0.058	Lagging	-171.40
6	FLT06-3PH	0.316	Lagging	-30.07	0.619	Lagging	-12.69	0.058	Lagging	-171.68
7	FLT07-3PH	0.316	Lagging	-30.01	0.635	Lagging	-12.16	0.058	Lagging	-172.16
8	FLT08-3PH	0.315	Lagging	-30.11	0.618	Lagging	-12.73	0.058	Lagging	-172.98
9	FLT09-3PH	0.312	Lagging	-30.50	0.627	Lagging	-12.44	0.058	Lagging	-172.00
10	FLT10-3PH	0.314	Lagging	-30.21	0.480	Lagging	-18.28	0.056	Lagging	-178.99
11	FLT11-3PH	0.316	Lagging	-29.98	0.660	Lagging	-11.37	0.058	Lagging	-173.03
12	FLT12-3PH	0.314	Lagging	-30.21	0.790	Lagging	-7.77	0.058	Lagging	-172.15
13	FLT13-3PH	0.302	Lagging	-31.55	0.659	Lagging	-11.40	0.053	Lagging	-188.39
14	FLT14-3PH	0.292	Lagging	-32.78	0.344	Lagging	-27.30	0.054	Lagging	-186.15
15	FLT15-3PH	0.309	Lagging	-30.73	0.602	Lagging	-13.26	0.058	Lagging	-172.46
16	FLT16-3PH	0.320	Lagging	-29.63	0.654	Lagging	-11.56	0.059	Lagging	-170.33
17	FLT17-3PH	0.323	Lagging	-29.32	0.649	Lagging	-11.71	0.058	Lagging	-171.26
18	FLT18-3PH	0.318	Lagging	-29.84	0.643	Lagging	-11.91	0.059	Lagging	-170.36
19	FLT19-3PH	0.322	Lagging	-29.44	0.642	Lagging	-11.93	0.058	Lagging	-171.02
20	FLT20-3PH	0.320	Lagging	-29.58	0.653	Lagging	-11.61	0.058	Lagging	-171.16
21	FLT21-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.02
22	FLT22-3PH	0.319	Lagging	-29.67	0.649	Lagging	-11.73	0.060	Lagging	-166.86
23	FLT23-3PH	0.319	Lagging	-29.73	0.646	Lagging	-11.80	0.059	Lagging	-169.73
24	FLT24-3PH	0.326	Lagging	-29.02	0.611	Lagging	-12.97	0.055	Lagging	-183.04
25	FLT25-3PH	0.318	Lagging	-29.83	0.642	Lagging	-11.93	0.058	Lagging	-171.54
26	FLT26-3PH	0.344	Lagging	-27.28	0.549	Lagging	-15.21	0.056	Lagging	-177.23
27	FLT27-3PH	0.174	Lagging	-56.52	0.585	Lagging	-13.87	0.049	Lagging	-202.97
28	FLT28-3PH	0.346	Lagging	-27.08	0.898	Lagging	-4.91	0.062	Lagging	-161.79
29	FLT29-3PH	N/A			0.505	Lagging	-17.10	0.063	Lagging	-157.42
30	FLT30-3PH	N/A			0.288	Lagging	-33.28	0.070	Lagging	-142.11
31	FLT31-3PH	N/A			0.162	Lagging	-60.76	0.034	Lagging	-292.70
32	FLT32-3PH	0.924	Lagging	-4.14	0.943	Lagging	-3.54	0.118	Lagging	-84.29
33	FLT33-3PH	0.357	Lagging	-26.20	0.930	Lagging	-3.94	0.058	Lagging	-171.01
34	FLT34-3PH	0.326	Lagging	-29.02	0.702	Lagging	-10.15	0.058	Lagging	-172.33
35	FLT35-3PH	0.319	Lagging	-29.70	0.718	Lagging	-9.69	0.063	Lagging	-159.67
36	FLT36-3PH	0.268	Lagging	-35.92	0.535	Lagging	-15.80	0.052	Lagging	-192.16
37	FLT37-3PH	0.282	Lagging	-33.99	0.581	Lagging	-14.02	0.053	Lagging	-187.26
38	FLT38-3PH	0.318	Lagging	-29.80	0.645	Lagging	-11.85	0.058	Lagging	-170.80
39	FLT39-3PH	0.316	Lagging	-29.97	0.638	Lagging	-12.08	0.058	Lagging	-171.55
40	FLT40-3PH	0.317	Lagging	-29.91	0.641	Lagging	-11.97	0.058	Lagging	-171.11
41	FLT41-3PH	0.309	Lagging	-30.83	0.608	Lagging	-13.07	0.057	Lagging	-175.03
42	FLT42-3PH	0.246	Lagging	-39.44	0.462	Lagging	-19.20	0.051	Lagging	-196.43
43	FLT43-3PH	0.305	Lagging	-31.19	0.606	Lagging	-13.13	0.058	Lagging	-172.60
44	FLT44-3PH	0.317	Lagging	-29.96	0.642	Lagging	-11.94	0.058	Lagging	-170.65
45	FLT45-3PH	0.312	Lagging	-30.46	0.622	Lagging	-12.60	0.057	Lagging	-175.76

Table 5-15 (Continued)
Power Factor Analysis: ASGI-2014-010

Power Factor Analysis for ASGI-2014-010 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.309	Lagging	-30.80	0.620	Lagging	-12.67	0.058	Lagging	-172.56
47	FLT47-3PH	0.304	Lagging	-31.29	0.601	Lagging	-13.31	0.058	Lagging	-173.15
48	FLT48-3PH	0.315	Lagging	-30.11	0.618	Lagging	-12.73	0.058	Lagging	-172.94
49	FLT49-3PH	0.336	Lagging	-28.03	0.622	Lagging	-12.60	0.058	Lagging	-172.60
50	FLT50-3PH	0.315	Lagging	-30.09	0.630	Lagging	-12.33	0.058	Lagging	-171.61
51	FLT51-3PH	0.315	Lagging	-30.12	0.635	Lagging	-12.15	0.058	Lagging	-171.44
52	FLT53-3PH	0.317	Lagging	-29.88	0.649	Lagging	-11.73	0.058	Lagging	-171.24
53	FLT55-3PH	0.316	Lagging	-30.08	0.637	Lagging	-12.10	0.058	Lagging	-170.97
54	FLT56-3PH	0.317	Lagging	-29.93	0.644	Lagging	-11.89	0.058	Lagging	-171.63
55	FLT57-3PH	0.317	Lagging	-29.93	0.643	Lagging	-11.90	0.058	Lagging	-171.70
56	FLT58-3PH	0.317	Lagging	-29.91	0.635	Lagging	-12.16	0.058	Lagging	-171.69
57	FLT59-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
58	FLT62-3PH	0.317	Lagging	-29.87	0.644	Lagging	-11.89	0.058	Lagging	-171.04
59	FLT64-3PH	0.318	Lagging	-29.85	0.644	Lagging	-11.89	0.058	Lagging	-171.01
60	FLT66-3PH	0.315	Lagging	-30.09	0.630	Lagging	-12.33	0.058	Lagging	-171.61
61	FLT67-3PH	0.318	Lagging	-29.83	0.644	Lagging	-11.88	0.058	Lagging	-171.23
62	FLT71-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.93	0.058	Lagging	-170.98
63	FLT72-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.94	0.058	Lagging	-170.97
64	FLT73-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.93	0.058	Lagging	-171.01
65	FLT74-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
66	FLT75-3PH	0.317	Lagging	-29.87	0.643	Lagging	-11.92	0.058	Lagging	-171.00
67	FLT76-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
68	FLT77-3PH	0.317	Lagging	-29.87	0.643	Lagging	-11.90	0.058	Lagging	-171.04
69	FLT78-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-170.93
70	FLT79-3PH	0.318	Lagging	-29.87	0.643	Lagging	-11.92	0.058	Lagging	-170.98
71	FLT80-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.96	0.058	Lagging	-171.05
72	FLT81-3PH	0.318	Lagging	-29.85	0.644	Lagging	-11.89	0.058	Lagging	-171.07
73	FLT82-3PH	0.318	Lagging	-29.87	0.643	Lagging	-11.93	0.058	Lagging	-171.00
74	FLT83-3PH	0.318	Lagging	-29.87	0.643	Lagging	-11.92	0.058	Lagging	-171.00
75	FLT84-3PH	0.317	Lagging	-29.89	0.641	Lagging	-11.96	0.058	Lagging	-171.20
76	FLT85-3PH	0.317	Lagging	-29.94	0.638	Lagging	-12.06	0.058	Lagging	-171.39
77	FLT86-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.95	0.058	Lagging	-171.05
78	FLT87-3PH	0.316	Lagging	-30.00	0.634	Lagging	-12.18	0.058	Lagging	-171.57
79	FLT88-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.95	0.058	Lagging	-171.19
80	FLT89-3PH	0.317	Lagging	-29.90	0.641	Lagging	-11.96	0.058	Lagging	-171.04
81	FLT90-3PH	0.318	Lagging	-29.83	0.644	Lagging	-11.87	0.058	Lagging	-171.13
82	FLT91-3PH	0.317	Lagging	-29.89	0.643	Lagging	-11.90	0.058	Lagging	-171.01
83	FLT92-3PH	0.318	Lagging	-29.87	0.643	Lagging	-11.93	0.058	Lagging	-171.00
84	FLT93-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.94	0.058	Lagging	-171.01
85	FLT94-3PH	0.317	Lagging	-29.87	0.643	Lagging	-11.93	0.058	Lagging	-171.01
86	FLT95-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.94	0.058	Lagging	-171.11
87	FLT96-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.02
88	FLT97-3PH	0.317	Lagging	-29.89	0.641	Lagging	-11.97	0.058	Lagging	-171.10
89	FLT99-3PH	0.317	Lagging	-29.94	0.642	Lagging	-11.94	0.058	Lagging	-171.01
90	FLT100-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01

Table 5-15 (Continued)
Power Factor Analysis: ASGI-2014-010

Power Factor Analysis for ASGI-2014-010 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
92	FLT102-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
93	FLT103-3PH	0.318	Lagging	-29.86	0.643	Lagging	-11.92	0.058	Lagging	-171.01
94	FLT104-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.94	0.058	Lagging	-171.02
95	FLT105-3PH	0.318	Lagging	-29.86	0.643	Lagging	-11.92	0.058	Lagging	-171.01
96	FLT106-3PH	0.318	Lagging	-29.85	0.643	Lagging	-11.90	0.058	Lagging	-171.01
97	FLT107-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
98	FLT108-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.02
99	FLT112-3PH	0.317	Lagging	-29.89	0.639	Lagging	-12.04	0.058	Lagging	-171.32
100	FLT113-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.95	0.058	Lagging	-171.07
101	FLT114-3PH	0.317	Lagging	-29.87	0.642	Lagging	-11.93	0.058	Lagging	-171.01
102	FLT115-3PH	0.317	Lagging	-29.88	0.642	Lagging	-11.94	0.058	Lagging	-171.28
103	FLT116-3PH	0.317	Lagging	-29.91	0.640	Lagging	-12.00	0.058	Lagging	-170.98
104	FLT117-3PH	0.313	Lagging	-30.40	0.625	Lagging	-12.49	0.058	Lagging	-173.58
105	FLT118-3PH	0.319	Lagging	-29.66	0.655	Lagging	-11.52	0.058	Lagging	-171.01
106	FLT122-3PH	0.317	Lagging	-29.96	0.656	Lagging	-11.54	0.058	Lagging	-171.32
107	FLT123-3PH	0.320	Lagging	-29.64	0.656	Lagging	-11.52	0.058	Lagging	-171.48
108	FLT124-3PH	0.318	Lagging	-29.82	0.646	Lagging	-11.82	0.058	Lagging	-171.22
109	FLT125-3PH	0.318	Lagging	-29.83	0.645	Lagging	-11.85	0.058	Lagging	-171.28
110	FLT126-3PH	0.317	Lagging	-29.90	0.640	Lagging	-12.02	0.058	Lagging	-171.10

Table 5-16
Power Factor Analysis: ASGI-2014-011

Power Factor Analysis for ASGI-2014-011 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
0	Base	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.13
1	FLT01-3PH	0.607	Lagging	-13.11	0.473	Lagging	-18.62	0.241	Lagging	-40.22
2	FLT02-3PH	0.605	Lagging	-13.16	0.473	Lagging	-18.65	0.241	Lagging	-40.27
3	FLT03-3PH	0.609	Lagging	-13.01	0.474	Lagging	-18.58	0.242	Lagging	-40.14
4	FLT04-3PH	0.590	Lagging	-13.68	0.472	Lagging	-18.69	0.233	Lagging	-41.76
5	FLT05-3PH	0.605	Lagging	-13.15	0.472	Lagging	-18.69	0.240	Lagging	-40.43
6	FLT06-3PH	0.588	Lagging	-13.76	0.456	Lagging	-19.51	0.238	Lagging	-40.83
7	FLT07-3PH	0.593	Lagging	-13.58	0.473	Lagging	-18.65	0.234	Lagging	-41.53
8	FLT08-3PH	0.593	Lagging	-13.58	0.462	Lagging	-19.22	0.232	Lagging	-41.94
9	FLT09-3PH	0.566	Lagging	-14.56	0.467	Lagging	-18.95	0.236	Lagging	-41.17
10	FLT10-3PH	0.469	Lagging	-18.85	0.382	Lagging	-24.22	0.196	Lagging	-50.16
11	FLT11-3PH	0.583	Lagging	-13.93	0.450	Lagging	-19.83	0.227	Lagging	-42.81
12	FLT12-3PH	0.461	Lagging	-19.25	0.381	Lagging	-24.28	0.233	Lagging	-41.78
13	FLT13-3PH	0.409	Lagging	-22.32	0.443	Lagging	-20.25	0.159	Lagging	-62.01
14	FLT14-3PH	0.368	Lagging	-25.23	0.339	Lagging	-27.79	0.168	Lagging	-58.55
15	FLT15-3PH	0.558	Lagging	-14.88	0.454	Lagging	-19.62	0.229	Lagging	-42.48
16	FLT16-3PH	0.622	Lagging	-12.57	0.481	Lagging	-18.21	0.246	Lagging	-39.34
17	FLT17-3PH	0.757	Lagging	-8.62	0.482	Lagging	-18.16	0.312	Lagging	-30.41
18	FLT18-3PH	0.588	Lagging	-13.74	0.482	Lagging	-18.17	0.229	Lagging	-42.55
19	FLT19-3PH	0.652	Lagging	-11.64	0.475	Lagging	-18.55	0.283	Lagging	-33.92
20	FLT20-3PH	0.623	Lagging	-12.57	0.500	Lagging	-17.33	0.270	Lagging	-35.61
21	FLT21-3PH	0.609	Lagging	-13.01	0.474	Lagging	-18.56	0.242	Lagging	-40.14
22	FLT22-3PH	0.419	Lagging	-21.65	0.359	Lagging	-26.02	0.189	Lagging	-51.98
23	FLT23-3PH	0.609	Lagging	-13.04	0.471	Lagging	-18.73	0.246	Lagging	-39.47
24	FLT24-3PH	1.000	Leading	0.27	0.431	Lagging	-20.92	0.279	Lagging	-34.46
25	FLT25-3PH	0.586	Lagging	-13.82	0.462	Lagging	-19.20	0.231	Lagging	-42.13
26	FLT26-3PH	0.860	Lagging	-5.94	0.372	Lagging	-24.97	0.271	Lagging	-35.50
27	FLT27-3PH	0.653	Lagging	-11.59	0.469	Lagging	-18.82	0.262	Lagging	-36.81
28	FLT28-3PH	0.621	Lagging	-12.64	0.478	Lagging	-18.36	0.241	Lagging	-40.31
29	FLT29-3PH	N/A			0.468	Lagging	-18.88	0.243	Lagging	-39.94
30	FLT30-3PH	N/A			0.478	Lagging	-18.37	0.274	Lagging	-35.12
31	FLT31-3PH	N/A			0.542	Lagging	-15.52	0.217	Lagging	-45.08
32	FLT32-3PH	0.557	Lagging	-14.90	0.449	Lagging	-19.90	0.242	Lagging	-40.16
33	FLT33-3PH	0.556	Lagging	-14.94	0.450	Lagging	-19.85	0.242	Lagging	-40.13
34	FLT34-3PH	0.592	Lagging	-13.62	0.464	Lagging	-19.07	0.210	Lagging	-46.64
35	FLT35-3PH	0.605	Lagging	-13.16	0.471	Lagging	-18.73	0.236	Lagging	-41.17
36	FLT36-3PH	0.588	Lagging	-13.76	0.460	Lagging	-19.30	0.197	Lagging	-49.85
37	FLT37-3PH	0.592	Lagging	-13.62	0.464	Lagging	-19.12	0.201	Lagging	-48.86
38	FLT38-3PH	0.612	Lagging	-12.92	0.475	Lagging	-18.52	0.242	Lagging	-40.01
39	FLT39-3PH	0.605	Lagging	-13.16	0.472	Lagging	-18.67	0.238	Lagging	-40.78
40	FLT40-3PH	0.611	Lagging	-12.96	0.478	Lagging	-18.39	0.242	Lagging	-40.14
41	FLT41-3PH	0.409	Lagging	-22.31	0.338	Lagging	-27.85	0.196	Lagging	-49.99
42	FLT42-3PH	0.584	Lagging	-13.89	0.457	Lagging	-19.48	0.193	Lagging	-50.83
43	FLT43-3PH	0.675	Lagging	-10.94	0.787	Lagging	-7.83	0.503	Lagging	-17.18
44	FLT44-3PH	0.924	Lagging	-4.12	0.642	Lagging	-11.94	0.352	Lagging	-26.57
45	FLT45-3PH	0.421	Lagging	-21.55	0.352	Lagging	-26.61	0.158	Lagging	-62.54

Table 5-16 (Continued)
Power Factor Analysis: ASGI-2014-011

Power Factor Analysis for ASGI-2014-011 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.597	Lagging	-13.45	0.478	Lagging	-18.37	0.235	Lagging	-41.28
47	FLT47-3PH	0.601	Lagging	-13.29	0.477	Lagging	-18.43	0.235	Lagging	-41.42
48	FLT48-3PH	0.593	Lagging	-13.58	0.462	Lagging	-19.22	0.232	Lagging	-41.97
49	FLT49-3PH	0.717	Lagging	-9.72	0.424	Lagging	-21.38	0.228	Lagging	-42.73
50	FLT50-3PH	0.594	Lagging	-13.54	0.468	Lagging	-18.90	0.239	Lagging	-40.63
51	FLT51-3PH	0.594	Lagging	-13.55	0.471	Lagging	-18.72	0.240	Lagging	-40.48
52	FLT53-3PH	0.609	Lagging	-13.02	0.477	Lagging	-18.40	0.241	Lagging	-40.25
53	FLT55-3PH	0.596	Lagging	-13.47	0.472	Lagging	-18.68	0.241	Lagging	-40.19
54	FLT56-3PH	0.606	Lagging	-13.12	0.475	Lagging	-18.52	0.239	Lagging	-40.62
55	FLT57-3PH	0.606	Lagging	-13.13	0.475	Lagging	-18.53	0.239	Lagging	-40.67
56	FLT58-3PH	0.606	Lagging	-13.12	0.472	Lagging	-18.65	0.239	Lagging	-40.67
57	FLT59-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.13
58	FLT62-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.53	0.242	Lagging	-40.15
59	FLT64-3PH	0.611	Lagging	-12.95	0.475	Lagging	-18.52	0.242	Lagging	-40.13
60	FLT66-3PH	0.594	Lagging	-13.54	0.468	Lagging	-18.90	0.239	Lagging	-40.63
61	FLT67-3PH	0.612	Lagging	-12.91	0.475	Lagging	-18.51	0.241	Lagging	-40.25
62	FLT71-3PH	0.609	Lagging	-13.02	0.474	Lagging	-18.55	0.242	Lagging	-40.11
63	FLT72-3PH	0.609	Lagging	-13.02	0.474	Lagging	-18.55	0.242	Lagging	-40.11
64	FLT73-3PH	0.609	Lagging	-13.02	0.474	Lagging	-18.55	0.242	Lagging	-40.13
65	FLT74-3PH	0.610	Lagging	-13.01	0.475	Lagging	-18.55	0.242	Lagging	-40.13
66	FLT75-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.54	0.242	Lagging	-40.12
67	FLT76-3PH	0.609	Lagging	-13.01	0.475	Lagging	-18.55	0.242	Lagging	-40.13
68	FLT77-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.53	0.242	Lagging	-40.14
69	FLT78-3PH	0.609	Lagging	-13.01	0.475	Lagging	-18.55	0.242	Lagging	-40.09
70	FLT79-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.54	0.242	Lagging	-40.12
71	FLT80-3PH	0.609	Lagging	-13.03	0.474	Lagging	-18.57	0.242	Lagging	-40.15
72	FLT81-3PH	0.611	Lagging	-12.94	0.475	Lagging	-18.52	0.242	Lagging	-40.16
73	FLT82-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.55	0.242	Lagging	-40.11
74	FLT83-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.54	0.242	Lagging	-40.13
75	FLT84-3PH	0.609	Lagging	-13.04	0.474	Lagging	-18.57	0.241	Lagging	-40.21
76	FLT85-3PH	0.605	Lagging	-13.16	0.473	Lagging	-18.65	0.240	Lagging	-40.39
77	FLT86-3PH	0.609	Lagging	-13.03	0.474	Lagging	-18.57	0.242	Lagging	-40.15
78	FLT87-3PH	0.601	Lagging	-13.29	0.471	Lagging	-18.74	0.240	Lagging	-40.48
79	FLT88-3PH	0.609	Lagging	-13.03	0.474	Lagging	-18.57	0.241	Lagging	-40.30
80	FLT89-3PH	0.608	Lagging	-13.07	0.474	Lagging	-18.57	0.242	Lagging	-40.15
81	FLT90-3PH	0.612	Lagging	-12.92	0.475	Lagging	-18.51	0.242	Lagging	-40.18
82	FLT91-3PH	0.608	Lagging	-13.04	0.475	Lagging	-18.53	0.242	Lagging	-40.13
83	FLT92-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.55	0.242	Lagging	-40.11
84	FLT93-3PH	0.610	Lagging	-13.01	0.474	Lagging	-18.55	0.242	Lagging	-40.13
85	FLT94-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.55	0.242	Lagging	-40.13
86	FLT95-3PH	0.609	Lagging	-13.02	0.474	Lagging	-18.56	0.241	Lagging	-40.23
87	FLT96-3PH	0.610	Lagging	-13.01	0.475	Lagging	-18.55	0.242	Lagging	-40.14
88	FLT97-3PH	0.608	Lagging	-13.05	0.474	Lagging	-18.58	0.241	Lagging	-40.20
89	FLT99-3PH	0.610	Lagging	-13.00	0.473	Lagging	-18.64	0.242	Lagging	-40.15
90	FLT100-3PH	0.610	Lagging	-13.02	0.475	Lagging	-18.55	0.242	Lagging	-40.13

Table 5-16 (Continued)
Power Factor Analysis: ASGI-2014-011

Power Factor Analysis for ASGI-2014-011 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.14
92	FLT102-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.13
93	FLT103-3PH	0.610	Lagging	-12.98	0.475	Lagging	-18.54	0.242	Lagging	-40.13
94	FLT104-3PH	0.609	Lagging	-13.01	0.474	Lagging	-18.56	0.242	Lagging	-40.14
95	FLT105-3PH	0.610	Lagging	-12.99	0.475	Lagging	-18.54	0.242	Lagging	-40.13
96	FLT106-3PH	0.611	Lagging	-12.96	0.475	Lagging	-18.53	0.242	Lagging	-40.13
97	FLT107-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.13
98	FLT108-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.14
99	FLT112-3PH	0.608	Lagging	-13.05	0.473	Lagging	-18.60	0.241	Lagging	-40.31
100	FLT113-3PH	0.609	Lagging	-13.03	0.474	Lagging	-18.56	0.242	Lagging	-40.13
101	FLT114-3PH	0.610	Lagging	-13.00	0.475	Lagging	-18.55	0.242	Lagging	-40.13
102	FLT115-3PH	0.609	Lagging	-13.02	0.474	Lagging	-18.56	0.242	Lagging	-40.13
103	FLT116-3PH	0.607	Lagging	-13.10	0.474	Lagging	-18.60	0.242	Lagging	-40.11
104	FLT117-3PH	0.574	Lagging	-14.25	0.466	Lagging	-18.97	0.233	Lagging	-41.79
105	FLT118-3PH	0.624	Lagging	-12.53	0.481	Lagging	-18.24	0.242	Lagging	-40.10
106	FLT122-3PH	0.610	Lagging	-13.00	0.481	Lagging	-18.23	0.242	Lagging	-40.12
107	FLT123-3PH	0.626	Lagging	-12.45	0.481	Lagging	-18.23	0.240	Lagging	-40.43
108	FLT124-3PH	0.613	Lagging	-12.88	0.476	Lagging	-18.47	0.241	Lagging	-40.29
109	FLT125-3PH	0.612	Lagging	-12.91	0.476	Lagging	-18.49	0.241	Lagging	-40.33
110	FLT126-3PH	0.608	Lagging	-13.07	0.473	Lagging	-18.63	0.241	Lagging	-40.20

Table 5-17
Power Factor Analysis: ASGI-2014-012

Power Factor Analysis for ASGI-2014-012 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
0	Base	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
1	FLT01-3PH	0.880	Lagging	-5.39	1.000	Lagging	-0.23	0.153	Lagging	-64.46
2	FLT02-3PH	0.880	Lagging	-5.39	1.000	Lagging	-0.23	0.153	Lagging	-64.48
3	FLT03-3PH	0.881	Lagging	-5.36	1.000	Lagging	-0.20	0.153	Lagging	-64.43
4	FLT04-3PH	0.877	Lagging	-5.47	1.000	Lagging	-0.31	0.152	Lagging	-64.96
5	FLT05-3PH	0.879	Lagging	-5.42	1.000	Lagging	-0.31	0.153	Lagging	-64.65
6	FLT06-3PH	0.876	Lagging	-5.51	0.999	Lagging	-0.53	0.153	Lagging	-64.67
7	FLT07-3PH	0.878	Lagging	-5.46	1.000	Lagging	-0.30	0.152	Lagging	-64.90
8	FLT08-3PH	0.875	Lagging	-5.53	0.998	Lagging	-0.58	0.151	Lagging	-65.30
9	FLT09-3PH	0.866	Lagging	-5.78	0.999	Lagging	-0.43	0.152	Lagging	-65.13
10	FLT10-3PH	0.873	Lagging	-5.59	0.978	Lagging	-2.12	0.148	Lagging	-66.89
11	FLT11-3PH	0.878	Lagging	-5.44	1.000	Lagging	-0.05	0.152	Lagging	-65.08
12	FLT12-3PH	0.873	Lagging	-5.59	0.998	Leading	0.65	0.152	Lagging	-65.23
13	FLT13-3PH	0.840	Lagging	-6.47	1.000	Lagging	-0.13	0.139	Lagging	-71.26
14	FLT14-3PH	0.810	Lagging	-7.23	0.878	Lagging	-5.44	0.140	Lagging	-70.88
15	FLT15-3PH	0.870	Lagging	-5.66	0.998	Lagging	-0.69	0.150	Lagging	-65.72
16	FLT16-3PH	0.891	Lagging	-5.09	1.000	Leading	0.11	0.155	Lagging	-63.55
17	FLT17-3PH	0.890	Lagging	-5.11	1.000	Lagging	-0.12	0.155	Lagging	-63.54
18	FLT18-3PH	0.882	Lagging	-5.34	1.000	Lagging	-0.18	0.154	Lagging	-64.24
19	FLT19-3PH	0.881	Lagging	-5.36	1.000	Lagging	-0.20	0.155	Lagging	-63.63
20	FLT20-3PH	0.887	Lagging	-5.22	1.000	Lagging	-0.10	0.155	Lagging	-63.62
21	FLT21-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.44
22	FLT22-3PH	0.887	Lagging	-5.22	1.000	Lagging	-0.10	0.155	Lagging	-63.57
23	FLT23-3PH	0.885	Lagging	-5.27	1.000	Lagging	-0.17	0.154	Lagging	-64.13
24	FLT24-3PH	0.906	Lagging	-4.67	0.999	Lagging	-0.34	0.134	Lagging	-73.73
25	FLT25-3PH	0.882	Lagging	-5.34	1.000	Lagging	-0.19	0.153	Lagging	-64.54
26	FLT26-3PH	0.953	Lagging	-3.18	0.998	Lagging	-0.57	0.139	Lagging	-71.15
27	FLT27-3PH	0.357	Lagging	-26.19	0.957	Lagging	-3.02	0.123	Lagging	-80.88
28	FLT28-3PH	0.723	Lagging	-9.54	0.996	Leading	0.84	0.151	Lagging	-65.42
29	FLT29-3PH	N/A			0.973	Lagging	-2.36	0.150	Lagging	-65.75
30	FLT30-3PH	N/A			0.602	Lagging	-13.27	0.110	Lagging	-90.74
31	FLT31-3PH	N/A			0.519	Lagging	-16.47	0.087	Lagging	-114.94
32	FLT32-3PH	0.967	Leading	2.65	0.982	Leading	1.93	0.161	Lagging	-61.43
33	FLT33-3PH	0.967	Leading	2.64	0.994	Leading	1.13	0.153	Lagging	-64.43
34	FLT34-3PH	0.916	Leading	4.38	0.936	Leading	3.75	0.765	Lagging	-8.42
35	FLT35-3PH	0.697	Lagging	-10.29	0.997	Lagging	-0.81	0.142	Lagging	-69.62
36	FLT36-3PH	0.578	Leading	14.12	0.631	Leading	12.29	0.542	Leading	15.51
37	FLT37-3PH	0.529	Lagging	-16.05	0.753	Lagging	-8.75	0.142	Lagging	-69.52
38	FLT38-3PH	0.885	Lagging	-5.27	1.000	Lagging	-0.11	0.154	Lagging	-64.12
39	FLT39-3PH	0.876	Lagging	-5.49	0.999	Lagging	-0.33	0.152	Lagging	-65.01
40	FLT40-3PH	0.878	Lagging	-5.44	1.000	Lagging	-0.27	0.153	Lagging	-64.65
41	FLT41-3PH	0.853	Lagging	-6.13	0.997	Lagging	-0.82	0.148	Lagging	-66.98
42	FLT42-3PH	0.365	Lagging	-25.54	0.474	Lagging	-18.57	0.121	Lagging	-81.79
43	FLT43-3PH	0.843	Lagging	-6.38	0.996	Lagging	-0.91	0.148	Lagging	-66.77
44	FLT44-3PH	0.878	Lagging	-5.44	1.000	Lagging	-0.23	0.153	Lagging	-64.43
45	FLT45-3PH	0.865	Lagging	-5.80	0.999	Lagging	-0.52	0.148	Lagging	-66.63

Table 5-17 (Continued)
Power Factor Analysis: ASGI-2014-012

Power Factor Analysis for ASGI-2014-012 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.848	Lagging	-6.26	0.996	Lagging	-0.88	0.150	Lagging	-65.85
47	FLT47-3PH	0.826	Lagging	-6.84	0.989	Lagging	-1.53	0.148	Lagging	-66.83
48	FLT48-3PH	0.875	Lagging	-5.53	0.998	Lagging	-0.58	0.151	Lagging	-65.31
49	FLT49-3PH	0.928	Lagging	-4.03	0.999	Leading	0.33	0.153	Lagging	-64.40
50	FLT50-3PH	0.875	Lagging	-5.53	0.999	Lagging	-0.40	0.153	Lagging	-64.74
51	FLT51-3PH	0.875	Lagging	-5.54	1.000	Lagging	-0.31	0.153	Lagging	-64.64
52	FLT53-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.10	0.153	Lagging	-64.44
53	FLT55-3PH	0.876	Lagging	-5.51	1.000	Lagging	-0.28	0.153	Lagging	-64.50
54	FLT56-3PH	0.879	Lagging	-5.43	1.000	Lagging	-0.18	0.153	Lagging	-64.75
55	FLT57-3PH	0.879	Lagging	-5.43	1.000	Lagging	-0.18	0.153	Lagging	-64.78
56	FLT58-3PH	0.883	Lagging	-5.31	1.000	Lagging	-0.19	0.153	Lagging	-64.75
57	FLT59-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
58	FLT62-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.18	0.153	Lagging	-64.45
59	FLT64-3PH	0.882	Lagging	-5.35	1.000	Lagging	-0.18	0.153	Lagging	-64.43
60	FLT66-3PH	0.875	Lagging	-5.53	0.999	Lagging	-0.40	0.153	Lagging	-64.74
61	FLT67-3PH	0.882	Lagging	-5.34	1.000	Lagging	-0.18	0.153	Lagging	-64.47
62	FLT71-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
63	FLT72-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.20	0.153	Lagging	-64.43
64	FLT73-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.44
65	FLT74-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
66	FLT75-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.42
67	FLT76-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
68	FLT77-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.18	0.153	Lagging	-64.42
69	FLT78-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.42
70	FLT79-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
71	FLT80-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.22	0.153	Lagging	-64.43
72	FLT81-3PH	0.882	Lagging	-5.35	1.000	Lagging	-0.18	0.153	Lagging	-64.43
73	FLT82-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.42
74	FLT83-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
75	FLT84-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.22	0.153	Lagging	-64.47
76	FLT85-3PH	0.879	Lagging	-5.42	1.000	Lagging	-0.26	0.153	Lagging	-64.55
77	FLT86-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.21	0.153	Lagging	-64.44
78	FLT87-3PH	0.878	Lagging	-5.45	0.999	Lagging	-0.32	0.153	Lagging	-64.58
79	FLT88-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.22	0.153	Lagging	-64.54
80	FLT89-3PH	0.880	Lagging	-5.39	1.000	Lagging	-0.22	0.153	Lagging	-64.44
81	FLT90-3PH	0.882	Lagging	-5.35	1.000	Lagging	-0.17	0.153	Lagging	-64.46
82	FLT91-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.19	0.153	Lagging	-64.43
83	FLT92-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.42
84	FLT93-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
85	FLT94-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
86	FLT95-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.21	0.153	Lagging	-64.48
87	FLT96-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.44
88	FLT97-3PH	0.880	Lagging	-5.39	1.000	Lagging	-0.22	0.153	Lagging	-64.47
89	FLT99-3PH	0.878	Lagging	-5.44	1.000	Lagging	-0.20	0.153	Lagging	-64.48
90	FLT100-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43

Table 5-17 (Continued)
Power Factor Analysis: ASGI-2014-012

Power Factor Analysis for ASGI-2014-012 (10 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.44
92	FLT102-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
93	FLT103-3PH	0.881	Lagging	-5.36	1.000	Lagging	-0.19	0.153	Lagging	-64.43
94	FLT104-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.21	0.153	Lagging	-64.44
95	FLT105-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
96	FLT106-3PH	0.882	Lagging	-5.36	1.000	Lagging	-0.19	0.153	Lagging	-64.43
97	FLT107-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
98	FLT108-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
99	FLT112-3PH	0.882	Lagging	-5.35	1.000	Lagging	-0.20	0.153	Lagging	-64.49
100	FLT113-3PH	0.881	Lagging	-5.38	1.000	Lagging	-0.21	0.153	Lagging	-64.43
101	FLT114-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.20	0.153	Lagging	-64.43
102	FLT115-3PH	0.881	Lagging	-5.37	1.000	Lagging	-0.21	0.153	Lagging	-64.43
103	FLT116-3PH	0.880	Lagging	-5.40	1.000	Lagging	-0.23	0.153	Lagging	-64.42
104	FLT117-3PH	0.869	Lagging	-5.68	0.999	Lagging	-0.44	0.152	Lagging	-65.17
105	FLT118-3PH	0.886	Lagging	-5.23	1.000	Lagging	-0.01	0.153	Lagging	-64.42
106	FLT122-3PH	0.887	Lagging	-5.21	1.000	Lagging	-0.20	0.153	Lagging	-64.52
107	FLT123-3PH	0.887	Lagging	-5.21	1.000	Lagging	0.00	0.153	Lagging	-64.55
108	FLT124-3PH	0.882	Lagging	-5.34	1.000	Lagging	-0.15	0.153	Lagging	-64.51
109	FLT125-3PH	0.882	Lagging	-5.34	1.000	Lagging	-0.16	0.153	Lagging	-64.53
110	FLT126-3PH	0.880	Lagging	-5.39	1.000	Lagging	-0.25	0.153	Lagging	-64.48

Table 5-18
Power Factor Analysis: ASGI-2014-013

Power Factor Analysis for ASGI-2014-013 (2 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak			
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	
0	Base	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60	
1	FLT01-3PH	0.241	Leading	8.07	0.227	Leading	8.56	0.399	Leading	4.60	
2	FLT02-3PH	0.241	Leading	8.06	0.228	Leading	8.56	0.399	Leading	4.60	
3	FLT03-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.399	Leading	4.59	
4	FLT04-3PH	0.241	Leading	8.07	0.227	Leading	8.57	0.400	Leading	4.59	
5	FLT05-3PH	0.240	Leading	8.08	0.228	Leading	8.55	0.402	Leading	4.56	
6	FLT06-3PH	0.237	Leading	8.21	0.226	Leading	8.63	0.400	Leading	4.58	
7	FLT07-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.400	Leading	4.59	
8	FLT08-3PH	0.235	Leading	8.26	0.224	Leading	8.72	0.398	Leading	4.62	
9	FLT09-3PH	0.245	Leading	7.90	0.228	Leading	8.54	0.401	Leading	4.57	
10	FLT10-3PH	0.240	Leading	8.08	0.228	Leading	8.55	0.404	Leading	4.53	
11	FLT11-3PH	0.241	Leading	8.05	0.228	Leading	8.54	0.400	Leading	4.58	
12	FLT12-3PH	0.242	Leading	8.01	0.228	Leading	8.53	0.400	Leading	4.58	
13	FLT13-3PH	0.240	Leading	8.08	0.227	Leading	8.58	0.414	Leading	4.40	
14	FLT14-3PH	0.244	Leading	7.94	0.228	Leading	8.54	0.415	Leading	4.39	
15	FLT15-3PH	0.244	Leading	7.96	0.228	Leading	8.56	0.415	Leading	4.39	
16	FLT16-3PH	0.240	Leading	8.08	0.227	Leading	8.57	0.398	Leading	4.61	
17	FLT17-3PH	0.246	Leading	7.88	0.227	Leading	8.56	0.398	Leading	4.62	
18	FLT18-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60	
19	FLT19-3PH	0.247	Leading	7.86	0.227	Leading	8.56	0.398	Leading	4.61	
20	FLT20-3PH	0.245	Leading	7.90	0.227	Leading	8.55	0.399	Leading	4.60	
21	FLT21-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60	
22	FLT22-3PH	0.241	Leading	8.05	0.228	Leading	8.55	0.398	Leading	4.61	
23	FLT23-3PH	0.241	Leading	8.05	0.227	Leading	8.57	0.399	Leading	4.60	
24	FLT24-3PH	0.240	Leading	8.09	0.228	Leading	8.55	0.403	Leading	4.55	
25	FLT25-3PH	0.241	Leading	8.05	0.228	Leading	8.56	0.399	Leading	4.59	
26	FLT26-3PH	0.240	Leading	8.07	0.228	Leading	8.54	0.401	Leading	4.57	
27	FLT27-3PH	0.241	Leading	8.07	0.227	Leading	8.57	0.407	Leading	4.49	
28	FLT28-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.400	Leading	4.59	
29	FLT29-3PH	N/A			0.228	Leading	8.56	0.399	Leading	4.59	
30	FLT30-3PH	N/A			0.228	Leading	8.56	0.398	Leading	4.61	
31	FLT31-3PH	N/A			0.228	Leading	8.52	0.404	Leading	4.53	
32	FLT32-3PH	0.241	Leading	8.04	0.228	Leading	8.56	0.399	Leading	4.59	
33	FLT33-3PH	0.241	Leading	8.04	0.228	Leading	8.56	0.399	Leading	4.60	
34	FLT34-3PH	0.241	Leading	8.04	0.228	Leading	8.56	0.405	Leading	4.51	
35	FLT35-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.59	
36	FLT36-3PH	0.242	Leading	8.03	0.228	Leading	8.55	0.409	Leading	4.46	
37	FLT37-3PH	0.242	Leading	8.03	0.228	Leading	8.55	0.408	Leading	4.47	
38	FLT38-3PH	0.241	Leading	8.06	0.228	Leading	8.56	0.399	Leading	4.59	
39	FLT39-3PH	0.244	Leading	7.96	0.231	Leading	8.43	0.408	Leading	4.48	
40	FLT40-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.399	Leading	4.60	
41	FLT41-3PH	0.242	Leading	8.03	0.228	Leading	8.55	0.402	Leading	4.56	
42	FLT42-3PH	0.242	Leading	8.02	0.228	Leading	8.54	0.410	Leading	4.44	
43	FLT43-3PH	0.242	Leading	8.01	0.228	Leading	8.55	0.402	Leading	4.56	
44	FLT44-3PH	0.241	Leading	8.05	0.228	Leading	8.56	0.399	Leading	4.60	
45	FLT45-3PH	0.242	Leading	8.03	0.228	Leading	8.55	0.402	Leading	4.55	

Table 5-18 (Continued)
Power Factor Analysis: ASGI-2014-013

Power Factor Analysis for ASGI-2014-013 (2 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
46	FLT46-3PH	0.244	Leading	7.93	0.233	Leading	8.36	0.412	Leading	4.42
47	FLT47-3PH	0.242	Leading	8.02	0.229	Leading	8.51	0.403	Leading	4.54
48	FLT48-3PH	0.238	Leading	8.15	0.226	Leading	8.62	0.398	Leading	4.61
49	FLT49-3PH	0.312	Leading	6.08	0.264	Leading	7.29	0.428	Leading	4.22
50	FLT50-3PH	0.304	Leading	6.28	0.293	Leading	6.54	0.444	Leading	4.04
51	FLT51-3PH	0.264	Leading	7.30	0.233	Leading	8.35	0.409	Leading	4.46
52	FLT53-3PH	0.248	Leading	7.82	0.235	Leading	8.26	0.412	Leading	4.42
53	FLT55-3PH	0.287	Leading	6.69	0.250	Leading	7.76	0.470	Leading	3.75
54	FLT56-3PH	0.247	Leading	7.83	0.228	Leading	8.55	0.411	Leading	4.43
55	FLT57-3PH	0.248	Leading	7.81	0.229	Leading	8.52	0.413	Leading	4.41
56	FLT58-3PH	0.246	Leading	7.88	0.237	Leading	8.20	0.420	Leading	4.32
57	FLT59-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60
58	FLT62-3PH	0.241	Leading	8.05	0.228	Leading	8.53	0.399	Leading	4.59
59	FLT64-3PH	0.242	Leading	8.02	0.232	Leading	8.40	0.396	Leading	4.64
60	FLT66-3PH	0.304	Leading	6.28	0.293	Leading	6.54	0.444	Leading	4.04
61	FLT67-3PH	0.254	Leading	7.61	0.236	Leading	8.24	0.474	Leading	3.71
62	FLT71-3PH	0.204	Leading	9.61	0.216	Leading	9.05	0.193	Leading	10.17
63	FLT72-3PH	0.476	Lagging	-3.69	0.759	Lagging	-1.71	0.259	Lagging	-7.44
64	FLT73-3PH	0.246	Leading	7.87	0.233	Leading	8.33	0.376	Leading	4.93
65	FLT74-3PH	0.242	Leading	8.01	0.239	Leading	8.14	0.397	Leading	4.63
66	FLT75-3PH	0.420	Leading	4.32	0.348	Leading	5.39	0.508	Leading	3.39
67	FLT76-3PH	0.243	Leading	7.99	0.234	Leading	8.32	0.417	Leading	4.36
68	FLT77-3PH	0.127	Leading	15.60	0.203	Leading	9.65	0.309	Leading	6.15
69	FLT78-3PH	0.120	Leading	16.55	0.148	Leading	13.37	0.114	Leading	17.41
70	FLT79-3PH	0.202	Leading	9.71	0.196	Leading	10.02	0.315	Leading	6.03
71	FLT80-3PH	0.228	Leading	8.55	0.214	Leading	9.13	0.648	Leading	2.35
72	FLT81-3PH	0.191	Lagging	-10.26	0.224	Lagging	-8.70	0.148	Lagging	-13.41
73	FLT82-3PH	0.321	Leading	5.91	0.241	Leading	8.06	0.449	Leading	3.98
74	FLT83-3PH	0.201	Leading	9.74	0.195	Leading	10.04	0.330	Leading	5.71
75	FLT84-3PH	0.251	Leading	7.70	0.236	Leading	8.23	0.398	Leading	4.61
76	FLT85-3PH	0.306	Leading	6.23	0.274	Leading	7.01	0.424	Leading	4.27
77	FLT86-3PH	0.237	Leading	8.19	0.225	Leading	8.68	0.397	Leading	4.62
78	FLT87-3PH	0.647	Leading	2.36	0.396	Leading	4.64	0.442	Leading	4.05
79	FLT88-3PH	0.207	Leading	9.46	0.205	Leading	9.56	0.392	Leading	4.69
80	FLT89-3PH	0.237	Leading	8.20	0.238	Leading	8.16	0.397	Leading	4.63
81	FLT90-3PH	0.247	Leading	7.85	0.242	Leading	8.01	0.418	Leading	4.34
82	FLT91-3PH	0.232	Leading	8.39	0.224	Leading	8.72	0.399	Leading	4.60
83	FLT92-3PH	0.321	Leading	5.91	0.241	Leading	8.06	0.449	Leading	3.98
84	FLT93-3PH	0.263	Leading	7.34	0.252	Leading	7.69	0.403	Leading	4.54
85	FLT94-3PH	0.242	Leading	8.01	0.221	Leading	8.85	0.406	Leading	4.50
86	FLT95-3PH	0.340	Leading	5.54	0.290	Leading	6.61	0.951	Leading	0.65
87	FLT96-3PH	0.263	Leading	7.35	0.237	Leading	8.19	0.412	Leading	4.43
88	FLT97-3PH	0.261	Leading	7.39	0.243	Leading	7.98	0.400	Leading	4.58
89	FLT99-3PH	0.227	Leading	8.60	0.227	Leading	8.56	0.398	Leading	4.61
90	FLT100-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.399	Leading	4.60

Table 5-18 (Continued)
Power Factor Analysis: ASGI-2014-013

Power Factor Analysis for ASGI-2014-013 (2 MW)											
Reference Number	Case	2015 Summer Peak			2015 Winter Peak			2025 Summer Peak		
		Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)	Power Factor		Q*(MVAR)
91	FLT101-3PH	0.241	Leading	8.05	0.228	Leading	8.56	0.399	Leading	4.60
92	FLT102-3PH	0.241	Leading	8.06	0.227	Leading	8.57	0.399	Leading	4.60
93	FLT103-3PH	0.241	Leading	8.05	0.227	Leading	8.59	0.399	Leading	4.60
94	FLT104-3PH	0.241	Leading	8.05	0.228	Leading	8.55	0.399	Leading	4.59
95	FLT105-3PH	0.241	Leading	8.05	0.228	Leading	8.54	0.399	Leading	4.59
96	FLT106-3PH	0.242	Leading	8.03	0.229	Leading	8.50	0.399	Leading	4.59
97	FLT107-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60
98	FLT108-3PH	0.241	Leading	8.06	0.228	Leading	8.55	0.399	Leading	4.59
99	FLT112-3PH	0.248	Leading	7.80	0.235	Leading	8.26	0.427	Leading	4.24
100	FLT113-3PH	0.239	Leading	8.12	0.226	Leading	8.62	0.398	Leading	4.62
101	FLT114-3PH	0.241	Leading	8.06	0.227	Leading	8.56	0.399	Leading	4.60
102	FLT115-3PH	0.312	Leading	6.08	0.295	Leading	6.47	0.402	Leading	4.55
103	FLT116-3PH	0.224	Leading	8.70	0.217	Leading	9.01	0.397	Leading	4.62
104	FLT117-3PH	0.321	Leading	5.90	0.250	Leading	7.76	0.422	Leading	4.30
105	FLT118-3PH	0.256	Leading	7.55	0.247	Leading	7.85	0.422	Leading	4.29
106	FLT122-3PH	0.236	Leading	8.22	0.227	Leading	8.56	0.398	Leading	4.61
107	FLT123-3PH	0.490	Leading	3.56	0.361	Leading	5.16	0.517	Leading	3.31
108	FLT124-3PH	0.305	Leading	6.25	0.291	Leading	6.58	0.424	Leading	4.27
109	FLT125-3PH	0.343	Leading	5.48	0.322	Leading	5.87	0.430	Leading	4.19
110	FLT126-3PH	0.262	Leading	7.38	0.259	Leading	7.45	0.402	Leading	4.55

Study Generator GEN-2013-027

The Power Factor Analysis shows that GEN-2013-027 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.959 leading (absorbing) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.969 leading (absorbing) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-007

The Power Factor Analysis shows that GEN-2014-007 has a power factor range of 0.576 lagging (supplying) to 0.927 lagging for 2015 Summer Peak conditions, a power factor range of 0.582 lagging (supplying) to 0.940 lagging for 2015 Winter Peak conditions, and a power factor range of 0.911 lagging (supplying) to 0.995 leading (absorbing) for 2025 Summer Peak conditions.

Chaves County POI

The Power Factor Analysis shows that the Chaves County generation has a power factor range of 0.981 leading (absorbing) to 0.992 leading for 2015 Summer Peak conditions, a power factor range of 0.994 leading (absorbing) to 0.998 lagging for 2015 Winter Peak conditions, and a

power factor range of 0.992 leading (absorbing) to 0.998 leading for 2025 Summer Peak conditions.

Tap Tolk – Eddy County POI

The Power Factor Analysis shows that the Tap Tolk – Eddy County generation has a power factor range of 0.969 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.984 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.998 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Carlisle POI

The Power Factor Analysis shows that the Carlisle generation has a power factor range of 0.986 lagging (supplying) to 0.968 leading for 2015 Summer Peak conditions, a power factor range of 0.994 lagging (supplying) to 0.971 leading for 2015 Winter Peak conditions, and a power factor range of 0.980 lagging (supplying) to 0.857 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-063

The Power Factor Analysis shows that the GEN-2014-063 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.993 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.977 lagging (supplying) to 0.998 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-066

The Power Factor Analysis shows that the GEN-2014-066 has a power factor range of 0.617 lagging (supplying) to 0.711 lagging for 2015 Summer Peak conditions, a power factor range of 0.701 lagging (supplying) to 0.818 lagging for 2015 Winter Peak conditions, and a power factor range of 0.567 lagging (supplying) to 0.659 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-069

The Power Factor Analysis shows that the GEN-2014-069 has a power factor range of 0.876 leading (absorbing) to 0.999 leading for 2015 Summer Peak conditions, a power factor range of 0.881 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.870 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-070

The Power Factor Analysis shows that the GEN-2014-070 has a power factor range of 0.978 lagging (supplying) to 0.940 leading for 2015 Summer Peak conditions, a power factor range of

0.999 lagging (supplying) to 0.943 leading for 2015 Winter Peak conditions, and a power factor range of 0.933 lagging (supplying) to 0.933 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-002

The Power Factor Analysis shows that the ASGI-2014-002 has a power factor range of 0.925 lagging (supplying) to 0.981 lagging for 2015 Summer Peak conditions, a power factor range of 0.943 lagging (supplying) to 0.993 lagging for 2015 Winter Peak conditions, and a power factor range of 0.900 lagging (supplying) to 0.970 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-004

The Power Factor Analysis shows that the ASGI-2014-004 has a power factor range of 0.676 lagging (supplying) to 0.870 lagging for 2015 Summer Peak conditions, a power factor range of 0.849 lagging (supplying) to 0.976 lagging for 2015 Winter Peak conditions, and a power factor range of 0.043 lagging (supplying) to 0.107 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-005

The Power Factor Analysis shows that the ASGI-2014-005 has a power factor range of 0.781 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.931 leading (absorbing) to 0.989 lagging for 2015 Winter Peak conditions, and a power factor range of 0.449 lagging (supplying) to 0.918 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-008

The Power Factor Analysis shows that the ASGI-2014-008 has a power factor range of 0.850 lagging (supplying) to 0.998 leading for 2015 Summer Peak conditions, a power factor range of 0.940 lagging (supplying) to 0.963 leading for 2015 Winter Peak conditions, and a power factor range of 0.938 lagging (supplying) to 0.962 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-009

The Power Factor Analysis shows that the ASGI-2014-009 has a power factor range of 0.282 lagging (supplying) to 0.568 lagging for 2015 Summer Peak conditions, a power factor range of 0.309 lagging (supplying) to 0.637 leading for 2015 Winter Peak conditions, and a power factor range of 0.055 lagging (supplying) to 0.130 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-010

The Power Factor Analysis shows that the ASGI-2014-010 has a power factor range of 0.174 lagging (supplying) to 0.924 lagging for 2015 Summer Peak conditions, a power factor range of

0.162 lagging (supplying) to 0.943 lagging for 2015 Winter Peak conditions, and a power factor range of 0.034 lagging (supplying) to 0.118 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-011

The Power Factor Analysis shows that the ASGI-2014-011 has a power factor range of 0.368 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.338 lagging (supplying) to 0.787 lagging for 2015 Winter Peak conditions, and a power factor range of 0.158 lagging (supplying) to 0.503 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-012

The Power Factor Analysis shows that the ASGI-2014-012 has a power factor range of 0.357 lagging (supplying) to 0.916 leading for 2015 Summer Peak conditions, a power factor range of 0.474 lagging (supplying) to 0.631 leading for 2015 Winter Peak conditions, and a power factor range of 0.087 lagging (supplying) to 0.542 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-013

The Power Factor Analysis shows that the ASGI-2014-013 has a power factor range of 0.191 lagging (supplying) to 0.120 leading for 2015 Summer Peak conditions, a power factor range of 0.224 lagging (supplying) to 0.148 leading for 2015 Winter Peak conditions, and a power factor range of 0.148 lagging (supplying) to 0.951 leading for 2025 Summer Peak conditions.

SECTION 6: LOW WIND/NO WIND ANALYSIS

The objective of this task is to determine the impact of low wind or no wind conditions on wind farms that interconnect to a 345 kV or 230 kV bus. The 2015 Summer Peak, 2015 Winter Peak and 2025 Summer Peak power flows provided by SPP were examined for this analysis.

6.1 Approach

Low wind or no wind conditions were examined for all 345 kV or 230 kV wind farms. Generators were disabled (independently), but the collector systems remained in-service. In order to maintain generation and load balance in the SPP area, the generation was scaled after disabling the respective generator. The amount of reactive power injected into the transmission network was recorded at the respective point of interconnection. This reactive power comes from the capacitance of the project's transmission lines and collector cables. A shunt reactor was added at the high side bus to bring the Mvar flow into the POI down to approximately zero.

6.2 Low Wind/No Wind Analysis Results

The reactance needed to bring the Mvar flow into the point of interconnect to zero Mvar was recorded for each season for all 345 kV or 230 kV wind farms. Refer to Table 6-1 for the Low Wind/No Wind Analysis results. The table lists the generators examined and the amount of reactive power needed for zero Mvar flow into the POI for each season.

Table 6-1
Low Wind/No Wind Analysis

Request	Size (MW)	Point of Interconnection	Shunt Reactors to Result in Zero Mvar Flow (Mvar)		
			2015 Winter Peak	2015 Summer Peak	2025 Summer Peak
GEN-2013-027	150	Tap Tolk to Yoakum 230kV (562480)	6.4	6.4	6.4
GEN-2014-007	399.6	Tap Tuco to Border 345kV (562487)	15.1	15.1	15.1
GEN-2014-062	200.1	Tap Tolk - Eddy County (Crossroads) 345kV	20.6	20.6	20.6
GEN-2014-053	80	Carlisle 230kV	5.8	5.8	5.8
GEN-2014-054	120				
GEN-2014-063	381	Hobbs 230kV	24.9	24.9	24.9
GEN-2014-070	116	Tap Hobbs - Yoakum 230kV	0.3	0.3	0.3

SECTION 7: CONCLUSIONS

SUMMARY OF STABILITY ANALYSIS

The Stability Analysis determined that there were multiple contingencies that resulted in system instability, generation tripping offline, or bus voltages below 0.7 p.u. or above 1.2 p.u. for the 2015 Summer Peak, 2015 Winter Peak, and 2025 Summer Peak conditions when all generation interconnection requests were at 100% output. The following contingencies required system upgrades in order to achieve system stability and recover within SPP criteria:

- FLT03-3PH
- FLT05-3PH
- FLT06-3PH
- FLT26-3PH (2015SP and 2015WP)
- FLT52-SB
- FLT62-3PH
- FLT63-SB
- FLT64-3PH
- FLT65-SB
- FLT67-3PH
- FLT68-SB
- FLT69-PO (2015WP)
- FLT70-SB (2015SP and 2015WP)
- FLT84-3PH (2015SP and 2015WP)
- FLT85-3PH (2015SP and 2015WP)
- FLT86-3PH (2015WP)
- FLT87-3PH (2015SP and 2015WP)
- FLT99-3PH
- FLT100-3PH
- FLT101-3PH
- FLT102-3PH
- FLT103-3PH
- FLT104-3PH
- FLT105-3PH
- FLT106-3PH
- FLT107-3PH (2015WP)
- FLT113-3PH (2015SP and 2015WP)
- FLT114-3PH (2015SP and 2015WP)
- FLT115-3PH (2015SP and 2015WP)
- FLT122-3PH

In order to mitigate all voltage violations and the contingencies that resulted in system instability, the following upgrades were implemented as discussed with SPP:

- Dynamic reactive device added to the Chaves County 115 kV bus
- Dynamic reactive device added to the GEN-2014-069-Tap 115 kV bus
- Conversion and rebuild of the existing Norton-Pleasant Hill 115 kV line to a 230 kV circuit
- Add a 230/115kV transformer at Norton
- Model corrections at Caprock wind farm[8]
- Add an additional 18 Mvar fast switched capacitor at the Caprock Wind 34.5kV bus
- Add additional switched capacitors on the GEN-2014-066 34.5kV bus and apply the extended ride-through option
- Add additional switched capacitors and an 8 Mvar STATCOM on the ASGI-2014-002 34.5kV bus
- Add Tolk – Potter County 345 kV line
- Add Chisholm – Potter County 345 kV line
- Disable relay (SNLOS1) for Tuco – OKU 345 kV circuit[9]

After implementing the above upgrades, the contingency analysis was re-simulated for all contingencies. With the new upgrades, the Stability Analysis determined that there was no wind turbine tripping or system instability observed as a result of interconnecting all study projects at 100% output.

SUMMARY OF THE SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed on the 2025 Summer Peak power flow for all study projects. Refer to Table 7-1 for a list of maximum fault currents observed for each study project.

[8] Model corrections included modeling the Caprock wind farm on a 600 V bus and modeling the plant's reactive compensation equipment including switch shunts, fast switched shunts, and dynamic reactive devices on the 34.5kV bus

[9] SPP indicated further analysis regarding the out-of-step relays on the Tuco-Oklaunion 345kV line will be addressed during the Interconnection Facilities Study.

Table 7-1
List of Maximum Fault Currents Observed for Each Study Project

Ref. No.	Study Project	Maximum Fault Current (kA)	Fault Location
1	GEN-2013-027	32.74	Hobbs 115 kV
2	GEN-2014-007	35.19	LP - Cook 69 kV
3	GEN-2014-033 GEN-2014-034 GEN-2014-035 GEN-2014-046	29.44	Cunningham 115 kV
4	GEN-2014-047 GEN-2014-062	32.22	Tolk 230 kV
5	GEN-2014-053 GEN-2014-054	35.19	LP - Cook 69 kV
6	GEN-2014-063	32.74	Hobbs 115 kV
7	GEN-2014-066	32.22	Tolk 230 kV
8	GEN-2014-069	29.44	Cunningham 115 kV
9	GEN-2014-070	32.74	Hobbs 115 kV
10	ASGI-2014-002	32.22	Tolk 230 kV
11	ASGI-2014-004	15.22	Potash Junction 115 kV
12	ASGI-2014-005	15.22	Potash Junction 115 kV
13	ASGI-2014-008	15.22	Potash Junction 115 kV
14	ASGI-2014-009	15.22	Potash Junction 115 kV
15	ASGI-2014-010	15.22	Potash Junction 115 kV
16	ASGI-2014-011	32.74	Hobbs 115 kV
17	ASGI-2014-012	32.74	Hobbs 115 kV
18	ASGI-2014-013	32.22	Tolk 230 kV

SUMMARY OF POWER FACTOR ANALYSIS

Study Generator GEN-2013-027

The Power Factor Analysis shows that GEN-2013-027 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.959 leading (absorbing) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.969 leading (absorbing) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-007

The Power Factor Analysis shows that GEN-2014-007 has a power factor range of 0.576 lagging (supplying) to 0.927 lagging for 2015 Summer Peak conditions, a power factor range of 0.582 lagging (supplying) to 0.940 lagging for 2015 Winter Peak conditions, and a power factor range of 0.911 lagging (supplying) to 0.995 leading (absorbing) for 2025 Summer Peak conditions.

Chaves County POI

The Power Factor Analysis shows that the Chaves County generation has a power factor range of 0.981 leading (absorbing) to 0.992 leading for 2015 Summer Peak conditions, a power factor range of 0.994 leading (absorbing) to 0.998 lagging for 2015 Winter Peak conditions, and a power factor range of 0.992 leading (absorbing) to 0.998 leading for 2025 Summer Peak conditions.

Tap Tolk – Eddy County POI

The Power Factor Analysis shows that the Tap Tolk – Eddy County generation has a power factor range of 0.969 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.984 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.998 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Carlisle POI

The Power Factor Analysis shows that the Carlisle generation has a power factor range of 0.986 lagging (supplying) to 0.968 leading for 2015 Summer Peak conditions, a power factor range of 0.994 lagging (supplying) to 0.971 leading for 2015 Winter Peak conditions, and a power factor range of 0.980 lagging (supplying) to 0.857 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-063

The Power Factor Analysis shows that the GEN-2014-063 has a power factor range of 0.991 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.993 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.977 lagging (supplying) to 0.998 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-066

The Power Factor Analysis shows that the GEN-2014-066 has a power factor range of 0.617 lagging (supplying) to 0.711 lagging for 2015 Summer Peak conditions, a power factor range of 0.701 lagging (supplying) to 0.818 lagging for 2015 Winter Peak conditions, and a power factor range of 0.567 lagging (supplying) to 0.659 lagging for 2025 Summer Peak conditions.

Study Generator GEN-2014-069

The Power Factor Analysis shows that the GEN-2014-069 has a power factor range of 0.876 leading (absorbing) to 0.999 leading for 2015 Summer Peak conditions, a power factor range of 0.881 lagging (supplying) to 1.0 (unity) for 2015 Winter Peak conditions, and a power factor range of 0.870 lagging (supplying) to 1.0 (unity) for 2025 Summer Peak conditions.

Study Generator GEN-2014-070

The Power Factor Analysis shows that the GEN-2014-070 has a power factor range of 0.978 lagging (supplying) to 0.940 leading for 2015 Summer Peak conditions, a power factor range of 0.999 lagging (supplying) to 0.943 leading for 2015 Winter Peak conditions, and a power factor range of 0.933 lagging (supplying) to 0.933 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-002

The Power Factor Analysis shows that the ASGI-2014-002 has a power factor range of 0.925 lagging (supplying) to 0.981 lagging for 2015 Summer Peak conditions, a power factor range of 0.943 lagging (supplying) to 0.993 lagging for 2015 Winter Peak conditions, and a power factor range of 0.900 lagging (supplying) to 0.970 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-004

The Power Factor Analysis shows that the ASGI-2014-004 has a power factor range of 0.676 lagging (supplying) to 0.870 lagging for 2015 Summer Peak conditions, a power factor range of 0.849 lagging (supplying) to 0.976 lagging for 2015 Winter Peak conditions, and a power factor range of 0.043 lagging (supplying) to 0.107 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-005

The Power Factor Analysis shows that the ASGI-2014-005 has a power factor range of 0.781 lagging (supplying) to 0.999 lagging for 2015 Summer Peak conditions, a power factor range of 0.931 leading (absorbing) to 0.989 lagging for 2015 Winter Peak conditions, and a power factor range of 0.449 lagging (supplying) to 0.918 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-008

The Power Factor Analysis shows that the ASGI-2014-008 has a power factor range of 0.850 lagging (supplying) to 0.998 leading for 2015 Summer Peak conditions, a power factor range of 0.940 lagging (supplying) to 0.963 leading for 2015 Winter Peak conditions, and a power factor range of 0.938 lagging (supplying) to 0.962 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-009

The Power Factor Analysis shows that the ASGI-2014-009 has a power factor range of 0.282 lagging (supplying) to 0.568 lagging for 2015 Summer Peak conditions, a power factor range of 0.309 lagging (supplying) to 0.637 leading for 2015 Winter Peak conditions, and a power factor range of 0.055 lagging (supplying) to 0.130 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-010

The Power Factor Analysis shows that the ASGI-2014-010 has a power factor range of 0.174 lagging (supplying) to 0.924 lagging for 2015 Summer Peak conditions, a power factor range of 0.162 lagging (supplying) to 0.943 lagging for 2015 Winter Peak conditions, and a power factor range of 0.034 lagging (supplying) to 0.118 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-011

The Power Factor Analysis shows that the ASGI-2014-011 has a power factor range of 0.368 lagging (supplying) to 1.0 (unity) for 2015 Summer Peak conditions, a power factor range of 0.338 lagging (supplying) to 0.787 lagging for 2015 Winter Peak conditions, and a power factor range of 0.158 lagging (supplying) to 0.503 lagging for 2025 Summer Peak conditions.

Study Generator ASGI-2014-012

The Power Factor Analysis shows that the ASGI-2014-012 has a power factor range of 0.357 lagging (supplying) to 0.916 leading for 2015 Summer Peak conditions, a power factor range of 0.474 lagging (supplying) to 0.631 leading for 2015 Winter Peak conditions, and a power factor range of 0.087 lagging (supplying) to 0.542 leading for 2025 Summer Peak conditions.

Study Generator ASGI-2014-013

The Power Factor Analysis shows that the ASGI-2014-013 has a power factor range of 0.191 lagging (supplying) to 0.120 leading for 2015 Summer Peak conditions, a power factor range of 0.224 lagging (supplying) to 0.148 leading for 2015 Winter Peak conditions, and a power factor range of 0.148 lagging (supplying) to 0.951 leading for 2025 Summer Peak conditions.

SUMMARY OF LOW WIND/NO WIND ANALYSIS

The amount of reactive power injected into the transmission network was recorded at the point of interconnection for GEN-2013-027, GEN-2014-007, GEN-2014-047, GEN-2014-062, GEN-2014-053, GEN-2014-054, GEN-2014-063, and GEN-2014-070 for each season. The maximum reactance needed for zero Mvar flow was 24.9 Mvar for GEN-2014-063 (the Hobbs 230 kV POI). The minimum reactance needed for zero Mvar flow was 0.3 Mvar for GEN-2014-070 (the Tap Hobbs - Yoakum 230 kV POI).

Group 6 Stand Alone Stability Analysis

DISIS-2014-002

January 2015
Generator Interconnection

SPP Southwest Power Pool

Revision History

Date	Author	Change Description
1/30/2015	SPP	DISIS-2014-002 Group 6 Stand Alone Stability Analysis Report Issued

Executive Summary

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the generation projects shown below.

- GEN-2013-027 – 150.0 MW wind project using fifty (50) Alstom ECO122 3.0MW generators connected to a tap on the Tolk to Yoakum 230kV circuit on the SPS transmission system.
- GEN-2014-007 – 399.6 MW wind project using two-hundred sixteen (216) GE 1.85MW generators connected to a tap on the TUCO interchange to Border 345kV circuit on the SPS transmission system.
- GEN-2014-033 – 70.0 MW solar project using one-hundred forty (140) SMA Sunny Central 0.5MW PV inverters connected to the Chaves County 115kV substation on the SPS transmission system.
- GEN-2014-034 – 70.0 MW solar project using one-hundred forty (140) SMA Sunny Central 0.5MW PV inverters connected to the Chaves County 115kV substation on the SPS transmission system.
- GEN-2014-035 – 30.0 MW solar project using sixty (60) SMA Sunny Central 0.5MW PV inverters connected to the Chaves County 115kV substation on the SPS transmission system.
- GEN-2014-046 – 125.4 MW solar project using one-hundred fifty-two (152) SMA Sunny Central 0.825MW PV inverters connected to the Chaves County 115kV substation on the SPS transmission system.
- GEN-2014-047 – 40.0 MW solar project using eighty (80) Advanced Energy 0.5MW PV inverters connected to a tap on the Eddy County to Tolk 345kV circuit on the SPS transmission system.
- GEN-2014-053 – 80.0 MW wind project using forty (40) GE 2.0MW generators connected to the Carlisle 230kV substation on the SPS transmission system.
- GEN-2014-054 – 120.0 MW wind project using sixty (60) GE 2.0MW generators connected to the Carlisle 230kV substation on the SPS transmission system.
- GEN-2014-062 – 200.1 MW wind project using eighty-seven (87) GE 2.3MW generators connected to a tap on the Eddy County to Tolk 345kV circuit on the SPS transmission system.
- GEN-2014-063 – 381.27 MW wind project using two-hundred thirteen (213) GE 1.79MW generators connected to the Hobbs Interchange 230kV substation on the SPS transmission system.
- GEN-2014-066 – 30.0 MW solar project using thirty (30) Advanced Energy 1.0MW PV inverters connected to the Norton 115kV substation on the SPS transmission system.
- GEN-2014-069 – 96.0 MW solar project using twenty-four (24) GE 4.0MW PV inverters connected to a tap on the Potash Junction to Livingston Ridge 115kV circuit on the SPS transmission system.
- GEN-2014-070 – 116.0 MW solar project using twenty-nine (29) GE 4.0MW PV inverters connected to a tap on the Hobbs Interchange to Yoakum 230kV circuit on the SPS transmission system.

- ASGI-2014-002 – 49.6 MW solar project using sixty-two (62) SMA 0.8MW PV inverters connected to a tap on the Santa Rosa to Tucumcari 115kV circuit (currently constructed and operated at 69kV) on the Farmers Electric transmission system. This request was studied as an Affected System request.
- ASGI-2014-004 – 10.0 MW solar project using PV inverters connected to the Livingtson Ridge 69kV substation (planned conversion to 115kV) on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-005 – 10.0 MW solar project using PV inverters connected to the Strata 69kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-008 – 10.0 MW solar project using PV inverters connected to the South Loving 69kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-009 – 10.0 MW solar project using PV inverters connected to the Wood Draw 115kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-010 – 10.0 MW solar project using PV inverters connected to the Ochoa 115kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-011 – 10.0 MW solar project using PV inverters connected to the Zia 115kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-012 – 10.0 MW solar project using PV inverters connected to the Cooper Ranch 115kV substation on the SPS transmission system. This request was studied as an Affected System request.
- ASGI-2014-013 – 2.0MW wind farm using a GE 2.0MW generator connected to the Erskine 69kV substation on the SPS transmission system. This request was studied as an Affected System request.

A stability analysis was performed for the stand alone scenarios of the generation projects from the DISIS-2014-002 Group 6 cluster study. The analysis was performed on three seasonal models, the modified versions of the 2015 summer peak, the 2015 winter peak, and the 2025 summer peak cases. A total of one-hundred twenty-eight (128) contingencies were considered for evaluation for each project.

With all Base Case Network Upgrades in service, previously assigned Network Upgrades in service, newly assigned Network Upgrades as specified in the body of this report in service, and required reactive compensation devices as specified in the body of this report in service, the Group 6 stand alone projects were found to remain on line, and the transmission system was found to remain stable for all conditions studied.

All generators in the monitored areas remained stable for the entire modeled disturbances.

Nothing in this study should be construed as a guarantee of delivery or transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

Table of Contents

Revision History 1

Executive Summary i

Table of Contents iv

I. Introduction 1

II. Facilities 4

III. Stability Analysis 5

Model Preparation 5

Disturbances 5

Results 23

FERC LVRT Compliance 41

IV. Conclusion 42

Appendix A: 2015 Summer Peak Stability Plots 43

Appendix B: 2015 Winter Peak Stability Plots 44

Appendix C: 2025 Summer Peak Stability Plots 45

I. Introduction

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the generation projects listed below in ***Table I-1***.

Table I-1: DISIS-2014-002 Group 6 Interconnection Requests

Request	Capacity (MW)	Generator Model	Point of Interconnection
GEN-2013-027	150.0	Alstom ECO122 3.0MW WTG (583843)	Tap on Tolk – Yoakum 230kV circuit (562480)
GEN-2014-007	399.6	GE 1.85MW WTG (583793,583796)	Tap on Border – TUCO Interchange 345kV circuit (562487)
GEN-2014-033	70.0	SMA SC 0.5MW PV inverter (583953)	Chaves 115kV (527482)
GEN-2014-034	70.0	SMA SC 0.5MW PV inverter (583963)	Chaves 115kV (527482)
GEN-2014-035	30.0	SMA SC 0.5MW PV inverter (583973)	Chaves 115kV (527482)
GEN-2014-046	125.4	SMA SC 0.825MW PV inverter (584283)	Chaves 115kV (527482)
GEN-2014-047	40.0	AE 0.5MW PV inverter (584263)	Tap on Eddy County – Tolk 345kV circuit (G08-022-POI, 560007)
GEN-2014-053	80	GE 2.0MW WTG (584033)	Carlisle 230kV (526161)
GEN-2014-054	120	GE 2.0MW WTG (584043)	Carlisle 230kV (526161)
GEN-2014-062	200.1	GE 2.3MW WTG (584273)	Tap on Eddy County – Tolk 345kV circuit (G08-022-POI, 560007)
GEN-2014-063	381.27	GE 1.79MW WTG (584243,584246)	Hobbs Interchange 230kV (527894)
GEN-2014-066	30.0	AE 1.0MW PV inverter (584163)	Norton 115kV (524502)
GEN-2014-069	96.0	GE 4.0MW PV inverter (584123)	Tap on Potash Junction to Livingston Ridge 115kV (560017)
GEN-2014-070	116.0	GE 4.0MW PV inverter (584133)	Tap on Hobbs Interchange to Yoakum 230kV circuit (560018)
ASGI-2014-002	49.6	SMA CP 0.8MW PV inverter (584314)	Tap on Santa Rosa to Tucumcari 115kV (584310)
ASGI-2014-004	10.0	PV inverter (584323)	Livingston Ridge 69/115kV (527952/527953)
ASGI-2014-005	10.0	PV inverter (584333)	Strata 69kV (528046)
ASGI-2014-008	10.0	PV inverter (584343)	South Loving 69kV (528218)
ASGI-2014-009	10.0	PV inverter (584353)	Wood Draw 115kV (528228)
ASGI-2014-010	10.0	PV inverter (584363)	Ochoa 115kV (528232)
ASGI-2014-011	10.0	PV inverter (584373)	Zia 115kV (528420)
ASGI-2014-012	10.0	PV inverter (584383)	Cooper Ranch 115kV (528554)
ASGI-2014-013	2.3	GE 2.0 MW WTG (584393)	SP-Erskine 69kV (526109)

A stability analysis was performed for the stand alone addition of each generation project, addition of the Affected System Generation Interconnection (ASGI) projects, and sensitivity for the DISIS-2014-002 Group 6 Cluster Study with the Prior Queued project, Quay County (GEN-2011-046), off-line. Each of these scenarios includes the applicable set of generation as listed in ***Table I-1***. Every scenario includes each generation project in Group 6, with the exception of Quay County (GEN-2011-046), as listed in ***Table I-2***. The analysis was performed on three seasonal models, the modified versions of the 2015 summer peak, the 2015 winter peak, and the 2025 summer peak cases.

The previously queued generation projects in the Group 6 area are listed below in ***Table I-2***.

Table I-2: DISIS-2014-002 Group 6 Prior Queued Interconnection Requests

Request	Capacity (MW)	Generator Model	Point of Interconnection
GEN-2001-033	180	Mitsubishi 1000 WTG (WT1) (524890,524896)	San Juan Mesa 230kV (524885)
GEN-2001-036	80	Mitsubishi 1000 WTG (WT1) (524485)	Norton 115kV (524502)
GEN-2006-018	170	GENSAL (524841, 525842,525843)	Tuco 230kV (525830)
GEN-2006-026	502	GENROU (527901, 527902,527903)	Hobbs 115kV (527891) Hobbs 230kV (527894)
GEN-2008-022	300	Vestas 2.0MW WTG (577100,577110,577120)	Tap on Eddy County – Tolk 345kV circuit (560007)
GEN-2010-006	180 Summer 205 Winter	GENROU (526333)	Jones 230kV (526337)
ASGI-2010-010	42.2	GENSAL (528331)	Lovington 115kV (528334)
ASGI-2010-020	30	Nordex 2.5MW WTG (580088)	Tap on LE-Tatum to LE-Crossroads 69kV circuit (560360)
ASGI-2010-021	15	Mitsubishi MPS-1000A 1.0MW WTG (580083)	Tap LE-Saundertap to LE-Anderson 69kV circuit (560364)
GEN-2010-046	56	GENSAL (580043)	Tuco 230kV (525830)
ASGI-2011-001	27.3	Suzlon 2.1MW WTG (528332)	Lovington 115kV (528334)
ASGI-2011-003	10	Sany 2.0MW WTG (WT3) (525942)	Hendricks 69kV (525943)
ASGI-2011-004	19.8	Sany 1.8MW WTG (WT3) (583193,583196)	Crosby 69kV (525915)
GEN-2011-025	79.5	Alstom ECO110 3.0MW WTG (581136) Alstom ECO122 2.7MW WTG (581140)	Tap on Floyd County - Crosby County 115kV circuit (562004)
GEN-2011-045	180 Summer 205 Winter	GENROU (526334)	Jones_bus2 230kV (526337)
GEN-2011-046	23 Summer 27 Winter	GENROU (524471)	Quay County 115kV (524472)
GEN-2011-048	165 Summer 175 Winter	GENROU (527166)	Mustang 230kV (527151)
GEN-2012-001	61.2	CCWE 3.6MW WTG (WT4) (522903)	Tap Grassland to Borden 230kV (526679)
ASGI-2012-002	18.16	Vestas 1.65MW V82 WTG (583283)	Clovis 115kV (524808)

Table I-2: DISIS-2014-002 Group 6 Prior Queued Interconnection Requests

Request	Capacity (MW)	Generator Model	Point of Interconnection
GEN-2012-009	15 MW increase (Pmax=165MW)	GENROU (527164)	Mustang 230kV (527151)
GEN-2012-010	15 MW increase (Pmax=165MW)	GENROU (527165)	Mustang 230kV (527151)
GEN-2012-020	477.12	GE 1.68MW WTG (583343,583346)	Tuco 230kV (525830)
GEN-2012-034	7 MW increase (Pmax=172MW)	GENROU (527164)	Mustang 230kV (527151)
GEN-2012-035	7 MW increase (Pmax=172MW)	GENROU (527165)	Mustang 230kV (527151)
GEN-2012-036	7 MW increase (Pmax= 172 Summer 185 Winter)	GENROU (527166)	Mustang 230kV (527151)
GEN-2012-037	196 Summer 203 Winter	GENROU (525844)	Tuco 345kV (525832)
GEN-2013-016	191 Summer 203 Winter	GENROU (525845)	Tuco 345kV (525832)
ASGI-2013-002	18.4	Siemens 2.3MW VS WTG (583613)	Tucumcari 115kV (524509)
ASGI-2013-003	18.4	Siemens 2.3MW VS WTG (583623)	Clovis 115kV (524808)
ASGI-2013-006	2.0	Gamesa 2.0MW WTG (583813)	Erskine 115kV (526109)
GEN-2013-022	25.0	AE 0.5MW PV inverter (583313)	Norton 115kV (524502)
ASGI-2013-005	1.65	Vestas 1.65MW V82 WTG (583283)	Clovis 115kV (524808)
GEN-2014-012	186 summer 225 winter	GENROU (528607)	Tap Hobbs Interchange – Andrews 230kV circuit (528611)
ASGI-2014-001	2.3	GE 2.3MW WTG (583816)	SP-Erskine 69kV (526109)

The stability analysis determines the impacts of the new interconnecting projects on the stability and voltage recovery of the nearby systems and the ability of the interconnecting project to meet FERC Order 661A. If problems with stability or voltage recovery were identified, the need for reactive compensation or system upgrades was investigated. The contingencies evaluated for each stand alone scenario were a subset of the contingencies listed below in ***Table III-2***.

A power factor analysis determines the power factor at the point of interconnection for the wind interconnection project for pre-contingency and post-contingency conditions. The power factor analysis conducted in the DISIS-2014-002 Group 6 cluster study performed by Mitsubishi Electric Power Products, Inc (MEPPI) remains valid for each of the stand alone scenario evaluated in this study.

Nothing in this System Impact Study constitutes a request for transmission service or grants the Interconnection Customer any rights to transmission service.

II. Facilities

Please refer to the DISIS-2014-002 Group 6 Cluster Stability Report performed by Mitsubishi Electric Power Partners Inc. (MEPPI) for one-line drawings of the study Interconnection Requests.

III. Stability Analysis

Transient stability analysis is used to determine if the transmission system can maintain angular stability and ensure bus voltages stay within planning requirements bandwidth during and after a disturbance while considering the addition of each generator interconnection request.

Model Preparation

Transient stability analysis was performed using modified versions of the 2014 series of Model Development Working Group (MDWG) dynamic study models including the 2015 summer peak, 2015 winter peak, and the 2025 summer peak seasonal models. The cases are then loaded with prior queued interconnection requests and network upgrades assigned to those interconnection requests. Finally the prior queued and study generation are dispatched into the SPP footprint.

Several of the solar (PV inverter) requests were represented with external switched shunt capacitor banks on the 34.5kV project bus to provide unity voltage at the inverter terminals. This addition was found necessary for flat initialization of the dynamic models. ***Table III-1*** indicates the switched shunts required to achieve unity voltage in all three seasonal cases. Additional reactive equipment may be required to maintain the standard 0.95 PF at the POI. Initial simulations are then carried out for a no-disturbance run of twenty (20) seconds to verify the numerical stability of the model.

Table III-1: Switched Shunts Required for Model Initialization

Request	Switched Shunts at 34.5kV project bus (Mvar)
GEN-2014-033	6.0
GEN-2014-034	6.0
GEN-2014-035	3.6
GEN-2014-046	18.0
GEN-2014-066	8.4
GEN-2014-069	39.6
GEN-2014-070	16.8
ASGI-2014-002	8.4
ASGI-2014-004	9.0
ASGI-2014-005	3.6
ASGI-2014-009	10.2
ASGI-2014-010	12.6
ASGI-2014-011	4.2
ASGI-2014-012	5.4

Disturbances

One-hundred twenty-eight (128) contingencies were identified for consideration in this study and are listed in **Table III-2**. These contingencies are faults at locations defined by SPP. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the

specified fault location of approximately 60% of pre-fault voltage. This method is in agreement with SPP current practice.

Except for transformer faults, the typical sequence of events for a three-phase and a single-phase fault is as follows:

1. apply fault at particular location
2. continue fault for five (5) cycles, clear the fault by tripping the faulted facility
3. after an additional twenty (20) cycles, re-close the previous facility back into the fault
4. continue fault for five (5) additional cycles
5. trip the faulted facility and remove the fault

Transformer faults are typically modeled as three-phase faults, unless otherwise noted. The sequence of events for a transformer fault is as follows:

1. apply fault for five (5) cycles
2. clear the fault by tripping the affected transformer facility (unless otherwise noted there will be no re-closing into a transformer fault)

If stability issues were encountered using the above sequences, the Transmission Owner was contacted for more detailed information regarding the specific transmission line protection scheme.

The control areas monitored were 520, 524, 525, 526, 531, 534, and 536.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
1	FLT_01_CHAVESCNTY3_SAMSON 3_115kV_3PH	3 phase fault on Chaves County 115kV (527482) to Samson 115kV (527546) CKT 1, near Chaves County. a. Apply fault at the Chaves County 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT_02_CHAVESCNTY3_URTON3 _115kV_3PH	3 phase fault on Chaves County 115kV (527482) to Urton 115kV (527501) CKT 1, near Chaves County. a. Apply fault at the Chaves County 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
3	FLT_03_CHAVESCNTY3_CHAVESC NTY6_115_230kV_3PH	3 phase fault on the Chaves County 115kV (527482) to Chaves County 230kV (527483) to Chaves County 13.2kV (527478) XFMR CKT 1, near Chaves County 115kV. a. Apply fault at the Chaves County 115kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
4	FLT_04_EDDYNTH3_EDDYSOUTH 6_115_230kV_3PH	3 phase fault on the Eddy North 115kV (527798) to Eddy South 230kV (527800) to Eddy 13.2kV (527797) XFMR CKT 1, near Eddy North 115kV. a. Apply fault at the Eddy North 115kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
5	FLT_05_CHAVESCNTY6_SNJUANT AP6_230kV_3PH	3 phase fault on Chaves County 230kV (527483) to San Juan Tap 230kV (524885) CKT 1, near Chaves County. a. Apply fault at the Chaves County 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT_06_CHAVESCNTY6_EDDYNO RTH6_230kV_3PH	3 phase fault on Chaves County 230kV (527483) to Eddy North 230kV (527799) CKT 1, near Chaves County. a. Apply fault at the Chaves County 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
7	FLT_07_EDDYNORTH6_EDDYSTH 3_230_115kV_3PH	3 phase fault on the Eddy North 230kV (527799) to Eddy South 115kV (527793) to Eddy 13.2kV (527795) XFMR CKT 2, near Eddy North 230kV. a. Apply fault at the Eddy North 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
8	FLT_08_EDDYNORTH6_EDDYCNT Y7_230_345kV_3PH	3 phase fault on the Eddy North 230kV (527799) to Eddy County 345kV (527802) to Eddy 13.2kV (527796) XFMR CKT 1, near Eddy North 230kV. a. Apply fault at the Eddy North 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
9	FLT_09_EDDYSOUTH6_CUNNINH AM6_230kV_3PH	3 phase fault on Eddy South 230kV (527800) to Cunningham 230kV (527865) CKT 1, near Eddy South. a. Apply fault at the Eddy South 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
10	FLT_10_EDDYSOUTH6_7RIVERS6_230kV_3PH	3 phase fault on Eddy South 230kV (527800) to 7 Rivers 230kV (528095) CKT 1, near Eddy South. a. Apply fault at the Eddy South 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT_11_7RIVERS6_7RIVERS3_230_115kV_3PH	3 phase fault on the 7Rivers 230kV (528095) to 7Rivers 115kV (528094) to 7Rivers 13.2kV (528090) XFMR CKT 1, near 7Rivers 230kV. a. Apply fault at the 7Rivers 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
12	FLT_12_PECOS6_PECOS3_230_115kV_3PH	3 phase fault on the Pecos 230kV (528179) to Pecos 115kV (528178) to Pecos 13.2kV (528176) XFMR CKT 1, near Pecos 230kV. a. Apply fault at the Pecos 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
13	FLT_13_POTASHJCT6_POTASHJCT3_230_115kV_3PH	3 phase fault on the Potash 230kV (527963) to Potash 115kV (527962) to Potash 13.2kV (527958) XFMR CKT 1, near Potash 230kV. a. Apply fault at the Potash 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
14	FLT_14_CUNNINHAM6_POTASHJCT6_230kV_3PH	3 phase fault on Cunningham 230kV (527865) to Potash Jct 230kV (527963) CKT 1, near Cunnigham. a. Apply fault at the Cunningham 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15	FLT_15_CUNNINHAM6_HOBBSINT6_230kV_3PH	3 phase fault on Cunningham 230kV (527865) to Hobbs 230kV (527894) CKT 1, near Cunnigham. a. Apply fault at the Cunningham 230kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT_16_CUNNINHAM6_CUNNINHAM3_230_115kV_3PH	3 phase fault on the Cunningham 230kV (527865) to Cunningham 115kV (527864) to Cunningham 13.2kV (527863) XFMR CKT 1, near Cunningham 230kV. a. Apply fault at the Cunningham 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
17	N/A	N/A
18	FLT_18_POTASHJCT2_NATPOTTP2_69kV_3PH	3 phase fault on Potash Jct 69kV (527961) to NATPOT Tap 69kV (528145) CKT 1, near Potash Jct. a. Apply fault at the Potash Jct 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
19	N/A	N/A
20	FLT_20_STRATA2_IMC32_69kV_3PH	3 phase fault on Strata 69kV (528046) to IMC#3 69kV (528062) CKT 1, near Strata. a. Apply fault at the Strata 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
21	FLT_21_CARLSBAD2_CARLSBAD3_69_115kV_3PH	3 phase fault on the Carlsbad 69kV (528159) to Carlsbad 115kV (528160) to Pecos 13.2kV (528157) XFMR CKT 1, near Carlsbad 69kV. a. Apply fault at the Carlsbad 69kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
22	FLT_22_POTASHJCT3_PCA3_115kV_3PH	3 phase fault on Potash Jct 115kV (527962) to PCA 115kV (527930) CKT 1, near Potash Jct. a. Apply fault at the Potash Jct 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
23	FLT_23_POTASHJCT3_CARLSBAD3_115kV_3PH	3 phase fault on Potash Jct 115kV (527962) to Carlsbad 115kV (528160) CKT 1, near Potash Jct. a. Apply fault at the Potash Jct 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT_24_POTASHJCT3_INTREPDWTP3_115kV_3PH	3 phase fault on Potash Jct 115kV (527962) to Intrepdw Tap 115kV (527999) CKT 1, near Potash Jct. a. Apply fault at the Potash Jct 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25	FLT_25_POTASHJCT3_POTASHJCT2_115_69kV_3PH	3 phase fault on the Potash Jct 115kV (527962) to Potash Jct 69kV (527961) to Potash Jct 13.2kV (527959) XFMR CKT 1, near Potash Jct 115kV. a. Apply fault at the Potash Jct 115kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
26	FLT_26_G14069TAP_INTREPDWTP3_115kV_3PH	3 phase fault on G14-069 Tap 115kV (560017) to Intrepdw Tap 115kV (527999) CKT 1, near G14-069 Tap. a. Apply fault at the G14-069 Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT_27_G14069TAP_IMC1TP3_115kV_3PH	3 phase fault on G14-069 Tap 115kV (560017) to IMC#1Tap 115kV (528035) CKT 1, near G14-069 Tap. a. Apply fault at the G14-069 Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
28	FLT_28_REDBLUFF3_SANDDUNES3_115kV_3PH	3 phase fault on Red Bluff (A14-009) 115kV (528018) to Sand Dunes 115kV (528016) CKT 1, near Red Bluff. a. Apply fault at the Red Bluff 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
29	FLT_29_REDBLUFF3_RDRUNNER3_115kV_3PH	3 phase fault on Red Bluff (A14-009) 115kV (528018) to Road Runner 115kV (528025) CKT 1, near Red Bluff. a. Apply fault at the Red Bluff 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
30	FLT_30_RDRUNNER3_AGAVERHILL3_115kV_3PH	3 phase fault on Road Runner 115kV (528025) to Agave 115kV (528230) CKT 1, near Road Runner. a. Apply fault at the Road Runner 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
31	FLT_31_RDRUNNER3_RDRUNNER7_115_345kV_3PH	3 phase fault on the Road Runner 115kV (528025) to Road Runner 230kV (528027) Road Runner 13.2kV (528023) XFMR CKT 1, near Road Runner 115kV. a. Apply fault at the Road Runner 115kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
32	FLT_32_OCHOA3_AGAVERHILL3_115kV_3PH	3 phase fault on Ochoa 115kV (528232) to Agave 115kV (528230) CKT 1, near Ochoa a. Apply fault at the Ochoa 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
33	FLT_33_OCHOA3_WHITTEN3_115kV_3PH (15SP & 15WP)	3 phase fault on Ochoa 115kV (528232) to Whitten 115kV (528540) CKT 1, near Ochoa a. Apply fault at the Ochoa 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
	FLT_33_OCHOA3_PNDEROSATP3_115kV_3PH (25SP only)	3 phase fault on Ochoa 115kV (528232) to Panderosa Tap 115kV (528239) CKT 1, near Ochoa (25SP only) a. Apply fault at the Ochoa 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
34	FLT_34_WHITTEN3_WARD3_115kV_3PH	3 phase fault on Whitten 115kV (528540) to Ward 115kV (528519) CKT 1, near Whitten a. Apply fault at the Whitten 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
35	FLT_35_WHITTEN3_SJAL3_115kV_3PH	3 phase fault on Whitten 115kV (528540) to S_Jal 115kV (528547) CKT 1, near Whitten a. Apply fault at the Whitten 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
36	FLT_36_COOPERRNCH3_OILCENTER3_115kV_3PH	3 phase fault on Cooper Ranch 115kV (528554) to Oil Center 115kV (528552) CKT 1, near Cooper Ranch a. Apply fault at the Cooper Ranch 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
37	FLT_37_COOPERRNCH3_BYRD3_115kV_3PH	3 phase fault on Cooper Ranch 115kV (528554) to Byrd 115kV (528582) CKT 1, near Cooper Ranch a. Apply fault at the Cooper Ranch 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
38	FLT_38_CUNNINHAM3_HOBBSINT3_115kV_3PH	3 phase fault on Cunningham 115kV (527864) to Hobbs 115kV (527891) CKT 1, near Cunningham. a. Apply fault at the Cunningham 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
39	FLT_39_CUNNINHAM3_BUCKEYETP3_115kV_3PH	3 phase fault on Cunningham 115kV (527864) to Buckeye Tap 115kV (528348) CKT 1, near Cunningham. a. Apply fault at the Cunningham 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
40	FLT_40_CUNNINHAM3_MADDOX3_115kV_3PH	3 phase fault on Cunningham 115kV (527864) to Maddox 115kV (528355) CKT 1, near Cunningham. a. Apply fault at the Cunningham 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
41	FLT_41_CUNNINHAM3_QUAHADA3_115kV_3PH	3 phase fault on Cunningham 115kV (527864) to Quahada 115kV (528394) CKT 1, near Cunningham. a. Apply fault at the Cunningham 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
42	FLT_42_CUNNINHAM3_MONUMNTTP3_115kV_3PH	3 phase fault on Cunningham 115kV (527864) to Monument Tap 115kV (528568) CKT 1, near Cunningham. a. Apply fault at the Cunningham 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
43	FLT_43_QUAHADA3_PCA3_115kV_3PH	3 phase fault on Quahada 115kV (528394) to PCA 115kV (527930) CKT 1, near Quahada. a. Apply fault at the Quahada 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
44	FLT_44_QUAHADA3_LEANATIONL3_115kV_3PH	3 phase fault on Quahada 115kV (528394) to LEA National 115kV (528399) CKT 1, near Quahada. a. Apply fault at the Quahada 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
45	FLT_45_MADDOX3_PEARLE3_115kV_3PH	3 phase fault on Maddox 115kV (528355) to Pearle 115kV (528392) CKT 1, near Maddox. a. Apply fault at the Maddox 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
46	FLT_46_MADDOX3_SANGERSW3_115kV_3PH	3 phase fault on Maddox 115kV (528355) to Sanger SW 115kV (528463) CKT 1, near Maddox. a. Apply fault at the Maddox 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
47	FLT_47_MADDOX3_MONUMENT3_115kV_3PH	3 phase fault on Maddox 115kV (528355) to Monument 115kV (528491) CKT 1, near Maddox. a. Apply fault at the Maddox 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
48	FLT_48_G08022TAP_EDDYCNTY7_345kV_3PH	3 phase fault on G08-022 Tap 345kV (560007) to Eddy County 345kV (527802) CKT 1, near G08-022 Tap. a. Apply fault at the G08-022 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
49	FLT_49_G08022TAP_TOLK7_345kV_3PH	3 phase fault on G08-022 Tap 345kV (560007) to Tolk 345kV (525549) CKT 1, near G08-022 Tap. a. Apply fault at the G08-022 Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
50	FLT_50_TOLKTAP6_TOLK7_230_345kV_3PH	3 phase fault on the Tolk Tap 230kV (525543) to Tolk 345kV (525549) to Tolk 13.2kV (525537) XFMR CKT 1, near Tolk Tap 230kV. a. Apply fault at the Tolk Tap 230kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
51	FLT_51_G13027TAP_TOLKWEST6_230kV_3PH	3 phase fault on the GEN-2013-027 (562480) to Tolk West (525531) 230 kV line, near GEN-2013-027. a. Apply fault at the GEN-2013-027 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
52	FLT_52_TOLKWEST6_G13027TAP_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Tolk West (525531) to GEN-2013-027 (562480) 230 kV line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Run 5 cycles, and then open GEN-2013-027 end of the faulted line. c. Run 10 cycles, and then clear the fault and disconnect Tolk West (525531) 230 kV bus.
53	FLT_53_G13027TAP_YOAKUM6_230kV_3PH	3 phase fault on the GEN-2013-027 (562480) to Yoakum (526935) 230 kV line, near GEN-2013-027. a. Apply fault at the GEN-2013-027 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Yoakum (526935) to GEN-2013-027 (562480) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. At 5 cycles, open GEN-2013-027 end of the faulted line. c. At 15 cycles, clear the fault and open Yoakum end of the line in (b) and trip Yoakum (526935) to Yoakum 115 (526934)/13.2 kV (526931) transformer circuit #1.
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	3 phase fault on the Yoakum (526935) to Amoco-SS (526460) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	3 phase fault on the Yoakum (526935) to OxyBru Tap (527010) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	3 phase fault on the Yoakum (526935) to Mustang (527149) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	3 phase fault on the Yoakum (526935) to G14-070-TAP (560018) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	3 phase fault on the Yoakum 230kV (526935) to Yoakum 115 kV (526934)/13.2 kV (526931) transformer circuit #1, near Yoakum. a. Apply fault at the Yoakum 230 kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO	**(Prior Outage)** Yoakum (526935) – Amoco-SS (526460) 230 kV out of service then 3 phase fault on the Yoakum 230 kV (526935) to Yoakum 115 kV (526934)/13.2 kV (526931) transformer circuit #1, near Yoakum. Switch Yoakum (526935) – Amoco-SS (526460) out of service then solve. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer and remove fault.
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Yoakum (526935) to Amoco-SS (526460) 230 kV line, near Yoakum. a. Apply fault at the Yoakum 230kV bus. b. At 5 cycles, open Amoco-SS end of the faulted line. c. At 15 cycles, clear the fault and trip Yoakum 230 kV (526935) bus.
62	FLT_62_TOLKWEST6_ROSEVELTN6_230kV_3PH	3 phase fault on Tolk West 230kV (525531) to Roosevelt 230kV (524909) CKT 1, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Clear fault after 5 cycles and trip the faulted line.
63	FLT_63_TOLKWEST6_ROSEVELTN6_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Tolk West (525531) to Roosevelt N (524909) 230 kV line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Run 5 cycles, and then open Roosevelt N end of the faulted line. c. Run 10 cycles, and then clear the fault and disconnect Tolk West (525531) 230 kV bus.
64	FLT_64_TOLKWEST6_PLANTX6_230kV_3PH	3 phase fault on the Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
65	FLT_65_TOLKWEST6_PLANTX6_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Tolk West (525531) to Plant X (525481) 230 kV circuit #1 line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Run 5 cycles, and then open Plant X end of the faulted line. c. Run 10 cycles, and then clear the fault and disconnect Tolk West (525531) 230 kV bus.
66	FLT_66_TOLK7_TOLKTAP6_345_230kV_3PH	3 phase fault on the Tolk 345 kV (525549) to Tolk Tap 230 kV (525543)/ 13.2 kV (525537) transformer, near Tolk 345 kV. a. Apply fault at the Tolk 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
67	FLT_67_TOLKWEST6_LAMBCNTY6_230kV_3PH	3 phase fault on the Tolk West (525531) to Lamb Co (525637) 230 kV line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
68	FLT_68_TOLKWEST6_LAMBCNTY6_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Tolk West (525531) to Lamb Co (525637) 230 kV line, near Tolk West. a. Apply fault at the Tolk West 230kV bus. b. Run 5 cycles, and then open Lamb Co end of the faulted line. c. Run 10 cycles, and then clear the fault and disconnect Tolk West (525531) 230 kV bus.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
69	FLT_69_TOLKEAST6_PLANTX6_230kV_3PH_PO	**(Prior Outage)** Tolk West (525531) – Plant X (525481) 230 kV circuit #1 out of service then 3 phase fault on the Tolk East 230 kV (525524) to Plant X (525481) 230 kV circuit #2, near Tolk East. Switch Tolk West (525531) – Plant X (525481) 230 kV circuit #1 out of service then solve. a. Apply fault at the Tolk East 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
70	FLT_70_TOLKEAST6_PLANTX6_230kV_1PH_SB	**Single phase fault with stuck breaker** on the Tolk East (525524) to Plant X (525481) 230 kV line circuit #2, near Tolk East. a. Apply fault at the Tolk East 230kV bus. b. Run 5 cycles, and then open Plant X end of the faulted line. c. Run 10 cycles, and then clear the fault and disconnect Tolk East (525524) 230 kV bus.
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	3 phase fault on the SP-Erskine (526109) to Indiana (526146) 115kV line, near SP-Erskine. a. Apply fault at the near SP-Erskine 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	3 phase fault on the SP-Erskine (526109) to Carlisle (526160) 115kV line, near SP-Erskine. a. Apply fault at the near SP-Erskine 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	3 phase fault on the Tuco (525828) to Hale County (525454) 115kV line circuit 1, near Tuco. a. Apply fault at the Tuco 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	3 phase fault on the Tuco (525828) to Floyd County (525780) 115kV line circuit 1, near Tuco. a. Apply fault at the Tuco 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	3 phase fault on the Tuco (525828) to Stanton West (526076) 115kV line circuit 1, near Tuco. a. Apply fault at the Tuco 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	3 phase fault on the Tuco (525828) to Lubbock West (526298) 115kV line circuit 1, near Tuco. a. Apply fault at the Tuco 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	3 phase fault on the Carlisle (526160) to LP-Doud Tap (526162) 115kV line circuit 1, near Carlisle. a. Apply fault at the Carlisle 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	3 phase fault on the Carlisle (526160) to Murphy (526192) 115kV line circuit 1, near Carlisle. a. Apply fault at the Carlisle 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	3 phase fault on the Carlisle (526161) to LP-Milwaukee (522823) 230kV line circuit 1, near Carlisle. a. Apply fault at the Carlisle 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	3 phase fault on the Carlisle (526161) to Tuco (525830) 230kV line circuit 1, near Carlisle. a. Apply fault at the Carlisle 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	3 phase fault on the Carlisle (526160) 115kV to Carlisle (526161) 230kV/(526157) 13.2kV ckt 1 transformer at the 115kV bus. a. Apply fault at the Carlisle 115kV bus. b. Clear fault after 5 cycles by tripping the transformer
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	3 phase fault on the Tuco (525828) 115kV to Tuco (525830) 230kV/(525821) 13.2kV ckt 1 transformer at the 115kV bus. a. Apply fault at the Tuco 115kV bus. b. Clear fault after 5 cycles by tripping the transformer
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	3 phase fault on the LP-Milkaukee (522823) 230kV to LP-Milkaukee (522828) 69kV/(522827) 13.5kV ckt 1 transformer at the 230kV bus. a. Apply fault at the LP-Milkaukee 230kV bus. b. Clear fault after 5 cycles by tripping the transformer
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	3 phase fault on the G14-007 Tap (562487) to Tuco (525832) 345kV line circuit 1, near G14-007 Tap. a. Apply fault at the G14-007 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	3 phase fault on the G14-007 Tap (562487) to Border (515458) 345kV line circuit 1, near G14-007 Tap. a. Apply fault at the G14-007 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
86	FLT_86_BORDER7_CHISHOLM7_345kV_3PH (Cluster)	3 phase fault on the Border (515458) to Chisholm (511553) 345kV line circuit 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
	FLT_86_BORDER7_WWRDEHV7_345kV_3PH (Stand Alone)	3 phase fault on the Border (515458) to Woodward (515375) 345kV line circuit 1, near Border. a. Apply fault at the Border 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	3 phase fault on the Tuco (525832) to OKU (511456) 345kV line circuit 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	3 phase fault on the Tuco (525832) 345kV to Tuco (525830) 230kV/(525824) 13.2kV ckt 1 transformer at the 345kV bus. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles by tripping the transformer
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	3 phase fault on the Tuco (525830) to Swisher (525213) 230kV line circuit 1, near Tuco. a. Apply fault at the Tuco 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	3 phase fault on the Tuco (525830) to Tolk East (525524) 230kV line circuit 1, near Tuco. a. Apply fault at the Tuco 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	3 phase fault on the Tuco (525830) to Jones (526337) 230kV line circuit 1, near Tuco. a. Apply fault at the Tuco 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	3 phase fault on the Tuco (525830) 230kV to Tuco (525828) 115kV/(525821) 13.2kV ckt 1 transformer at the 230kV bus. a. Apply fault at the Tuco 230kV bus. b. Clear fault after 5 cycles by tripping the transformer
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	3 phase fault on the Jones (526337) to LP-Holly (522870) 230kV line circuit 1, near Jones. a. Apply fault at the Jones 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	3 phase fault on the Jones (526337) to Lubbock South (526269) 230kV line circuit 2, near Jones. a. Apply fault at the Jones 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	3 phase fault on the Jones (526337) to Lubbock East (526299) 230kV line circuit 1, near Jones. a. Apply fault at the Jones 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	3 phase fault on the Jones (526337) to Grassland (526677) 230kV line circuit 1, near Jones. a. Apply fault at the Jones 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	3 phase fault on the Swisher (525213) to Amarillo South (524415) 230kV line circuit 1, near Swisher. a. Apply fault at the Swisher 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO	**(Prior Outage)** TUCO (525830) 230kV to TUCO (525828) 115kV/(525819) 13.2kV transformer CKT 2. Then 3 phase fault on the TUCO (525830) 230kV to TUCO (525828) 115kV/(525821) 13.2kV transformer CKT 1, near TUCO 115kV. a. Prior outage TUCO (525830) 230kV to TUCO (525828) 115kV/(525819) 13.2kV transformer CKT 2 (solve network for steady state solution). b. 3 phase fault on the TUCO (525830) 230kV to TUCO (525828) 115kV/(525821) 13.2kV transformer CKT 1, near TUCO 115kV. c. Leave fault on for 5 cycles, then trip the faulted transformer.
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	3 phase fault on the Norton (524502) to FE-Tucumcari (524509) 115kV line, near Norton. a. Apply fault at the Norton 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	3 phase fault on the Pleasant Hill (524768) to E Clovis (524773) 115kV line, near Pleasant Hill. a. Apply fault at the Pleasant Hill 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	3 phase fault on the Pleasant Hill (524768) to N Clovis Tap (524776) 115kV line, near Pleasant Hill. a. Apply fault at the Pleasant Hill 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	3 phase fault on the Pleasant Hill (524768) to FE-Holland (524773) 115kV line, near Pleasant Hill. a. Apply fault at the Pleasant Hill 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	3 phase fault on the Pleasant Hill (524770) 230kV to Pleasant Hill (524768) 115kV/(524767) 13.2kV transformer, near Pleasant Hill 230kV. a. Apply fault at the Pleasant Hill 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	3 phase fault on the Pleasant Hill (524770) to Oasis (524875) 230kV line, near Pleasant Hill. a. Apply fault at the Pleasant Hill 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	3 phase fault on the Pleasant Hill (524770) to Roosevelt (524909) 230kV line, near Pleasant Hill. a. Apply fault at the Pleasant Hill 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	3 phase fault on the Oasis (524875) 230kV to Oasis (524874) 115kV/(524872) 13.2kV transformer, near Oasis 230kV. a. Apply fault at the Oasis 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	3 phase fault on the FE-Clovis Int (524808) to N Clovis Tap (524776) 115kV line, near FE-Clovis Int. a. Apply fault at the near FE-Clovis Int 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	3 phase fault on the FE-Clovis Int (524808) to W Clovis (524784) 115kV line, near FE-Clovis Int. a. Apply fault at the near FE-Clovis Int 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB (15SP & 15WP)	**Single phase fault with stuck breaker** (4K125) on the Hobbs (527894) to Andrews (528604) 230 kV circuit #1 line, near Hobbs. a. Apply fault at the Hobbs 230kV bus. b. At 5 cycles, open Andrews end of the faulted line. c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs Plt (527903.
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB (25SP only)	**Single phase fault with stuck breaker** (4K125) on the Hobbs (527894) to Gaines Generation Tap (528611) 230 kV circuit #1 line, near Hobbs. a. Apply fault at the Hobbs 230kV bus. b. At 5 cycles, open Andrews end of the faulted line. c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs Plt (527903.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
110	FLT_110_HOBBSINT6_ANDREWS 6_230kV_1PH_SB (15SP & 15WP)	**Single phase fault with stuck breaker** (4K120) on the Hobbs (527894) to Andrews (528604) 230 kV circuit #1 line, near Hobbs. a. Apply fault at the Hobbs 230kV bus. b. At 5 cycles, open Andrews end of the faulted line. c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs (527894) to Cunnigham (527865) and Hobbs to G14-070-TAP (560018).
	FLT_110_HOBBSINT6_GAINESGE NTP6_230kV_1PH_SB (25SP only)	**Single phase fault with stuck breaker** (4K120) on the Hobbs (527894) to Gaines Generation Tap (528611) 230 kV circuit #1 line, near Hobbs. a. Apply fault at the Hobbs 230kV bus. b. At 5 cycles, open Andrews end of the faulted line. c. At 15 cycles, clear the fault and open Hobbs end of the line in (b) and trip Hobbs (527894) to Cunnigham (527865) and Hobbs to G14-070-TAP (560018).
111	FLT_111_POTASHJCT3_CARLSBA D3_115kV_1PH_SB	**Single phase fault with stuck breaker** on the Potash Jct (527962) to Carlsbad (528160) 115kV circuit #1 line, near Potash Jct. a. Apply fault at the Potash Jct 115kV bus. b. At 5 cycles, open Carlsbad end of the faulted line. c. At 18 cycles, clear the fault and Potash Jct(527962) bus.
112	FLT_112_HOBBSINT6_G14070TA P_230kV_3PH	3 phase fault on the Hobbs (527894) to G14-070-TAP (560018) 230 kV line, near Hobbs. a. Apply fault at the Hobbs 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
113	FLT_113_G14007TAP_TUCO2_34 5kV_3PH	3 phase fault on the G14-007 Tap (562487) to Tuco2 (560021) 345kV line circuit 1, near G14-007 Tap. a. Apply fault at the G14-007 Tap 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
114	FLT_114_CHISHOLM7_WWRDEH V7_345kV_3PH	3 phase fault on the Chisholm (511553) to Woodward (515375) 345kV line circuit 1, near Chisholm. a. Apply fault at the Chisholm 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
115	FLT_115_CHISHOLM7_GRACMNT 7_345kV_3PH	3 phase fault on the Chisholm (511553) to Gracemont (515800) 345kV line circuit 1, near Chisholm. a. Apply fault at the Chisholm 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
116	FLT_116_TUCOINT7_TUCO2_345 kV_3PH	3 phase fault on the Tuco (525832) to Tuco2 (560021) 345kV line circuit 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
117	FLT_117_TUCOINT7_YOAKUM345_345kV_3PH	3 phase fault on the Tuco (525832) to Yoakum (526936) 345kV line circuit 1, near Tuco. a. Apply fault at the Tuco 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
118	FLT_118_TUCO2_TOLK7_345kV_3PH	3 phase fault on the Tuco2 (560021) to Tolk (525549) 345kV line circuit 1, near Tuco2. a. Apply fault at the Tuco2 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
119	FLT_119_BORDER7_CHISHOLM7_345kV_3PH_PO	**(Prior Outage)** Border (515458) – Chisholm (511553) 345kV circuit #2 out of service then 3 phase fault on the Border (515458) 345kV to Chisholm (511553) 345kV circuit #1, near Border. a. Switch Border (515458) – Chisholm (511553) 345kV circuit #2 out of service then solve. b. Apply fault at the Border 345kV bus. c. Clear fault after 5 cycles by tripping Border (515458) 345kV to Chisholm (511553) 345kV circuit #1.
120	FLT_120_TOLK7_TUCO2_345kV_3PH _PO	**(Prior Outage)** Tuco 2 (560021) – G14-007 Tap (562487) 345kV circuit #1 out of service then 3 phase fault on the Tolk (525549) 345kV to Tuco 2 (560021) 345kV circuit #1, near Tolk. Switch Tuco 2 (560021) – G14-007 Tap (562487) 345kV circuit #1 out of service then solve. a. Apply fault at the Tolk 345kV bus. b. Clear fault after 5 cycles by tripping Tolk (525549) 345kV to Tuco 2 (560021) 345kV circuit #1.
121	FLT_121_TUCOINT7_YOAKUM345_345kV_3PH_PO	**(Prior Outage)** Tuco 2 (560021) – G14-007 Tap (562487) 345kV circuit #1 out of service then 3 phase fault on the Tuco (525832) 345kV to Yoakum (526936) 345kV circuit #1, near Tuco. Switch Tuco 2 (560021) – G14-007 Tap (562487) 345kV circuit #1 out of service then solve. a. Apply fault at the Tuco (525832) 345kV bus. b. Clear fault after 5 cycles by tripping Tuco (525832) 345kV to Yoakum (526936) 345kV circuit #1.
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	3 phase fault on the FE-Tucumcari (524509) to Lopez (524472) 115kV line, near FE-Tucumcari. a. Apply fault at the FE-Tucumcari 115kV bus. b. Clear fault after 5 cycles by tripping the faulted line.
123	FLT_123_TOLK7_POTTERCO7_345kV_3PH	3 phase fault on the Tolk (525549) to Potter County (523961) 345kV line, near Tolk. a. Apply fault at the Tolk 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table III-2: Contingencies for Evaluation

Cont. No.	Contingency Name	Description
124	FLT_124_CHISHOLM7_POTTERCO7_345kV_3PH	3 phase fault on the Chisholm (511553) to Potter County (523961) 345kV line, near Chisholm. a. Apply fault at the Chisholm 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
125	FLT_125_POTTERCO7_G14038TAP_345kV_3PH	3 phase fault on the Potter County (523961) to GEN-2014-038-TAP (560011) 345kV line, near Potter County. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
126	FLT_126_POTTERCO7_POTTERCO6_345_230kV_3PH	3 phase fault on the Potter County 345kV (523961) to 230kV (523959) to 13.2kV (523957) transformer, near Potter County 345kV. a. Apply fault at the Potter County 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
127	FLT_127_G14070TAP_YOAKUM6_230kV_3PH	3 phase fault on the GEN-2014-070-TAP (560018) to Yoakum (526935) 230kV line, near GEN-2014-070-TAP. a. Apply fault at the GEN-2014-070-TAP 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
128	FLT_128_G14070TAP_HOBBSINT6_230kV_3PH	3 phase fault on the GEN-2014-070-TAP (560018) to Hobbs (527894) 230kV line, near GEN-2014-070-TAP. a. Apply fault at the GEN-2014-070-TAP 230kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Results

Each stability analysis was performed and the results are summarized in ***Table III-3*** through ***Table III-22***. Transmission system stability issues were observed for some scenarios and analysis with identified system upgrades showed that all issues were resolved with the system upgrades identified in this report. The stability plots will be available upon request.

GEN-2013-027 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2013-027 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-3***.

However, the Alstom 3.0MW ECO122 Wind Turbine Generators modeled for this project exhibit an anomalous power response approximately five (5) seconds after the fault is cleared. This response is illustrated below in **Figure III-1** and may require further study in the Facility Study.

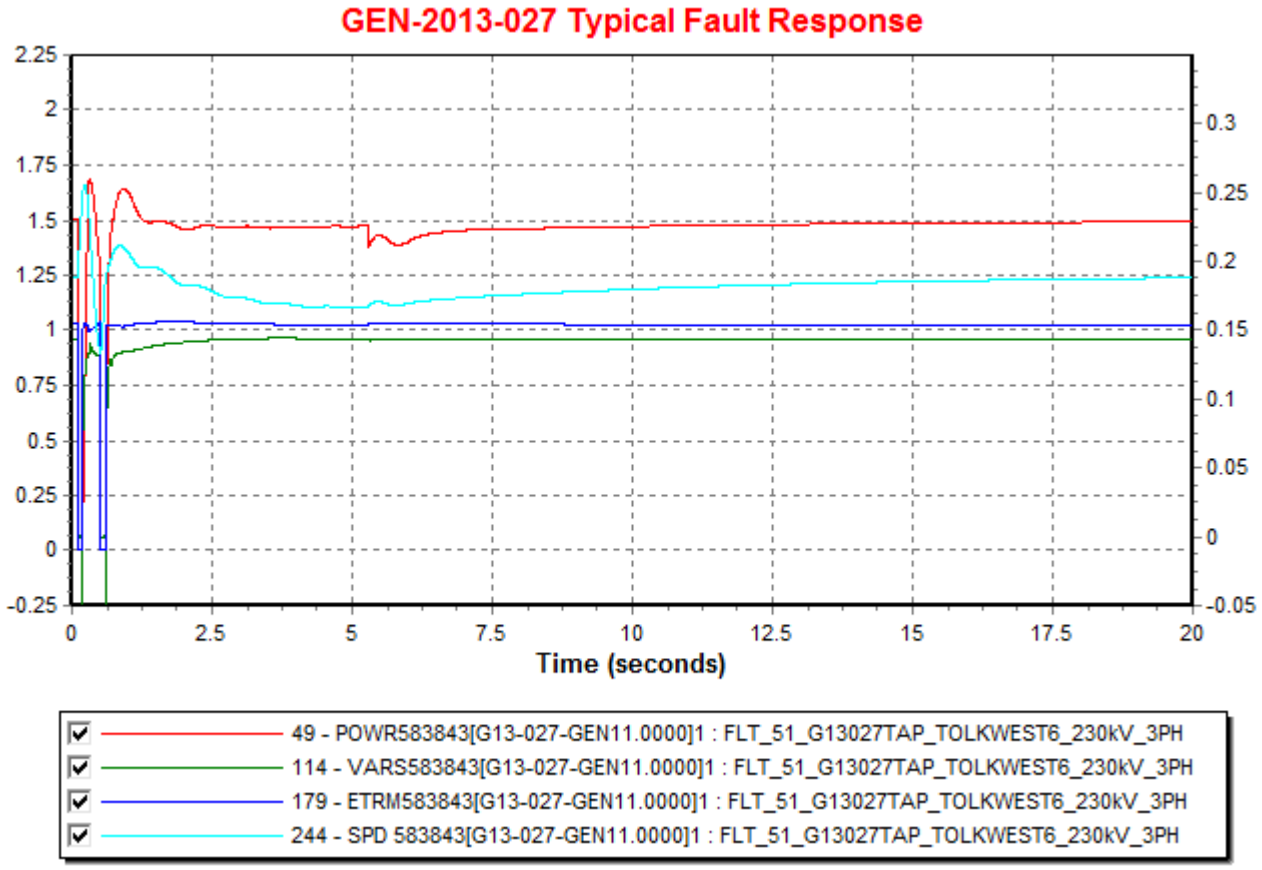


Figure III-1: GEN-2013-027 Fault Response

Table III-3: GEN-2013-027 Stand Alone Stability Analysis Results

Contingency Number and Name		2015SP	2015WP	2025SP
48	FLT_48_G08022TAP_EDDYCNTY7_345kV_3PH	STABLE	STABLE	STABLE
49	FLT_49_G08022TAP_TOLK7_345kV_3PH	STABLE	STABLE	STABLE
50	FLT_50_TOLKTAP6_TOLK7_230_345kV_3PH	STABLE	STABLE	STABLE
51	FLT_51_G13027TAP_TOLKWEST6_230kV_3PH	STABLE	STABLE	STABLE
52	FLT_52_TOLKWEST6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
53	FLT_53_G13027TAP_YOAKUM6_230kV_3PH	STABLE	STABLE	STABLE
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	STABLE	STABLE	STABLE
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	STABLE	STABLE	STABLE
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	STABLE	STABLE	STABLE
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	STABLE	STABLE	STABLE
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO_G1327	STABLE	STABLE	STABLE
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	STABLE	STABLE	STABLE
62	FLT_62_TOLKWEST6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
63	FLT_63_TOLKWEST6_ROSEVELTN6_230kV_1PH_SB	STABLE	STABLE	STABLE
64	FLT_64_TOLKWEST6_PLANTX6_230kV_3PH	STABLE	STABLE	STABLE
65	FLT_65_TOLKWEST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
66	FLT_66_TOLK7_TOLKTAP6_345_230kV_3PH	STABLE	STABLE	STABLE
67	FLT_67_TOLKWEST6_LAMBCNTY6_230kV_3PH	STABLE	STABLE	STABLE
68	FLT_68_TOLKWEST6_LAMBCNTY6_230kV_1PH_SB	STABLE	STABLE	STABLE
69	FLT_69_TOLKEAST6_PLANTX6_230kV_3PH_PO_G1327	STABLE	STABLE	STABLE
70	FLT_70_TOLKEAST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
110	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_110_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
112	FLT_112_HOBBSINT6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE

GEN-2014-007 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-007 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-4***.

Table III-4: GEN-2014-007 Stand Alone Stability Analysis Results

Contingency Number and Name		2015SP	2015WP	2025SP
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	STABLE	STABLE	STABLE
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	STABLE	STABLE	STABLE
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	STABLE	STABLE	STABLE
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	STABLE	STABLE	STABLE
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	STABLE	STABLE	STABLE
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	STABLE	STABLE	STABLE
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	STABLE	STABLE	STABLE

Table III-4: GEN-2014-007 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	STABLE	STABLE	STABLE
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	STABLE	STABLE	STABLE
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	STABLE	STABLE	STABLE
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	STABLE	STABLE	STABLE
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	STABLE	STABLE	STABLE
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	STABLE	STABLE	STABLE
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	STABLE	STABLE	STABLE
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	STABLE	STABLE	STABLE
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	STABLE	STABLE	STABLE
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	STABLE	STABLE	STABLE
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	STABLE	STABLE	STABLE
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	STABLE	STABLE	STABLE
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	STABLE	STABLE	STABLE
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	STABLE	STABLE	STABLE
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	STABLE	STABLE	STABLE
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	STABLE	STABLE	STABLE
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO_G1407	STABLE	STABLE	STABLE

GEN-2014-033 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-033 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-5***.

Table III-5: GEN-2014-033 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
1	FLT_01_CHAVESCNTY3_SAMSON3_115kV_3PH	STABLE	STABLE	STABLE
2	FLT_02_CHAVESCNTY3_URTON3_115kV_3PH	STABLE	STABLE	STABLE
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
5	FLT_05_CHAVESCNTY6_SNJUANTAP6_230kV_3PH	STABLE	STABLE	STABLE
6	FLT_06_CHAVESCNTY6_EDDYNORTH6_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE

GEN-2014-034 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-034 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low

Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-6***.

Table III-6: GEN-2014-034 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
1	FLT_01_CHAVESCNTY3_SAMSON3_115kV_3PH	STABLE	STABLE	STABLE
2	FLT_02_CHAVESCNTY3_URTON3_115kV_3PH	STABLE	STABLE	STABLE
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
5	FLT_05_CHAVESCNTY6_SNJUANTAP6_230kV_3PH	STABLE	STABLE	STABLE
6	FLT_06_CHAVESCNTY6_EDDYNORTH6_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE

GEN-2014-035 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-035 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-7***.

Table III-7: GEN-2014-035 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
1	FLT_01_CHAVESCNTY3_SAMSON3_115kV_3PH	STABLE	STABLE	STABLE
2	FLT_02_CHAVESCNTY3_URTON3_115kV_3PH	STABLE	STABLE	STABLE
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
5	FLT_05_CHAVESCNTY6_SNJUANTAP6_230kV_3PH	STABLE	STABLE	STABLE
6	FLT_06_CHAVESCNTY6_EDDYNORTH6_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE

GEN-2014-046 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-046 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-8***.

Table III-8: GEN-2014-046 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
1	FLT_01_CHAVESCNTY3_SAMSON3_115kV_3PH	STABLE	STABLE	STABLE
2	FLT_02_CHAVESCNTY3_URTON3_115kV_3PH	STABLE	STABLE	STABLE
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
5	FLT_05_CHAVESCNTY6_SNJUANTAP6_230kV_3PH	STABLE	STABLE	STABLE
6	FLT_06_CHAVESCNTY6_EDDYNORTH6_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE
9	FLT_09_EDDYSOUTH6_CUNNINHAM6_230kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE

GEN-2014-047 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-047 project requires a modification to the over-frequency relay settings in the inverter model for the project. When modeled as provided, GEN-2014-047 trips from over-frequency relays during faults at or near the POI. Extending the over-frequency relay settings in the dynamics model is necessary to prevent the plant from disconnecting during system faults. With the extended relay settings, GEN-2014-047 does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-9***.

The dynamics model (dyre) parameters provided:

/ Extended Ride-Through Option
584263 'USRMDL' 1 'AEINX' 1 1 1 27 4 14
0
1.20 1.10 0.005 2.26 142.30 0.4 25.00 1.00 1.2 1.0
1.1 99.0 0.0 2.00 0.50 3.5 60.5 0.02 57.0 0.02
59.3 0.10 0.50 0.164 0.505 30.0 0.0 /

The dynamics model (dyre) parameters studied:

/ Extended Ride-Through Option with Extended Frequency Relay Settings
584263 'USRMDL' 1 'AEINX' 1 1 1 27 4 14
0
1.20 1.10 0.005 2.26 142.30 0.4 25.00 1.00 1.2 1.0
1.1 99.0 0.0 2.00 0.50 3.5 62.5 2.00 57.0 0.02
59.3 0.10 0.50 0.164 0.505 30.0 0.0 /

Table III-9: GEN-2014-047 Stand Alone Stability Analysis Results with Extended Frequency Relay Settings

	Contingency Number and Name	2015SP	2015WP	2025SP
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE

Table III-9: GEN-2014-047 Stand Alone Stability Analysis Results with Extended Frequency Relay Settings

	Contingency Number and Name	2015SP	2015WP	2025SP
9	FLT_09_EDDYSOUTH6_CUNNINHAM6_230kV_3PH	STABLE	STABLE	STABLE
48	FLT_48_G08022TAP_EDDYCNTY7_345kV_3PH	STABLE	STABLE	STABLE
49	FLT_49_G08022TAP_TOLK7_345kV_3PH	STABLE	STABLE	STABLE
50	FLT_50_TOLKTAP6_TOLK7_230_345kV_3PH	STABLE	STABLE	STABLE
51	FLT_51_G13027TAP_TOLKWEST6_230kV_3PH	STABLE	STABLE	STABLE
52	FLT_52_TOLKWEST6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
53	FLT_53_G13027TAP_YOAKUM6_230kV_3PH	STABLE	STABLE	STABLE
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	STABLE	STABLE	STABLE
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	STABLE	STABLE	STABLE
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	STABLE	STABLE	STABLE
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	STABLE	STABLE	STABLE
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO_G1447	STABLE	STABLE	STABLE
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	STABLE	STABLE	STABLE
62	FLT_62_TOLKWEST6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
63	FLT_63_TOLKWEST6_ROSEVELTN6_230kV_1PH_SB	STABLE	STABLE	STABLE
64	FLT_64_TOLKWEST6_PLANTX6_230kV_3PH	STABLE	STABLE	STABLE
65	FLT_65_TOLKWEST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
66	FLT_66_TOLK7_TOLKTAP6_345_230kV_3PH	STABLE	STABLE	STABLE
67	FLT_67_TOLKWEST6_LAMBCNTY6_230kV_3PH	STABLE	STABLE	STABLE
68	FLT_68_TOLKWEST6_LAMBCNTY6_230kV_1PH_SB	STABLE	STABLE	STABLE
69	FLT_69_TOLKEAST6_PLANTX6_230kV_3PH_PO_G1447	STABLE	STABLE	STABLE
70	FLT_70_TOLKEAST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
110	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_110_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
112	FLT_112_HOBBSINT6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE

GEN-2014-053 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-053 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-10***.

Table III-10: GEN-2014-053 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	STABLE	STABLE	STABLE
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	STABLE	STABLE	STABLE
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	STABLE	STABLE	STABLE
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	STABLE	STABLE	STABLE
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	STABLE	STABLE	STABLE

Table III-10: GEN-2014-053 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	STABLE	STABLE	STABLE
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	STABLE	STABLE	STABLE
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	STABLE	STABLE	STABLE
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	STABLE	STABLE	STABLE
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	STABLE	STABLE	STABLE
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	STABLE	STABLE	STABLE
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	STABLE	STABLE	STABLE
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	STABLE	STABLE	STABLE
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	STABLE	STABLE	STABLE
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	STABLE	STABLE	STABLE
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	STABLE	STABLE	STABLE
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	STABLE	STABLE	STABLE
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	STABLE	STABLE	STABLE
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	STABLE	STABLE	STABLE
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	STABLE	STABLE	STABLE
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	STABLE	STABLE	STABLE
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	STABLE	STABLE	STABLE
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	STABLE	STABLE	STABLE
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO_G1453	STABLE	STABLE	STABLE
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	STABLE	STABLE

GEN-2014-054 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-054 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-11***.

Table III-11: GEN-2014-054 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	STABLE	STABLE	STABLE
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	STABLE	STABLE	STABLE
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	STABLE	STABLE	STABLE
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	STABLE	STABLE	STABLE
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	STABLE	STABLE	STABLE
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	STABLE	STABLE	STABLE
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	STABLE	STABLE	STABLE
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	STABLE	STABLE	STABLE
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	STABLE	STABLE	STABLE
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	STABLE	STABLE	STABLE
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	STABLE	STABLE	STABLE
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	STABLE	STABLE	STABLE
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	STABLE	STABLE	STABLE
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	STABLE	STABLE	STABLE

Table III-11: GEN-2014-054 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	STABLE	STABLE	STABLE
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	STABLE	STABLE	STABLE
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	STABLE	STABLE	STABLE
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	STABLE	STABLE	STABLE
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	STABLE	STABLE	STABLE
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	STABLE	STABLE	STABLE
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	STABLE	STABLE	STABLE
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	STABLE	STABLE	STABLE
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	STABLE	STABLE	STABLE
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	STABLE	STABLE	STABLE
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO_G1454	STABLE	STABLE	STABLE

GEN-2014-062 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-062 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-12***.

Table III-12: GEN-2014-062 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
3	FLT_03_CHAVESCNTY3_CHAVESCNTY6_115_230kV_3PH	STABLE	STABLE	STABLE
4	FLT_04_EDDYNTH3_EDDYSOUTH6_115_230kV_3PH	STABLE	STABLE	STABLE
7	FLT_07_EDDYNORTH6_EDDYSTH3_230_115kV_3PH	STABLE	STABLE	STABLE
8	FLT_08_EDDYNORTH6_EDDYCNTY7_230_345kV_3PH	STABLE	STABLE	STABLE
9	FLT_09_EDDYSOUTH6_CUNNINHAM6_230kV_3PH	STABLE	STABLE	STABLE
48	FLT_48_G08022TAP_EDDYCNTY7_345kV_3PH	STABLE	STABLE	STABLE
49	FLT_49_G08022TAP_TOLK7_345kV_3PH	STABLE	STABLE	STABLE
50	FLT_50_TOLKTAP6_TOLK7_230_345kV_3PH	STABLE	STABLE	STABLE
51	FLT_51_G13027TAP_TOLKWEST6_230kV_3PH	STABLE	STABLE	STABLE
52	FLT_52_TOLKWEST6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
53	FLT_53_G13027TAP_YOAKUM6_230kV_3PH	STABLE	STABLE	STABLE
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	STABLE	STABLE	STABLE
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	STABLE	STABLE	STABLE
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	STABLE	STABLE	STABLE
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	STABLE	STABLE	STABLE
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO_G1462	STABLE	STABLE	STABLE
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	STABLE	STABLE	STABLE
62	FLT_62_TOLKWEST6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
63	FLT_63_TOLKWEST6_ROSEVELTN6_230kV_1PH_SB	STABLE	STABLE	STABLE
64	FLT_64_TOLKWEST6_PLANTX6_230kV_3PH	STABLE	STABLE	STABLE
65	FLT_65_TOLKWEST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
66	FLT_66_TOLK7_TOLKTAP6_345_230kV_3PH	STABLE	STABLE	STABLE

Table III-12: GEN-2014-062 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
67	FLT_67_TOLKWEST6_LAMBCNTY6_230kV_3PH	STABLE	STABLE	STABLE
68	FLT_68_TOLKWEST6_LAMBCNTY6_230kV_1PH_SB	STABLE	STABLE	STABLE
69	FLT_69_TOLKEAST6_PLANTX6_230kV_3PH_PO_G1462	STABLE	STABLE	STABLE
70	FLT_70_TOLKEAST6_PLANTX6_230kV_1PH_SB	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
110	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_110_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
112	FLT_112_HOBBSINT6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE

GEN-2014-063 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-063 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-13***.

Table III-13: GEN-2014-063 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
9	FLT_09_EDDYSOUTH6_CUNNINHAM6_230kV_3PH	STABLE	STABLE	STABLE
14	FLT_14_CUNNINHAM6_POTASHJCT6_230kV_3PH	STABLE	STABLE	STABLE
15	FLT_15_CUNNINHAM6_HOBBSINT6_230kV_3PH	STABLE	STABLE	STABLE
16	FLT_16_CUNNINHAM6_CUNNINHAM3_230_115kV_3PH	STABLE	STABLE	STABLE
38	FLT_38_CUNNINHAM3_HOBBSINT3_115kV_3PH	STABLE	STABLE	STABLE
44	FLT_44_QUAHADA3_LEANATIONL3_115kV_3PH	STABLE	STABLE	STABLE
45	FLT_45_MADDOX3_PEARLE3_115kV_3PH	STABLE	STABLE	STABLE
46	FLT_46_MADDOX3_SANGERSW3_115kV_3PH	STABLE	STABLE	STABLE
47	FLT_47_MADDOX3_MONUMENT3_115kV_3PH	STABLE	STABLE	STABLE
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	STABLE	STABLE	STABLE
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	STABLE	STABLE	STABLE
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	STABLE	STABLE	STABLE
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	STABLE	STABLE	STABLE
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO_G1463	STABLE	STABLE	STABLE
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
110	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_110_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
112	FLT_112_HOBBSINT6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE

GEN-2014-066 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-066 project requires a modification to the under-voltage relay settings in the inverter model for the project. When modeled as provided, GEN-2014-066 trips from under-voltage relays during faults at or near the POI. Extending the under-voltage relay settings in the dynamics model is necessary to prevent the plant from disconnecting during system faults.

The GEN-2014-066 dynamics model (dyre) parameters provided:

```
/ Default Option
584163 'USRMDL' 1  'AEINX' 1 1 1 27 4 14
                0
                1.20    1.10    0.003   1.80    22.50   0.4     30.00   1.12    1.2     0.02
                1.1     2.5     0.5     0.02    0.88    5.0     60.5    0.02    57.0    0.02
                59.3    0.1     1.00    0.485   1.00    30.0    0                       /
```

The dynamics model (dyre) parameters studied:

```
/ Extended Ride-Through Option
 584163 'USRMDL' 1  'AEINX' 1 1 1 27 4 14
                0
                1.20    1.10    0.003   1.80    22.50   0.4     30.00   1.12    1.2     0.2
                1.1     2.5     0.5     1.1     0.88    5.0     62.5    2.0     57.0    2.0
                59.3    0.1     1.00    0.485   1.10    30.0    0                       /
```

With the extended under-voltage settings, GEN-2014-066 project requires additional system upgrades to meet system angular & voltage recovery requirements. The contingencies evaluated for each season are summarized below in ***Table III-14***.

Table III-14: GEN-2014-066 Stand Alone Stability Analysis Results with Extended Ride-Through Option

	Contingency Number and Name	2015SP	2015WP	2025SP
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	UNSTABLE	UNSTABLE	GEN-2013-022 TRIPPED
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	UNSTABLE	UNDER-VOLTAGE	UNSTABLE
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE

During the analysis it was observed that certain contingencies would cause post fault low voltages, below 0.7 p.u., or unstable voltages near the prior queued project GEN-2001-036 with a shared POI

of Norton 115kV. For example, Fault 103 (Fault at Pleasant Hill 230kV and outage of the 230kV/115kV transformer) would cause low post fault voltages or unstable, oscillatory, voltages. A base case analysis showed that this is NOT a prior existing condition, and therefore, IS attributed to the addition of either GEN-2014-066. The mitigation to prevent low voltages experienced in this area includes:

- Conversion and rebuild of the existing Norton to Pleasant Hill 115kV circuit with a 230kV circuit
- Addition of a 230kV/115kV transformer at the existing Norton 115kV substation.
- Addition of an 18Mvar capacitor at the Caprock Wind (GEN-2001-036) 34.5kV substation controlled by the existing D-VAR equipment
- Inclusion of 8.4 Mvar of switched shunt capacitors at the GEN-2014-066 34.5kV substation

With these system upgrades, the results indicate that the stand alone interconnection of the GEN-2014-066 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated with these system upgrades for each season are summarized below in ***Table III-15***.

Table III-15: GEN-2014-066 Stand Alone Stability Analysis Results with Extended Ride-Through Option and Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	STABLE	STABLE
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	STABLE	STABLE	STABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	STABLE	STABLE	STABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	STABLE	STABLE	STABLE
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	STABLE	STABLE	STABLE

GEN-2014-069 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-069 project requires additional system upgrades to meet system angular & voltage recovery requirements. The contingencies evaluated for each season are summarized below in ***Table III-16***.

Table III-16: GEN-2014-069 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
18	FLT_18_POTASHJCT2_NATPOTTP2_69kV_3PH	STABLE	STABLE	STABLE
20	FLT_20_STRATA2_IMC32_69kV_3PH	STABLE	STABLE	STABLE
21	FLT_21_CARLSBAD2_CARLSBAD3_69_115kV_3PH	STABLE	STABLE	STABLE

Table III-16: GEN-2014-069 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
24	FLT_24_POTASHJCT3_INTREPDWTP3_115kV_3PH	STABLE	OVER-VOLTAGE	STABLE
25	FLT_25_POTASHJCT3_POTASHJCT2_115_69kV_3PH	STABLE	STABLE	STABLE
26	FLT_26_G14069TAP_INTREPDWTP3_115kV_3PH	OVER-VOLTAGE	OVER-VOLTAGE	STABLE
27	FLT_27_G14069TAP_IMC1TP3_115kV_3PH	STABLE	STABLE	STABLE
28	FLT_28_REDBLUFF3_SANDDUNES3_115kV_3PH	STABLE	STABLE	STABLE
29	FLT_29_REDBLUFF3_RDRUNNER3_115kV_3PH	STABLE	STABLE	STABLE
30	FLT_30_RDRUNNER3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
31	FLT_31_RDRUNNER3_RDRUNNER7_115_345kV_3PH	STABLE	STABLE	STABLE
32	FLT_32_OCHOA3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
33	FLT_33_OCHOA3_WHITTEN3_115kV_3PH (15SP & 15WP)	STABLE	STABLE	N/A
	FLT_33_OCHOA3_PNDEROSATP3_115kV_3PH (25SP only)	N/A	N/A	STABLE
34	FLT_34_WHITTEN3_WARD3_115kV_3PH	STABLE	STABLE	STABLE
35	FLT_35_WHITTEN3_SJAL3_115kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
111	FLT_111_POTASHJCT3_CARLSBAD3_115kV_1PH_SB	OVER-VOLTAGE	OVER-VOLTAGE	STABLE

During the analysis it was observed that certain contingencies would cause post fault over-voltages, above 1.2 p.u., or unstable voltages near the study project GEN-2014-069. The mitigation to prevent over-voltages experienced in this area includes:

- Installation of a 50Mvar STATCOM device at the GEN-2014-069 34.5kV substation

With these system upgrades, the results indicate that the stand alone interconnection of the GEN-2014-069 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated with these system upgrades for each season are summarized below in ***Table III-17***.

It could be possible that with further discussions with the solar inverter manufacturer, the inverter dynamic model may be modified to meet the voltage recovery requirements. This possibility can be evaluated during the Interconnection Facilities Study process if requested.

Table III-17: GEN-2014-069 Stand Alone Stability Analysis Results with Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
18	FLT_18_POTASHJCT2_NATPOTTP2_69kV_3PH	STABLE	STABLE	STABLE
20	FLT_20_STRATA2_IMC32_69kV_3PH	STABLE	STABLE	STABLE
21	FLT_21_CARLSBAD2_CARLSBAD3_69_115kV_3PH	STABLE	STABLE	STABLE
24	FLT_24_POTASHJCT3_INTREPDWTP3_115kV_3PH	STABLE	STABLE	STABLE
25	FLT_25_POTASHJCT3_POTASHJCT2_115_69kV_3PH	STABLE	STABLE	STABLE
26	FLT_26_G14069TAP_INTREPDWTP3_115kV_3PH	STABLE	STABLE	STABLE
27	FLT_27_G14069TAP_IMC1TP3_115kV_3PH	STABLE	STABLE	STABLE
28	FLT_28_REDBLUFF3_SANDDUNES3_115kV_3PH	STABLE	STABLE	STABLE
29	FLT_29_REDBLUFF3_RDRUNNER3_115kV_3PH	STABLE	STABLE	STABLE
30	FLT_30_RDRUNNER3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
31	FLT_31_RDRUNNER3_RDRUNNER7_115_345kV_3PH	STABLE	STABLE	STABLE

Table III-17: GEN-2014-069 Stand Alone Stability Analysis Results with Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
32	FLT_32_OCHOA3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
33	FLT_33_OCHOA3_WHITTEN3_115kV_3PH (15SP & 15WP)	STABLE	STABLE	N/A
	FLT_33_OCHOA3_PNDEROSATP3_115kV_3PH (25SP only)	N/A	N/A	STABLE
34	FLT_34_WHITTEN3_WARD3_115kV_3PH	STABLE	STABLE	STABLE
35	FLT_35_WHITTEN3_SJAL3_115kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
111	FLT_111_POTASHJCT3_CARLSBAD3_115kV_1PH_SB	STABLE	STABLE	STABLE

GEN-2014-070 Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the GEN-2014-070 project does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated for each season are summarized below in ***Table III-18***.

Table III-18: GEN-2014-070 Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
15	FLT_15_CUNNINHAM6_HOBBSINT6_230kV_3PH	STABLE	STABLE	STABLE
38	FLT_38_CUNNINHAM3_HOBBSINT3_115kV_3PH	STABLE	STABLE	STABLE
54	FLT_54_YOAKUM6_G13027TAP_230kV_1PH_SB	STABLE	STABLE	STABLE
55	FLT_55_YOAKUM6_AMOCOSS6_230kV_3PH	STABLE	STABLE	STABLE
56	FLT_56_YOAKUM6_OXYBRUTP6_230kV_3PH	STABLE	STABLE	STABLE
57	FLT_57_YOAKUM6_MUSTANG6_230kV_3PH	STABLE	STABLE	STABLE
58	FLT_58_YOAKUM6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
59	FLT_59_YOAKUM6_YOAKUM3_230_115kV_3PH	STABLE	STABLE	STABLE
60	FLT_60_YOAKUM6_YOAKUM3_230_115kV_3PH_PO_G1327	STABLE	STABLE	STABLE
61	FLT_61_YOAKUM6_AMOCOSS6_230kV_1PH_SB	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
109	FLT_109_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_109_HOBBSINT6_GAINESGENTP6_230kV_1PH_SB	N/A	N/A	STABLE
110	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	STABLE	STABLE	N/A
	FLT_110_HOBBSINT6_ANDREWS6_230kV_1PH_SB	N/A	N/A	STABLE
112	FLT_112_HOBBSINT6_G14070TAP_230kV_3PH	STABLE	STABLE	STABLE
127	FLT_127_G14070TAP_YOAKUM6_230kV_3PH	STABLE	STABLE	STABLE
128	FLT_128_G14070TAP_HOBBSINT6_230kV_3PH	STABLE	STABLE	STABLE

Affected System Generation Interconnection Stand Alone Stability Analysis Results

Results indicate that the stand alone interconnection of the Affected System Generation Interconnection (ASGI) projects requires additional system upgrades to meet system angular & voltage recovery requirements. The contingencies evaluated for each season are summarized below in ***Table III-19***.

Table III-19: Affected System Generation Interconnection Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
18	FLT_18_POTASHJCT2_NATPOTTP2_69kV_3PH	STABLE	UNSTABLE	STABLE
20	FLT_20_STRATA2_IMC32_69kV_3PH	UNSTABLE	UNSTABLE	STABLE
21	FLT_21_CARLSBAD2_CARLSBAD3_69_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
24	FLT_24_POTASHJCT3_INTREPDWTP3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
25	FLT_25_POTASHJCT3_POTASHJCT2_115_69kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
26	FLT_26_G14069TAP_INTREPDWTP3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
27	FLT_27_G14069TAP_IMC1TP3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
28	FLT_28_REDBLUFF3_SANDDUNES3_115kV_3PH	STABLE	UNSTABLE	STABLE
29	FLT_29_REDBLUFF3_RDRUNNER3_115kV_3PH	STABLE	UNSTABLE	STABLE
30	FLT_30_RDRUNNER3_AGAVERHILL3_115kV_3PH	STABLE	UNSTABLE	STABLE
31	FLT_31_RDRUNNER3_RDRUNNER7_115_345kV_3PH	STABLE	UNSTABLE	UNSTABLE
32	FLT_32_OCHOA3_AGAVERHILL3_115kV_3PH	STABLE	UNSTABLE	STABLE
33	FLT_33_OCHOA3_WHITTEN3_115kV_3PH (15SP & 15WP)	STABLE	UNSTABLE	N/A
	FLT_33_OCHOA3_PNDEROSATP3_115kV_3PH (25SP only)	N/A	N/A	STABLE
34	FLT_34_WHITTEN3_WARD3_115kV_3PH	STABLE	UNSTABLE	STABLE
35	FLT_35_WHITTEN3_SJAL3_115kV_3PH	STABLE	UNSTABLE	STABLE
36	FLT_36_COOPERRNCH3_OILCENTER3_115kV_3PH	STABLE	UNSTABLE	STABLE
37	FLT_37_COOPERRNCH3_BYRD3_115kV_3PH	STABLE	UNSTABLE	STABLE
38	FLT_38_CUNNINHAM3_HOBBSINT3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
43	FLT_43_QUAHADA3_PCA3_115kV_3PH	STABLE	UNSTABLE	STABLE
44	FLT_44_QUAHADA3_LEANATIONL3_115kV_3PH	STABLE	UNSTABLE	STABLE
45	FLT_45_MADDOX3_PEARLE3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
46	FLT_46_MADDOX3_SANGERSW3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
47	FLT_47_MADDOX3_MONUMENT3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	UNSTABLE	UNSTABLE	STABLE
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	UNSTABLE	UNSTABLE	STABLE
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	UNSTABLE	UNSTABLE	STABLE
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	UNSTABLE	UNSTABLE	STABLE
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	STABLE	UNSTABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	UNSTABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	UNSTABLE	STABLE
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	STABLE	UNSTABLE	STABLE
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	STABLE	UNSTABLE	STABLE
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	STABLE	UNSTABLE	STABLE
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE

Table III-19: Affected System Generation Interconnection Stand Alone Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	UNSTABLE	UNSTABLE	STABLE
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO_A14XX	UNSTABLE	UNSTABLE	UNSTABLE
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	STABLE	STABLE
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	STABLE	UNSTABLE	UNSTABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	UNSTABLE	STABLE	UNSTABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
111	FLT_111_POTASHJCT3_CARLSBAD3_115kV_1PH_SB	STABLE	UNSTABLE	STABLE
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE

During the analysis it was observed that certain contingencies would cause post fault low voltages, below 0.7 p.u., or unstable voltages along the radial system connected to Pleasant Hill 115kV. This system includes the interconnections of the study project ASGI-2014-002, prior queued projects Caprock Wind (GEN-2001-036), Quay County (GEN-2011-046), and ASGI-2013-002. A base case analysis showed that the low voltages is NOT a prior existing condition, and therefore, IS attributed to the addition of ASGI-2014-002. The mitigation to prevent low voltages experienced in this area includes:

- Conversion and rebuild of the existing Norton to Pleasant Hill 115kV circuit with a 230kV circuit
- Addition of a 230kV/115kV transformer at the existing Norton 115kV substation.
- Addition of 24Mvar of switched shunt capacitors to be installed at the Norton 115kV substation[1]
- Addition of an 18Mvar capacitor at the Caprock Wind (GEN-2001-036) 34.5kV substation controlled by the existing D-VAR equipment
- Addition of an 8Mvar STATCOM device at the ASGI-2014-002 34.5kV substation
- Inclusion of 10.8 Mvar of switched shunt capacitors at the ASGI-2014-002 34.5kV substation

With these system upgrades, the results indicate that the stand alone interconnection of the ASGI projects do not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated with these system upgrades for each season are summarized below in ***Table III-20***.

[1] Note: This reactive equipment was not identified in the DISIS-2014-002 Group 6 Cluster study performed by MEPPI

Table III-20: Affected System Generation Interconnection Stand Alone Stability Analysis Results with Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
18	FLT_18_POTASHJCT2_NATPOTTP2_69kV_3PH	STABLE	STABLE	STABLE
20	FLT_20_STRATA2_IMC32_69kV_3PH	STABLE	STABLE	STABLE
21	FLT_21_CARLSBAD2_CARLSBAD3_69_115kV_3PH	STABLE	STABLE	STABLE
24	FLT_24_POTASHJCT3_INTREPDWTP3_115kV_3PH	STABLE	STABLE	STABLE
25	FLT_25_POTASHJCT3_POTASHJCT2_115_69kV_3PH	STABLE	STABLE	STABLE
26	FLT_26_G14069TAP_INTREPDWTP3_115kV_3PH	STABLE	STABLE	STABLE
27	FLT_27_G14069TAP_IMC1TP3_115kV_3PH	STABLE	STABLE	STABLE
28	FLT_28_REDBLUFF3_SANDDUNES3_115kV_3PH	STABLE	STABLE	STABLE
29	FLT_29_REDBLUFF3_RDRUNNER3_115kV_3PH	STABLE	STABLE	STABLE
30	FLT_30_RDRUNNER3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
31	FLT_31_RDRUNNER3_RDRUNNER7_115_345kV_3PH	STABLE	STABLE	STABLE
32	FLT_32_OCHOA3_AGAVERHILL3_115kV_3PH	STABLE	STABLE	STABLE
33	FLT_33_OCHOA3_WHITTEN3_115kV_3PH (15SP & 15SP)	STABLE	STABLE	N/A
	FLT_33_OCHOA3_PNDEROSATP3_115kV_3PH (25SP only)	N/A	N/A	STABLE
34	FLT_34_WHITTEN3_WARD3_115kV_3PH	STABLE	STABLE	STABLE
35	FLT_35_WHITTEN3_SJAL3_115kV_3PH	STABLE	STABLE	STABLE
36	FLT_36_COOPERRNCH3_OILCENTER3_115kV_3PH	STABLE	STABLE	STABLE
37	FLT_37_COOPERRNCH3_BYRD3_115kV_3PH	STABLE	STABLE	STABLE
38	FLT_38_CUNNINHAM3_HOBBSINT3_115kV_3PH	STABLE	STABLE	STABLE
43	FLT_43_QUAHADA3_PCA3_115kV_3PH	STABLE	STABLE	STABLE
44	FLT_44_QUAHADA3_LEANATIONL3_115kV_3PH	STABLE	STABLE	STABLE
45	FLT_45_MADDOX3_PEARLE3_115kV_3PH	STABLE	STABLE	STABLE
46	FLT_46_MADDOX3_SANGERSW3_115kV_3PH	STABLE	STABLE	STABLE
47	FLT_47_MADDOX3_MONUMENT3_115kV_3PH	STABLE	STABLE	STABLE
71	FLT_71_SPERSKINE3_INDIANA3_115kV_3PH	STABLE	STABLE	STABLE
72	FLT_72_SPERSKINE3_CARLISLE3_115kV_3PH	STABLE	STABLE	STABLE
73	FLT_73_TUCOINT3_HALECNTY3_115kV_3PH	STABLE	STABLE	STABLE
74	FLT_74_TUCOINT3_FLOYDCNTY3_115kV_3PH	STABLE	STABLE	STABLE
75	FLT_75_TUCOINT3_STANTONW3_115kV_3PH	STABLE	STABLE	STABLE
76	FLT_76_TUCOINT3_LUBBCKEST3_115kV_3PH	STABLE	STABLE	STABLE
77	FLT_77_CARLISLE3_LPDOUDTP3_115kV_3PH	STABLE	STABLE	STABLE
78	FLT_78_CARLISLE3_MURPHY3_115kV_3PH	STABLE	STABLE	STABLE
79	FLT_79_CARLISLE6_LPMILWAKEE6_230kV_3PH	STABLE	STABLE	STABLE
80	FLT_80_CARLISLE6_TUCOINT6_230kV_3PH	STABLE	STABLE	STABLE
81	FLT_81_CARLISLE3_CARLISLE6_115_230kV_3PH	STABLE	STABLE	STABLE
82	FLT_82_TUCOINT3_TUCOINT6_115_230kV_3PH	STABLE	STABLE	STABLE
83	FLT_83_LPMILWAKEE6_LPMILWAKEE2_230_69kV_3PH	STABLE	STABLE	STABLE
84	FLT_84_G14007TAP_TUCOINT7_345kV_3PH	STABLE	STABLE	STABLE
85	FLT_85_G14007TAP_BORDER7_345kV_3PH	STABLE	STABLE	STABLE
86	FLT_86_BORDER7_WWRDEHV7 _345kV_3PH	STABLE	STABLE	STABLE
87	FLT_87_TUCOINT7_OKU7_345kV_3PH	STABLE	STABLE	STABLE
88	FLT_88_TUCOINT7_TUCOINT6_345_230kV_3PH	STABLE	STABLE	STABLE
89	FLT_89_TUCOINT6_SWISHER6_230kV_3PH	STABLE	STABLE	STABLE
90	FLT_90_TUCOINT6_TOLKEAST6_230kV_3PH	STABLE	STABLE	STABLE
91	FLT_91_TUCOINT6_JONES6_230kV_3PH	STABLE	STABLE	STABLE
92	FLT_92_TUCOINT6_TUCOINT3_230_115kV_3PH	STABLE	STABLE	STABLE
93	FLT_93_JONES6_LPHOLLY6_230kV_3PH	STABLE	STABLE	STABLE
94	FLT_94_JONES6_LUBBCKSTH6_230kV_3PH	STABLE	STABLE	STABLE
95	FLT_95_JONES6_LUBBCKEST6_230kV_3PH	STABLE	STABLE	STABLE

Table III-20: Affected System Generation Interconnection Stand Alone Stability Analysis Results with Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
96	FLT_96_JONES6_GRASSLAND6_230kV_3PH	STABLE	STABLE	STABLE
97	FLT_97_SWISHER6_AMASOUTH6_230kV_3PH	STABLE	STABLE	STABLE
98	FLT_98_TUCOINT3_TUCOINT6_115_230kV_3PH_PO_A14XX	STABLE	STABLE	STABLE
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	STABLE	STABLE
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	STABLE	STABLE	STABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	STABLE	STABLE	STABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	STABLE	STABLE	STABLE
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
111	FLT_111_POTASHJCT3_CARLSBAD3_115kV_1PH_SB	STABLE	STABLE	STABLE
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	STABLE	STABLE	STABLE

DISIS-2014-002 Group 6 Cluster – Quay County (GEN-2011-046) Sensitivity Stability Analysis Results

A sensitivity analysis was performed for the DISIS-2014-002 Group 6 Cluster Study to evaluate the study results with the Prior Queued project, Quay County (GEN-2011-046), off-line. The results indicate that the sensitivity scenario requires additional system upgrades to meet system angular & voltage recovery requirements. The contingencies evaluated for each season are summarized below in ***Table III-21***.

Table III-21: DISIS-2014-002 Group 6 Cluster Quay County (GEN-2011-046) Sensitivity Stability Analysis Results

	Contingency Number and Name	2015SP	2015WP	2025SP
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	GEN-2013-022 & GEN-2014-066 TRIPPED	GEN-2013-022 & GEN-2014-066 TRIPPED
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	GEN-2013-022 & GEN-2014-066 TRIPPED	GEN-2013-022 & GEN-2014-066 TRIPPED	UNSTABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	UNDER-VOLTAGE	GEN-2013-022 & GEN-2014-066 TRIPPED	GEN-2013-022 & GEN-2014-066 TRIPPED
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	UNDER-VOLTAGE	GEN-2013-022 & GEN-2014-066 TRIPPED	GEN-2013-022 & GEN-2014-066 TRIPPED
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	UNDER-VOLTAGE	GEN-2013-022 & GEN-2014-066 TRIPPED	GEN-2013-022 & GEN-2014-066 TRIPPED
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	UNSTABLE	UNSTABLE	UNSTABLE

During the analysis it was observed that certain contingencies would cause post fault low voltages, below 0.7 p.u., or unstable voltages along the radial system connected to Pleasant Hill 115kV. This system includes the interconnections of the study projects ASGI-2014-002 & GEN-2014-066, prior queued projects Caprock Wind (GEN-2001-036), Quay County (GEN-2011-046), and ASGI-2013-002. A base case analysis showed that the low voltages is NOT a prior existing condition, and therefore, IS attributed to the addition of ASGI-2014-002 & GEN-2014-066. The mitigation to prevent low voltages experienced in this area includes:

- Conversion and rebuild of the existing Norton to Pleasant Hill 115kV circuit with a 230kV circuit
- Addition of a 230kV/115kV transformer at the existing Norton 115kV substation.
- Addition of 24Mvar of switched shunt capacitors to be installed at the Norton 115kV substation[2]
- Addition of an 18Mvar capacitor at the Caprock Wind (GEN-2001-036) 34.5kV substation controlled by the existing D-VAR equipment
- Addition of an 8Mvar STATCOM device at the ASGI-2014-002 34.5kV substation
- Inclusion of 10.8 Mvar of switched shunt capacitors at the ASGI-2014-002 34.5kV substation
- Inclusion of 8.4 Mvar of switched shunt capacitors at the GEN-2014-066 34.5kV substation

With these system upgrades, the results indicate that the DISIS-2014-002 Group 6 Cluster sensitivity analysis does not require any additional system upgrades to meet system angular & voltage recovery requirements. Low Voltage Ride Through (LVRT) analysis showed no generators/inverters tripping offline due to low voltage. The contingencies evaluated with these system upgrades for each season are summarized below in ***Table III-22***.

Table III-22: DISIS-2014-002 Group 6 Cluster Quay County (GEN-2011-046) Sensitivity Stability Analysis Results with Identified System Upgrades

	Contingency Number and Name	2015SP	2015WP	2025SP
99	FLT_99_NORTON3_FETUCMCARI3_115kV_3PH	STABLE	STABLE	STABLE
100	FLT_100_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
101	FLT_101_PLSNTHILL3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
102	FLT_102_PLSNTHILL3_ECLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
103	FLT_103_PLSNTHILL6_PLSNTHILL3_230_115kV_3PH	STABLE	STABLE	STABLE
104	FLT_104_PLSNTHILL6_OASIS6_230kV_3PH	STABLE	STABLE	STABLE
105	FLT_105_PLSNTHILL6_ROSEVELTN6_230kV_3PH	STABLE	STABLE	STABLE
106	FLT_106_OASIS6_OASIS3_230_115kV_3PH	STABLE	STABLE	STABLE
107	FLT_107_FECLVSINT3_NCLOVISTP3_115kV_3PH	STABLE	STABLE	STABLE
108	FLT_108_FECLVSINT3_WCLOVIS3_115kV_3PH	STABLE	STABLE	STABLE
122	FLT_122_FETUCMCARI3_LOPEZ3_115kV_3PH	STABLE	STABLE	STABLE

[2] Note: This reactive equipment was not identified in the DISIS-2014-002 Group 6 Cluster study performed by MEPPI

FERC LVRT Compliance

FERC Order #661A places specific requirements on wind farms through its Low Voltage Ride Through (LVRT) provisions. For Interconnection Agreements signed after December 31, 2006, wind farms shall stay on line for faults at the POI that draw the voltage down at the POI to 0.0 pu.

LVRT compliance was included in this study, with the identified upgrades each of the projects no wind farms or other generation tripped offline for the contingencies studied. Please refer to DISIS-2014-002 Group 6 Cluster report for further evaluation of LVRT compliance for wind farms.

IV. Conclusion

DISIS-2014-002 Interconnection Customers have requested an Impact Study to determine the impacts of interconnecting generation to the SPP Transmission System.

With all Base Case Network Upgrades in service, previously assigned Network Upgrades in service, newly assigned Network Upgrades in service as documented in the body of this report, and required reactive compensation equipment in service as documented in the body of this report, the Group 6 projects were found to remain stable and no generators tripped off line. Additionally, the power factor analysis conducted in DISIS-2014-002 Group 06 cluster study remains valid for the projects in this study.

Any changes to the assumptions made in this study, for example, one or more of the previously queued requests withdraw, may require a re-study at the expense of the Customer.

Nothing in this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service.

Appendix A: 2015 Summer Peak Stability Plots

(Available on request)

Appendix B: 2015 Winter Peak Stability Plots

(Available on request)

Appendix C: 2025 Summer Peak Stability Plots

(Available on request)

P: Group 7 Dynamic Stability Analysis Report

See PSC report on next page.

DISIS-2014-002 (Group 7)

Definitive Interconnection System Impact Study

Final Report

Prepared by **Keehan Chan**
PSC Australia

For **Southwest Power Pool, LLC**

Reference **JU5103-DISIS-2014-002 (Group 7)**

Date **January 22, 2015**

Proprietary & Confidential

Revision Table

Revision	Issue Date	Description
0	January 12, 2015	Initial Report
1	January 22, 2015	Final

Reviewers

Name	Interest	Date
Tim Browne	Principal Engineer	22 January 2015

Approval

Name	Position	Date
Marc Brunet Watson	Director Power Networks, PSC-NA	22 January 2015

TABLE OF CONTENTS

Executive Summary **4**

1. Introduction **6**

2. Base case model and GEN-2014-036 study data **8**

3. Power flow flow and short circuit analysis **14**

4. Stability analysis **17**

5. Power factor analysis **25**

6. Conclusions **26**

Appendix A. Southwest Power Pool Disturbance Performance Requirements **27**

Appendix B. Power flow voltage issues **30**

Appendix C. Plots from Stability Analysis **32**

Executive Summary

As the Regional Transmission Operator, SPP is responsible for conducting a Definitive Impact Study for its interconnection customers. The customers in DISIS-2014-002 (Group 7) have now requested a generation interconnection study through SPP for their respective interconnection requests. SPP contracted Power Systems Consultants (PSC) to carry out this definitive interconnection system impact study (DISIS), which include the project listed below:

Request	Size (MW)	Generator Model	Point of Interconnection (POI)	Generator bus number
GEN-2014-036	50	SC 500CP-US (SMASC)	Hollis 138 kV (511507)	583983

The definitive impact studies include short circuit analysis, stability analysis, reactive analysis and power factor analysis.

SPP provided the following base cases to be studied as part of the impact studies:

- MDWG14-15SP_DIS1402_G07 – 2015 summer peak base case
- MDWG14-15WP_DIS1402_G07 – 2015 winter peak base case
- MDWG14-25SP_DIS1402_G07 – 2025 summer peak base case

The analysis was performed with the GEN-2014-036 project dispatched at 100% output power together with all the prior queued projects also dispatched at 100% output power.

For short circuit analysis, the short circuit current contribution from GEN-2014-036 was found to be small and not anticipated to impact breaker duty requirements at the high voltage breakers.

For stability, GEN-2014-036 was tested against the SPP Disturbance Performance Requirements. There were 22 faults tested; each was run with a 10 s simulation time period. For the fault tested on the base cases:

- GEN-2014-036 was able to ride through the fault and recover to pre-fault output and terminal voltage for most faults except for FLT01-3PH and FLT03-3PH.
- No tripping of prior queue projects (wind farms) occurred.
- No large rotor angle deviation and oscillation (as per SPP Disturbance Performance Requirements) occurred for the synchronous generators in the same area as GEN-2014-036.
- The recovery voltage at the 138 kV POI and up to 5 buses away remained within the 0.7 to 1.2 pu range following fault clearance.

For Faults FLT01-3PH and FLT03-3PH, GEN-2014-036 was not able to recover to the pre-fault output following fault clearance for all the three base cases. The faults were re-tested with a 0/-50MVAR dynamic reactive compensator connected to the 34.5 kV bus of GEN-2014-036 plant. The reactor was able to control the post-fault voltages and return GEN-2014-036 to the pre-fault output.

The power factor analysis showed GEN-2014-036 to operate within a power factor range of 0.95 leading to 0.95 lagging for all post-fault conditions studied.

1. Introduction

As the Regional Transmission Operator, SPP is responsible to conduct a definitive impact study for its interconnection customers. The customers in DISIS-1402-G07 (Group 7) have now requested a generation interconnection study through SPP for their respective interconnection requests.

SPP contracted Power Systems Consultants (PSC) to carry out this definitive impact study (DIS), which include projects listed in Table 1.

Table 1 – Generation Interconnection Requests DIS1402-G07

Request	Size (MW)	Generator Model	Point of Interconnection	Generator bus number
GEN-2014-036	50	SC 500CP-US (SMASC)	Hollis 138 kV (511507)	583983

GEN-2014-036 is a new solar farm project with a Point of Interconnection (POI) at the Hollis 138 kV bus.

The definitive impact studies include short circuit analysis, stability analysis, reactive analysis and power factor analysis. SPP provided the following base cases to be studied as part of the impact studies:

- MDWG14-15SP_DIS1402_G07 – 2015 Summer peak base case
- MDWG14-15WP_DIS1402_G07 – 2015 winter peak base case
- MDWG14-25SP_DIS1402_G07 – 2025 summer peak base case

The base cases contain the GEN-2014-036 project dispatched at 100% output power and the prior queued projects as listed in Table 2 dispatched at 100% output power. Note that project request GEN-2007-052 is not identifiable in the base cases.

Table 2 –Prior Queued Projects

Request	Size (MW)	Generator Model	Point of Interconnection	Generator bus number
Blue Canyon I	74.5	WT1G1	Washita 138kV (521089)	521214
Blue Canyon II (GEN-2003-004)	151.2	Vestas V80	Washita 138kV (521089)	520410
GEN-2002-005	120	Acciona 1.5MW	Moorewood – Elk City 138kV (521116)	520443
GEN-2003-005/ GEN-2011-037	105.6	G.E. 1.6MW	Tap on the Anadarko – Paradise 138kV line (521129)	520404
GEN-2003-022/ GEN-2004-020	150	GE 1.5MW	Weatherford 138kV (511506)	511951

Table 2 –Prior Queued Projects

Request	Size (MW)	Generator Model	Point of Interconnection	Generator bus number
GEN-2006-002	100.8	G.E. 1.5 & 1.6MW	Sweetwater 230kV (511541)	506784 506786
GEN-2006-035	224	Gamesa 2.0MW	Sweetwater 230kV (511541)	511704 511705
GEN-2006-043	98.9	Siemens 2.3MW	Sweetwater 230kV (511541)	511952
GEN-2007-032	150	Acciona 1.5MW	Tap on the Clinton Jct. – Clinton 138kV line (560652)	560936
GEN-2007-052*	150	Gas Turbine	Anadarko 138kV (520814)	A number of gas turbine connected to 520814*
GEN-2008-023	150	G.E. 1.6MW	Hobart Junction 138kV (511463)	506704 506702
GEN-2011-049	250	Siemens 2.3MW	Border 345kV (515458)	583093 583096
GEN-2012-028	74.25	GE 1.7MW	Gotebo 69kV (520925)	583403

* note that the actual units of GEN-2007-052 are not identifiable from the base cases provided. All generators connected to POI Anadarko 138 kV (520814) are monitored.

As part of the study, the Group 7 projects and the prior queued projects have been monitored, in addition to voltages in the following areas:

- Area 520 – AEPW : American Electric Power West
- Area 524 – OKGE : Oklahoma Gas and Electric
- Area 525 – WFEC : Western Farmers Electric Cooperative
- Area 526 – SPS
- Area 531 – MIDW
- Area 534 – SUNC : Sunflower Electric Power Corporation
- Area 536 – WERE : Westar Energy

2. Base case model and GEN-2014-036 study data

2.1 Simulation Tools

The modelling and studies in this report were undertaken using the PSS/E Version 32.2.1 software package.

2.2 Power flow model

SPP provided the power flow model for the base cases of 2015 Summer Peak, 2015 Winter Peak and 2025 Summer Peak. The power flow data for the GEN-2014-036 plant model as obtained from the base case model is provided in Table 3. The one line diagram from PSS/E showing the connectivity of the GEN-2014-036 plant is shown in Figure 1.

Table 3 – GEN-2014-036 plant power flow data

GEN-2014-036	Model
Solar inverter 50 MW	50 MW solar inverter Pgen 50 MW Pmax 50 MW Pmin 0 MW Qgen 0 MVAr Qmax 0 MVAr Qmin 0 MVAr Mbase 50 MVA Zsorce j9999 pu @ Mbase
Solar inverter GSU transformer	1 x 34.5/0.27 kV 50 MVA Rating = 50/50/50 MVA (OA/F1/F2) Transformer base = 50 MVA Impedance = 0.0076 + j0.05700 @ 50 MVA Number of taps = 5 Tap step size = 5%
Main collector transformer*	1 x 115/34.5 kV 36 MVA transformer Rating = 60/60/60 MVA (OA/F1/F2) Transformer base = 36 MVA Impedance = 0.002670 + j0.07996 @ 36 MVA Number of taps = 5 Tap step size = 5%
Transmission line 34.5 kV	R + jX = 0.003890 + j0.002640 @ 100 MVA Charging = 0.006900 @ 100 MVA

Transmission line 138 kV kV	R + jX = 0.004890 + j0.013890 @ 100 MVA Charging = 0.003590 @ 100 MVA Length = 3.4 miles
Capacitor 34.5 kV	4 x 1.2 MVAR

* The base case models provided has the main collector transformer as 115/34.5 kV connected to the HV plant substation of 115 kV. This appears to be an incorrect representation as the POI base voltage is 138 kV.

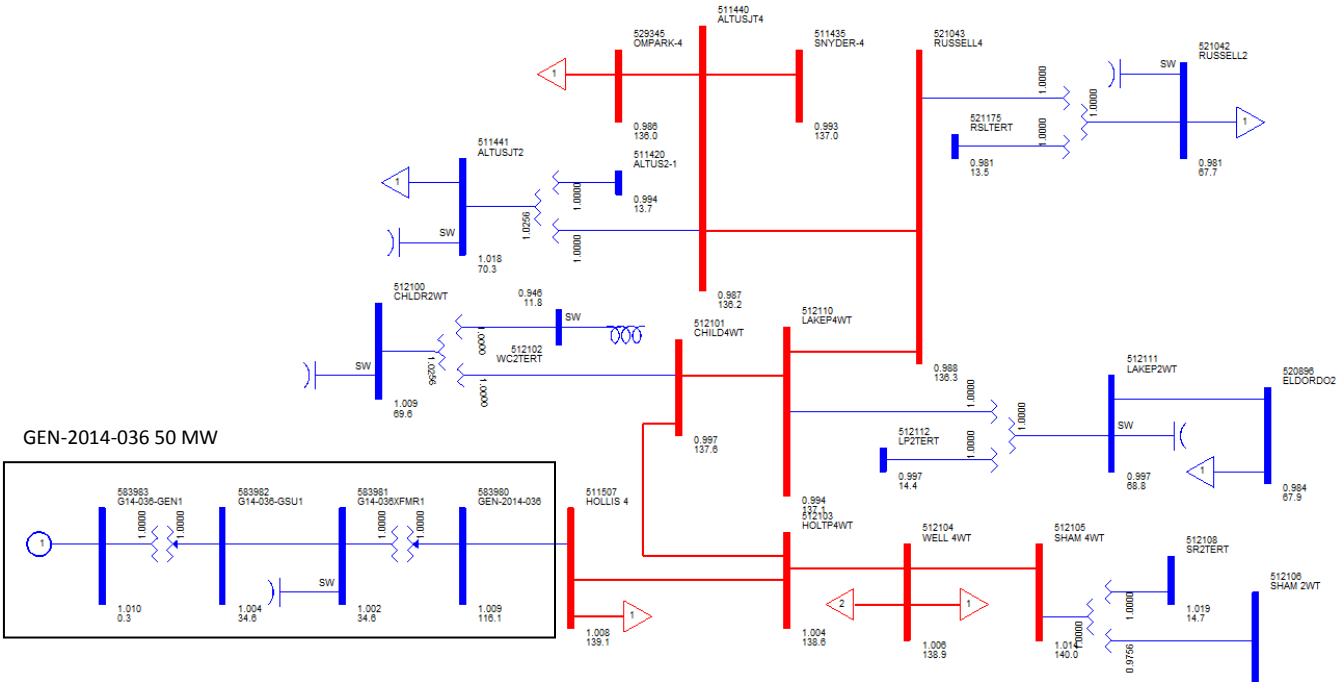


Figure 1: PSS/E power flow one line diagram for GEN-2014-036 (50 MW solar)

For the study, the GEN-2014-036 project was dispatched at 100% output power; the prior queued projects were also dispatched at 100% output power as shown in Table 4.

Table 4 –Prior Queued Projects – base case dispatched

Request	Size (MW)	Base case dispatch (MW)
Blue Canyon I	74.5	74.3
Blue Canyon II (GEN-2003-004)	151.2	151.2
GEN-2002-005	120	118.5
GEN-2003-005/ GEN-2011-037	105.6	105.6
GEN-2003-022/ GEN-2004-020	150	147.0
GEN-2006-002	100.8	100.8
GEN-2006-035	224	224
GEN-2006-043	98.9	98.9
GEN-2007-032	150	150

Table 4 –Prior Queued Projects – base case dispatched

Request	Size (MW)	Base case dispatch (MW)
GEN-2007-052	150	-
GEN-2008-023	150	148.8
GEN-2011-049	250	250.7
GEN-2012-028	74.25	74.8

2.3 Dynamic model

The dynamics simulation model for GEN-2014-036 is based on the SMASC User Model provided by SPP as part of the base cases. The data for the model is given in Table 5.

Table 5 – Dynamic model and data for GEN-2014-036

```
/ ***** GEN-2014-036 Red River Solar *****

/ SMA Sunny Cenrtal SC 500CP-US-10 0.5MVA Solar Inverter (SMASC_B19_32_IVF111.obj)
/
583983 'USRMDL' 1 'SMASC' 1 1 0 76 15 102 1 1 0 0.9 0.5 1 0.9 0.9 0 0.2 0.05 0.4
                2 3 1 0 5 0.5 0 1 0 1 2 0 5 0.9 0 0.05
                1.2 0.16 1.2 0.16 1.1 1 0.88 2 0.5 0.16 0.5 0.16 1.06 0.95
                65 0.1 65 0.1 60.5 0.16 59.3 0.16 57 0.16 50 0.1 60.5 59.3
                30 1 10 30 0 30 0 0.2 0.2 0.35 0.35 0.3491 2 4 0.1 -0.1 0 0.125 0.1 0 /
```

2.4 Fault and contingency definitions

The faults that were studied in the stability and power factor analysis are provided in Table 6.

Table 6 – Fault and contingency list

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the Hollis Tap (512103) to Childress (512101) 138kV line circuit 1, near Hollis Tap. a. Apply fault at the Hollis Tap 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	3 phase fault on the Hollis Tap (512103) to Wellington (512104) 115kV line circuit 1, near Hollis Tap. a. Apply fault at the Hollis Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 6 – Fault and contingency list

Cont. No.	Cont. Name	Description
3	FLT03-3PH	3 phase fault on the Childress (512101) to Lake Pauline (512110) 138kV line circuit 1, near Childress. a. Apply fault at the Childress 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the Lake Pauline (512110) to Russell (521043) 138kV line circuit 1, near Lake Pauline. a. Apply fault at the Lake Pauline 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
5	FLT05-3PH	3 phase fault on the Russell (521043) to Altus Junction (511440) 138kV line circuit 1, near Russell. a. Apply fault at the Russell 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT06-3PH	3 phase fault on the Altus Junction (511440) to Snyder (511435) 138kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
7	FLT07-3PH	3 phase fault on the Altus Junction (511440) to Tamarack Tap (529345) 115kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
8	FLT08-3PH	3 phase fault on the Tamarack Tap (529345) to OMPVET (529298) 115kV line circuit 1, near Tamarack Tap. a. Apply fault at the Tamarack Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT09-3PH	3 phase fault on the OMPVET (529298) to OMALTUS (529302) 115kV line circuit 1, near OMPVET. a. Apply fault at the OMPVET 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 6 – Fault and contingency list

Cont. No.	Cont. Name	Description
10	FLT10-3PH	3 phase fault on the OMALTUS (529302) to Hobart Junction (511463) 115kV line circuit 1, near OMALTUS. a. Apply fault at the OMALTUS 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT11-3PH	3 phase fault on the Kirby (524088) to Conway (524079) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
12	FLT12-3PH	3 phase fault on the Kirby (524088) to Grapevine (523770) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
13	FLT13-3PH	3 phase fault on the Kirby (524088) to Jericho (512086) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT14-3PH	3 phase fault on the Wellington (512104) to Shamrock (512105) 138kV line circuit 1, near Wellington. a. Apply fault at the Wellington 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15	FLT15-3PH	3 phase fault on the Childress (512101) 138/(512100) 69/(512102) 13.2kV Transformer circuit 1, near the 138kV bus. a. Apply fault at the Childress 138kV bus. b. Clear fault after 5 cycles and trip the faulted line.
16	FLT16-3PH	3 phase fault on the Lake Pauline (512110) 138/(512111) 69/(512112) 13.2kV Transformer circuit 1, near the 138kV bus. a. Apply fault at the Lake Pauline 138kV bus. b. Clear fault after 5 cycles and trip the faulted line.
17	FLT17-3PH	**Prior outage on Altus Junction (511440) to Tamarack Tap (529345) 138kV line** 3 phase fault on the Altus Junction (511440) to Snyder (511435) 138kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 6 – Fault and contingency list

Cont. No.	Cont. Name	Description
18	FLT18-3PH	**Prior outage on Altus Junction (511440) to Snyder (511435) 138kV line** 3 phase fault on the Altus Junction (511440) to Tamarack Tap (529345) 115kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
19	FLT19-3PH	**Prior outage on the Kirby (524088) to Conway (524079) 69kV line** 3 phase fault on the Kirby (524088) to Grapevine (523770) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT20-3PH	**Prior outage on the Kirby (524088) to Grapevine (523770) 69kV line** 3 phase fault on the Kirby (524088) to Conway (524079) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT21-3PH	**Kirby Stuck Breaker** a. Apply fault at Kirby (524088) 115kV bus b. After 20 cycles, trip the Kirby (524088) to Conway (524079), Kirby (524088) to Grapevine (523770), Kirby (524088) - McClellan (523804), and Kirby (524088)- Jericho (512086) 69kV lines and remove the fault
22	FLT22-3PH	**Altus Stuck Breaker** a. Apply fault at Altus Junction (511440) 115kV bus b. After 20 cycles, trip the Altus Junction (511440) to Tamarack (529345) line c. Trip the Altus Junction (511440) 115/69 (511441)/13.8 (511420) kv transformer, and remove the fault

3. Power flow flow and short circuit analysis

3.1 Power flow analyses

The power flow and voltages from GEN-2014-036, and the POI, in the base case without outage are shown in Figure 2 to Figure 4. GEN-2014-036 project and the prior queued projects were dispatched at 100% output power.

In the 2015 summer peak case, no voltages outside the range of 0.95 to 1.05 pu were observed on buses above 115 kV in the monitored areas.

In the 2015 winter peak case, a number of buses above 115 kV in Area 525 and 526 were observed to have voltage below 0.95 pu. A study of the base case without GEN-2014-036 showed the same low voltages, hence, these are not due to the interconnection of the project. The details are provided in Appendix B.

In the 2025 summer peak case, a number of buses above 115 kV in Area 526 were observed to have voltage below 0.95 pu. A study of the base case without GEN-2014-036 showed the same low voltages, hence, these are not due to the interconnection of the project. The details are provided in Appendix B.

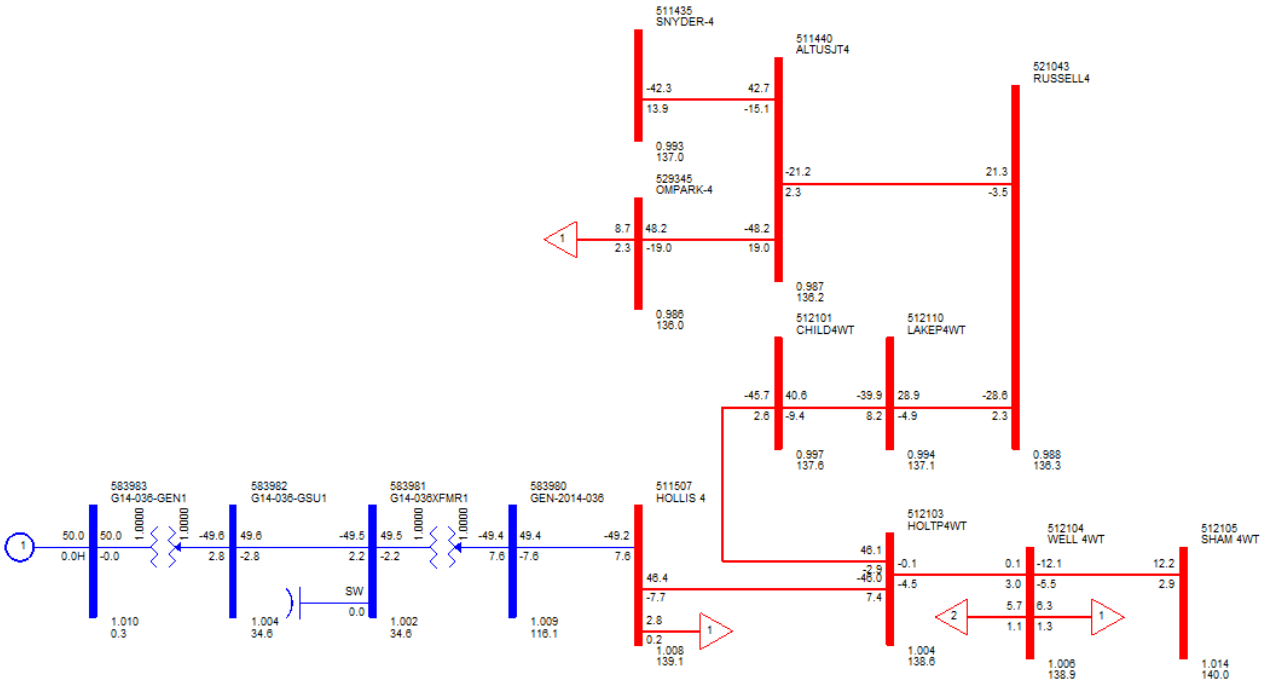


Figure 2: GEN-2014-036 – Power flow 2015 Summer Peak

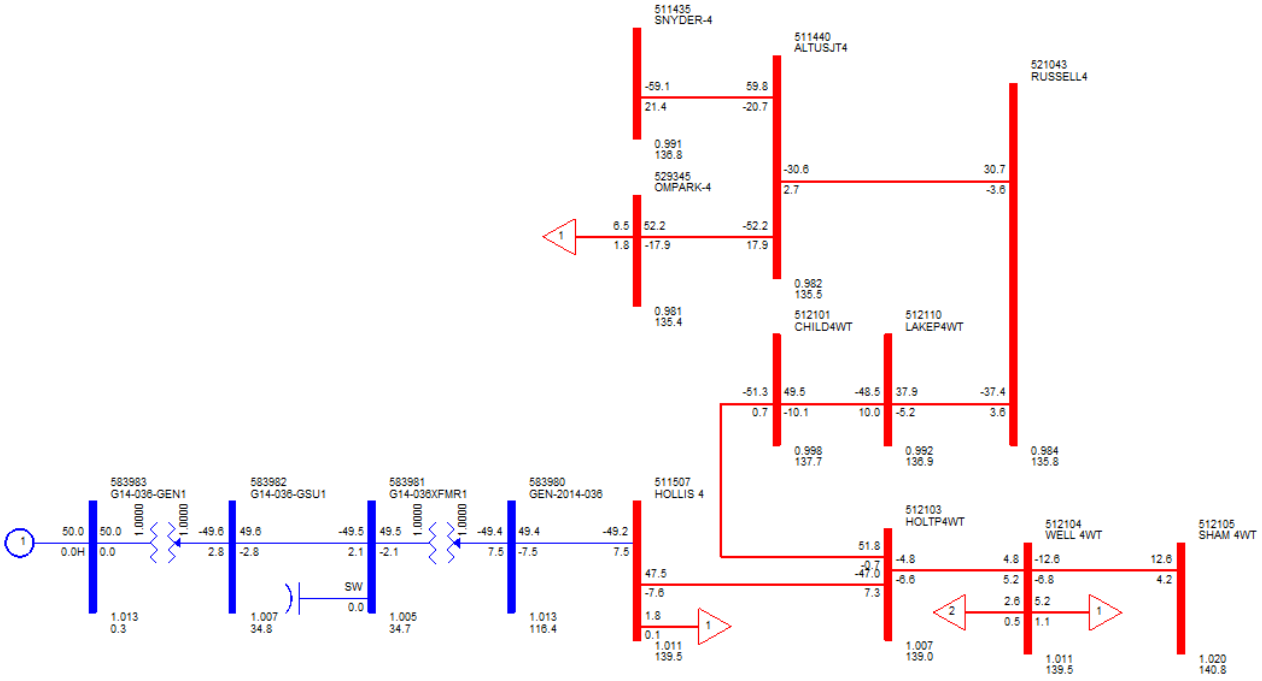


Figure 3: GEN-2014-036 – Power flow 2015 Winter Peak

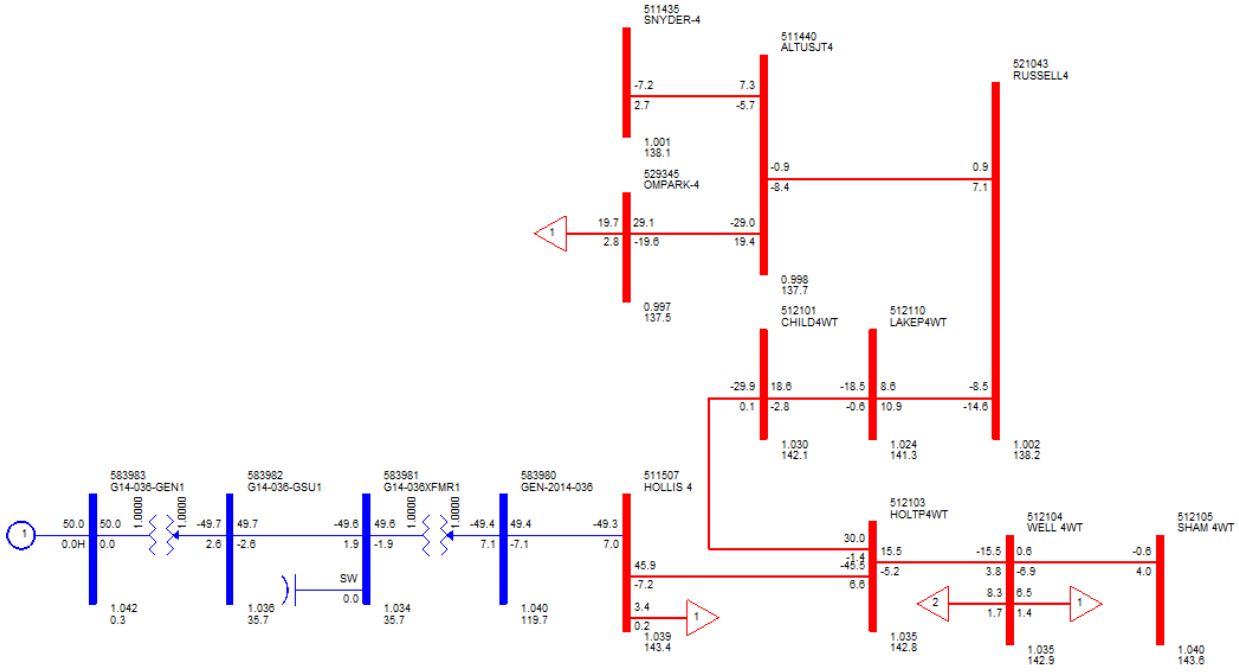


Figure 4: GEN-2014-036 – Power flow 2025 Summer Peak

3.2 Short circuit analysis

Short circuit analysis was performed in PSS/E using the 2025 summer peak base case with PSS/E activity ASCC.

Table 7 and Table 8 below show the pre and post project short circuit analysis results in the base cases for buses above 115 kV for up to five buses away from the point of interconnection (511507 Hollis 4 138 kV). The short circuit current contribution from GEN-2014-036 is small and is not anticipated to impact breaker duty requirements at the high voltage breakers.

As the faults to be studied for stability and power analysis are three phase, the single phase fault impedances were not calculated.

Table 7 – Three Phase short circuit kA five buses from POI

Substation	Max Short Circuit Fault Current (Amp)	
	With Group 07	Without Group 07
511440 [ALTUSJT4 138.00]	4726	4708
511507 [HOLLIS 4 138.00]	1225	1203
512101 [CHILD4WT 138.00]	1698	1679
512103 [HOLTP4WT 138.00]	1529	1506
512104 [WELL 4WT 138.00]	1447	1424
512105 [SHAM 4WT 138.00]	1367	1346
512110 [LAKEP4WT 138.00]	2145	2124
521043 [RUSSELL4 138.00]	3560	3543

Table 8 – Line-Ground short circuit kA five buses from POI

Substation	Max Short Circuit Fault Current (Amp)	
	With Group 07	Without Group 07
511440 [ALTUSJT4 138.00]	4568	4549
511507 [HOLLIS 4 138.00]	1111	1089
512101 [CHILD4WT 138.00]	1888	1862
512103 [HOLTP4WT 138.00]	1569	1543
512104 [WELL 4WT 138.00]	1483	1459
512105 [SHAM 4WT 138.00]	1555	1531
512110 [LAKEP4WT 138.00]	2354	2330
521043 [RUSSELL4 138.00]	3254	3237

4. Stability analysis

4.1 Evaluation criteria

The SouthWest Power Pool Disturbance Performance Requirements as provided by SPP were used as the criteria to evaluate the stability of interconnection GEN-2014-036. The basis of the evaluation is described by two minimum requirements:

a. Angular Oscillations
   i. For study projects that are synchronous machines, verify that rotor angle oscillations meet the damping requirements described in Appendix A.
   ii. For other synchronous machines that are not study projects, but based on engineering judgment have questionable rotor angle oscillation damping, verify that they meet the requirements described in Appendix 1.

b. Transient Voltage Recovery
   i. For the transient voltage recovery requirement in Appendix A, the bus voltages included were those at the point of interconnection for each study generator. Other voltages (115kV and higher) in the area should be checked for this requirement if the terminal voltage of other machines in the monitored area appears to have voltage recovery issues.

Note that GEN-2014-036 is a solar inverter, and hence is excluded from the angular oscillations requirement. The other machines monitored in the study areas were evaluated against the above requirements.

4.2 Results

Table 9 summarizes the stability analysis results. The plots for GEN-2014-036 and prior projects are provided in Appendix C.

The base case models were run under a 20 second steady state simulation, with machine angle deviations observed to be below 0.5 degrees in the monitored areas with the exception of Blue Canyon 2 wind turbine generator on bus 520410. The Blue Canyon 2 wind generator had an angle deviation above 0.5 degrees in the 2015 SP and 2025 SP cases. The deviations were observed with and without GEN-2014-036 in the base cases.

The assessment shows that the system is stable with GEN-2014-036 for all of the faults considered, with the exceptions of FLT01-3PH and FLT03-3PH. A system is considered stable if the following were observed:

- GEN-2014-036 is able to ride through the fault and recovers to pre-fault output and terminal voltage.
- No tripping of prior queue projects (wind farms) occurred.
- No large rotor angle deviation and oscillation (as per SPP Disturbance Performance Requirements) occurred for the synchronous generators in the same area as GEN-2014-036.
- The recovery voltage at the 138 kV POI and up to 5 buses away remained within the 0.7 to 1.2 pu range following fault clearance.

For Faults FLT01-3PH and FLT03-3PH, GEN-2014-036 did not recover to the pre-fault output following fault clearance for all the three base cases. The post-fault line trippings interrupt the power flow path from GEN-2014-036 to Childress, Lake Pauline and Russell. The output from GEN-2014-036 mainly supplies the system through this path.

Following the post-fault line trippings the output from GEN-2014-036 was forced through the path of Hollis Tap to Wellington and Shamrock through to the Shamrock 115 kV and McLean. The GEN-2014-036 terminal voltage increased, and may have resulted in issues to the inverter.

Plots showing the unstable operations of GEN-2014-036 in 2015 SP for the FLT01-3PH fault are provided in Figure 5 and Figure 6. Plots showing stable operation in 2015 SP for the FLT02-3PH fault are provided in Figure 7 and Figure 8 for comparison.

The faults were re-tested with a 0/-50MVAR dynamic reactive compensator connected to the 34.5 kV bus of GEN-2014-036 plant. The plots in Figure 9 to Figure 10 show that for FLT01-3PH the GEN-2014-036 is able to recover to the pre-fault output with the support of the compensator. Strictly speaking, the voltage spike following fault clearance does not meet the transient voltage recovery requirement to remain in the 0.7 to 1.2 pu range. However, it is not clear if this is due to the intrinsic characteristic of the model.

It was also observed that the post-fault terminal voltage at Blue Canyon 2 wind farm was low for selected faults. This wind farm was able to ride through these low voltages and recover. The voltages on the HV side of Blue Canyon 2 were observed to be within the 0.7 to 1.2 pu post fault bandwidth. These low voltages were observed to occur with or without GEN-2014-036, and are due to the heavy loading and reactive losses of the Blue Canyon 2 transformers at 100% facility output.

Table 9 – Summary of stability results (No – unstable, Yes – stable)

Cont. Name	Description	2015 SP	2015 WP	2025 SP
FLT01-3PH	3 phase fault on the Hollis Tap (512103) to Childress (512101) 138kV line circuit 1, near Hollis Tap. a. Apply fault at the Hollis Tap 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	No	No	No
FLT02-3PH	3 phase fault on the Hollis Tap (512103) to Wellington (512104) 115kV line circuit 1, near Hollis Tap. a. Apply fault at the Hollis Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT03-3PH	3 phase fault on the Childress (512101) to Lake Pauline (512110) 138kV line circuit 1, near Childress. a. Apply fault at the Childress 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	No	No	No
FLT04-3PH	3 phase fault on the Lake Pauline (512110) to Russell (521043) 138kV	Yes	Yes	Yes

	line circuit 1, near Lake Pauline. a. Apply fault at the Lake Pauline 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			
FLT05-3PH	3 phase fault on the Russell (521043) to Altus Junction (511440) 138kV line circuit 1, near Russell. a. Apply fault at the Russell 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT06-3PH	3 phase fault on the Altus Junction (511440) to Snyder (511435) 138kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT07-3PH	3 phase fault on the Altus Junction (511440) to Tamarack Tap (529345) 115kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT08-3PH	3 phase fault on the Tamarack Tap (529345) to OMPVET (529298) 115kV line circuit 1, near Tamarack Tap. a. Apply fault at the Tamarack Tap 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT09-3PH	3 phase fault on the OMPVET (529298) to OMALTUS (529302) 115kV line circuit 1, near OMPVET. a. Apply fault at the OMPVET 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT10-3PH	3 phase fault on the OMALTUS (529302) to Hobart Junction (511463) 115kV line circuit 1, near OMALTUS. a. Apply fault at the OMALTUS 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT11-3PH	3 phase fault on the Kirby (524088) to Conway (524079) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault.	Yes	Yes	Yes

	d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			
FLT12-3PH	3 phase fault on the Kirby (524088) to Grapevine (523770) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT13-3PH	3 phase fault on the Kirby (524088) to Jericho (512086) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT14-3PH	3 phase fault on the Wellington (512104) to Shamrock (512105) 138kV line circuit 1, near Wellington. a. Apply fault at the Wellington 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT15-3PH	3 phase fault on the Childress (512101) 138/(512100) 69/(512102) 13.2kV Transformer circuit 1, near the 138kV bus. a. Apply fault at the Childress 138kV bus. b. Clear fault after 5 cycles and trip the faulted line.	Yes	Yes	Yes
FLT16-3PH	3 phase fault on the Lake Pauline (512110) 138/(512111) 69/(512112) 13.2kV Transformer circuit 1, near the 138kV bus. a. Apply fault at the Lake Pauline 138kV bus. b. Clear fault after 5 cycles and trip the faulted line.	Yes	Yes	Yes
FLT17-3PH	**Prior outage on Altus Junction (511440) to Tamarack Tap (529345) 138kV line** 3 phase fault on the Altus Junction (511440) to Snyder (511435) 138kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT18-3PH	**Prior outage on Altus Junction (511440) to Snyder (511435) 138kV line** 3 phase fault on the Altus Junction (511440) to Tamarack Tap (529345) 115kV line circuit 1, near Altus Junction. a. Apply fault at the Altus Junction 115kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT19-3PH	**Prior outage on the Kirby (524088) to Conway (524079) 69kV line** 3 phase fault on the Kirby (524088) to Grapevine (523770) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus.	Yes	Yes	Yes

	b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			
FLT20-3PH	**Prior outage on the Kirby (524088) to Grapevine (523770) 69kV line** 3 phase fault on the Kirby (524088) to Conway (524079) 69kV line circuit 1, near Kirby. a. Apply fault at the Kirby 69kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Yes	Yes	Yes
FLT21-3PH	**Kirby Stuck Breaker** a. Apply fault at Kirby (524088) 115kV bus b. After 20 cycles, trip the Kirby (524088) to Conway (524079), Kirby (524088) to Grapevine (523770), Kirby (524088) - McClellan (523804), and Kirby (524088)- Jericho (512086) 69kV lines and remove the fault	Yes	Yes	Yes
FLT22-3PH	**Altus Stuck Breaker** a. Apply fault at Altus Junction (511440) 115kV bus b. After 20 cycles, trip the Altus Junction (511440) to Tamarack (529345) line c. Trip the Altus Junction (511440) 115/69 (511441)/13.8 (511420) kv transformer, and remove the fault	Yes	Yes	Yes

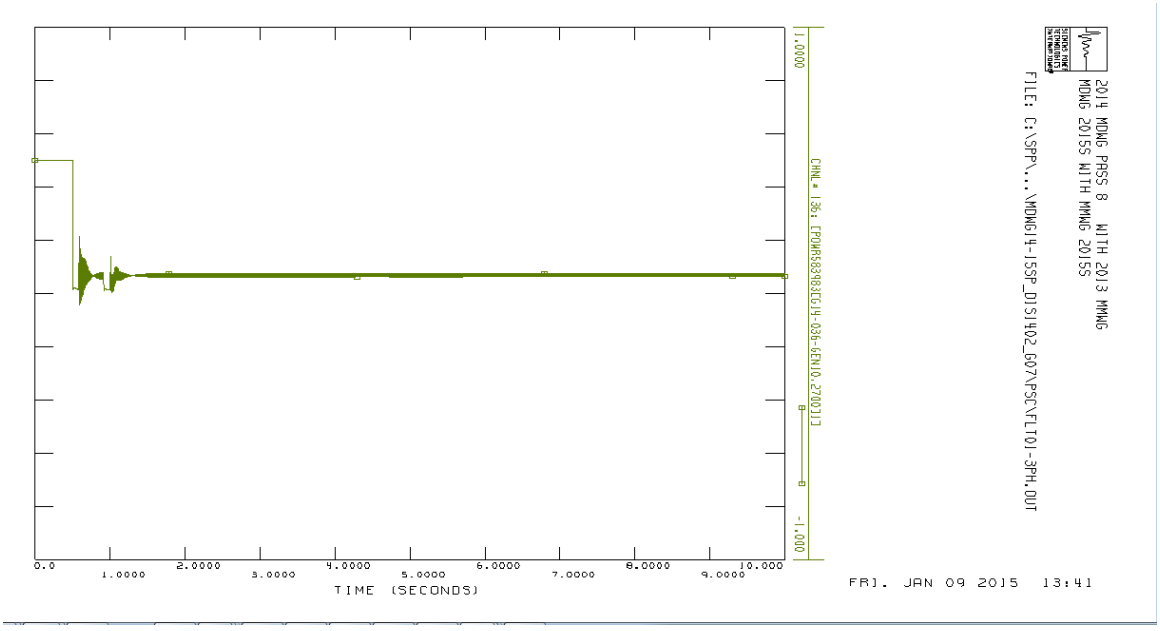


Figure 5: GEN-2014-036 Power plot for FLT01-3PH in 2015 SP

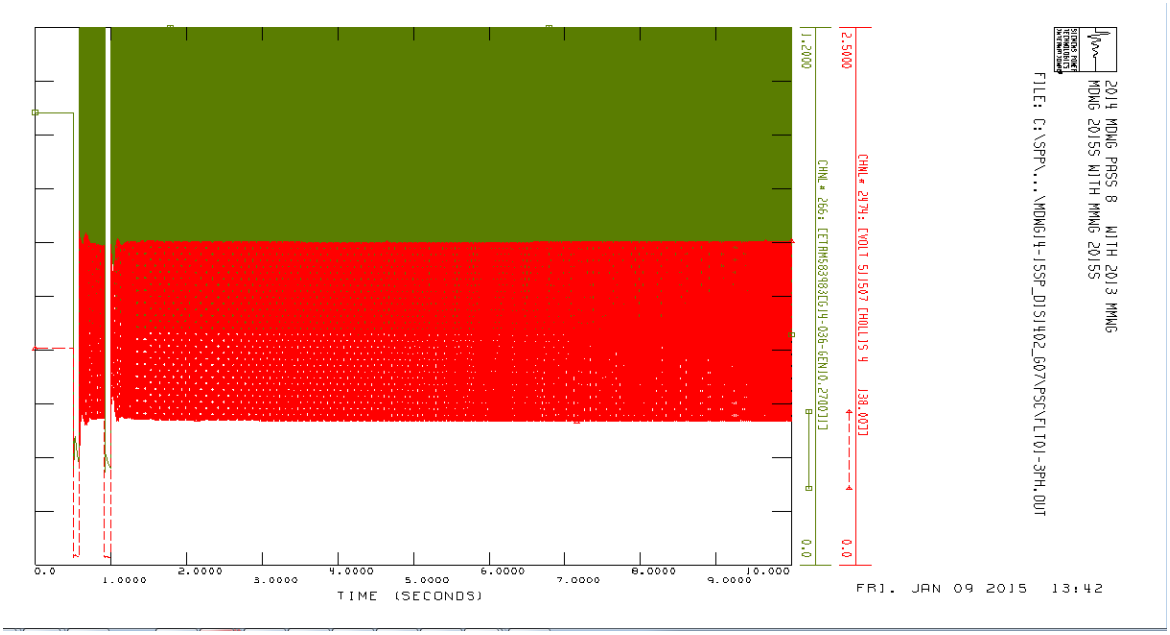


Figure 6: GEN-2014-036 Eterm and POI voltage plots for FLT01-3PH in 2015 SP

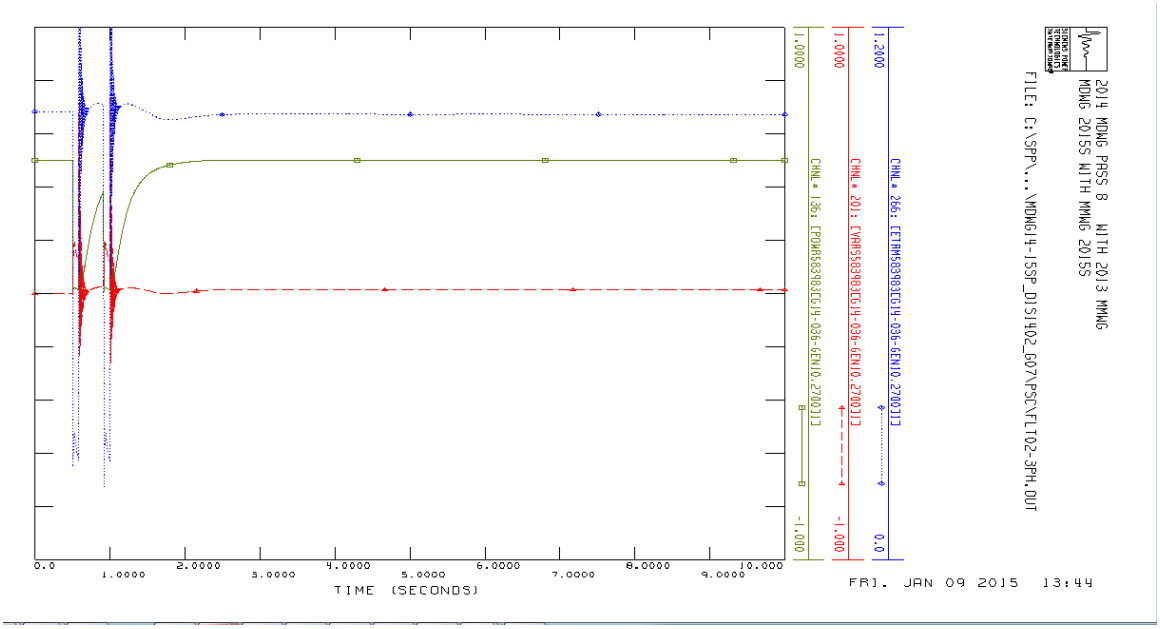


Figure 7: GEN-2014-036 plots for FLT02-3PH in 2015 SP

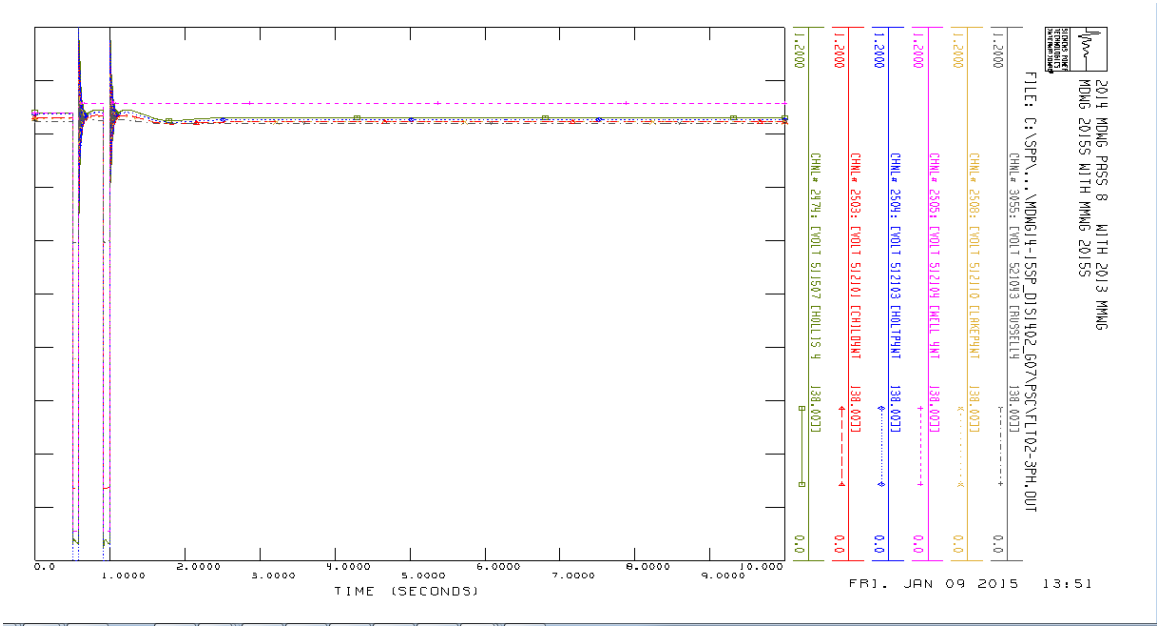


Figure 8: POI and adjacent 138 kV bus voltages for FLT02-3PH in 2015 SP

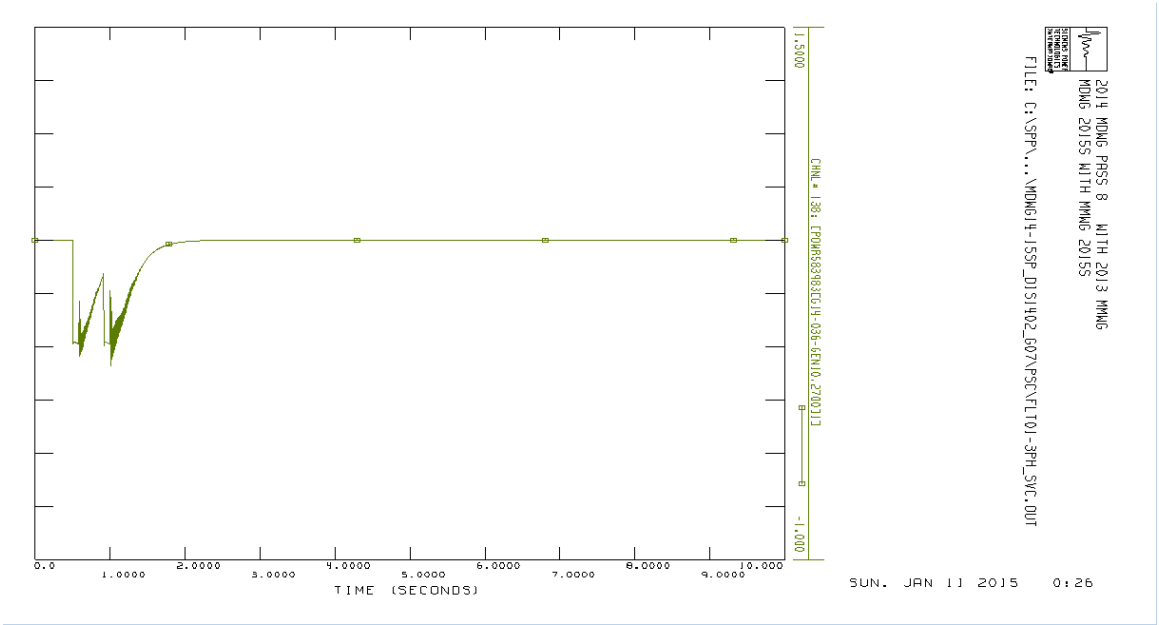


Figure 9: GEN-2014-036 power output for FLT01-3PH in 2015 SP with a 0/-50 MVAr dynamic reactive compensator

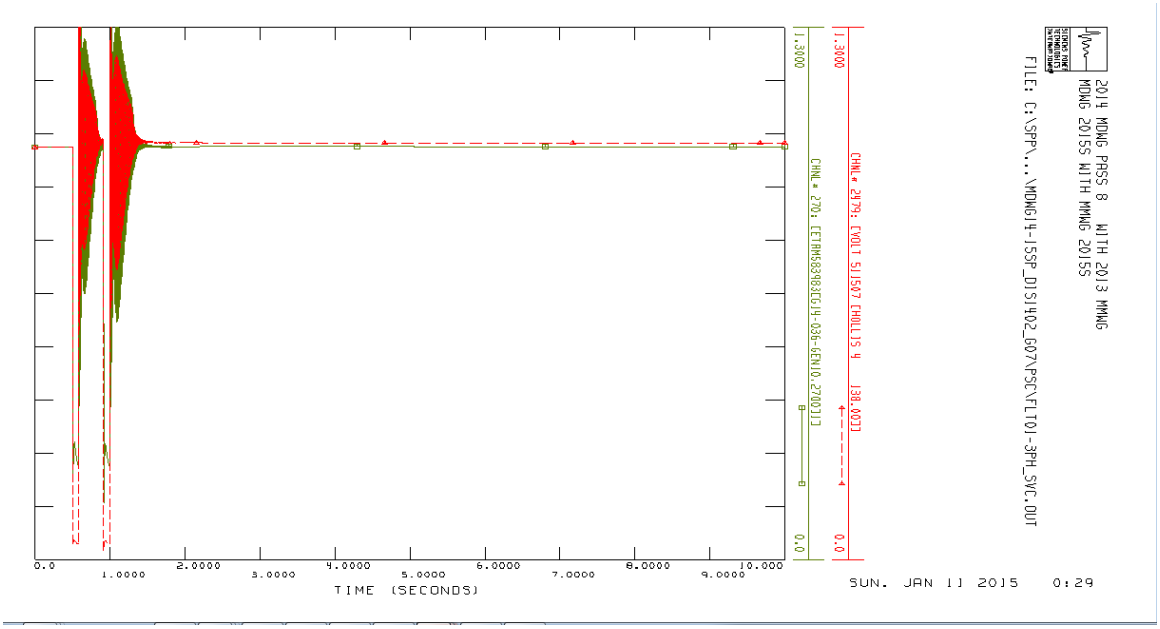


Figure 10: GEN-2014-036 terminal and POI voltages for FLT01-3PH in 2015 SP with a 0/-50 MVAr dynamic reactive compensator

5. Power factor analysis

Power factor analysis is to determine the reactive compensation required to hold the scheduled voltage at the POI. The analysis was conducted by having GEN-2014-036 holding the POI voltage at either 1.0 pu or consistent with the voltage in the provided base cases, whichever was higher. The project was turned off during the power factor analysis and replaced by a generator on the HV bus of the project. The generator was dispatched at 100% output of the project and the reactive power are determined from the power flow calculations.

The power factor analysis results for the 22 listed faults are shown in Table 10. The results presented show that GEN-2014-036 requires a power factor within the range 0.95 leading to 0.95 lagging for the post-fault conditions.

Table 10 – Power factor analysis for GEN-2014-036

	2015 SP (POI voltage 1.008 pu)			2015 WP (POI voltage 1.011 pu)			2025 SP (POI voltage 1.039 pu)		
Contingency	**Q (MVAR)**	**Power Factor**		**Q (MVAR)**	**Power Factor**		**Q (MVAR)**	**Power Factor**	
Base Case	-7.70	0.989	Lead	-7.60	0.989	Lead	-7.20	0.989	Lead
FLT01-3PH	-13.10	0.967	Lead	-15.10	0.957	Lead	-10.46	0.979	Lead
FLT02-3PH	-3.96	0.997	Lead	-1.68	0.999	Lead	-5.17	0.995	Lead
FLT03-3PH	-10.99	0.977	Lead	-11.73	0.974	Lead	-9.13	0.984	Lead
FLT04-3PH	-14.63	0.960	Lead	-17.36	0.945	Lead	-10.54	0.978	Lead
FLT05-3PH	-10.56	0.978	Lead	-12.54	0.970	Lead	-5.08	0.995	Lead
FLT06-3PH	-8.24	0.987	Lead	-8.40	0.986	Lead	-6.57	0.991	Lead
FLT07-3PH	-7.20	0.990	Lead	-6.61	0.991	Lead	-8.81	0.985	Lead
FLT08-3PH	-6.08	0.993	Lead	-5.77	0.993	Lead	-6.86	0.991	Lead
FLT09-3PH	-4.33	0.996	Lead	-4.51	0.996	Lead	-4.81	0.995	Lead
FLT10-3PH	-1.75	0.999	Lead	-4.15	0.997	Lead	-2.67	0.999	Lead
FLT11-3PH	-8.18	0.987	Lead	-8.46	0.986	Lead	-8.41	0.986	Lead
FLT12-3PH	-6.47	0.992	Lead	-6.29	0.992	Lead	-5.25	0.995	Lead
FLT13-3PH	-6.78	0.991	Lead	-10.13	0.980	Lead	-2.95	0.998	Lead
FLT14-3PH	-1.40	1.000	Lead	-0.15	1.000	Lead	-1.63	0.999	Lead
FLT15-3PH	-13.06	0.968	Lead	-14.8	0.959	Lead	-11.63	0.974	Lead
FLT16-3PH	-8.21	0.987	Lead	-6.80	0.991	Lead	-14.30	0.961	Lead
FLT17-3PH	-7.19	0.990	Lead	-6.55	0.992	Lead	-1.05	1.000	Lead
FLT18-3PH	-7.19	0.990	Lead	-6.55	0.992	Lead	-1.05	1.000	Lead
FLT19-3PH	-4.92	0.995	Lead	-10.54	0.979	Lead	-2.05	0.999	Lead
FLT20-3PH	-4.92	0.995	Lead	-10.54	0.979	Lead	-2.05	0.999	Lead
FLT21-3PH	-6.42	0.992	Lead	-12.56	0.970	Lead	-0.96	1.000	Lead
FLT22-3PH	-7.42	0.989	Lead	-8.30	0.987	Lead	-8.89	0.985	Lead

6. Conclusions

The Group 7 project GEN-2014-036 was studied at 100% output together with the prior queue projects listed in Table 2.

For the stability analysis the results are provided in Table 9, with the plots provided in Attachment 1 and 2. The summary of results for the 22 faults tested are as follow:

- GEN-2014-036 was able to ride through the fault and recover to pre-fault output and terminal voltage for most faults except for FLT01-3PH and FLT03-3PH.
- No tripping of prior queue projects (wind farms) occurred.
- No large rotor angle deviation and oscillation (as per SPP Disturbance Performance Requirements) occurred for the synchronous generators in the same area as GEN-2014-036. The analysis shows that the rotor angle deviation is less than 1 degree for the synchronous generators.
- The recovery voltage at the 138 kV POI and up to 5 buses away remained within the 0.7 to 1.2 pu range following fault clearance.

For faults FLT01-3PH and FLT03-3PH, GEN-2014-036 showed unstable post-fault operations in all the three base cases. The faults were re-tested with a 0/-50MVAR dynamic reactive compensator connected to the 34.5 kV bus of GEN-2014-036 plant. The reactor was able to control the post-fault voltages and return GEN-2014-036 to the pre-fault output.

The power factor analysis showed GEN-2014-036 to operate within a power factor range of 0.95 leading to 0.95 lagging for all post-fault conditions studied.

Appendix A. Southwest Power Pool Disturbance Performance Requirements

Southwest Power Pool
Disturbance Performance Requirements

OVERVIEW

These Disturbance Performance Requirements ("Requirements") shall be applicable to the Bulk Electric System within the Southwest Power Pool Planning Area. Utilization of these Requirements applies to all registered entities within the Southwest Power Pool Planning Area. These Requirements shall not be applicable to facilities that are not part of Bulk Electric System. More stringent Requirements are at the sole discretion of each Transmission Owner.

Transient and dynamic stability assessments are generally performed to assure adequate avoidance of loss of generator synchronism and prevention of system voltage collapse within the first 20 seconds after a system disturbance. These Requirements provide a basis for evaluating the system response during the initial transient period following a disturbance on the Bulk Electric System by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

ROTOR ANGLE DAMPING REQUIREMENT

Machine Rotor Angles shall exhibit well damped angular oscillations [as defined below] and acceptable power swings following a disturbance on the Bulk Electric System for all NERC Category A, B and C events.

Well damped angular oscillations shall meet one of the following two requirements when calculated directly from the rotor angle:

1. Successive Positive Peak Ratio (SPPR) must be less than or equal to 0.95 where SPPR is calculated as follows:

$$SPPR = \frac{\text{Peak Rotor Angle of } 2^{nd} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.95$$

-or- $\text{Damping Factor \%} = (1 - SPPR) \times 100\% \geq 5\%$

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

$$\text{Damping Ratio} \geq 0.0081633$$

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

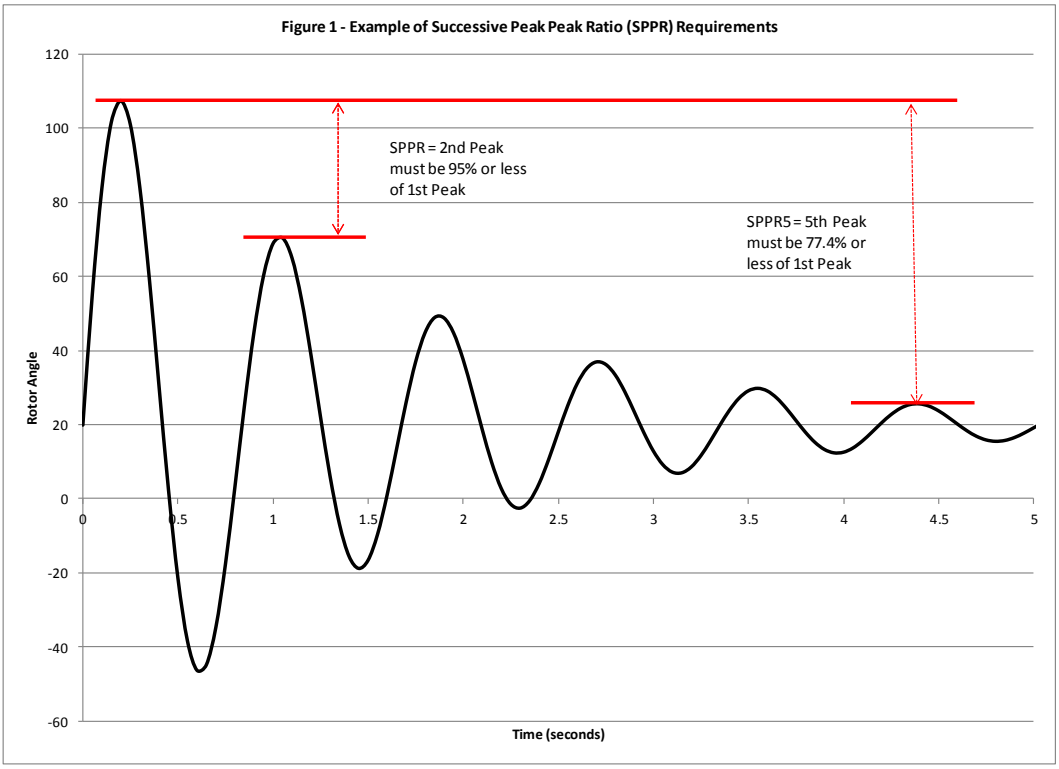
$$SPPR5 = \frac{\text{Peak Rotor Angle of } 5^{th} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.774$$

-or- Damping Factor % = (1 – SPPR) x 100% $\geq$ 22.6%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio $\geq$ 0.0081633

Qualitatively, these Requirements are shown in Figure 1 below.



TRANSIENT VOLTAGE RECOVERY REQUIREMENT

Any time after a disturbance is cleared; bus voltages on the Bulk Electric System shall not swing outside of the bandwidth of 0.70 per unit to 1.20 per unit.

Qualitatively, this Requirement is shown in Figure 2 below.

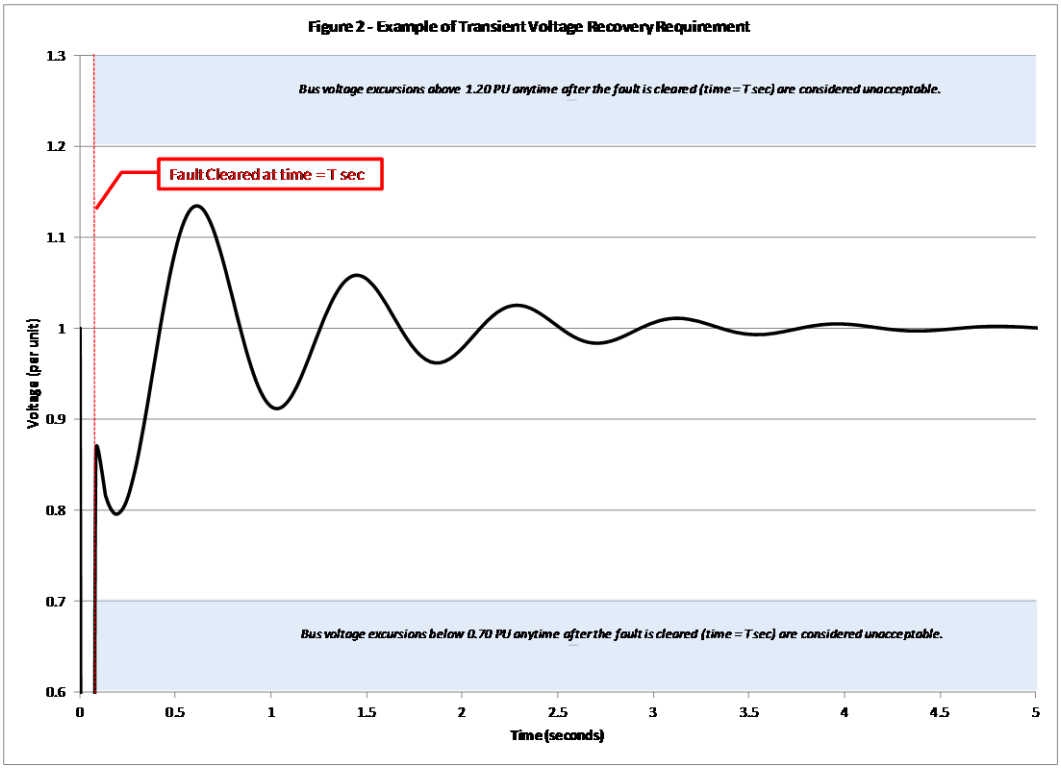


Figure 2 - Example of Transient Voltage Recovery Requirement
Bus voltage excursions above 1.20 PU anytime after the fault is cleared (time = T sec) are considered unacceptable.
Fault Cleared at time = T sec
Bus voltage excursions below 0.70 PU anytime after the fault is cleared (time = T sec) are considered unacceptable.
Voltage (per unit)
Time (seconds)
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

Appendix B. Power flow voltage issues

1) 2015 Winter Peak

Post GEN-2014-036

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
520415	BLUCAN2-HVB1	138.00	525	0.9465	130.62	521103	BLUCAN14	138.00	525	0.9367	129.26
521214	BLUCAN-WTG1	138.00	525	0.9367	129.26	528027	RDRUNNER	6230.00	526	0.9396	216.10

Pre GEN-2014-036

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
520415	BLUCAN2-HVB1	138.00	525	0.9465	130.62	521103	BLUCAN14	138.00	525	0.9367	129.26
521214	BLUCAN-WTG1	138.00	525	0.9367	129.26	528027	RDRUNNER	6230.00	526	0.9396	216.10

2) 2025 Summer Peak

Post GEN-2014-036

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
525637	LAMB_CNTY	6230.00	526	0.9487	218.20	527953	LIVSTNRIDGE	3115.00	526	0.9235	106.21
527955	SAGE_BRUSH	3115.00	526	0.9114	104.81	527957	LAGARTO	3115.00	526	0.9146	105.18
527965	KIOWA	7345.00	526	0.8952	308.83	528009	WIPP	3115.00	526	0.9218	106.01
528016	SAND_DUNES	3115.00	526	0.9141	105.12	528018	RED_BLUFF	3115.00	526	0.9125	104.94
528020	BOPCO_PKRLK	3115.00	526	0.9046	104.03	528025	RDRUNNER	3115.00	526	0.9097	104.61
528027	RDRUNNER	7345.00	526	0.8695	299.99	528040	BATTLE_AXE	3115.00	526	0.8942	102.83
528185	NLOV_PLT	7345.00	526	0.8853	305.44	528222	CHINA_DRAW	3115.00	526	0.9409	108.21
528223	CHINA_DRAW	7345.00	526	0.8784	303.06	528228	WOOD_DRAW	3115.00	526	0.9039	103.95
528230	AGAVE_RHILL	3115.00	526	0.8820	101.43	528232	OCHOA	3115.00	526	0.8817	101.39
528239	PNDEROSATP	3115.00	526	0.8855	101.84	528240	PONDEROSA	3115.00	526	0.8795	101.14
528246	YESO_HILLS	3115.00	526	0.9227	106.12	528505	LEA_ROAD	3115.00	526	0.9309	107.05
528519	WARD	3115.00	526	0.9142	105.14	528526	TEAGUE	3115.00	526	0.9268	106.58
528540	WHITTEN	3115.00	526	0.8972	103.17	528547	S_JAL	3115.00	526	0.9025	103.79
528552	OIL_CENTER	3115.00	526	0.9450	108.68	528561	DOLLARHIDE	3115.00	526	0.8932	102.71
528564	TOBOSOFLATS	3115.00	526	0.8875	102.06	528596	CARDINAL	3115.00	526	0.9457	108.76
584320	ASGI2014-004	115.00	526	0.9235	106.21	584350	ASGI2014-009	115.00	526	0.9039	103.95
584360	ASGI2014-010	115.00	526	0.8817	101.39						

Pre GEN-2014-036

BUSES WITH VOLTAGE LESS THAN 0.9500:

BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)	BUS#	X-- NAME	--X BASKV	AREA	V(PU)	V(KV)
525637	LAMB_CNTY	6230.00	526	0.9487	218.20	527953	LIVSTNRIDGE	3115.00	526	0.9235	106.20
527955	SAGE_BRUSH	3115.00	526	0.9114	104.81	527957	LAGARTO	3115.00	526	0.9146	105.18
527965	KIOWA	7345.00	526	0.8951	308.82	528009	WIPP	3115.00	526	0.9218	106.01
528016	SAND_DUNES	3115.00	526	0.9141	105.12	528018	RED_BLUFF	3115.00	526	0.9125	104.94
528020	BOPCO_PKRLK	3115.00	526	0.9046	104.02	528025	RDRUNNER	3115.00	526	0.9097	104.61
528027	RDRUNNER	7345.00	526	0.8695	299.99	528040	BATTLE_AXE	3115.00	526	0.8941	102.83
528185	NLOV_PLT	7345.00	526	0.8853	305.43	528222	CHINA_DRAW	3115.00	526	0.9409	108.21
528223	CHINA_DRAW	7345.00	526	0.8784	303.05	528228	WOOD_DRAW	3115.00	526	0.9039	103.95
528230	AGAVE_RHILL	3115.00	526	0.8820	101.43	528232	OCHOA	3115.00	526	0.8817	101.39
528239	PNDEROSATP	3115.00	526	0.8855	101.84	528240	PONDEROSA	3115.00	526	0.8795	101.14
528246	YESO_HILLS	3115.00	526	0.9227	106.11	528505	LEA_ROAD	3115.00	526	0.9309	107.05
528519	WARD	3115.00	526	0.9142	105.14	528526	TEAGUE	3115.00	526	0.9268	106.58
528540	WHITTEN	3115.00	526	0.8971	103.17	528547	S_JAL	3115.00	526	0.9025	103.79
528552	OIL_CENTER	3115.00	526	0.9450	108.68	528561	DOLLARHIDE	3115.00	526	0.8932	102.71

```
528564 TOBOSOFLATS3115.00  526 0.8875 102.06    528596 CARDINAL   3115.00  526 0.9457 108.76
584320 ASGI2014-004115.00  526 0.9235 106.20    584350 ASGI2014-009115.00  526 0.9039 103.95
584360 ASGI2014-010115.00  526 0.8817 101.39
```

Appendix C. Plots from Stability Analysis

Q: Group 8 Dynamic Stability Analysis Report

See POWER-tek report on next page.

Southwestern Power Pool Inc. (SPP)

Definitive Impact Study

DISIS-2014-002 (Group 08)

POWER-tek
green inspiration since 1994

Final Report Submitted to
Southwest Power Pool Inc.
January 2015

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TABLE OF CONTENTS

1. Executive Summary 1
2. Introduction 3
2.1. Project Overview and Assumptions 3
2.2. Objectives 6
2.3. Models and Simulations Tools Used 6
3. Power Factor Analysis 8
3.1. Methodology 8
3.2. Analysis 8
3.3. Conclusions 25
4. Inductive Reactive Support Analysis 25
5. Short Circuit Analysis 27
5.1. Short Circuit Result for POI Open Sky 345kV (515621 GEN-2012-032 tap) 49
5.2. Short Circuit Result for POI Riverton 161kV (547469) 33
5.3. Short Circuit Result for POI Otter 138kV (514708) 41
5.4. Short Circuit Result for POI Ferguson 69kV (512664) 45
6. Stability Analysis for Cluster Scenario 49
6.1. Faults Simulated 49
6.2. Simulation Results for Cluster Scenario 61
7. Stability Analysis for Stand-Alone Scenarios 62
7.1. Fault Simulated for GEN-2014-022 Request 62
7.2. Fault Simulated for GEN-2014-028 Request 65
7.3. Fault Simulated for GEN-2014-064 Request 68
7.4. Fault simulated for ASGI-2014-014 Request 72
7.5. Simulation Results for Stand-Alone Scenarios 74
8. Conclusions 775
9. Appendix A: 2015 Winter Peak Case Stability Run Plots – Cluster 76
10. Appendix B: 2015 Summer Peak Case Stability Run Plots – Cluster 76
11. Appendix C: 2025 Summer Peak Case Stability Run Plots – Cluster 76
12. Appendix D: Project Model Data 76
13. Appendix E1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario 76
14. Appendix E2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario 76
15. Appendix E3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario 76
16. Appendix F1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario 76
17. Appendix F2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario 76
18. Appendix F3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario 76
19. Appendix G1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario 76
20. Appendix G2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario 76
21. Appendix G3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario 76
22. Appendix H1: 2015 Winter Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario 76
23. Appendix H2: 2015 Summer Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario 76
24. Appendix H3: 2025 Summer Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario 76

1. Executive Summary

The DISIS-2014-002 (Group 08) Impact Study is a generation interconnection study performed by POWER-tek Global Inc. for Southwest Power Pool (SPP). This report presents the results of impact study comprising of power factor, short circuit, and stability analyses for both cluster and stand-aAlone scenarios of the proposed interconnection projects under DISIS-2014-002 (Group 08) ("The Projects") as described in Table 1.1 below:

Table 1.1: Interconnection Request

Request	Size (MW)	Generator Model	Point of Interconnection (POI)
GEN-2014-022	15 (Uprate to GEN-2012-32) (Pgen=313.95)	SWTVS4 (58433, 583436)	Open Sky 345kV (515621 GEN-2012-032 tap)
GEN-2014-028	35 (Uprate) (Pgen=259W/256S)	GENROU (547642, 547643)	Riverton 161kV (547469)
GEN-2014-064	248.4	GE 2.3MW (584173)	Otter 138kV (514708)
ASGI-2014-014	56.4W/54.3S	GENROU (584403)	Ferguson 69kV (512664)

Power factor analysis, short circuit analysis up to 5 Buses away from each point of interconnection (POI), and transient stability simulations were performed for the Projects in service at its full output. SPP provided three base cases for Winter-2015, Summer-2015, and Summer-2025, each comprising of a power flow, sequence data and corresponding dynamics database. The previous queued request projects were already modeled in the base cases. The power factor analysis consists of running all N-1, three phase contingencies shown in the Fault Definitions table (Table 3 in the RFP) in power flow to advise the necessary power factor at the POI for each contingency.

The power factor analysis indicates that interconnection requests i.e., GEN-2014-022, GEN-2014-028, GEN-2014-064, and ASGI 2014-014 are required to provide reactive power as indicated in Tables 3.2.2 through 3.2.4.

Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI.

To offset the capacitive effects of the collector system and transmission line of the wind farm under low wind or no wind conditions, the inductive reactive support analysis was performed for winter-2015 scenario. The analysis indicates that at POI (Open Sky 345kV 515621 GEN-2012-032 tap) 6.7 MVAR reactor is required at Bus 514825 to maintain zero MVAR flow on the combined GEN-2012-032/GEN-2014-022 generator lead. Similarly, the inductive reactive support analysis for GEN-2014-064 performed for winter-2015 scenario which indicates that at POI (Otter 138kV) 10.5 MVAR reactors is required at Bus 584170 to maintain zero MVAR flow at POI. Maintaining zero MVar flow at the POI at all times is not possible with static reactor banks. It will be determined on a case by case basis for each generator as to whether additional reactor banks are required for low wind conditions.

There are no impacts on the stability performance of the SPP system during both cluster and stand-alone scenarios for the contingencies tested on the provided base cases. The study machines stayed on-line and stable for all simulated faults. The Project stability simulations with fifty five (55) specified test disturbances did not show instability problems in the SPP system. Any oscillations were damped out.

2. Introduction

2.1. Project Overview and Assumptions

The DISIS-2014-002 (Group 08) Impact Study is a generation interconnection study performed by POWER-tek Global Inc. for SPP. This report presents the results of impact study comprising of power factor, short circuit analysis, and stability analyses for both cluster and stand-aAlone scenarios of the proposed interconnection projects under DISIS-2014-002 (Group 08) ("The Projects") as described in Table 2.1.1 below:

Table 2.1.1: Interconnection requests

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2014-022	15 (Uprate to GEN-2012-32) (Pgen=313.95)	SWTVS4 (58433, 583436)	Open Sky 345kV (515621 GEN-2012-032 tap)
GEN-2014-028	35 (Uprate) (Pgen=259W/256S)	GENROU (547642, 547643)	Riverton 161kV (547469)
GEN-2014-064	248.4	GE 2.3MW (584173)	Otter 138kV (514708)
ASGI-2014-014	56.4W/54.3S	GENROU (584403)	Ferguson 69kV (512664)

Figure 2.1.1, Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4 respectively show the single line diagram for the interconnection of the Projects to present and planned system of SPP. This arrangement was modeled and studied in power flow cases for these projects.

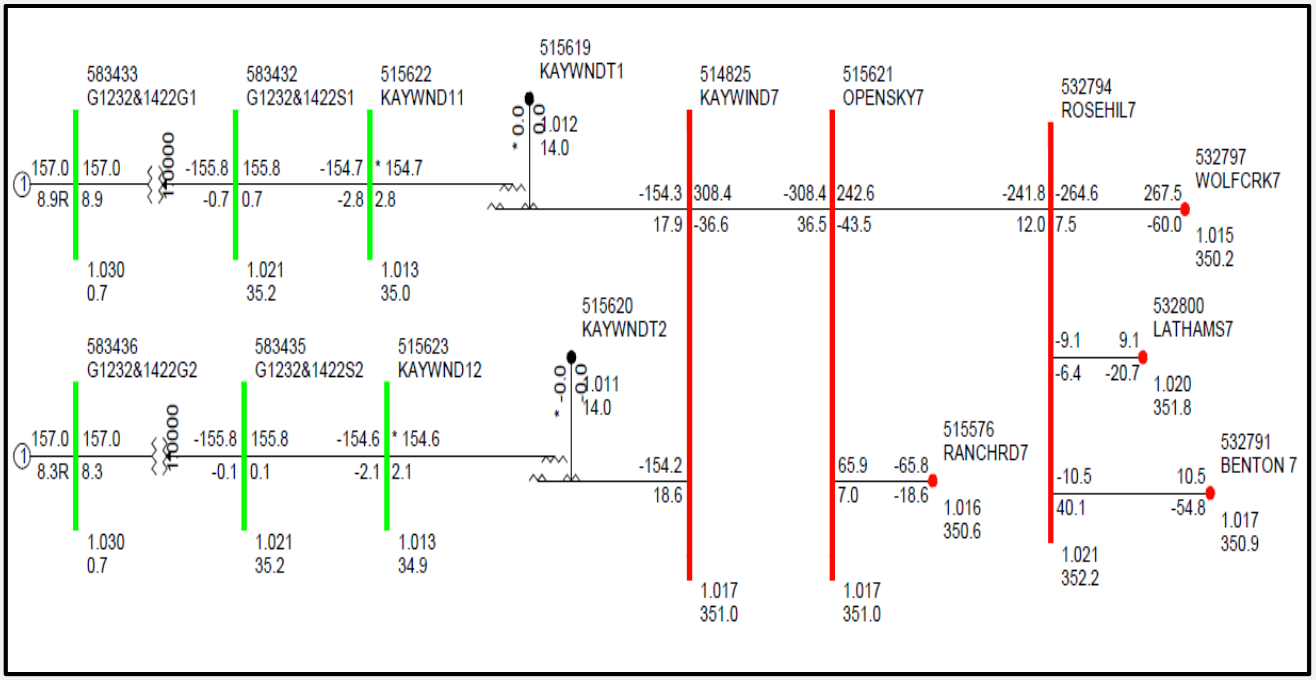

Figure 2.1.1: Power flow single line diagram for GEN-2014-022 and surrounding system components

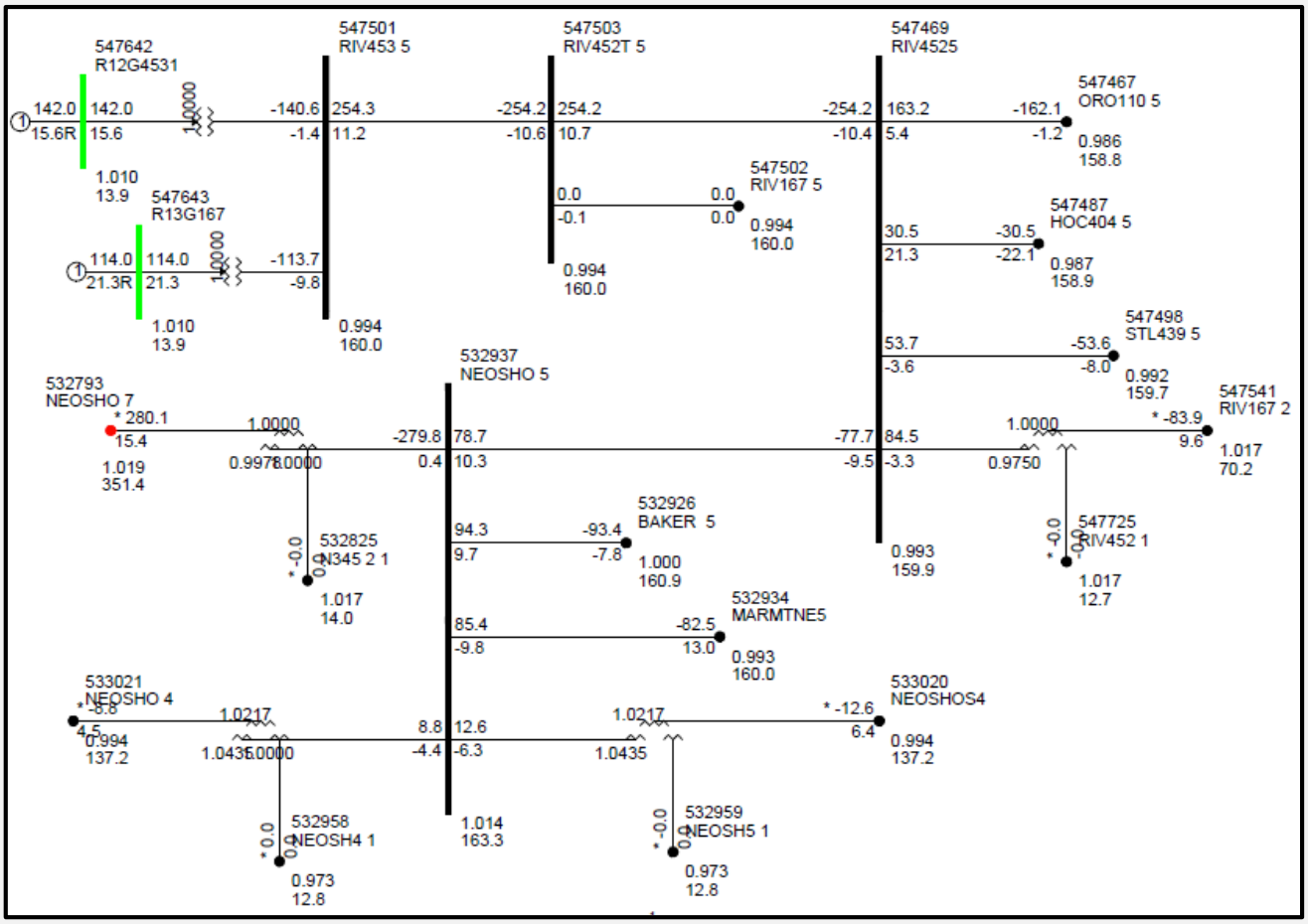

Figure 2.1.2: Power flow single line diagram for GEN-2014-028 and surrounding system components

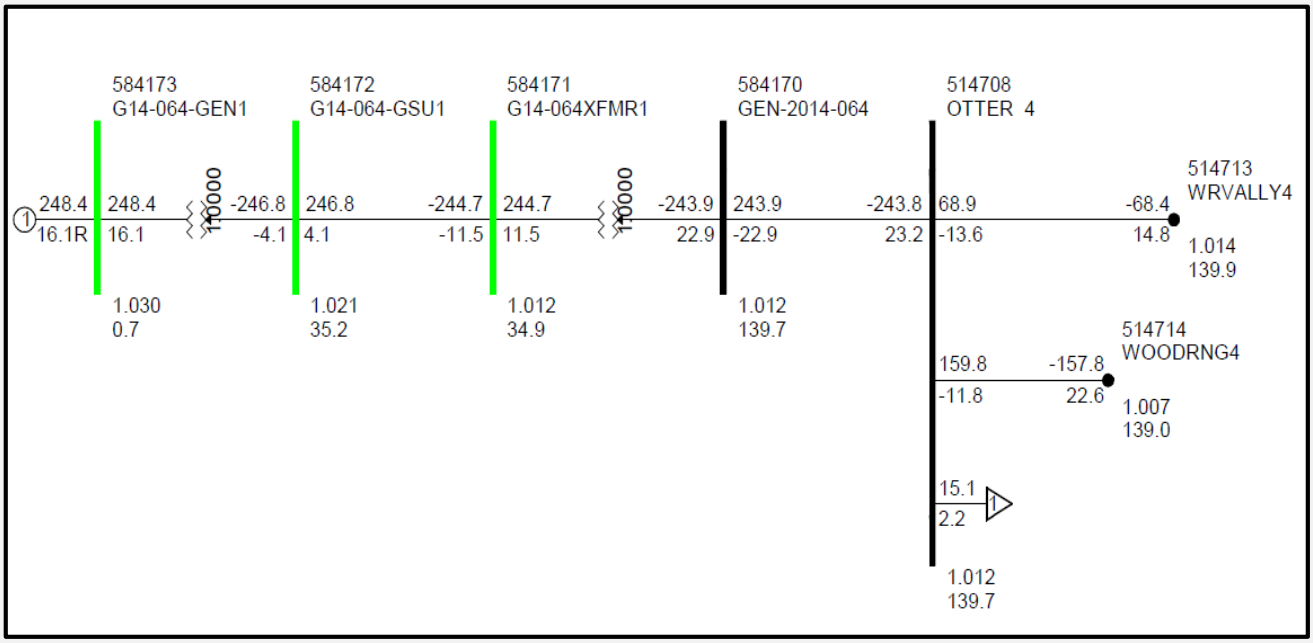

Figure 2.1.3: Power flow single line diagram for GEN-2014-064 and surrounding system components

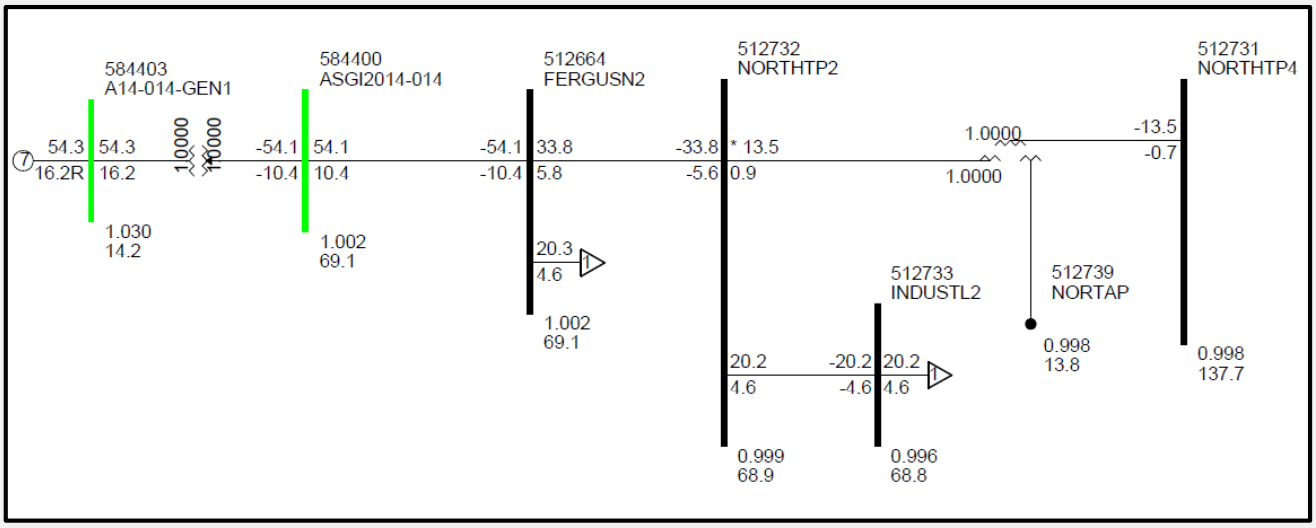

Figure 2.1.4: Power flow single line diagram for ASGI-2014-014 and surrounding system components

Appendix-D contains the machines, interconnection, and machines user model parameters.

Table 2.1.2 below shows the list of prior queued projects modeled in the base case.

Table 2.1.2: List of previous queued request projects

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2002-004	199.5	GE.1.5MW	Latham 345kV (532800)
GEN-2005-013	199.8	Vestes V90 1.8MW	Caney River 345kV (532780)
GEN-2007-025	299.2	GE 1.6MW	Viola 345kV (532798)
GEN-2008-013	300	G.E. 1.68MW	Hunter 345kV (515476)
GEN-2008-021	1283	GENROU	Wolf Creek 345kV (532797)
GEN-2008-098	100.8	Vestas V100 1.8MW	Tap on the Wolf Creek – LaCygne 345kV line (560004)
GEN-2009-025	59.8	Siemens 2.3MW	Tap on the Deerck – Sincblk 69KV line (515528)
GEN-2010-003	100.8	Vestas V100 1.8MW	Tap on the Wolf Creek – LaCygne 345kV line (560004)
GEN-2010-005	299.2	GE 1.6MW	Viola 345kV (532798)
ASGI-2010-006	150	GE1.5MW	Remington 138kV (301369)
GEN-2010-055	4.8	GENROU	Wekiwa 138kV (509757)
GEN-2011-057	150.4	GE 1.6MW	Creswell 138kV (532981)
GEN-2012-033	98.8	GE 1.62MW	Tap Bunch Creek-South 4th 138kV(562303)

Request	Size (MW)	Wind Turbine Model	Point of Interconnection
GEN-2012-040	76.5	GE 1.7MW	Chilocco 138kV (521198)
GEN-2012-041	85 Summer 121.5 Winter	GENROU	Tap Rose Hill-Sooner 345kV (562318)
GEN-2013-012	4 x 168.0MW Summer 4 x 215MW Winter	GENROU (514910) (514911) (514912) (514942)	Redbud 345kV (514909)
GEN-2013-028	516.4 Summer 559.5 Winter	GENROU (583743, 583746)	Tap on Tulsa N to GRDA1 345kV (562423)
GEN-2013-029	300	Vestas V100 VCSS 2MW (583753, 583756)	Renfrow 345kV(515543)
GEN-2014-001	200.6	GE 1.7MW 100m (583853,583856)	Tap Wichita to Emporia Energy Center 345kV (562476)
GEN-2013-028	516.4 Summer 559.5 Winter	GENROU (583743, 583746)	Tap on Tulsa N to GRDA1 345kV (562423)

ATC (Available Transfer Capability) studies were not performed as part of this study. These studies will be required at the time transmission service is actually requested. Additional transmission upgrades may be required based on that analysis.

Study assumptions in general have been based on the specific information and data provided by SPP. The accuracy of the conclusions contained within this study is dependent on the assumptions made with respect to other generation additions and transmission improvements planned by other entities. Changes in the assumptions of the timing of other generation additions or transmission improvements may affect this study's conclusions.

2.2. Objectives

The objectives of the study are to conduct power factor analysis and to determine the impact on system stability of interconnecting the proposed wind farms to SPP's transmission system.

2.3. Models and Simulations Tools Used

Version 32 of the Siemens, PSS/E™ power system simulation program was used in this study.

SPP provided its latest stability database cases for winter-2015, summer-2015, and summer-2025 peak seasons. The Project's PSS/E model had been developed prior to this study and was included in the power flow case and the dynamics database. Machines, interconnection and dynamic model data for the Project plants is provided in Appendix D.

Power flow single line diagram of the projects in winter 2015 peak condition are shown in Figure 2.1.1, Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4 respectively. These Figures shows that wind farms model includes representation of the radial transmission line, the substation transformer from transmission voltage (138kV and 345kV) to 34.5V. The remainder of each wind farm is represented by lumped equivalents including a generator, a step-up transformer, and collector system impedance.

No special modeling is required of line relays in these cases, except for the special modeling related to the wind-turbine tripping.

All generators in Areas 520, 524, 525, 526, 531, 534, 536, 540, 541 were monitored.

3. Power Factor Analysis

3.1. Methodology

Power factor analysis was conducted for the Project using the following methodology:

1. Replace the wind farm by a generator at the high side bus 345 kV, 138 kV, 115kV, or 69 kV bus, as applicable, with the MW of the wind farms at that point of interconnection.
2. Turn off the wind farm as modeled (as well as previous queued projects at the same point of interconnection).
3. Model a var generator at the Project's high voltage side, 345 kV, 138 kV, 115kV, or 69kV bus, as applicable. The var generator is set to hold a voltage schedule at the POI consistent with the voltage schedule in the provided power flow cases for summer and winter or 1.0 pu voltage, whichever is higher.
4. Perform the steady state contingency analysis to determine the power factor necessary at the POI for each contingency.
5. If the required power factor at the POI is beyond the capability of the studied wind turbines to meet (at the POI) capacitor banks may be considered for the stability analysis. The preference is to locate the capacitance banks on the 34.5 kV customer side. Factors to sizing capacitor banks include:
    5.1. The ability of the wind farm to meet FERC Order 661A (low voltage ride through) with and without capacitor banks.
    5.2. The ability of the wind farm to meet FERC Order 661A (wind farm recovery to pre-fault voltage).
    5.3. If wind farms trips on high voltage, power factor lower than unity may be required.

3.2. Analysis

Analysis was performed for the proposed Projects with all prior queued projects in service. A var generator was modeled at the point of interconnection and was set to hold a voltage schedule at the POI consistent with the voltage schedule in the provided power flow cases OR 1 p.u. whichever is higher. The voltages for these Projects are summarized in Table 3.2.1. All upgrades and instructions were made in the base cases. No other changes were made in the base cases provided, other than the addition of the var generators. Contingency analysis was run for provided list of contingencies.

Table 3.2.1: POI voltages for the summer and winter peak cases

Request	Point of Interconnection	Size (MW)	Base Case Voltage (p.u.)		
			Winter 2015 Peak	Summer 2015 Peak	Summer 2025 Peak
GEN-2014-022	Open Sky 345kV (515621 GEN-2012-032 tap)	15 (Uprate to GEN-2012-32) (Pgen=313.95)	1.007	1.017	1.014
GEN-2014-028	Riverton 161kV (547469)	35 (Uprate) (Pgen=259W/256S)	1.001	1.00	1.00
GEN-2014-064	Otter 138kV (514708)	248.4	1.0144	1.012	1.011
ASGI-2014-014	Ferguson 69kV (512664)	56.4W/54.3S	1.008	1.00	1.00

The details of the var requirement during contingencies are highlighted in Table 3.2.2, 3.2.3 and 3.2.4. The highest and the lowest values obtained are highlighted in these tables.

1. For 2015 winter case (GEN-2014-022 analysis): The maximum var generator supply is 24.1 MVARs at 1.0 (lagging power factor) for the outage of 515621 [OPENSKY7 345.0] TO BUS 515576 [ANCHRD7 345.0] CKT outage. The minimum var requirement is 46.4 MVAR at 0.99 (leading power factor) for outage of 515621 [OPENSKY7 345.0] TO BUS 532794 [OSEHIL7 345.0] CKT outage.
2. For 2015 winter case (GEN-2014-028 analysis): The maximum var generator supply is 9.4 MVARs at 1.0 (lagging power factor) for the outage of 547469 [RIV4525 161.0] TO BUS 532937 [EOSHO 5 161.0] CKT outage and 547469 [RIV4525 161.0] TO BUS 547541 [IV167 2 69.0] T/F outage. The minimum var requirement is 17.8 MVAR at 1.0 (leading power factor) for outage of 547467 [OPENSKY7 345.0] TO BUS 547494 [AK432 5 161.0] CKT outage.
3. For 2015 winter case (GEN-2014-064 analysis): The maximum var generator supply is 2.5 MVARs at 1.0 (leading power factor) for the outage of 514715 [WOODRNG7 345.0] TO BUS 515497 [ATHWSN7 345.0] CKT outage and 514803 [SOONER 7 345.0] TO BUS 514715 [OODRNG7 345.0] CKT outage. The minimum var requirement is 28.5 MVAR at 0.99 (leading power factor) for outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage.
4. For 2015 winter case (ASGI-2014-014 analysis): The maximum var generator supply is 10.6 MVARs at 0.98 (lagging power factor) for the outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage. The minimum var requirement is 2.8 MVAR at 1.0 (lagging power factor) for outage of 512731 [NORTHTP4 138.0] TO BUS 300141 [STILWTR 138.0] CKT outage.

Table 3.2.2: Var Generator output in 2015 winter peak case for DISIS-2014-002 (Group 08)

2015 Winter Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-022** MW at POI **314** MVAR at POI **152**		**GEN-2014-028** MW at POI **259** MVAR at POI **142.5**		**GEN-2014-064** MW at POI **248** MVAR at POI **68**		**ASGI-2014-014** MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	-22.4	1.0	-6.4	1.0	-25.8	1.0	3.2	1.0
FLT01-3PH	515621	OPENSKY7 345.00	515576	ANCHRD7 345.00	CKT 1	24.1	1.00	-5.3	1.00	-25.5	0.99	3.1	1.00
FLT02-3PH	515621	OPENSKY7 345.00	532794	OSEHIL7 345.00	CKT 1	-46.4	0.99	-5.9	1.00	-25.7	0.99	3.4	1.00
FLT03-3PH	515576	RANCHRD7 345.00	514803	OONER 7 345.00	CKT 1	14.6	1.00	-4.6	1.00	-25.3	0.99	3.1	1.00
FLT04-3PH	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1	-43.9	0.99	-7.2	1.00	-25.5	0.99	3.2	1.00

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT05-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	2.0	1.00	-5.7	1.00	-25.7	0.99	3.1	1.00
FLT06-3PH	532794	ROSEHIL7 345.00	532800	ATHAMS7 345.00	CKT 1	-9.8	1.00	-6.9	1.00	-25.7	0.99	3.2	1.00
FLT07-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-19.3	1.00	-5.5	1.00	-22.7	1.00	3.7	1.00
FLT08-3PH	514803	SOONER 7 345.00	512694	LEVLND7 345.00	CKT 1	-15.5	1.00	-6.1	1.00	-23.6	1.00	4.4	1.00
FLT09-3PH	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1	-22.0	1.00	-6.3	1.00	-21.6	1.00	3.3	1.00
FLT10-3PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-23.3	1.00	8.1	1.00	-25.7	0.99	3.2	1.00
FLT11-3PH	547469	RIV4525 161.00	547467	RO110 5 161.00	CKT 1	-22.4	1.00	-17.6	1.00	-25.8	0.99	3.2	1.00
FLT12-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-22.5	1.00	-15.0	1.00	-25.8	0.99	3.2	1.00
FLT13-3PH	547469	RIV4525 161.00	547498	TL439 5 161.00	CKT 1	-22.5	1.00	-7.9	1.00	-25.8	0.99	3.2	1.00
FLT14-3PH	532937	NEOSHO 5 161.00	532926	AKER 5 161.00	CKT 1	-23.1	1.00	-0.8	1.00	-25.8	0.99	3.2	1.00
FLT15-3PH	532937	NEOSHO 5 161.00	532934	ARMTNE5 161.00	CKT 1	-22.5	1.00	-3.2	1.00	-25.8	0.99	3.2	1.00
FLT16-3PH	547467	ORO110 5 161.00	547470	OP145 5 161.00	CKT 1	-22.4	1.00	-5.1	1.00	-25.8	0.99	3.2	1.00
FLT17-3PH	547467	ORO110 5 161.00	547490	IR417 5 161.00	CKT 1	-22.5	1.00	-5.6	1.00	-25.8	0.99	3.2	1.00
FLT18-3PH	547467	ORO110 5 161.00	547494	AK432 5 161.00	CKT 1	-22.5	1.00	-17.8	1.00	-25.8	0.99	3.2	1.00
FLT19-3PH	547487	HOC404 5 161.00	512631	IAMI 5 161.00	CKT 1	-22.4	1.00	-4.7	1.00	-25.8	0.99	3.2	1.00

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT20-3PH	547498	STL439 5 161.00	547470	OP145 5 161.00	CKT 1	-22.3	1.00	-0.6	1.00	-25.8	0.99	3.2	1.00
FLT21-3PH	547498	STL439 5 161.00	547483	OP389 5 161.00	CKT 1	-22.5	1.00	-10.9	1.00	-25.8	0.99	3.2	1.00
FLT22-3PH	514708	OTTER 4 138.00	514713	RVALLY4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-11.2	1.00	2.8	1.00
FLT23-3PH	514708	OTTER 4 138.00	514714	OODRNG4 138.00	CKT 1	-22.3	1.00	-6.3	1.00	-8.9	1.00	4.7	1.00
FLT24-3PH	514713	WRVALLY4 138.00	514706	OWCRK 4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-11.6	1.00	2.8	1.00
FLT25-3PH	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-19.1	1.00	3.6	1.00
FLT26-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-24.4	1.00	3.0	1.00
FLT27-3PH	514714	WOODRNG4 138.00	514709	RMNTAP4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-27.6	0.99	3.2	1.00
FLT28-3PH	514714	WOODRNG4 138.00	514711	AUKOTP4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-25.6	0.99	3.2	1.00
FLT29-3PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-22.3	1.00	-6.3	1.00	-23.2	1.00	3.1	1.00
FLT30-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-7.1	1.00	-4.9	1.00	-21.6	1.00	3.3	1.00
FLT31-3PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-20.5	1.00	-5.4	1.00	-24.0	1.00	3.9	1.00
FLT33-3PH	512731	NORTHTP4 138.00	300141	STILWTR 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-26.0	0.99	2.8	1.00
FLT34-3PH	512731	NORTHTP4 138.00	512710	INZEGR4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-25.9	0.99	4.5	1.00
FLT36-3PH	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F	-22.3	1.00	-6.3	1.00	-26.2	0.99	3.0	1.00

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT37-3PH	514706	COWCRK 4 138.00	514705	OWCRK 2 69.000	T/F	-22.4	1.00	-6.3	1.00	-26.6	0.99	3.2	1.00
FLT38-3PH	547487	HOC404 5 161.00	547486	OC404 4 138.00	T/F	-22.3	1.00	-6.3	1.00	-25.8	0.99	3.2	1.00
FLT39-3PH	547467	ORO110 5 161.00	547534	RO110 2 69.000	T/F	-22.4	1.00	-6.4	1.00	-25.8	0.99	3.2	1.00
FLT40-3PH	532937	NEOSHO 5 161.00	533021	EOSHO 4 138.00	T/F	-22.4	1.00	-6.4	1.00	-25.8	0.99	3.2	1.00
FLT41-3PH	532793	NEOSHO 7 345.00	532937	EOSHO 5 161.00	T/F	-23.7	1.00	-7.1	1.00	-25.8	0.99	3.2	1.00
FLT42-3PH	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F	-22.4	1.00	-6.4	1.00	-25.8	0.99	3.2	1.00
FLT43-3PH	532794	ROSEHIL7 345.00	533062	OSEHIL4 138.00	T/F	-26.0	1.00	-6.4	1.00	-25.8	0.99	3.2	1.00
FLT44-3PH	514803	SOONER 7 345.00	514802	OONER 4 138.00	T/F	-22.9	1.00	-6.4	1.00	-23.4	1.00	3.7	1.00
FLT45-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-23.3	1.00	-2.7	1.00	-25.7	0.99	3.2	1.00
	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1								
FLT46-1PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-23.3	1.00	9.4	1.00	-25.7	0.99	3.2	1.00
	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F								
FLT47-1PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-22.3	1.00	-4.8	1.00	-23.2	1.00	3.1	1.00
	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F								
FLT48-1PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-12.8	1.00	-4.8	1.00	-2.5	1.00	4.7	1.00

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT49-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-7.6	1.00	-4.4	1.00	-16.1	1.00	3.4	1.00
	514715	WOODRNG7 345.00	514803	OONER 7 345.00	CKT 1								
FLT50-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-22.3	1.00	-6.4	1.00	-10.0	1.00	3.0	1.00
	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1								
FLT51-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-16.5	1.00	-5.1	1.00	-16.6	1.00	3.9	1.00
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT52-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	-19.2	1.00	-7.3	1.00	-25.4	0.99	3.1	1.00
	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1								
FLT53-3PH	300141	4STILWTR 138.00	300140	4SILVCTY 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-25.2	0.99	5.0	1.00
FLT54-3PH	300141	4STILWTR 138.00	300844	4RAMSEY 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-25.6	0.99	3.3	1.00
FLT55-3PH	300141	4STILWTR 138.00	301425	4GLENCOE 138.00	CKT 1	-22.5	1.00	-6.3	1.00	-24.6	1.00	5.9	0.99
FLT56-3PH	512710	KINZEGR4 138.00	515008	KINZE 4 138.00	CKT Z1	-22.2	1.00	-6.4	1.00	-28.5	0.99	10.6	0.98
FLT57-3PH	512710	KINZEGR4 138.00	512712	19TH ST4 138.00	CKT 1	-22.4	1.00	-6.4	1.00	-26.4	0.99	3.5	1.00

5. For 2015 summer case (GEN-2014-022 analysis): The maximum var generator supply is 1.8 MVARs at 1.0 (lagging power factor) for the outage of 515621 [OPENSKY7 345.0] TO BUS 532794 [OSEHIL7 345.0] CKT outage. The minimum var requirement is 54.5 MVAR at 0.99 (leading power factor) for outage of 515576 [RANCHRD7 345.0] TO BUS 514803 [OONER 7 345.0] CKT outage.
6. For 2015 summer case (GEN-2014-028 analysis): The maximum var generator supply is 70.8 MVARs at 0.96 (lagging power factor) for the outage of 547469 [RIV4525 161.0] TO BUS 532937 [EOSHO 5 161.0] CKT outage and 547469 [RIV4525 161.0] TO BUS 547541 [IV167 2 69.0] T/F outage. The minimum var requirement is 28.1 MVAR at 0.99 (lagging power factor) for outage of 547469 [RIV4525 161.0] TO BUS 547487 [OC404 5 161.0] CKT outage.
7. For 2015 summer case (GEN-2014-064 analysis): The maximum var generator supply is 6.7 MVARs at 1.0 (leading power factor) for the outage of 514708 [OTTER 4 138.0] TO BUS 514714 [OODRNG4 138.0] CKT outage. The minimum var requirement is 26.7 MVAR at 0.99 (leading power factor) for outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage.
8. For 2015 summer case (ASGI-2014-014 analysis): The maximum var generator supply is 18.5 MVARs at 0.95 (lagging power factor) for the outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage. The minimum var requirement is 8.4 MVAR at 0.99 (lagging power factor) for outage of 512731 [NORTHTP4 138.0] TO BUS 300141 [STILWTR 138.0] CKT outage.

Table 3.2.3: Var generator output in 2015 summer peak case for DISIS-2014-002 (Group 08)

2015 Summer Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-022** MW at POI **314** MVAR at POI **152**		**GEN-2014-028** MW at POI **259** MVAR at POI **142.5**		**GEN-2014-064** MW at POI **248** MVAR at POI **68**		**ASGI-2014-014** MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	-38.8	0.99	54.9	0.98	-23.2	1.00	9.6	0.98
FLT01-3PH	515621	OPENSKY7 345.00	515576	ANCHRD7 345.00	CKT 1	-42.6	0.99	55.3	0.98	-23.1	1.00	9.5	0.99
FLT02-3PH	515621	OPENSKY7 345.00	532794	OSEHIL7 345.00	CKT 1	1.8	1.00	53.6	0.98	-23.4	1.00	9.7	0.98
FLT03-3PH	515576	RANCHRD7 345.00	514803	OONER 7 345.00	CKT 1	-54.5	0.99	56.0	0.98	-23.0	1.00	9.5	0.99

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT04-3PH	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1	-51.9	0.99	54.1	0.98	-23.0	1.00	9.6	0.98
FLT05-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	-29.3	1.00	55.5	0.98	-23.3	1.00	9.5	0.99
FLT06-3PH	532794	ROSEHIL7 345.00	532800	ATHAMS7 345.00	CKT 1	-36.5	0.99	57.5	0.98	-23.2	1.00	9.6	0.98
FLT07-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-36.2	0.99	55.6	0.98	-21.5	1.00	9.9	0.98
FLT08-3PH	514803	SOONER 7 345.00	512694	LEVLND7 345.00	CKT 1	-29.2	1.00	55.9	0.98	-20.9	1.00	11.2	0.98
FLT09-3PH	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1	-38.5	0.99	54.9	0.98	-20.3	1.00	9.6	0.98
FLT10-3PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-40.0	0.99	68.3	0.97	-23.2	1.00	9.6	0.98
FLT11-3PH	547469	RIV4525 161.00	547467	RO110 5 161.00	CKT 1	-38.5	0.99	36.0	0.99	-23.2	1.00	9.6	0.98
FLT12-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-39.0	0.99	28.1	0.99	-23.2	1.00	9.6	0.98
FLT13-3PH	547469	RIV4525 161.00	547498	TL439 5 161.00	CKT 1	-38.8	0.99	38.1	0.99	-23.2	1.00	9.6	0.98
FLT14-3PH	532937	NEOSHO 5 161.00	532926	AKER 5 161.00	CKT 1	-39.7	0.99	62.3	0.97	-23.2	1.00	9.6	0.98
FLT15-3PH	532937	NEOSHO 5 161.00	532934	ARMTNE5 161.00	CKT 1	-38.8	0.99	58.6	0.97	-23.3	1.00	9.6	0.98
FLT16-3PH	547467	ORO110 5 161.00	547470	OP145 5 161.00	CKT 1	-38.7	0.99	56.8	0.98	-23.2	1.00	9.6	0.98
FLT17-3PH	547467	ORO110 5 161.00	547490	IR417 5 161.00	CKT 1	-38.8	0.99	56.7	0.98	-23.2	1.00	9.6	0.98
FLT18-3PH	547467	ORO110 5 161.00	547494	AK432 5 161.00	CKT 1	-38.8	0.99	43.5	0.99	-23.2	1.00	9.6	0.98

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT19-3PH	547487	HOC404 5 161.00	512631	IAMI 5 161.00	CKT 1	-38.9	0.99	46.1	0.98	-23.2	1.00	9.6	0.98
FLT20-3PH	547498	STL439 5 161.00	547470	OP145 5 161.00	CKT 1	-38.4	0.99	66.1	0.97	-23.2	1.00	9.6	0.98
FLT21-3PH	547498	STL439 5 161.00	547483	OP389 5 161.00	CKT 1	-38.8	0.99	57.1	0.98	-23.2	1.00	9.6	0.98
FLT22-3PH	514708	OTTER 4 138.00	514713	RVALLY4 138.00	CKT 1	-38.8	0.99	54.8	0.98	-11.3	1.00	9.3	0.99
FLT23-3PH	514708	OTTER 4 138.00	514714	OODRNG4 138.00	CKT 1	-38.6	0.99	54.9	0.98	-6.7	1.00	11.1	0.98
FLT24-3PH	514713	WRVALLY4 138.00	514706	OWCRK 4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-9.9	1.00	9.2	0.99
FLT25-3PH	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-14.9	1.00	10.1	0.98
FLT26-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-23.3	1.00	9.6	0.98
FLT27-3PH	514714	WOODRNG4 138.00	514709	RMNTAP4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-24.8	1.00	9.6	0.98
FLT28-3PH	514714	WOODRNG4 138.00	514711	AUKOTP4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-23.6	1.00	9.6	0.98
FLT29-3PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-38.6	0.99	55.0	0.98	-20.8	1.00	9.5	0.99
FLT30-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-24.5	1.00	56.8	0.98	-18.8	1.00	9.6	0.98
FLT31-3PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-36.6	0.99	55.9	0.98	-20.4	1.00	10.2	0.98
FLT33-3PH	512731	NORTHTP4 138.00	300141	STILWTR 138.00	CKT 1	-38.7	0.99	54.9	0.98	-23.5	1.00	8.4	0.99
FLT34-3PH	512731	NORTHTP4 138.00	512710	INZEGR4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-23.4	1.00	10.7	0.98

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT36-3PH	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F	-38.5	0.99	54.9	0.98	-13.3	1.00	9.5	0.99
FLT37-3PH	514706	COWCRK 4 138.00	514705	OWCRK 2 69.000	T/F	-38.7	0.99	55.0	0.98	-24.2	1.00	9.5	0.99
FLT38-3PH	547487	HOC404 5 161.00	547486	OC404 4 138.00	T/F	-38.6	0.99	57.1	0.98	-23.2	1.00	9.6	0.98
FLT39-3PH	547467	ORO110 5 161.00	547534	RO110 2 69.000	T/F	-38.7	0.99	64.6	0.97	-23.2	1.00	9.6	0.98
FLT40-3PH	532937	NEOSHO 5 161.00	533021	EOSHO 4 138.00	T/F	-38.8	0.99	55.1	0.98	-23.2	1.00	9.6	0.98
FLT41-3PH	532793	NEOSHO 7 345.00	532937	EOSHO 5 161.00	T/F	-38.4	0.99	53.5	0.98	-23.2	1.00	9.6	0.98
FLT42-3PH	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F	-38.7	0.99	57.6	0.98	-23.2	1.00	9.6	0.98
FLT43-3PH	532794	ROSEHIL7 345.00	533062	OSEHIL4 138.00	T/F	-35.8	0.99	55.1	0.98	-23.3	1.00	9.6	0.98
FLT44-3PH	514803	SOONER 7 345.00	514802	OONER 4 138.00	T/F	-39.2	0.99	54.9	0.98	-21.9	1.00	9.9	0.98
FLT45-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-40.1	0.99	39.9	0.99	-23.2	1.00	9.6	0.98
	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1								
FLT46-1PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-40.0	0.99	70.8	0.96	-23.2	1.00	9.6	0.98
	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F								
FLT47-1PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-38.5	0.99	55.0	0.98	-11.3	1.00	9.4	0.99
	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F								

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT48-1PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-36.3	0.99	56.1	0.98	-9.7	1.00	10.7	0.98
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT49-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-24.7	1.00	57.2	0.98	-14.1	1.00	9.7	0.98
	514715	WOODRNG7 345.00	514803	OONER 7 345.00	CKT 1								
FLT50-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-38.6	0.99	54.9	0.98	-7.7	1.00	9.6	0.98
	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1								
FLT51-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-34.3	0.99	55.8	0.98	-17.5	1.00	10.0	0.98
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT52-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	-50.2	0.99	53.6	0.98	-22.9	1.00	9.5	0.99
	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1								
FLT53-3PH	300141	4STILWTR 138.00	300140	4SILVCTY 138.00	CKT 1	-38.7	0.99	54.9	0.98	-22.6	1.00	11.5	0.98
FLT54-3PH	300141	4STILWTR 138.00	300844	4RAMSEY 138.00	CKT 1	-38.8	0.99	54.9	0.98	-23.1	1.00	9.7	0.98
FLT55-3PH	300141	4STILWTR 138.00	301425	4GLENCOE 138.00	CKT 1	-38.8	0.99	54.9	0.98	-21.5	1.00	13.2	0.97
FLT56-3PH	512710	KINZEGR4 138.00	515008	KINZE 4 138.00	CKT Z1	-38.5	0.99	55.0	0.98	-26.7	0.99	18.5	0.95
FLT57-3PH	512710	KINZEGR4 138.00	512712	19TH ST4 138.00	CKT 1	-38.7	0.99	54.9	0.98	-24.0	1.00	10.1	0.98

9. For 2025 summer case (GEN-2014-022 analysis): The maximum var generator supply is 14.0 MVARs at 1.0 (leading power factor) for the outage of 515621 [OPENSKY7 345.0] TO BUS 532794 [OSEHIL7 345.0] CKT outage. The minimum var requirement is 30 MVAR at 1.0 (leading power factor) for outage of 547469 [RIV4525 161.0] TO BUS 532937 [EOSHO 5 161.0] CKT outage and 547469 [RIV4525 161.0] TO BUS 547541 [IV167 2 69.0] T/F outage.
10. For 2025 summer case (GEN-2014-028 analysis): The maximum var generator supply is 98.8 MVARs at 0.93 (lagging power factor) for the outage of 547469 [RIV4525 161.0] TO BUS 532937 [EOSHO 5 161.0] CKT outage and 547469 [RIV4525 161.0] TO BUS 547541 [IV167 2 69.0] T/F outage. The minimum var requirement is 40.4 MVAR at 0.99 (lagging power factor) for outage of 547469 [RIV4525 161.0]TO BUS 547487 [OC404 5 161.0] CKT outage.
11. For 2025 summer case (GEN-2014-064 analysis): The maximum var generator supply is 5.6 MVARs at 1.0 (leading power factor) for the outage of 514708 [OTTER 4 138.0] TO BUS 514714 [OODRNG4 138.0] CKT outage. The minimum var requirement is 27.6 MVAR at 0.99 (leading power factor) for outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage.
12. For 2025 summer case (ASGI-2014-014 analysis): The maximum var generator supply is 27.0 MVARs at 0.9 (lagging power factor) for the outage of outage of 512710 [KINZEGR4 138.0] TO BUS 515008 [KINZE 4 138.0] CKT outage. The minimum var requirement is 13.0 MVAR at 0.97 (lagging power factor) for outage of 512731 [NORTHTP4 138.0] TO BUS 300141 [STILWTR 138.0] CKT outage.

Table 3.2.3: Var generator output in 2025 summer peak case for DISIS-2014-002 (Group 08)

2025 Summer Peak Case Power Factor Study:

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						**GEN-2014-022** MW at POI **314** MVAR at POI **152**		**GEN-2014-028** MW at POI **259** MVAR at POI **142.5**		**GEN-2014-064** MW at POI **248** MVAR at POI **68**		**ASGI-2014-014** MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	Base Case MVAR Flow				N/A	-28.7	1.00	78.7	0.96	-22.5	1.00	14.9	0.96
FLT01-3PH	515621	OPENSKY7 345.00	515576	ANCHRD7 345.00	CKT 1	-15.3	1.00	79.7	0.95	-22.5	1.00	14.8	0.96
FLT02-3PH	515621	OPENSKY7 345.00	532794	OSEHIL7 345.00	CKT 1	-14.0	1.00	77.6	0.96	-22.3	1.00	15.0	0.96
FLT03-3PH	515576	RANCHRD7 345.00	514803	OONER 7 345.00	CKT 1	-29.1	1.00	80.4	0.95	-22.4	1.00	14.7	0.97
FLT04-3PH	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1	-33.3	0.99	78.5	0.96	-22.5	1.00	14.9	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT05-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	-14.1	1.00	80.0	0.95	-22.5	1.00	14.8	0.96
FLT06-3PH	532794	ROSEHIL7 345.00	532800	ATHAMS7 345.00	CKT 1	-24.4	1.00	79.8	0.95	-22.5	1.00	14.9	0.96
FLT07-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-27.2	1.00	79.1	0.96	-21.5	1.00	15.0	0.96
FLT08-3PH	514803	SOONER 7 345.00	512694	LEVLND7 345.00	CKT 1	-19.5	1.00	81.0	0.95	-20.0	1.00	17.0	0.95
FLT09-3PH	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1	-28.5	1.00	78.7	0.96	-20.8	1.00	14.9	0.96
FLT10-3PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-30.1	1.00	94.7	0.94	-22.5	1.00	14.9	0.96
FLT11-3PH	547469	RIV4525 161.00	547467	RO110 5 161.00	CKT 1	-28.6	1.00	56.8	0.98	-22.5	1.00	14.8	0.96
FLT12-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-29.1	1.00	40.4	0.99	-22.5	1.00	14.9	0.96
FLT13-3PH	547469	RIV4525 161.00	547498	TL439 5 161.00	CKT 1	-28.7	1.00	55.5	0.98	-22.5	1.00	14.9	0.96
FLT14-3PH	532937	NEOSHO 5 161.00	532926	AKER 5 161.00	CKT 1	-29.7	1.00	85.7	0.95	-22.5	1.00	14.9	0.96
FLT15-3PH	532937	NEOSHO 5 161.00	532934	ARMTNE5 161.00	CKT 1	-28.9	1.00	81.9	0.95	-22.5	1.00	14.8	0.96
FLT16-3PH	547467	ORO110 5 161.00	547470	OP145 5 161.00	CKT 1	-28.6	1.00	80.7	0.95	-22.5	1.00	14.9	0.96
FLT17-3PH	547467	ORO110 5 161.00	547490	IR417 5 161.00	CKT 1	-28.8	1.00	79.8	0.95	-22.5	1.00	14.9	0.96
FLT18-3PH	547467	ORO110 5 161.00	547494	AK432 5 161.00	CKT 1	-28.7	1.00	64.5	0.97	-22.5	1.00	14.9	0.96
FLT19-3PH	547487	HOC404 5 161.00	512631	IAMI 5 161.00	CKT 1	-28.8	1.00	67.0	0.97	-22.5	1.00	14.9	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT20-3PH	547498	STL439 5 161.00	547470	OP145 5 161.00	CKT 1	-28.5	1.00	89.9	0.94	-22.5	1.00	14.9	0.96
FLT21-3PH	547498	STL439 5 161.00	547483	OP389 5 161.00	CKT 1	-28.7	1.00	80.6	0.95	-22.5	1.00	14.9	0.96
FLT22-3PH	514708	OTTER 4 138.00	514713	RVALLY4 138.00	CKT 1	-28.7	1.00	78.7	0.96	-11.9	1.00	14.6	0.97
FLT23-3PH	514708	OTTER 4 138.00	514714	OODRNG4 138.00	CKT 1	-28.4	1.00	78.7	0.96	-5.6	1.00	16.4	0.96
FLT24-3PH	514713	WRVALLY4 138.00	514706	OWCRK 4 138.00	CKT 1	-28.7	1.00	78.7	0.96	-9.9	1.00	14.5	0.97
FLT25-3PH	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-13.2	1.00	15.5	0.96
FLT26-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-23.6	1.00	15.0	0.96
FLT27-3PH	514714	WOODRNG4 138.00	514709	RMNTAP4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-24.3	1.00	14.9	0.96
FLT28-3PH	514714	WOODRNG4 138.00	514711	AUKOTP4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-23.0	1.00	14.9	0.96
FLT29-3PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-28.6	1.00	78.8	0.96	-20.1	1.00	14.7	0.97
FLT30-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-24.0	1.00	80.4	0.95	-21.0	1.00	14.8	0.96
FLT31-3PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-27.3	1.00	79.4	0.96	-19.3	1.00	15.2	0.96
FLT33-3PH	512731	NORTHTP4 138.00	300141	STILWTR 138.00	CKT 1	-28.7	1.00	78.7	0.96	-22.9	1.00	13.0	0.97
FLT34-3PH	512731	NORTHTP4 138.00	512710	INZEGR4 138.00	CKT 1	-28.7	1.00	78.7	0.96	-22.9	1.00	16.2	0.96
FLT36-3PH	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F	-28.6	1.00	78.7	0.96	-8.3	1.00	14.9	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
FLT37-3PH	514706	COWCRK 4 138.00	514705	OWCRK 2 69.000	T/F	-28.6	1.00	78.8	0.96	-23.7	1.00	14.8	0.96
FLT38-3PH	547487	HOC404 5 161.00	547486	OC404 4 138.00	T/F	-28.6	1.00	77.7	0.96	-22.5	1.00	14.8	0.96
FLT39-3PH	547467	ORO110 5 161.00	547534	RO110 2 69.000	T/F	-28.6	1.00	88.4	0.95	-22.5	1.00	14.9	0.96
FLT40-3PH	532937	NEOSHO 5 161.00	533021	EOSHO 4 138.00	T/F	-28.7	1.00	78.5	0.96	-22.5	1.00	14.9	0.96
FLT41-3PH	532793	NEOSHO 7 345.00	532937	EOSHO 5 161.00	T/F	-29.6	1.00	88.5	0.95	-22.5	1.00	14.9	0.96
FLT42-3PH	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F	-28.7	1.00	83.0	0.95	-22.5	1.00	14.9	0.96
FLT43-3PH	532794	ROSEHIL7 345.00	533062	OSEHIL4 138.00	T/F	-27.2	1.00	78.9	0.96	-22.5	1.00	14.8	0.96
FLT44-3PH	514803	SOONER 7 345.00	514802	OONER 4 138.00	T/F	-29.1	1.00	78.7	0.96	-21.0	1.00	15.2	0.96
FLT45-3PH	547469	RIV4525 161.00	547487	OC404 5 161.00	CKT 1	-30.2	1.00	55.2	0.98	-22.5	1.00	14.9	0.96
	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1								
FLT46-1PH	547469	RIV4525 161.00	532937	EOSHO 5 161.00	CKT 1	-30.0	1.00	98.8	0.93	-22.5	1.00	14.9	0.96
	547469	RIV4525 161.00	547541	IV167 2 69.000	T/F								
FLT47-1PH	514714	WOODRNG4 138.00	514733	ARSHL 4 138.00	CKT 1	-28.6	1.00	78.8	0.96	-20.1	1.00	14.7	0.97
	514715	WOODRNG7 345.00	514714	OODRNG4 138.00	T/F								
FLT48-1PH	514715	WOODRNG7 345.00	515497	ATHWSN7 345.00	CKT 1	-26.8	1.00	79.7	0.95	-11.0	1.00	15.5	0.96

Generation Interconnection Request Analysis Rated MW of Wind Farms OR at POI (MW) Rated MVAR of Wind Farms OR at POI (MVAR)						GEN-2014-022 MW at POI **314** MVAR at POI **152**		GEN-2014-028 MW at POI **259** MVAR at POI **142.5**		GEN-2014-064 MW at POI **248** MVAR at POI **68**		ASGI-2014-014 MW at POI **56.4** MVAR at POI **27.3**	
Cont. Name	**From Bus (# & Name)**		**To Bus (# & Name)**		**ID**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**	**MVAR at POI**	**P.F at POI**
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT49-3PH	514715	WOODRNG7 345.00	515476	UNTERS7 345.00	CKT 1	-24.0	1.00	80.6	0.95	-18.7	1.00	14.9	0.96
	514715	WOODRNG7 345.00	514803	OONER 7 345.00	CKT 1								
FLT50-3PH	514706	COWCRK 4 138.00	515006	ORRISN4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-7.2	1.00	15.0	0.96
	514706	COWCRK 4 138.00	514707	ERRY 4 138.00	CKT 1								
FLT51-3PH	514803	SOONER 7 345.00	514881	PRNGCK7 345.00	CKT 1	-25.9	1.00	79.3	0.96	-19.1	1.00	15.1	0.96
	514803	SOONER 7 345.00	514715	OODRNG7 345.00	CKT 1								
FLT52-3PH	532794	ROSEHIL7 345.00	532797	OLFCRK7 345.00	CKT 1	-22.1	1.00	79.1	0.96	-22.3	1.00	14.8	0.96
	532794	ROSEHIL7 345.00	532791	ENTON 7 345.00	CKT 1								
FLT53-3PH	300141	4STILWTR 138.00	300140	4SILVCTY 138.00	CKT 1	-28.7	1.00	78.7	0.96	-21.8	1.00	17.3	0.95
FLT54-3PH	300141	4STILWTR 138.00	300844	4RAMSEY 138.00	CKT 1	-28.7	1.00	78.7	0.96	-22.4	1.00	14.9	0.96
FLT55-3PH	300141	4STILWTR 138.00	301425	4GLENCOE 138.00	CKT 1	-28.7	1.00	78.7	0.96	-20.5	1.00	19.7	0.94
FLT56-3PH	512710	KINZEGR4 138.00	515008	KINZE 4 138.00	CKT Z1	-28.4	1.00	78.9	0.96	-27.6	0.99	27	0.90
FLT57-3PH	512710	KINZEGR4 138.00	512712	19TH ST4 138.00	CKT 1	-28.6	1.00	78.7	0.96	-23.5	1.00	15.6	0.96

3.3. Conclusions

The power factor analysis indicates the DISIS-2014-002 (Group 08) interconnection requests i.e., GEN-2014-022, GEN-2014-028, GEN-2014-064, and ASGI-2014-014 are required to maintain the SPP standard power factor at the point of interconnection i.e., (Open Sky 345kV 515621 GEN-2012-032 tap), Riverton 161kV (547469), Otter 138kV (514708), and Ferguson 69kV (512664) based on the contingencies studied.

Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI.

4. Inductive Reactive Support Analysis

Analysis for low wind /no wind conditions in cluster scenario is performed for the proposed wind generators requests. To offset the capacitive effects of the collector system and transmission line of the wind farm under low wind or no wind conditions, analysis was performed for winter-2015 scenario to calculate the Inductive Reactive Support at point of interconnection for each interconnection request under project DISIS-2014-002 (Group 08) .

Following methodology was adopted as communicated by SPP:

1. Switch the generator and capacitor bank (if installed) out of service with the collector system as modeled remaining in service.
2. Calculate the amount of inductive reactive support required at the 34.5kV collector buses which would result in zero VAR flow at the POI."

The inductive reactive support analysis for wind generator GEN-2014-022 performed for winter-2015 scenario which indicates that at POI (Open Sky 345kV 515621 GEN-2012-032 tap) 6.7 MVAR reactor is required at Bus 514825 to maintain zero MVAR flow for the combined GEN-2012-032/GEN-2014-022 generator lead.

Similarly, the inductive reactive support analysis for wind generator GEN-2014-064 performed for winter-2015 scenario which indicates that at POI (Otter 138kV) 10.5 MVAR reactor is required at Bus 584170 to maintain zero MVAR flow at POI.

Maintaining zero MVar flow at the POI at all times is not possible with static reactor banks. It will be determined on a case by case basis for each generator as to whether additional reactor banks are required for low wind conditions.

The single line diagram for wind generators showing the inductive reactive requirement for Gen-2014-022 and Gen-2014-064 are respectively shown in Figure 4.1.1, and 4.1.2:

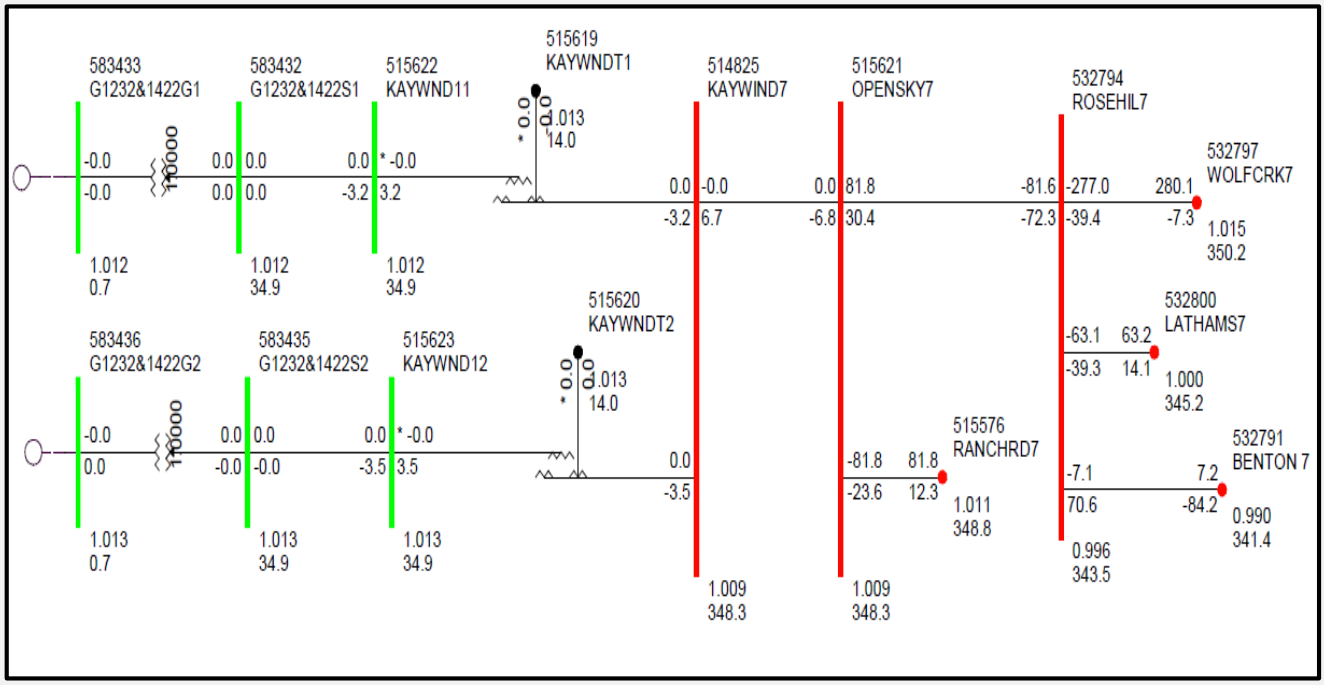

Figure 4.1.1: Inductive reactive requirement for GEN-2014-022

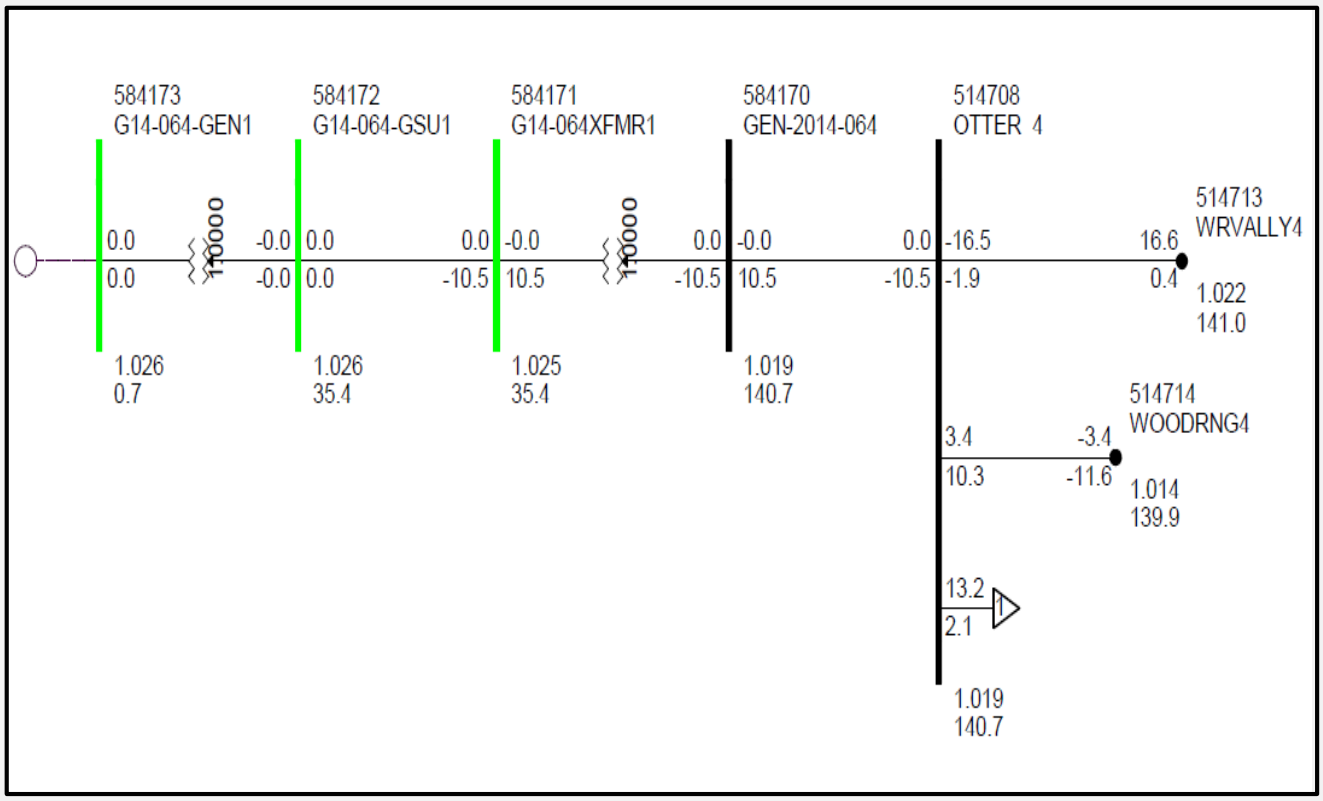

Figure 4.1.2: Inductive reactive requirement for GEN-2014-064

5. Short Circuit Analysis

The short circuit analysis out five buses away was performed for 2025 summer peak case for each interconnection request under project cluster scenario of DISIS-2014-008 (Group 02). No outage was assumed in the system model.

5.1. Short Circuit Result for POI Open Sky 345kV (515621 GEN-2012-032 tap)

The results of the short circuit analysis for POI i.e., Open Sky 345kV (515621 GEN-2012-032 tap) are tabulated below in table 5.1.1.

Table 5.1.1: Short circuit results for Open Sky 345kV (515621 GEN-2012-032 tap)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515621	OPENSKY 7 345.00	0 Level	11247.6	9111.9
514825	KAYWIND7 345.00	1 Level	1435.3	1056.2
515576	RANCHRD7 345.00	1 Level	12250.8	3354
532794	ROSEHIL7 345.00	1 Level	9495.8	3314
514803	SOONER 7 345.00	2 Level	11415.5	3962.7
515619	KAYWNDT1 13.800	2 Level	0	0
515620	KAYWNDT2 13.800	2 Level	0	0
515622	KAYWND11 34.500	2 Level	7192.4	5285.4
515623	KAYWND12 34.500	2 Level	7160.8	5276.6
532791	BENTON 7 345.00	2 Level	4926.6	2277
532797	WOLFCRK7 345.00	2 Level	4437.2	3925.3
532800	LATHAMS7 345.00	2 Level	2086.5	940
532826	ROSEH1 1 13.800	2 Level	0	0
532827	ROSEH5 1 13.800	2 Level	0	0
532831	ROSEH3 1 13.800	2 Level	0	0
533062	ROSEHIL4 138.00	2 Level	5087.5	3976.8
583490	GEN-2012-041345.00	2 Level	1200.8	445.2
512694	CLEVLND7 345.00	3 Level	2733.3	1605.2
514715	WOODRNG7 345.00	3 Level	2940.6	1612.4
514802	SOONER 4 138.00	3 Level	6217.2	4086.9

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514806	SOONER2G 20.000	3 Level	1392.4	4482.6
514881	SPRNGCK7 345.00	3 Level	2547.4	1290.6
515760	SOONER 1 13.800	3 Level	0	0
532751	WCGS U1 25.000	3 Level	19805.5	10112.6
532780	CANEYRV7 345.00	3 Level	2157.1	1388.5
532796	WICHITA7 345.00	3 Level	4248.2	2538
532799	WAVERLY7 345.00	3 Level	2657.7	2405
532801	ELKRVR17 345.00	3 Level	655.1	659.9
532821	BENTN1 1 13.800	3 Level	0	0
532822	BENTN2 1 13.800	3 Level	0	0
532986	BENTON 4 138.00	3 Level	3707	3952.4
532991	WEAVER 4 138.00	3 Level	1859.3	1691.4
533039	ELPASO 4 138.00	3 Level	2725.1	1618.8
533068	STEARMN4 138.00	3 Level	1303.5	961.5
533653	WOLFCRK2 69.000	3 Level	1421.2	1486.3
583432	G1232&1422S134.500	3 Level	7171.6	5258
583435	G1232&1422S234.500	3 Level	7138.4	5247.4
583493	G12-041-GEN118.000	3 Level	3014.8	8531.8
300138	4CLEVLND 138.00	4 Level	1206.9	1465.5
509852	T.NO.--7 345.00	4 Level	2578.7	1484.1
512817	CLEVLND1 13.800	4 Level	0	0
514704	MILLERT4 138.00	4 Level	525.7	638.8
514707	PERRY 4 138.00	4 Level	406.3	442.1
514714	WOODRNG4 138.00	4 Level	2380.1	2353.8
514798	SNRPMPT4 138.00	4 Level	572.9	645.1
514805	SOONER1G 22.000	4 Level	12850.2	5099.4
514880	NORTWST7 345.00	4 Level	3470.8	2744.1
514882	SPGCK1&2 13.800	4 Level	12812	11503.5
514883	SPGCK3&4 13.800	4 Level	7820.8	6250.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515447	MORISNT4 138.00	4 Level	1839.7	1905.2
515476	HUNTERS7 345.00	4 Level	1436.9	1308
515497	MATHWSN7 345.00	4 Level	3496.5	2930.8
515770	WOODRNG1 13.800	4 Level	0	0
532727	ELKRVR11 34.000	4 Level	3298.8	3322.4
532728	ELKRVR12 34.000	4 Level	3347.8	3373.8
532771	RENO 7 345.00	4 Level	1283	812
532781	CANEYWF7 345.00	4 Level	721.6	660.2
532793	NEOSHO 7 345.00	4 Level	2671.9	2376.3
532798	VIOLA 7 345.00	4 Level	1915.2	1988.4
532829	WICH11 1 13.800	4 Level	0	0
532830	WICH12 1 13.800	4 Level	0	0
532988	BELAIRE4 138.00	4 Level	1019.4	1173.6
532990	MIDIAN 4 138.00	4 Level	863.8	1008
532993	TALLGRS4 138.00	4 Level	526.9	513.6
533024	29TH 4 138.00	4 Level	965.7	1104
533026	ANDOVER4 138.00	4 Level	643.7	365.3
533029	59TH ST4 138.00	4 Level	1671.1	582
533030	BOEING 4 138.00	4 Level	1211.9	900.6
533032	BU11PON4 138.00	4 Level	270.1	175.4
533035	CHISHLM4 138.00	4 Level	2759.8	2259.6
533040	EVANS N4 138.00	4 Level	5173.8	5462.8
533042	FARBER 4 138.00	4 Level	698.6	388.6
533066	64TH 4 138.00	4 Level	725.3	777.7
533067	SPRNGDL4 138.00	4 Level	467.4	608.8
533083	WEAVER 1 13.200	4 Level	0	0
533105	ELPASO 1 13.200	4 Level	0	0
533604	WEAVER 2 69.000	4 Level	807.7	785.7
533626	BURLJCT2 69.000	4 Level	1266.6	1328.3

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
533629	CC2SHAR2 69.000	4 Level	4.8	5.3
533793	ELPASO 2 69.000	4 Level	1026.1	1110.5
539801	THISTLE7 345.00	4 Level	1609.2	1163.9
542981	LACYGNE7 345.00	4 Level	6507.3	6384.4
562476	G14-001-TAP 345.00	4 Level	1187.4	771.3
572091	GEN-2008-098345.00	4 Level	638.6	641.8
583433	G1232&1422G10.6500	4 Level	650.2	19074.4
583436	G1232&1422G20.6500	4 Level	18888.2	18512.6
300140	4SILVCTY 138.00	5 Level	1099.1	985.5
300739	7BLACKBERRY 345.00	5 Level	1579.5	1543.1
300996	4JAVINE 138.00	5 Level	448.4	503.5
301429	4CLEVLNDXFMR138.00	5 Level	313.5	357.2
509755	WEKIWA-7 345.00	5 Level	949.4	663.3
509894	TNO2-1 34.500	5 Level	0	0
509895	T.NO.2-4 138.00	5 Level	2190.2	2212.2
510380	DELWARE7 345.00	5 Level	804.9	814.7
510406	N.E.S.-7 345.00	5 Level	1594	1373.7
512749	PAWNSW4 138.00	5 Level	731.4	830
514706	COWCRK 4 138.00	5 Level	770.5	773.3
514708	OTTER 4 138.00	5 Level	1988.7	2019.2
514709	FRMNTAP4 138.00	5 Level	695.6	789.9
514711	WAUKOTP4 138.00	5 Level	891.6	936.8
514733	MARSHL 4 138.00	5 Level	601.6	532
514737	OTOE 4 138.00	5 Level	25.6	29
514743	OSAGE 4 138.00	5 Level	1241.1	1001.6
514799	SNRPMP 4 138.00	5 Level	18.4	20.8
514879	NORTWST4 138.00	5 Level	5587.8	5977.1
514885	NORTWS41 13.800	5 Level	0	0
514901	CIMARON7 345.00	5 Level	3214.4	2793.9

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514908	ARCADIA7 345.00	5 Level	2829	2633.4
515006	MORRISN4 138.00	5 Level	686.7	692.7
515011	STILWTR4 138.00	5 Level	1843.6	1908.6
515375	WWRDEHV7 345.00	5 Level	1814.8	1667.3
515412	DMNCRKT4 138.00	5 Level	510.4	611.9
515477	CHSHLMV7 345.00	5 Level	962.5	977.6
515543	RENFROW7 345.00	5 Level	1027.8	1004.1
515742	NORTWS21 13.800	5 Level	2012.4	2115.6
515743	NORTWS31 13.800	5 Level	1918.6	2012.6
532605	ELKRVR-WTG1 0.6900	5 Level	2550	3717.2
532606	ELKRVR-WTG2 0.6900	5 Level	4962.4	6241.8
532721	EEC U1 16.000	5 Level	9406.4	8953.2
532722	EEC U2 24.000	5 Level	15857.4	15126
532729	EVAN SVC 8.0000	5 Level	0	0
532768	EMPEC 7 345.00	5 Level	2548.5	2375.3
532773	SUMMIT 7 345.00	5 Level	743.2	597.7
532792	FR2EAST7 345.00	5 Level	1904.6	1939.3
532807	RENO 1X1 14.400	5 Level	0	0
532810	RENO 2X1 14.400	5 Level	0	0
532824	N345 1 1 13.800	5 Level	0	0
532825	N345 2 1 13.800	5 Level	0	0
532832	VIOLA1X1 13.800	5 Level	0	0
532937	NEOSHO 5 161.00	5 Level	1875.1	1902.2
532954	WAVERTX1 34.500	5 Level	6387.1	6418.1
532987	BUTLER 4 138.00	5 Level	726.3	654.2
532989	BUTLERS4 138.00	5 Level	535.1	466.5
533021	NEOSHO 4 138.00	5 Level	1807	1777
533028	BEECHTP4 138.00	5 Level	383	439.5
533031	BURNSTP4 138.00	5 Level	130.6	155.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
533033	CANAL 4 138.00	5 Level	1224.7	782.2
533037	COMOTAR4 138.00	5 Level	872.9	995.2
533041	EVANS S4 138.00	5 Level	3863.4	4031.9
533046	GILL S 4 138.00	5 Level	2863.1	1948.9
533048	HARRY 4 138.00	5 Level	382.9	343.4
533060	NOEASTE4 138.00	5 Level	1395.6	1399.1
533063	SC10BEL4 138.00	5 Level	694.2	424.1
533064	17TH 4 138.00	5 Level	1348.4	1177.7
533065	SG12COL4 138.00	5 Level	956.1	1035.6
533075	VIOLA 4 138.00	5 Level	2253.5	2413.2
533079	CNYWFLV1 34.500	5 Level	7267.4	6707.8
533082	MIDIAN 1 13.200	5 Level	0	0
533102	CNYWF1 1 13.200	5 Level	0	0
533103	CHISOLM1 13.200	5 Level	0	0
533390	MAIZEW 4 138.00	5 Level	2525.4	2071.6
533391	MAIZEE 4 138.00	5 Level	2374.4	1884.6
533416	RENO 3 115.00	5 Level	2471	1732.7
533585	BU10BEN2 69.000	5 Level	487.2	564.5
533597	MIDIAN 2 69.000	5 Level	923.3	1150.6
533624	BURLING2 69.000	5 Level	219.4	238.8
533630	CC3WEST2 69.000	5 Level	1199.9	1242.3
533786	CHISHLM2 69.000	5 Level	1709	1972.1
533821	MULVANE2 69.000	5 Level	238.3	112.2
533824	OAKLAWN2 69.000	5 Level	806.5	718.7
533837	RH JCT 2 69.000	5 Level	306.1	150.1
533842	64TH 2 69.000	5 Level	978.3	1188.4
533888	CC5SHAR1 12.470	5 Level	0	0
533889	CC6SHAR1 12.470	5 Level	0	0
539800	CLARKCOUNTY7345.00	5 Level	1063.5	906.9

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
539802	THISTLE T1 13.800	5 Level	0	0
539804	THISTLE4 138.00	5 Level	946	996.8
542955	LAC G1 1 22.000	5 Level	15105.6	13966.6
542956	LAC G2 1 24.000	5 Level	9658.6	8456.8
542965	W.GRDNR7 345.00	5 Level	3823.5	3884.8
542968	STILWEL7 345.00	5 Level	3546.4	3597.4
560019	G14-058-TAP 345.00	5 Level	1960.5	1817.4
562423	G13-028-TAP 345.00	5 Level	1977	1768.2
581005	GEN-2011-007345.00	5 Level	237.4	196.3
583850	GEN-2014-001345.00	5 Level	640.2	648.2
583990	GEN-2014-049345.00	5 Level	133.6	130.8

5.2. Short Circuit Result for POI Riverton 161kV (547469)

The results of the short circuit analysis for POI i.e., Riverton 161kV (547469) are tabulated below in table 5.2.1.

Table 5.2.1: Short circuit results for Riverton 161kV (547469)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
547469	RIV4525 161.00	0 Level	23579.9	20413.1
532937	NEOSHO 5 161.00	1 Level	7763.5	3203.3
547467	ORO110 5 161.00	1 Level	8197.3	2770.5
547487	HOC404 5 161.00	1 Level	5583	1610.3
547498	STL439 5 161.00	1 Level	16919	6605.5
547503	RIV452T 5 161.00	1 Level	9042	3232
547541	RIV167 2 69.000	1 Level	4084.7	1657.7
547725	RIV452 1 12.500	1 Level	0	0
512631	MIAMI 5 161.00	2 Level	3940.9	1400.2
532793	NEOSHO 7 345.00	2 Level	3827	2529.8
532825	N345 2 1 13.800	2 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
532926	BAKER 5 161.00	2 Level	1124.5	705.3
532934	MARMTNE5 161.00	2 Level	1188	704.1
532958	NEOSH4 1 13.200	2 Level	0	0
532959	NEOSH5 1 13.200	2 Level	0	0
533020	NEOSHOS4 138.00	2 Level	2011.8	725.3
533021	NEOSHO 4 138.00	2 Level	3293.5	1891.9
547470	JOP145 5 161.00	2 Level	529	904
547483	JOP389 5 161.00	2 Level	4913.1	2596
547486	HOC404 4 138.00	2 Level	1781.2	563
547490	FIR417 5 161.00	2 Level	3535.8	1122.1
547494	OAK432 5 161.00	2 Level	4196	1465.5
547501	RIV453 5 161.00	2 Level	9042.1	3232.9
547502	RIV167 5 161.00	2 Level	0	0
547523	JOP 59 TX 69.000	2 Level	1486.4	517
547530	COL 94 2 69.000	2 Level	194.5	363.3
547534	ORO110 2 69.000	2 Level	1632.7	845.2
547555	GAL278 2 69.000	2 Level	2228.7	866.5
547601	HOC404 2 69.000	2 Level	829.1	560.6
547602	RIV406 2 69.000	2 Level	305.4	293.1
547644	R7G167 1 13.200	2 Level	0	0
547645	R8G167 1 13.200	2 Level	0	0
547646	R9G167 1 13.200	2 Level	0	0
547655	S1G439 1 13.200	2 Level	5238.8	10086.6
547656	S2G439 1 18.000	2 Level	7280	11595.6
547657	S3G439 1 18.000	2 Level	10136.8	12195.4
547658	S4G439 1 18.000	2 Level	14655.6	15024.8
547690	GLF339 2 69.000	2 Level	8	33
547703	ORO110 1 12.500	2 Level	333.8	841.8
547715	HOC404A1 12.500	2 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
547716	HOC404B1 12.500	2 Level	0	0
300739	7BLACKBERRY 345.00	3 Level	1715.6	1574.5
510380	DELWARE7 345.00	3 Level	1041.1	781.2
510417	VINTAJC4 138.00	3 Level	1845.8	756
512630	MIAMI 2 69.000	3 Level	2072	1744.3
512632	AFTON 5 161.00	3 Level	3308.4	1238.9
512843	MIAMI1 13.800	3 Level	0	0
512844	MIAMI2 13.800	3 Level	0	0
532710	NEOSH2 2 12.000	3 Level	0	0
532780	CANEYRV7 345.00	3 Level	1336.6	1276.8
532824	N345 1 1 13.800	3 Level	0	0
532932	LITCH 5 161.00	3 Level	2225.5	1071.2
532938	FRANKLIN5 161.00	3 Level	989.8	429
532955	MARMATN1 13.200	3 Level	0	0
533008	TV1MNDV4 138.00	3 Level	649	456.1
533022	NEOSHON4 138.00	3 Level	1109.6	1116.7
533639	MARMATN2 69.000	3 Level	651.6	628.8
533768	NEOSHO 2 69.000	3 Level	995.2	1057.4
542981	LACYGNE7 345.00	3 Level	6484.8	6354.5
543065	CNTRVIL5 161.00	3 Level	1051.7	527.9
547409	SCAM66 2 69.000	3 Level	15	57.4
547410	COL282T2 69.000	3 Level	77.2	297.7
547462	SVRCK469 5 161.00	3 Level	1134.4	648.8
547466	ATL109 5 161.00	3 Level	4352.8	1565.9
547472	TIP292 5 161.00	3 Level	5120.4	1881.8
547477	CJ 366 5 161.00	3 Level	3543.8	1144.1
547527	WEB436 2 69.000	3 Level	957.9	445.2
547539	JOP145 2 69.000	3 Level	2413.9	1589.4
547551	GAT258 2 69.000	3 Level	1616.1	763.9

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
547554	BAX271 2 69.000	3 Level	513	461.8
547556	OAK280 2 69.000	3 Level	812.5	413.2
547558	BAX291J2 69.000	3 Level	333	275.7
547574	JOP341 2 69.000	3 Level	1044.6	350.7
547590	QUA377 2 69.000	3 Level	845.6	190.1
547592	JOP389 2 69.000	3 Level	604.4	919.1
547642	R12G4531 13.800	3 Level	5674.6	2531.6
547643	R13G167 13.800	3 Level	19818.8	15202.4
547647	R10G1671 13.200	3 Level	0	0
547707	JOP145 1 12.500	3 Level	297	823.4
547713	JOP389 1 12.500	3 Level	0	0
300740	7SPORTSMAN 345.00	4 Level	1419.9	1447.6
300949	7JASPER 345.00	4 Level	1579.3	1562.1
505486	NEO SPA5 161.00	4 Level	3746.2	1200.1
505488	CARTHAG5 161.00	4 Level	4439.7	1689.1
510367	VINJT1-1 13.800	4 Level	0	0
510370	DELAWAR1 13.800	4 Level	0	0
510379	DELWARE4 138.00	4 Level	1053.4	1092.6
510406	N.E.S.-7 345.00	4 Level	1490.1	1321.7
510418	VINTAJC2 69.000	4 Level	424.4	534.6
510429	ALWUETP4 138.00	4 Level	1706.2	704.2
512633	AFTON 2 69.000	4 Level	2244	1083.8
512636	MIAENEO2 69.000	4 Level	781.2	577
512669	KETCHUM5 161.00	4 Level	3292.9	1263.7
512691	FAIRNEO2 69.000	4 Level	1073.3	382.8
512827	COMMNEO2 69.000	4 Level	25.8	52.8
512845	AFTON 13.800	4 Level	0	0
532711	NEC U3 12.000	4 Level	0	0
532781	CANEYWF7 345.00	4 Level	623.6	647.2

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
532799	WAVERLY7 345.00	4 Level	2342.4	2367.1
532800	LATHAMS7 345.00	4 Level	997.1	745.7
532952	LITCH1 1 13.200	4 Level	0	0
532953	LITCH2 1 13.200	4 Level	0	0
533003	LIBERTY4 138.00	4 Level	703.5	457.7
533005	NEPARSN4 138.00	4 Level	1043.9	976.6
533122	FRANKLIN1 13.200	4 Level	0	0
533640	MCKEE 2 69.000	4 Level	350.5	259.1
533647	UN1ELSM2 69.000	4 Level	452.7	349.1
533696	LABETTS2 69.000	4 Level	196.5	238.7
533703	ORDNJCT2 69.000	4 Level	280.7	341.1
533758	CRAWFOR2 69.000	4 Level	549.9	469.8
533765	LITCH 2 69.000	4 Level	764.7	1157.5
533876	FRANKLIN2 69.000	4 Level	420	462.4
542955	LAC G1 1 22.000	4 Level	13693	13531
542956	LAC G2 1 24.000	4 Level	8289.8	8039.6
542965	W.GRDNR7 345.00	4 Level	3887.3	3905
542968	STILWEL7 345.00	4 Level	3623.9	3625
543069	PAOLA 5 161.00	4 Level	1149.8	678.6
547411	COL282 2 69.000	4 Level	57.9	223.2
547412	SEK225T2 69.000	4 Level	19.6	75.8
547416	CHE299T2 69.000	4 Level	27.8	102.2
547429	BAX291 2 69.000	4 Level	56.8	226.2
547431	WEB105 2 69.000	4 Level	74.2	180.2
547438	EXP449T2 69.000	4 Level	183.1	447.1
547476	ASB349 5 161.00	4 Level	4359.1	1845.9
547480	MON383 5 161.00	4 Level	2287.9	1545.6
547500	RNM393 5 161.00	4 Level	1420.3	610.9
547526	JOP 64 2 69.000	4 Level	1009.6	535.3

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
547532	CAR108 2 69.000	4 Level	1483.5	625.8
547533	ATL109 2 69.000	4 Level	1547.2	1008.2
547579	COM381T2 69.000	4 Level	860.3	176.5
547607	JOP422 5 161.00	4 Level	1155.5	636
547608	JOP430 2 69.000	4 Level	486.9	506.3
547685	PLB447 2 69.000	4 Level	1702.5	908.5
547702	ATL109 1 12.500	4 Level	306.6	706.8
300045	7MORGAN 345.00	5 Level	1217.6	1088.1
300129	5WASHBRN 161.00	5 Level	2118.5	971.3
300741	5SPORTSMAN 161.00	5 Level	3042.4	3060.8
300830	2SENECA 69.000	5 Level	791.8	526.7
300950	5JASPER 161.00	5 Level	1105	1112
505487	CRG X1 1 13.800	5 Level	0	0
505489	CRG X2 1 13.800	5 Level	0	0
505490	CARTHG 2 69.000	5 Level	1553.4	1366.1
509807	ONETA--7 345.00	5 Level	2128.4	2089.6
509852	T.NO.--7 345.00	5 Level	1314.1	1290.9
510404	VINITA-2 69.000	5 Level	1220.6	842.6
510409	SAILBOA2 69.000	5 Level	75.2	121.6
510410	CHELSA4 138.00	5 Level	1742.7	764.3
510430	ALLUWE 4 138.00	5 Level	9.8	12
511840	NES3-1 22.000	5 Level	518.6	1127.4
512645	NEWPORT2 69.000	5 Level	171.1	276.8
512650	GRDA1 7 345.00	5 Level	3746.1	3783.9
512654	PENSA 5 161.00	5 Level	3719	1788.5
512672	EXPL TP2 69.000	5 Level	766.9	337.9
512692	CLEORTP2 69.000	5 Level	1400.4	633.7
512708	FAIRTAP2 69.000	5 Level	1952.9	647.4
512734	FARML 4 138.00	5 Level	1372.9	1381.1

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
532774	SWISVAL7 345.00	5 Level	1767.7	1782.2
532794	ROSEHIL7 345.00	5 Level	2018.5	1735.1
532797	WOLFCRK7 345.00	5 Level	3832.1	3900.3
532801	ELKRVR17 345.00	5 Level	649	659.2
533001	ALTOONA4 138.00	5 Level	1098.6	974.7
533002	DEARING4 138.00	5 Level	1200.6	901.1
533079	CNYWFLV1 34.500	5 Level	6340	6594.8
533090	LIBERTY1 13.200	5 Level	0	0
533102	CNYWF1 1 13.200	5 Level	0	0
533645	SE9HIAT2 69.000	5 Level	341.1	238
533654	ZILAJCT2 69.000	5 Level	447.7	320.4
533672	ALTAMNS2 69.000	5 Level	149.5	181.6
533695	LABETTE2 69.000	5 Level	85.4	103.8
533697	LIBERT-2 69.000	5 Level	670.2	725
533702	ORDNCE 2 69.000	5 Level	9	11
533704	PARSONS2 69.000	5 Level	348.3	423.2
533756	AQUARS 2 69.000	5 Level	255.2	414.6
533767	MULBERY2 69.000	5 Level	212	223.2
533769	PITNAC 2 69.000	5 Level	210.8	199
533769	PITNAC 2 69.000	5 Level	210.8	199
533771	ROUSE 2 69.000	5 Level	352.7	588.4
533772	SE1GREE2 69.000	5 Level	533.6	443.9
533774	SHEFFLD2 69.000	5 Level	424	392.4
541198	PECULR 7 345.00	5 Level	1435.7	1400.5
542966	WGARDNR5 161.00	5 Level	3073.4	3065.7
542969	STILWEL5 161.00	5 Level	5314.7	5255.6
542977	CRAIG 7 345.00	5 Level	3007.8	3013.8
543066	S.OTTWA5 161.00	5 Level	389.2	297.1
543067	CENTENL5 161.00	5 Level	769.3	515.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
543112	OSAWAT 5 161.00	5 Level	0	0
543647	STIL T11 13.800	5 Level	0	0
543648	STIL T22 13.800	5 Level	0	0
543649	WGAR T11 13.800	5 Level	0	0
547413	SEK225 2 69.000	5 Level	13	50
547414	SMN425 2 69.000	5 Level	2.6	9.8
547415	SHR444 2 69.000	5 Level	4.2	16.4
547417	CHE299 2 69.000	5 Level	12.8	47
547418	CHE300 2 69.000	5 Level	15	55.2
547427	COM381 2 69.000	5 Level	31	95.6
547439	EXP4492 69.000	5 Level	20	48.8
547450	JAS344T2 69.000	5 Level	1418.5	470.4
547468	AUR124 5 161.00	5 Level	2083.2	1054.8
547471	NEO184 5 161.00	5 Level	2313.2	1041.2
547479	LAR382 5 161.00	5 Level	3176.5	1414.6
547485	CAR395 5 161.00	5 Level	834.5	629.1
547491	PUR421 5 161.00	5 Level	853.6	671.7
547525	JOP 59 2 69.000	5 Level	444	325.8
547557	JOP284 2 69.000	5 Level	632.9	318.6
547564	SOL315 2 69.000	5 Level	12.8	29.6
547565	SOL315T2 69.000	5 Level	6.8	15.8
547581	JOP360 2 69.000	5 Level	783.1	551.9
547583	FRL363 2 69.000	5 Level	931.1	295.1
547589	RAC375 2 69.000	5 Level	163.9	400
547591	MON383 2 69.000	5 Level	1566.7	1682.2
547593	JOP391 5 161.00	5 Level	1172	564
547595	RNM393 2 69.000	5 Level	2380.3	1356.2
547649	A1G349 1 13.800	5 Level	6687.6	15370.4
547650	A2G349 1 13.800	5 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
547712	MON383 1 12.500	5 Level	0	0
547722	RNM393 1 12.500	5 Level	329.4	711.8
572091	GEN-2008-098345.00	5 Level	631.2	641.2
547591	MON383 2 69.000	5 Level	1566.7	1682.2
547593	JOP391 5 161.00	5 Level	1172	564
547595	RNM393 2 69.000	5 Level	2380.3	1356.2
547649	A1G349 1 13.800	5 Level	6687.6	15370.4
547650	A2G349 1 13.800	5 Level	0	0
547712	MON383 1 12.500	5 Level	0	0

5.3. Short Circuit Result for POI Otter 138kV (514708)

The results of the short circuit analysis for POI i.e., Otter 138kV (514708) are tabulated below in table 5.3.1.

Table 5.3.1: Short circuit results for Otter 138kV (514708)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514708	OTTER4 138.00	0 Level	9486.1	6062.0
514713	WRVALLY4 138.00	1 Level	6013.2	1403
514714	WOODRNG4 138.00	1 Level	10931.6	3285.1
584170	GEN-2014-064138.00	1 Level	2798.4	2061.2
514706	COWCRK 4 138.00	2 Level	6070.1	1576.7
514709	FRMNTAP4 138.00	2 Level	1275.6	681
514711	WAUKOTP4 138.00	2 Level	1942	842.8
514715	WOODRNG7 345.00	2 Level	3091.6	1561.5
514733	MARSHL 4 138.00	2 Level	1398.1	571.2
515770	WOODRNG1 13.800	2 Level	0	0
521100	WARREN 4 138.00	2 Level	25.8	53.6
584171	G14-064XFMR134.500	2 Level	11193.2	8244.4
514703	FAIRMNT4 138.00	3 Level	144	209

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514705	COWCRK 2 69.000	3 Level	98	143.6
514707	PERRY 4 138.00	3 Level	3346.7	1015.9
514710	WAUKOMI4 138.00	3 Level	1259.3	585.9
514731	SO4TH 4 138.00	3 Level	2180.2	979.9
514803	SOONER 7 345.00	3 Level	2820.2	2189.3
514827	CTNWOOD4 138.00	3 Level	2468.3	1350.6
515006	MORRISN4 138.00	3 Level	2828.8	822.8
515476	HUNTERS7 345.00	3 Level	1452.2	1284.1
515497	MATHWSN7 345.00	3 Level	3162.8	2874.7
515717	COWCRK 1 13.800	3 Level	0	0
521006	MARSHAL4 138.00	3 Level	9.4	12.2
584172	G14-064-GSU134.500	3 Level	11124.2	8167.4
512694	CLEVLND7 345.00	4 Level	1639.1	1610.9
514730	SO4TH 2 69.000	4 Level	682.2	747.6
514768	WF KAY 2 69.000	4 Level	99	145
514774	HENESEY4 138.00	4 Level	1265.5	529.9
514790	IMO 4 138.00	4 Level	1025.3	491.7
514802	SOONER 4 138.00	4 Level	6618	4129.5
514806	SOONER2G 20.000	4 Level	3093	2366.2
514815	BRECKNR4 138.00	4 Level	1648.4	999.7
514829	PINE ST4 138.00	4 Level	390.6	363.8
514880	NORTWST7 345.00	4 Level	2677.7	2726.5
514881	SPRNGCK7 345.00	4 Level	1208	1208.6
514901	CIMARON7 345.00	4 Level	2839	2757.1
514907	ARCADIA4 138.00	4 Level	5364.8	5029.4
515373	LBRTYLK4 138.00	4 Level	1023.7	637.7
515377	CRESENT4 138.00	4 Level	544.2	197.8
515447	MORISNT4 138.00	4 Level	3450.2	2035.6
515477	CHSHLMV7 345.00	4 Level	970.1	980.8

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515543	RENFROW7 345.00	4 Level	1371.4	1061.3
515576	RANCHRD7 345.00	4 Level	714.4	591.6
515758	SO4TH 1 13.200	4 Level	0	0
515760	SOONER 1 13.800	4 Level	0	0
560019	G14-058-TAP 345.00	4 Level	1856.7	1789
581005	GEN-2011-007345.00	4 Level	208.3	188.4
584173	G14-064-GEN10.6900	4 Level	16206.4	8372.8
300138	4CLEVLND 138.00	5 Level	1743.6	1711
509852	T.NO.--7 345.00	5 Level	1473.6	1351.6
512817	CLEVLND1 13.800	5 Level	0	0
514701	BUNCHCK4 138.00	5 Level	853.5	244.2
514704	MILLERT4 138.00	5 Level	564.8	678.3
514712	FAIRMON4 138.00	5 Level	163.8	215.6
514718	VANCE 2 69.000	5 Level	107	143.4
514721	IMO 2 69.000	5 Level	467.3	464.9
514722	CLEVETP2 69.000	5 Level	343.7	345
514727	ENID 2 69.000	5 Level	268	325.6
514734	GLENWD 4 138.00	5 Level	225.3	173.4
514789	MENOTAP4 138.00	5 Level	782.8	213.9
514798	SNRPMPT4 138.00	5 Level	587.3	689.4
514800	BRRDTP 2 69.000	5 Level	79.3	116.2
514801	MINCO 7 345.00	5 Level	1022.7	913.6
514805	SOONER1G 22.000	5 Level	10999	4661
514830	FITZGRD4 138.00	5 Level	296.6	258.5
514831	WATRLOO4 138.00	5 Level	1059.2	594.5
514879	NORTWST4 138.00	5 Level	6059	6139.3
514882	SPGCK1&2 13.800	5 Level	11520.9	11280.8
514883	SPGCK3&4 13.800	5 Level	6352.8	5932.2
514885	NORTWS41 13.800	5 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
514898	CIMARON4 138.00	5 Level	4077.9	4224.2
514906	JNSKAMO4 138.00	5 Level	1343.3	1313.2
514908	ARCADIA7 345.00	5 Level	2698.7	2642.3
514934	DRAPER 7 345.00	5 Level	2181.1	2196.6
515011	STILWTR4 138.00	5 Level	1939.1	1848.6
515383	ENIDINT4 138.00	5 Level	474.3	550.2
515407	TATONGA7 345.00	5 Level	1598.7	1556.2
515456	CHSTNTT2 69.000	5 Level	357.4	334.9
515461	RNDBARN4 138.00	5 Level	1651	1680.9
515465	LGARBER4 138.00	5 Level	1116.3	1149.9
515479	CHSHMVE1 34.500	5 Level	4848.2	4883.6
515482	CHSHMVET 13.200	5 Level	0	0
515484	CHSHMVW1 34.500	5 Level	4848.2	4883
515485	CHSHMVWT 13.200	5 Level	0	0
515544	RENFROW4 138.00	5 Level	1577.5	1563.7
515545	RENFRO11 13.800	5 Level	0	0
515610	FSHRTAP7 345.00	5 Level	602.3	564.4
515621	OPENSKY7 345.00	5 Level	1092.8	1026.1
515700	ARCADI41 13.800	5 Level	0	0
515703	ARCADI21 13.800	5 Level	0	0
515704	ARCADI31 13.800	5 Level	0	0
515714	CIMARO11 13.800	5 Level	0	0
515715	CIMARO21 13.800	5 Level	0	0
515742	NORTWS21 13.800	5 Level	2079.6	2137.8
515743	NORTWS31 13.800	5 Level	1976.8	2032.2
515788	IMO 1 13.200	5 Level	0	0
520882	DOVERSW4 138.00	5 Level	1302	601.8
521034	PERRY 2 69.000	5 Level	21.6	31.6
521073	TWNLAKE4 138.00	5 Level	591.9	299.8

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
532798	VIOLA 7 345.00	5 Level	2311.8	2047.6
581006	G11-007XFMR134.500	5 Level	1236.6	1165.2
581007	G11-007XFMR234.500	5 Level	1021.9	958.2
583440	GEN-2012-033138.00	5 Level	863.6	822
583490	GEN-2012-041345.00	5 Level	292	283.2
583750	GEN-2013-029345.00	5 Level	978.3	998.8
584080	GEN-2014-058345.00	5 Level	202.4	199

5.4. Short Circuit Result for POI Ferguson 69kV (512664)

The results of the short circuit analysis for POI i.e., Ferguson 69kV (512664) are tabulated below in table 5.4.1.

Table 5.4.1: Short circuit results for Ferguson 69kV (512664)

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
512664	FERGUSN2 69.00	0 Level	5653.8	3576.1
512732	NORTHTP2 69.000	1 Level	7653.7	1759.3
584400	ASGI2014-01469.000	2 Level	3747.8	1317.4
512731	NORTHTP4 138.00	2 Level	3828.1	852.5
512733	INDUSTL2 69.000	2 Level	52	404.6
512739	NORTAP 13.800	2 Level	0	0
584403	A14-014-GEN113.800	2 Level	18738.6	6587
300141	4STILWTR 138.00	3 Level	2327.8	1050.7
512710	KINZEGR4 138.00	3 Level	2615.5	1413.8
300140	4SILVCTY 138.00	4 Level	1519.1	1090
300844	4RAMSEY 138.00	4 Level	555.5	452
301413	2WILLIAMS 69.000	4 Level	1239.2	1464.4
301425	4GLENCOE 138.00	4 Level	1078.8	691.6
512712	19TH ST4 138.00	4 Level	735.5	732.6
512713	KINZEGR2 69.000	4 Level	541.9	595.8

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
512811	KINZIE 13.800	4 Level	0	0
515008	KINZE 4 138.00	4 Level	2376.4	1359.4
300131	4FISHERTP 138.00	5 Level	632.4	521.7
300137	4BRISTOW 138.00	5 Level	538.4	500.2
300138	4CLEVLND 138.00	5 Level	2015.3	1765.7
300143	4VALLEY 138.00	5 Level	253	249.2
300845	2STILWTR 69.000	5 Level	1257.7	1393.5
300943	2SILVCTY 69.000	5 Level	829.6	853.4
512660	ADMIRAL2 69.000	5 Level	481.9	528.2
512726	SILVCTYGR4 138.00	5 Level	452	288.6
512749	PAWNSW4 138.00	5 Level	1279	934
514830	FITZGRD4 138.00	5 Level	794.3	331.5
515009	MCELROY4 138.00	5 Level	1732.1	1212.5
512664	FERGUSN2 69.00	0 Level	5653.8	2809.5
512732	NORTHTP2 69.000	1 Level	7653.7	1759.3
584400	ASGI2014-01469.000	2 Level	3747.8	1317.4
512731	NORTHTP4 138.00	2 Level	3828.1	852.5
512733	INDUSTL2 69.000	2 Level	52	404.6
512739	NORTAP 13.800	2 Level	0	0
584403	A14-014-GEN113.800	2 Level	18738.6	6587
300141	4STILWTR 138.00	3 Level	2327.8	1050.7
512710	KINZEGR4 138.00	3 Level	2615.5	1413.8
300140	4SILVCTY 138.00	4 Level	1519.1	1090
300844	4RAMSEY 138.00	4 Level	555.5	452
301413	2WILLIAMS 69.000	4 Level	1239.2	1464.4
301425	4GLENCOE 138.00	4 Level	1078.8	691.6
512712	19TH ST4 138.00	4 Level	735.5	732.6
512713	KINZEGR2 69.000	4 Level	541.9	595.8
512811	KINZIE 13.800	4 Level	0	0

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
515008	KINZE 4 138.00	4 Level	2376.4	1359.4
300131	4FISHERTP 138.00	5 Level	632.4	521.7
300137	4BRISTOW 138.00	5 Level	538.4	500.2
300138	4CLEVLND 138.00	5 Level	2015.3	1765.7
300143	4VALLEY 138.00	5 Level	253	249.2
300845	2STILWTR 69.000	5 Level	1257.7	1393.5
300943	2SILVCTY 69.000	5 Level	829.6	853.4
512660	ADMIRAL2 69.000	5 Level	481.9	528.2
512726	SILVCTYGR4 138.00	5 Level	452	288.6
512749	PAWNSW4 138.00	5 Level	1279	934
514830	FITZGRD4 138.00	5 Level	794.3	331.5
515009	MCELROY4 138.00	5 Level	1732.1	1212.5
512664	FERGUSN2 69.00	0 Level	5653.8	2809.5
512732	NORTHTP2 69.000	1 Level	7653.7	1759.3
584400	ASGI2014-01469.000	2 Level	3747.8	1317.4
512731	NORTHTP4 138.00	2 Level	3828.1	852.5
512733	INDUSTL2 69.000	2 Level	52	404.6
512739	NORTAP 13.800	2 Level	0	0
584403	A14-014-GEN113.800	2 Level	18738.6	6587
300141	4STILWTR 138.00	3 Level	2327.8	1050.7
512710	KINZEGR4 138.00	3 Level	2615.5	1413.8
300140	4SILVCTY 138.00	4 Level	1519.1	1090
300844	4RAMSEY 138.00	4 Level	555.5	452
301413	2WILLIAMS 69.000	4 Level	1239.2	1464.4
301425	4GLENCOE 138.00	4 Level	1078.8	691.6
512712	19TH ST4 138.00	4 Level	735.5	732.6
512713	KINZEGR2 69.000	4 Level	541.9	595.8
512811	KINZIE 13.800	4 Level	0	0
515008	KINZE 4 138.00	4 Level	2376.4	1359.4

Bus #	Bus Name	Level Away	Fault Current (Amperes)	
			3 PH	SLG
300131	4FISHERTP 138.00	5 Level	632.4	521.7
300137	4BRISTOW 138.00	5 Level	538.4	500.2
300138	4CLEVLND 138.00	5 Level	2015.3	1765.7
300143	4VALLEY 138.00	5 Level	253	249.2
300845	2STILWTR 69.000	5 Level	1257.7	1393.5
300943	2SILVCTY 69.000	5 Level	829.6	853.4
512660	ADMIRAL2 69.000	5 Level	481.9	528.2
512726	SILVCTYGR4 138.00	5 Level	452	288.6
512749	PAWNSW4 138.00	5 Level	1279	934
514830	FITZGRD4 138.00	5 Level	794.3	331.5
515009	MCELROY4 138.00	5 Level	1732.1	1212.5

6. Stability Analysis for Cluster Scenario

6.1. Faults Simulated

Fifty Five (55) faults were considered for the transient stability simulations which included three phase faults, as well as single phase line faults, at the locations defined by SPP in the RFP. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location. As per the SPP current practice to compute the fault levels, the fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage.

Concurrently and previously queued projects as respectively shown in Table-1 and Table-2 of the study request i.e., GEN-2002-004, GEN-2005-013, GEN-2007-025, GEN-2008-013, GEN-2008-021, GEN-2008-098, GEN-2009-025, GEN-2010-003, GEN-2010-005, ASGI-2010-006, GEN-2010-055, GEN-2011-057, GEN-2012-027, GEN-2012-032, GEN-2012-033, GEN-2012-040, GEN-2012-041, GEN-2013-012, GEN-2013-028, GEN-2013-029, GEN-2014-001 as well as areas number 520, 524, 525, 526, 531, 534, 536, 540, and 541, were monitored during all the simulations. Table 6.1.1 shows the list of simulated contingencies. This table also shows the fault clearing time and the time delay before re-closing for all the study contingencies.

Simulations were performed with a 0.1-second steady-state run followed by the appropriate disturbance as described in Table 6.1.1. Simulations were run for minimum 15-second duration to confirm proper machine damping.

Table 6.1.1 summarizes the overall results for all faults simulations of cluster scenario. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault are included in Appendices A, B and C respectively.

Table 6.1.1: List of simulated faults for cluster scenario stability analysis

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on the Open Sky (515621) to Ranch Road (515576) 345kV line, near Open Sky. a. Apply fault at the Open Sky 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on the Open Sky (515621) to Rosehill (532794) 345kV line, near Open Sky. a. Apply fault at the Open Sky 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Ranch Road (515576) to Sooner (514803) 345kV line, near Ranch Road. a. Apply fault at the Ranch Road 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
4	FLT04-3PH	3 phase fault on the Rosehill (532794) to Benton (532791) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
5	FLT05-3PH	3 phase fault on the Rosehill (532794) to Wolf Creek (532797) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
6	FLT06-3PH	3 phase fault on the Rosehill (532794) to Latham (532800) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
7	FLT07-3PH	3 phase fault on the Sooner (514803) to Spring Creek (514881) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the Sooner (514803) to Cleveland (512694) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
9	FLT09-3PH	3 phase fault on the Sooner (514803) to Woodring (514715) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
10	FLT10-3PH	3 phase fault on the Riverton (547469) to Neosho (532937) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
11	FLT11-3PH	3 phase fault on the Riverton (547469) to Oronogo Junction (547467) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Riverton (547469) to Hockerville (547487) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
13	FLT13-3PH	3 phase fault on the Riverton (547469) to Stateline (547498) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
14	FLT14-3PH	3 phase fault on the Neosho (532937) to Baker (532926) 161kV line, near Neosho. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH	3 phase fault on the Neosho (532937) to Marmaton (532934) 161kV line, near Neosho. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
16	FLT16-3PH	3 phase fault on the Oronogo Junction (547467) to Joplin West (547470) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Oronogo Junction (547467) to Fir Road (547490) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
18	FLT18-3PH	3 phase fault on the Oronogo Junction (547467) to Oakland North (547494) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
19	FLT19-3PH	3 phase fault on the Hockerville (547487) to Miami (512631) 161kV line, near Hockerville. a. Apply fault at the Hockerville 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Stateline (547498) to Joplin West (547470) 161kV line, near Stateline. a. Apply fault at the Stateline 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
21	FLT21-3PH	3 phase fault on the Stateline (547498) to Joplin Southwest (547483) 161kV circuit 1 line, near Stateline. a. Apply fault at the Stateline 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
22	FLT22-3PH	3 phase fault on the Otter (514708) to Warren Valley (514713) 138kV circuit 1 line, near Otter. a. Apply fault at the Otter 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
23	FLT23-3PH	3 phase fault on the Otter (514708) to Woodring (514714) 138kV circuit 1 line, near Otter. a. Apply fault at the Otter 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Warren Valley (514713) to Cow Creek (514706) 138kV circuit 1 line, near Warren Valley. a. Apply fault at the Warren Valley 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Cow Creek (514706) to Perry (514707) 138kV circuit 1 line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
26	FLT26-3PH	3 phase fault on the Cow Creek (514706) to Morrison (515006) 138kV circuit 1 line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
27	FLT27-3PH	3 phase fault on the Woodring (514714) to Fairmont (514709) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Woodring (514714) to Waukomis (514711) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
29	FLT29-3PH	3 phase fault on the Woodring (514714) to Marshall (514733) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Woodring (514715) to Hunters (515476) 345kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
31	FLT31-3PH	3 phase fault on the Woodring (514715) to Matthewson (515497) 345kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
32	FLT32-3PH	DELETED	N/A	N/A	N/A
33	FLT33-3PH	3 phase fault on the North Tap (512731) to Stillwater (300141) 138kV circuit 1 line, near North Tap. a. Apply fault at the North Tap 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
34	FLT34-3PH	3 phase fault on the North Tap (512731) to Kenzie (512710) 138kV circuit 1 line, near North Tap. a. Apply fault at the North Tap 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
35	FLT35-3PH	DELETED	N/A	N/A	N/A
36	FLT36-3PH	3 phase fault on the Woodring 345kV (515715)/138kV (514714) /(515770) 13.8kV transformer, near the 138kV bus. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
37	FLT37-3PH	3 phase fault on the Cow Creek 138kV (514706)/69kV (514705) /(515717) 13.8kV transformer, near the 138kV bus. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
38	FLT38-3PH	3 phase fault on the Hockerville 161kV (547487)/138kV (547486) /(547715) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Hockerville 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
39	FLT39-3PH	3 phase fault on the Oronogo Junction 161kV (547467)/69kV (547534) /(547703) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
40	FLT40-3PH	3 phase fault on the Neosho 161kV (532793)/138kV (533021) /(532825) 13.8kV transformer, near the 161kV bus. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
41	FLT41-3PH	3 phase fault on the Neosho 345kV (532793)/161kV (532937) /(532825) 13.8kV transformer, near the 161kV bus. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
42	FLT42-3PH	3 phase fault on the Riverton 161kV (547469) to Riverton (547541) 69kV/(547725) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
43	FLT43-3PH	3 phase fault on the Rosehill 345kV (532794) to Rosehill (533062) 138kV/(532831) 13.8kV transformer, near the 345kV bus. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
44	FLT44-3PH	3 phase fault on the Sooner 345kV (514803) to Sooner (514802) 138kV/(515760) 13.8kV transformer, near the 345kV bus. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
45	FLT45-3PH	Prior outage on the Riverton (547469) to Hockerville (547487) 161kV line 3 phase fault on the Riverton (547469) to Neosho (532937) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
46	FLT46-1PH	Stuck Breaker on Riverton – Neosho 161kv line a. Apply single-phase fault at Altus Junction (511440) 115kV bus on the Riverton – Neosho 161kV line b. After 20 cycles, trip the Riverton (647469) 161/69 (547541)/12.5 (547725) kV transformer c. Trip the Riverton (547469) to Neosho (532937) line, and remove the fault	Stable	Stable	Stable
47	FLT47-1PH	Stuck Breaker on the Woodring – Marshal 138kV line a. Apply single-phase fault at the Woodring (514714) 138kV bus on the Woodring - Marshal 161kV line b. After 20 cycles, trip the Woodring (514715) 345/138 (514714)/13.8 (515770) kV transformer c. Trip the Woodring (514714) to Marshal (514733) line, and remove the fault	Stable	Stable	Stable
48	FLT48-1PH	Stuck Breaker on Woodring (514715) – Matthewson (515497) 345kV line a. Apply single phase fault at the Woodring 345kV bus on the Woodring (514715) to Matthewson (515497) 345kV circuit 1 line. b. After 20 cycles trip the Sooner (514803) to Woodring (514715) 345kV line d. Trip the Woodring (514715) to Matthewson (515497) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
49	FLT49-3PH	Prior outage on the Woodring (514715) – Hunters (515476) 345kV line 3 phase fault on the Woodring (514715) to Sooner (514803) 345kV line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
50	FLT50-3PH	Prior outage on the Cow Creek (514706)– Morrison Tap (515006) 138kV line 3 phase fault on the Cow Creek (514706) to Perry (514707) 138kV line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
51	FLT51-3PH	Prior outage on the Sooner (514803) – Spring Creek (514881) 345kV line 3 phase fault on the Sooner (514803) to Woodring (514715) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-3PH	Prior outage on the Rosehill (532794) – Wolf Creek (532797) 345kV line 3 phase fault on the Rosehill (532794) to Benton (532791) 345kV line, near Sooner. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
53	FLT53-3PH	3 phase fault on the Stillwater (300141) to Silver City (300140) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
54	FLT54-3PH	3 phase fault on the Stillwater (300141) to Ramsey (300844) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Stillwater (300141) to Glencoe (301425) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
56	FLT56-3PH	3 phase fault on the Kenzie GR (512710) to Kenzie (515008) 138kV circuit 1 line, near Kenzie GR. a. Apply fault at the Kenzie GR 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
57	FLT57-3PH	3 phase fault on the Kenzie GR (512710) to 19th Street (512712) 138kV circuit 1 line, near Kenzie GR. a. Apply fault at the Kenzie GR 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

6.2. Simulation Results for Cluster Scenario

For cluster scenario, there are no impacts on the stability performance of the SPP system for the contingencies tested on the SPP provided base cases.

7. Stability Analysis for Stand-Alone Scenarios

For stand-alone scenario, selective contingencies are simulated for each interconnection request at 100% capacity of each generator at the POI.

7.1. Fault Simulated for GEN-2014-022 Request

Table 7.1.1, summarizes the overall results for all simulations for GEN-2014-022 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-022 are in Appendices E1, E2, and E3 respectively.

Table 7.1.1: List of simulated faults for stand-alone stability analysis (GEN-2014-022)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
1	FLT01-3PH	3 phase fault on the Open Sky (515621) to Ranch Road (515576) 345kV line, near Open Sky. a. Apply fault at the Open Sky 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
2	FLT02-3PH	3 phase fault on the Open Sky (515621) to Rosehill (532794) 345kV line, near Open Sky. a. Apply fault at the Open Sky 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
3	FLT03-3PH	3 phase fault on the Ranch Road (515576) to Sooner (514803) 345kV line, near Ranch Road. a. Apply fault at the Ranch Road 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
4	FLT04-3PH	3 phase fault on the Rosehill (532794) to Benton (532791) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
5	FLT05-3PH	3 phase fault on the Rosehill (532794) to Wolf Creek (532797) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
6	FLT06-3PH	3 phase fault on the Rosehill (532794) to Latham (532800) 345kV line, near Rosehill. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
7	FLT07-3PH	3 phase fault on the Sooner (514803) to Spring Creek (514881) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
8	FLT08-3PH	3 phase fault on the Sooner (514803) to Cleveland (512694) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
9	FLT09-3PH	3 phase fault on the Sooner (514803) to Woodring (514715) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
43	FLT43-3PH	3 phase fault on the Rosehill 345kV (532794) to Rosehill (533062) 138kV/(532831) 13.8kV transformer, near the 345kV bus. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
44	FLT44-3PH	3 phase fault on the Sooner 345kV (514803) to Sooner (514802) 138kV/(515760) 13.8kV transformer, near the 345kV bus. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
51	FLT51-3PH	Prior outage on the Sooner (514803) – Spring Creek (514881) 345kV line 3 phase fault on the Sooner (514803) to Woodring (514715) 345kV line, near Sooner. a. Apply fault at the Sooner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
52	FLT52-3PH	Prior outage on the Rosehill (532794) – Wolf Creek (532797) 345kV line 3 phase fault on the Rosehill (532794) to Benton (532791) 345kV line, near Sooner. a. Apply fault at the Rosehill 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Note: For stand-alone scenario GEN-2014-022, one requested machine GEN=2014-062 was out of service and the same is reflected in the plots of appendix E1, E2, and E3

7.2. Fault Simulated for GEN-2014-028 Request

Table 7.2.1, summarizes the overall results for all simulations for GEN-2014-028 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-028 are in Appendices F1, F2, and F3 respectively.

Table 7.2.1: List of simulated faults for stability analysis (GEN-2014-028)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
10	FLT10-3PH	3 phase fault on the Riverton (547469) to Neosho (532937) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
11	FLT11-3PH	3 phase fault on the Riverton (547469) to Oronogo Junction (547467) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
12	FLT12-3PH	3 phase fault on the Riverton (547469) to Hockerville (547487) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
13	FLT13-3PH	3 phase fault on the Riverton (547469) to Stateline (547498) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
14	FLT14-3PH	3 phase fault on the Neosho (532937) to Baker (532926) 161kV line, near Neosho. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
15	FLT15-3PH	3 phase fault on the Neosho (532937) to Marmaton (532934) 161kV line, near Neosho. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
16	FLT16-3PH	3 phase fault on the Oronogo Junction (547467) to Joplin West (547470) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
17	FLT17-3PH	3 phase fault on the Oronogo Junction (547467) to Fir Road (547490) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
18	FLT18-3PH	3 phase fault on the Oronogo Junction (547467) to Oakland North (547494) 161kV line, near Oronogo Junction. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
19	FLT19-3PH	3 phase fault on the Hockerville (547487) to Miami (512631) 161kV line, near Hockerville. a. Apply fault at the Hockerville 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
20	FLT20-3PH	3 phase fault on the Stateline (547498) to Joplin West (547470) 161kV line, near Stateline. a. Apply fault at the Stateline 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
21	FLT21-3PH	3 phase fault on the Stateline (547498) to Joplin Southwest (547483) 161kV circuit 1 line, near Stateline. a. Apply fault at the Stateline 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
38	FLT38-3PH	3 phase fault on the Hockerville 161kV (547487)/138kV (547486) /(547715) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Hockerville 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
39	FLT39-3PH	3 phase fault on the Oronogo Junction 161kV (547467)/69kV (547534) /(547703) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Oronogo Junction 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
40	FLT40-3PH	3 phase fault on the Neosho 161kV (532793)/138kV (533021) /(532825) 13.8kV transformer, near the 161kV bus. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
41	FLT41-3PH	3 phase fault on the Neosho 345kV (532793)/161kV (532937) /(532825) 13.8kV transformer, near the 161kV bus. a. Apply fault at the Neosho 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
42	FLT42-3PH	3 phase fault on the Riverton 161kV (547469) to Riverton (547541) 69kV/(547725) 12.5kV transformer, near the 161kV bus. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
45	FLT45-3PH	Prior outage on the Riverton (547469) to Hockerville (547487) 161kV line 3 phase fault on the Riverton (547469) to Neosho (532937) 161kV line, near Riverton. a. Apply fault at the Riverton 161kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
46	FLT46-1PH	Stuck Breaker on Riverton – Neosho 161kv line a. Apply single-phase fault at Altus Junction (511440) 115kV bus on the Riverton – Neosho 161kV line b. After 20 cycles, trip the Riverton (647469) 161/69 (547541)/12.5 (547725) kV transformer c. Trip the Riverton (547469) to Neosho (532937) line, and remove the fault	Stable	Stable	Stable

Note: For stand-alone scenario GEN-2014-028, one requested machine GEN=2014-062 was out of service and the same is reflected in the plots of appendix F1, F2, and F3

7.3.Fault Simulated for GEN-2014-064 Request

Table 7.3.1, summarizes the overall results for all simulations for GEN-2014-064 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for GEN-2014-064 are in Appendices G1, G2, and G3 respectively.

Table 7.3.1: List of simulated faults for stability analysis (GEN-2014-064)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
22	FLT22-3PH	3 phase fault on the Otter (514708) to Warren Valley (514713) 138kV circuit 1 line, near Otter. a. Apply fault at the Otter 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
23	FLT23-3PH	3 phase fault on the Otter (514708) to Woodring (514714) 138kV circuit 1 line, near Otter. a. Apply fault at the Otter 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
24	FLT24-3PH	3 phase fault on the Warren Valley (514713) to Cow Creek (514706) 138kV circuit 1 line, near Warren Valley. a. Apply fault at the Warren Valley 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
25	FLT25-3PH	3 phase fault on the Cow Creek (514706) to Perry (514707) 138kV circuit 1 line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
26	FLT26-3PH	3 phase fault on the Cow Creek (514706) to Morrison (515006) 138kV circuit 1 line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
27	FLT27-3PH	3 phase fault on the Woodring (514714) to Fairmont (514709) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
28	FLT28-3PH	3 phase fault on the Woodring (514714) to Waukomis (514711) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
29	FLT29-3PH	3 phase fault on the Woodring (514714) to Marshall (514733) 138kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
30	FLT30-3PH	3 phase fault on the Woodring (514715) to Hunters (515476) 345kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
31	FLT31-3PH	3 phase fault on the Woodring (514715) to Matthewson (515497) 345kV circuit 1 line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
36	FLT36-3PH	3 phase fault on the Woodring 345kV (515715)/138kV (514714) /(515770) 13.8kV transformer, near the 138kV bus. a. Apply fault at the Woodring 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
37	FLT37-3PH	3 phase fault on the Cow Creek 138kV (514706)/69kV (514705) /(515717) 13.8kV transformer, near the 138kV bus. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.	Stable	Stable	Stable
47	FLT47-1PH	Stuck Breaker on the Woodring – Marshal 138kV line a. Apply single-phase fault at the Woodring (514714) 138kV bus on the Woodring - Marshal 161kV line b. After 20 cycles, trip the Woodring (514715) 345/138 (514714)/13.8 (515770) kV transformer c. Trip the Woodring (514714) to Marshal (514733) line, and remove the fault	Stable	Stable	Stable
48	FLT48-1PH	Stuck Breaker on Woodring (514715) – Matthewson (515497) 345kV line a. Apply single phase fault at the Woodring 345kV bus on the Woodring (514715) to Matthewson (515497) 345kV circuit 1 line. b. After 20 cycles trip the Sooner (514803) to Woodring (514715) 345kV line d. Trip the Woodring (514715) to Matthewson (515497) and remove fault.	Stable	Stable	Stable
49	FLT49-3PH	Prior outage on the Woodring (514715) – Hunters (515476) 345kV line 3 phase fault on the Woodring (514715) to Sooner (514803) 345kV line, near Woodring. a. Apply fault at the Woodring 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
50	FLT50-3PH	Prior outage on the Cow Creek (514706)– Morrison Tap (515006) 138kV line 3 phase fault on the Cow Creek (514706) to Perry (514707) 138kV line, near Cow Creek. a. Apply fault at the Cow Creek 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

7.4. Fault simulated for ASGI-2014-014 Request

Table 7.4.1, summarizes the overall results for all simulations for ASGI-2014-014 request. Complete sets of plots for winter-2015, summer-2015, and summer-2025 peak seasons for each fault for ASGI-2014-014 are in Appendices H1, H2, and H3 respectively.

Table 7.4.1: List of simulated faults for stability analysis (ASGI-2014-014)

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
33	FLT33-3PH	3 phase fault on the North Tap (512731) to Stillwater (300141) 138kV circuit 1 line, near North Tap. a. Apply fault at the North Tap 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
34	FLT34-3PH	3 phase fault on the North Tap (512731) to Kenzie (512710) 138kV circuit 1 line, near North Tap. a. Apply fault at the North Tap 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Cont. #	Contingency Name	Description	2015 Winter Results	2015 Summer Results	2025 Summer Results
53	FLT53-3PH	3 phase fault on the Stillwater (300141) to Silver City (300140) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
54	FLT54-3PH	3 phase fault on the Stillwater (300141) to Ramsey (300844) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
55	FLT55-3PH	3 phase fault on the Stillwater (300141) to Glencoe (301425) 138kV circuit 1 line, near Stillwater. a. Apply fault at the Stillwater 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
56	FLT56-3PH	3 phase fault on the Kenzie GR (512710) to Kenzie (515008) 138kV circuit 1 line, near Kenzie GR. a. Apply fault at the Kenzie GR 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable
57	FLT57-3PH	3 phase fault on the Kenzie GR (512710) to 19th Street (512712) 138kV circuit 1 line, near Kenzie GR. a. Apply fault at the Kenzie GR 138kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	Stable	Stable	Stable

Note: For stand-alone scenario ASGI-2014-014, one requested machine GEN=2014-062 was out of service and the same is reflected in the plots of appendix H1, H2, and H3

7.5. Simulation Results for Stand-Alone Scenarios

There are no impacts on the stability performance for stand-alone scenarios of the SPP system for the contingencies tested on the SPP provided base cases.

8. Conclusions

The findings of the impact study for the proposed interconnection projects under DSIS-2014-002 (Group 08) considered 100% of their proposed installed capacity is as follows:

1. The power factor analysis indicates the DISIS-2014-002 (Group 08) interconnection requests i.e., GEN-2014-022, GEN-2014-028, GEN-2014-064, and ASGI-2014-014 are required to maintain the SPP standard power factor at the point of interconnection i.e., (Open Sky 345kV 515621 GEN-2012-032 tap), Riverton 161kV (547469), Otter 138kV (514708), and Ferguson 69kV (512664) based on the contingencies studied. Per the SPP OATT, the Interconnection Customer will be required to provide 95% lagging (supplying vars) and 95% leading (absorbing vars) at the POI.

2. To offset the capacitive effects of the collector system and transmission line of the wind farm under low wind or no wind conditions, analysis was performed for winter-2015 scenario. The analysis indicates that at POI (Open Sky 345kV 515621 GEN-2012-032 tap) 6.7 MVAR reactor is required at Bus 514825 to maintain zero MVAR flow at the combined GEN-2012-032/GEN-2014-022 generator lead. Similarly, the inductive reactive support analysis for GEN-2014-064 performed for winter-2015 scenario which indicates that at POI (Otter 138kV) 10.5 MVAR reactors is required at Bus 584170 to maintain zero MVAR flow at POI. Maintaining zero MVar flow at the POI at all times is not possible with static reactor banks. It will be determined on a case by case basis for each generator as to whether additional reactor banks are required for low wind conditions.

3. There are no impacts on the stability performance of the SPP system during both cluster and stand-alone scenarios for the contingencies tested on the provided base cases. The study machines stayed on-line and stable for all simulated faults. The Project stability simulations with fifty five (55) specified test disturbances did not show instability problems in the SPP system. Any oscillations were damped out.

9. **Appendix A: 2015 Winter Peak Case Stability Run Plots – Cluster**

10. **Appendix B: 2015 Summer Peak Case Stability Run Plots – Cluster**

11. **Appendix C: 2025 Summer Peak Case Stability Run Plots – Cluster**

12. **Appendix D: Project Model Data**

13. **Appendix E1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario**

14. **Appendix E2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario**

15. **Appendix E3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-022 Stand-Alone Scenario**

16. **Appendix F1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario**

17. **Appendix F2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario**

18. **Appendix F3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-028 Stand-Alone Scenario**

19. **Appendix G1: 2015 Winter Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario**

20. **Appendix G2: 2015 Summer Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario**

21. **Appendix G3: 2025 Summer Peak Case Stability Run Plots for GEN-2014-064 Stand-Alone Scenario**

22. **Appendix H1: 2015 Winter Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario**

23. **Appendix H2: 2015 Summer Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario**

24. **Appendix H3: 2025 Summer Peak Case Stability Run Plots for ASGI-2014-014 Stand-Alone Scenario**

R: Group 9 Dynamic Stability Analysis Report

See S&C report and SPP addendum on next page.

S&C ELECTRIC COMPANY
Excellence Through Innovation

DISIS-2014-002 (GROUP 9)

LITTLE ROCK, AR

SOUTHWEST POWER POOL

DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY

S&C PROJECT NUMBER: 8893

DOCUMENT NUMBER: E-857

REVISION: 0

FINAL REPORT

CONFIDENTIAL

JANUARY 22, 2015

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TABLE OF CONTENTS

1. Executive Summary 5
2. Introduction 7
3. Transmission System and Study Area 9
4. Power Flow Base Cases 10
5. Power Flow Model 11
6. Dynamic Stability Analysis 13
6.1. Assumptions 13
6.2. Stability Criteria 13
6.3. Dynamic Stability Results 14
7. Power Factor Analysis 16
7.1. Power Factor Requirements at the Point of Interconnection 16
7.2. Power Factor Analysis Results 16
8. No Wind Conditions Analysis 19
9. Short-Circuit Study 20
10. Conclusions and Recommendations 21

LIST OF FIGURES

Figure 1. One-line diagrams of the interconnection requests a) GEN-2014-023, b) GEN-2014-031&032, c) GEN-2014-039, d) GEN-2014-055, e) GEN-2014-059 and f) GEN-2014-060. 12

LIST OF TABLES

Table 1: Generation Interconnection Requests in Group 9 7
Table 2: Prior Queued Projects 7
Table 3: Base Case Voltages at the POI of the Generation Interconnection Request 16
Table 4: Interconnection Request Power Factor Requirements outside 0.95 leading to 0.95 lagging 17
Table 5: Inductive Reactive Power (i.e. Shunt Reactor) Required at the High-Voltage Side Main Transformer of the Wind Farm to Offset the Capacitive Reactive Power Injected by the Project (Mvar) 19
Table 6 – Fault Definitions (Group 1) Specified by SPP ..... Appendix A

LIST OF APPENDICES

Appendix A
SPP's Fault Definitions for Group 9
Appendix B
Southwest Power Pool Disturbance Performance Requirements
Appendix C
Dynamic Stability Plots For Cluster Scenario
Appendix D
Dynamic Stability Plots For Stand-Alone Scenario
Appendix E
Power factor Analysis Results
Appendix F
Short-Circuit Study Results
(See Appendix F Submitted in Separate Files)

1. EXECUTIVE SUMMARY

S&C Electric Company (S&C) has performed a Definitive Interconnection System Impact Study, DISIS-2014-002 (Group 9), in response to a request through Southwest Power Pool (SPP) tariff studies. Group 9 consists of seven (7) generation interconnection study projects (GEN-2014-023, GEN-2014-031, GEN-2014-032, GEN-2014-039, GEN-2014-055, GEN-2014-059, and GEN-2014-060). The interconnection study projects are all wind farm projects.

S&C has performed dynamic stability analysis for Group 9 under Cluster and Stand-Alone scenarios. For the Cluster scenario, the aforementioned seven interconnection requests and prior-queued projects specified in the scope of work were studied at 100% output power using the Cluster base cases (2015 Summer Peak and Winter Peak Cases, and 2025 Summer Peak Case) provided by SPP. For the Stand-Alone scenario, the individual interconnection request was added in the SPP's Stand-Alone base case and was dispatched in accordance with SPP's supplied dispatch. There are seven (7) Stand-Alone models for each season.

The results of dynamic stability analysis under Cluster and Stand-Alone scenarios indicated that Group 9 is expected to successfully ride through each N-1 and N-2 fault contingency specified by SPP and the nearby areas will retain frequency and voltage stability. Furthermore, the study project and nearby generators in the study area meet transient voltage recovery requirements as specified by SPP, except for Contingency #48 in the 2015 Winter Peak Cluster study. In the contingency #48, it is observed that the transient voltage of the point of interconnection (POI) bus #640084 reached 1.23 p.u., exceeding the SPP requirement of 1.2 p.u.

S&C has performed power factor analysis for Group 9 under the Cluster scenario. Requirements for the voltage schedule at the POI for the power factor analysis is 1.0 p.u. voltage or the voltage schedule in the provided base case (whichever is higher). The power factor analyses were performed for all N-1 (or N-2 if applicable), three phases contingencies specified by SPP. The power factor at the each of POI buses was analyzed and compared to the typical reactive capability of the wind farm from 0.95 lagging to 0.95 leading. The results of power factor analysis revealed that the wind farms represented by GEN-2014-039, GEN-2014-031, GEN-2014-032, GEN-2014-055, and GEN-2014-060, GEN-2014-023, and GEN-2014-059 are

required to maintain a power factor of 0.95 lagging (capacitive) to 0.95 leading (inductive) at the POI to meet SPP's requirements.

S&C has performed an analysis of no wind conditions on the Cluster scenarios for wind farm projects that interconnected to a 345-kV or 230-kV bus. The analysis consists of determining the amount of reactive power required to offset the reactive power injected by the project into the transmission network. For interconnection request projects GEN-2014-023 (230 kV), GEN-2014-031 (230 kV), GEN-2014-032 (230 kV), and GEN-2014-059 (230 kV), applying respectively 5.5, 4.1, 14.9 and 6.8 Mvar, 345-kV shunt reactor can reduce the Mvar flow into the POI to approximately zero in all three Peak Cases.

S&C also performed a short-circuit analysis on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. A 3-phase fault is applied on buses up to 5 levels away from the POI of each interconnection request project and the results of the study have been presented.

2. INTRODUCTION

S&C has performed a Definitive Interconnection System Impact Study, DISIS-2014-002, for Group 9 in response to a request through the SPP Tariff studies. Group 9 consist of seven (7) new interconnection requests listed in Table 1. The study cases also contain the prior-queued projects listed in Table 2. Group 9 and prior-queued projects were studied at 100% power output using 2015 Summer and Winter Peak Cases and 2025 Summer Peak Case provided by SPP.

Table 1: Generation Interconnection Requests in Group 9

Project	Size (MW)	Generator Model	Generator Bus(es)	Point of Interconnection (POI)	POI Bus
GEN-2014-023	79.9	GE	583923	Tap Ft Randall to Meadow Grove 230 kV	560718
GEN-2014-031	35.38	GE	583836	Meadow Grove 230 kV	640540
GEN-2014-032	10.62	GE	(645063 and 645064	Meadow Grove 230 kV	640540
GEN-2014-039	73.39	GE	584093	Friend 115 kV	640174
GEN-2014-055	160.0	GE	584053	Beldon 115 kV	640080
GEN-2014-059	161.1	GE	584233	Tap Sidney-Ogallala 230 kV	560014
GEN-2014-060	125.8	GE	584113	Tap Pauline-Hildreth 115 kV	560733

Table 2: Prior Queued Projects

Request	Size (MW)	Generator Model	Point of Interconnection
GEN-2003-021N	75	Vestas 1.65 MW (640026)	Tap on the Ainsworth – Calamus 115 kV line (640050)
GEN-2004-023N	75	GENROU (640028)	Columbus 115 kV (640119)
GEN-2006-020N	42	Vestas V90 VCUS 1.8 & 3.0 MW (640421,640441)	Bloomfield 115 kV (640084)
GEN-2006-37N1	75	GE 1.7 MW (640449)	Broken Bow 115 kV (640089)
GEN-2006-038N005	79.5	GE 1.6 MW (640428)	Broken Bow 115 kV (640089)
GEN-2006-038N019	79.5	GE 1.5 MW (640431)	Petersburg 115 kV (640444)
GEN-2006-044N	40.5	GE 1.5 MW (645062)	Petersburg 115 kV (640444)
GEN-2007-011N08	81	Vestas V90 VCRS 3.0 MW (640418)	Bloomfield 115 kV (640084)
GEN-2008-086N02 (replaced by GEN-2013-004)	199.5	GE 100m 1.7 MW (645063)	Tap on the Columbus – Ft Randall 230 kV line (640540)
GEN-2008-119O	60	GE 1.5 MW (645061)	S1399 161kV (646399)
GEN-2008-123N	89.7	GE 100m 1.79 MW, GE 103m 1.72 MW (572054)	Tap on the Pauline – Guide Rock 115 kV (560137)

GEN-2009-040	73.8	Vestas V100 VCSS 2.0 MW (532904)	Marshall 115 kV (533303)
GEN-2010-041	10.5	GE 1.5 MW (580071)	S1399 161kV (646399)
GEN-2010-051	200	GE 100m 1.7 MW (580014, 580017, 580020)	Tap on the Twin Church – Hoskins 230 kV line (560347)
GEN-2011-018 (replaced by GEN-2013-008)	73.6	GE 100m 1.7 MW (640555)	Steele County 115 kV (640426)
GEN-2011-027	120	GE 1.85 MW (580022, 580021, 580023)	Tap Twin Church-Hoskins 230 kV (560347)
GEN-2011-056	3.6 MW increase (Pgen=21.6 MW)	GENSAL (640013)	Jeffrey 115 kV (640238)
GEN-2011-056A	3.6 MW increase (Pgen=21.6 MW)	GENSAL (640014)	Johnson 1 115 kV (640240)
GEN-2011-056B	4.5 MW increase (Pgen=213.5 MW)	GENSAL (640015)	Johnson 2 115 kV (640242)
GEN-2012-021	4.8 MW	GENROU (650010)	84th & Bluff 115 kV (650275)
GEN-2013-002	50.6	Siemens 108m 2.3 MW (583703)	Tap Sheldon - SW7&Bennet - Folsom/Pleasant Hill 115 kV (560746)
GEN-2013-008	1.2MW increase to GEN-2011-018 (Pgen=74.8 MW)	GE 100m 1.7 MW (640555)	Steele City (640426) 115 kV
GEN-2013-014	25.5	GE 100m 1.7 MW (583643)	Tap Pauline (640313) – Guide Rock (640206) 115 kV (560137)
GEN-2013-019	73.6	Siemens 108m 2.3 MW (583703)	Tap Sheldon - SW7&Bennet - Folsom/Pleasant Hill 115 kV (560746)
GEN-2013-032	204.0	GE 97.4m 1.7 MW (583783)	Neligh 115 kV (640293)
GEN-2014-004	3.96	GE 97.4m 1.79 MW (640555)	Steele City 115 kV (GEN-2011-018 POI) (640426)
GEN-2014-013	73.5	GE XLE 97.4m (583833)	Meadow Grove 230 kV (GEN-2008-086N02 POI) (640540)

3. TRANSMISSION SYSTEM AND STUDY AREA

The interconnection requests in Group 9 will interconnect into Western Area Power Administration (WAPA, Area #652) and Nebraska Public Power District (NPPD, Area #640).

In addition to these areas, the following areas were also monitored:

- Sunflower Electric Power Corporation (SUNC, Area #534)
- MidAmerican Energy (MEC, Area #635)
- Westar Energy, Inc. (WERE, Area #536)
- Greater Missouri Operations Company (GMO, Area #540)
- Kansas City Power & Light Company (KCP&L, Area #541)
- Omaha Public Power District (OPPD, Area #645)
- Lincoln Electric System (LES, Area #650)

4. POWER FLOW BASE CASES

DISIS-2014-002 (Group 9) and prior-queued projects were modeled as aggregates of generating units. The aggregate models were part of the base case supplied by SPP. The following power flow base cases were provided by SPP:

Cluster Scenario

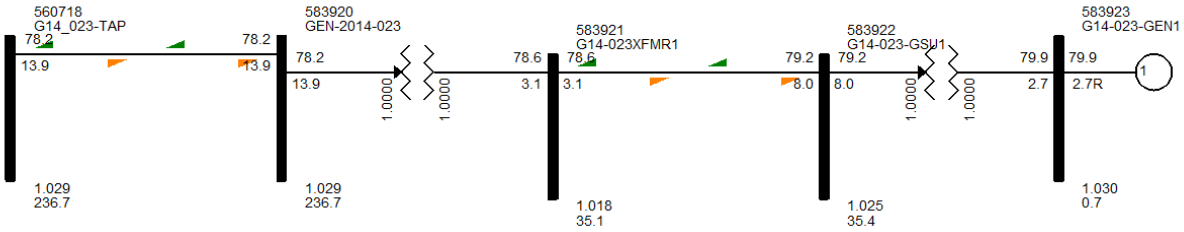
- **MDWG14-15SP_DIS1402_G09** – 2015 Summer Peak Case, which includes aggregate representation of interconnect requests for DISIS-2014-002 (Group 9) and prior queued projects at 100% output power.
- **MDWG14-15WP_DIS1402_G09.SAV** – 2015 Winter Peak Case, which includes aggregate representation of interconnect requests for DISIS-2014-002 (Group 9) and prior queued projects at 100% output power.
- **MDWG14-25SP_DIS1402_G09.SAV** – 2025 Summer Peak Case, which includes aggregate representation of interconnect requests for DISIS-2014-002 (Group 9) and prior queued projects at 100% output power.

Stand-Alone Scenario

- **MDWG14-15SP_DIS1402_G09-SA.SAV** – 2015 Summer Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.
- **MDWG14-15WP_DIS1402_G09-SA.SAV** – 2015 Winter Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.
- **MDWG14-25SP_DIS1402_G09-SA.SAV** – 2025 Summer Peak Case, in which all new interconnect requests are initially disconnected and only one interconnection request will be connected under each Stand-Alone scenario.

5. Power Flow Model

Power flow base models for the study project were provided by SPP. The models were created in PSS/E 32.2.2. One-line diagrams for each of the interconnection request projects were created by S&C and depicted in Figure 1.



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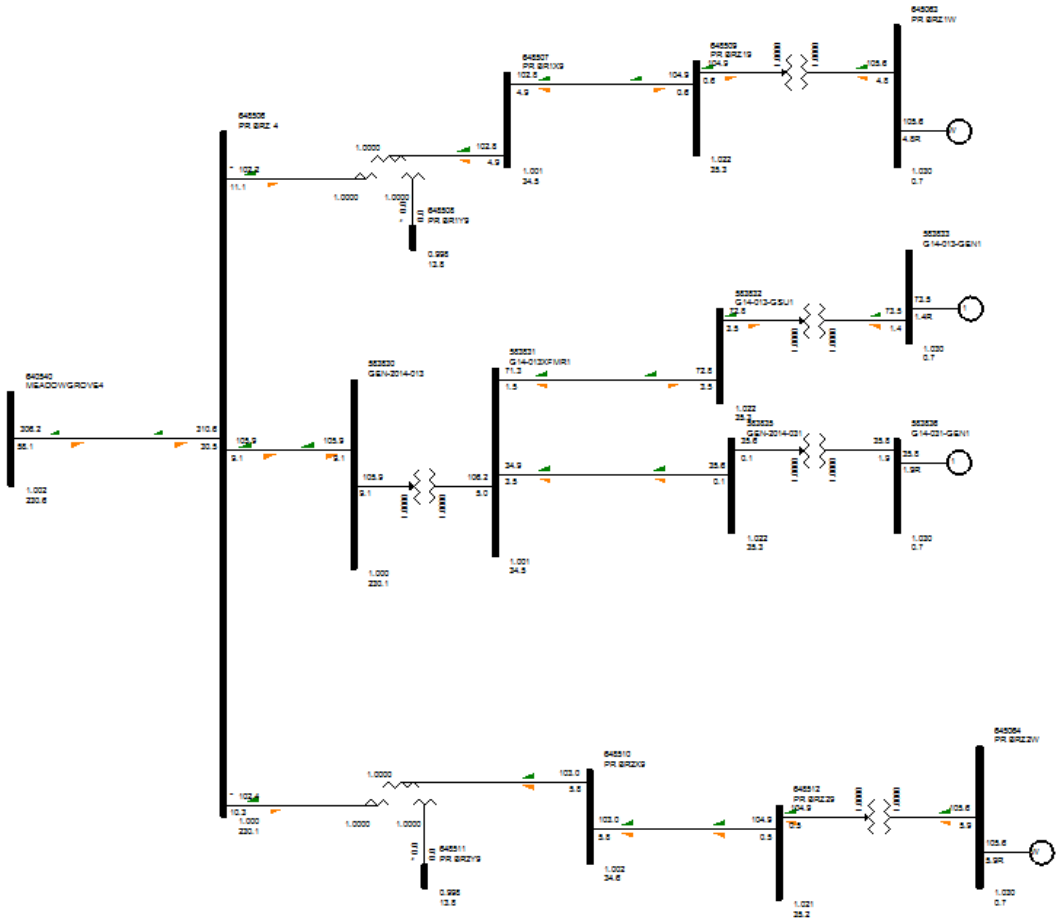

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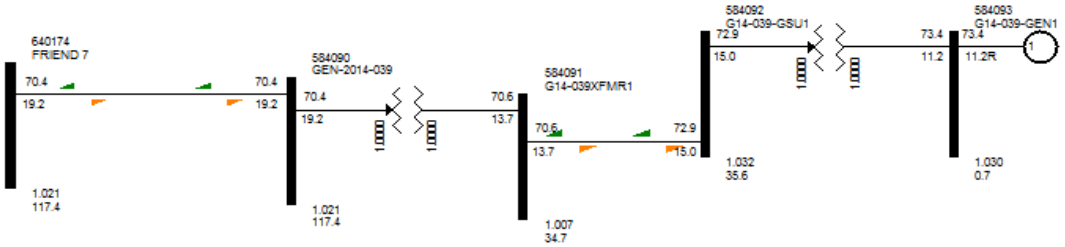

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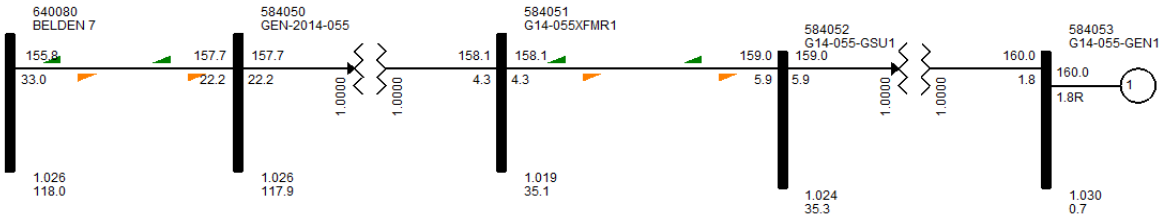

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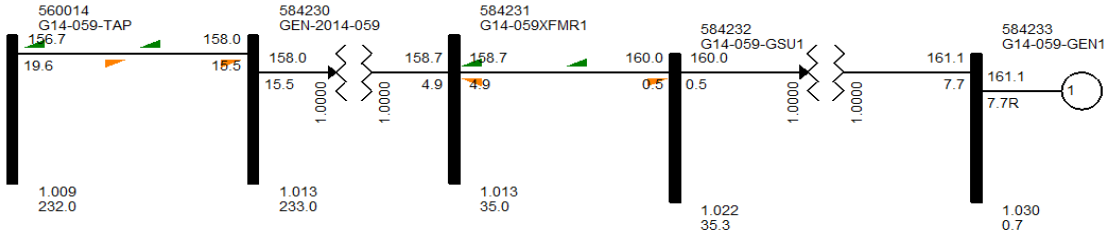

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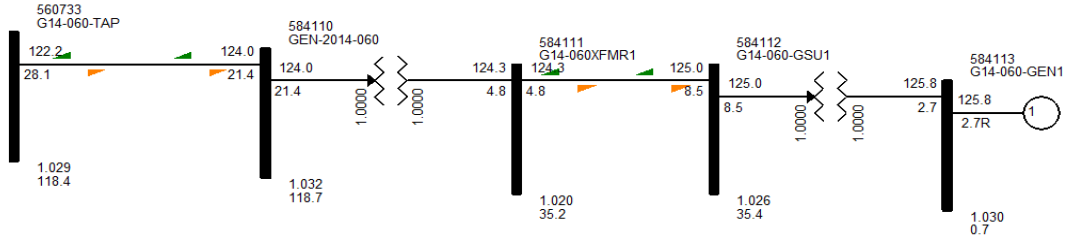


(f)

Figure 1. Simplified one-line diagrams of the interconnection requests a) GEN-2014-023, b) GEN-2014-031&032, c) GEN-2014-039, d) GEN-2014-055, e) GEN-2014-059, and f) GEN-2014-060.

6. DYNAMIC STABILITY ANALYSIS

6.1. ASSUMPTIONS

Dynamic stability analysis was performed for the fault contingencies specified by SPP, which are listed in Appendix A.

Note that single line-to-ground faults were simulated in a manner consistent with currently accepted practices, i.e. to assume that a single line-to-ground fault will cause a positive-sequence voltage drop at the fault location to 60% of nominal. Three phase faults were simulated as bolted faults.

6.2. STABILITY CRITERIA

Disturbances, including three-phase and single-phase to ground faults, should not cause synchronous and asynchronous plants to become unstable or disconnect from the transmission grid. The criterion for synchronous generator stability as defined by NERC is: "power system stability is defined as that condition in which the difference of the angular positions of synchronous machine rotor becomes constant following an aperiodic system disturbance."

Voltage magnitudes and frequencies at terminals of asynchronous generators should not exceed magnitudes and durations that will cause protection elements to operate. Furthermore, the response after the disturbance needs to be studied at the terminals of the machine to insure that there are no sustained oscillations in power output, speed, frequency, etc.

Voltage magnitudes and angles after the disturbance should settle to a constant and acceptable operating level. Frequencies should settle to the acceptable range within nominal 60 Hz power frequency.

SPP has two specific transient stability requirements as summarized below. These requirements will be elaborated in more detail in the SPP Disturbance Performance Requirements provided in Appendix B. This document provides a basis for evaluating the system response during the initial transient period following a disturbance on the bulk electric system by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

- **Angular Oscillations**: for study projects that include synchronous machines, rotor angle oscillations should meet the damping requirements described in Appendix B. For other projects that do not include synchronous machines, but based on engineering judgment have questionable rotor angle oscillation, damping should also meet the requirements described in Appendix B.
- **Transient Voltage Recovery**: for the transient voltage recovery requirement in Appendix B, the bus voltages to be included are those at the point of interconnection for each study generator. Other voltages in the area should be checked for this requirement if the terminal voltage of other machines in the monitored area appears to have voltage recovery issues.

Note that the study projects in Group 9 consist of wind turbine generators and are excluded from the above rotor angular oscillation requirement.

6.3. DYNAMIC STABILITY RESULTS

Dynamic studies were performed under Cluster and Stand-Alone scenarios for each of peak seasons. See Appendix C for dynamic stability plots of the Group 9 under Cluster scenarios. See Appendix D for dynamic stability plots for Stand-Alone scenarios. Each contingency study consists of (59) subplots:

- Subplot #1 are the (6) monitor system phase angle channels in the original snapshot file provided by SPP.
- Subplot #2 to Subplot #51 are results for (50) generators in the scope of study.
- Subplots #52 to Subplot #55 are voltages at the POI buses in the scope of study.
- Subplots #56 to Subplot #59 are frequencies at the POI buses in the scope of study.

Results of dynamic stability analysis for Cluster and Stand-Alone scenarios indicated that Group 9 is expected to successfully ride through each fault contingency specified by SPP and the nearby areas will retain frequency and voltage stability. In all results, there is no observation of generator tripping or disconnection from the transmission grid.

In addition, Group 9 interconnection requests are expected to meet SPP's transient voltage recovery requirement, except for one case. The case is Contingency #48 in the 2015 Winter Peak Cluster study, where it is observed that the transient voltage of the POI buses #640084 reached 1.23 p.u., exceeding the SPP requirement of 1.2 p.u.

7. POWER FACTOR ANALYSIS

7.1. POWER FACTOR REQUIREMENTS AT THE POINT OF INTERCONNECTION

SPP has specific voltage requirements for interconnecting renewable energy projects (including wind and solar generation). These interconnection projects must maintain a power factor required to hold a voltage schedule at the POI consistent with the voltage schedule in the provided base case or 1.0 p.u. voltage (whichever is higher). The voltage requirements must also be met during single (or N-2, if applicable) transmission facility outage contingencies specified by SPP. The base case voltages at the POI for each of three seasons listed in Table 3. The transmission facility outage contingencies considered in the power factor analysis were specified by SPP in Appendix A, excluding (21) single phase contingency cases (case #18, case #19, case #23, case #27, case #29, case #31, case #38, case #40, case #42, case #44, case #46, case #50, case #58, case #61, case #63, case #66, case #68, case #70, case #72, case #78 and case #80). The outages considered by SPP for the power factor analysis are three phase contingency conditions. Those outages are either line outages or transformer outages due to the faults. A few cases include the prior outage condition as well as tripping of equipment due to faults. Those cases form the N-2 contingencies in this study.

Table 3: Base Case Voltages at the POI of the Generation Interconnection Request

Request	POI	2015 Summer Peak (p.u.)	2015 Winter Peak (p.u.)	2025 Summer Peak (p.u.)
GEN-2014-023	560718	1.0291	1.0281	1.0288
GEN-2014-031	640540	1.0024	1.0045	1.0021
GEN-2014-032	640540	1.0024	1.0045	1.0021
GEN-2014-039	640174	1.0212	1.0257	1.0228
GEN-2014-055	640080	1.0264	1.0308	1.0230
GEN-2014-059	560014	1.0088	1.0169	1.0106
GEN-2014-060	560733	1.0294	1.0346	1.0200

7.2. POWER FACTOR ANALYSIS RESULTS

The results of power factor analysis are summarized in Appendix E. The power factor requirement for the interconnection projects were then compared to the required power factor at the POI. According to FERC Order No. 661-A, interconnection projects are not typically required to operate beyond a power factor range of 0.95 leading/lagging at the POI for voltages

from 0.95 to 1.05 of nominal. Then, the power factor level outside of 0.95 leading to 0.95 lagging are highlighted with the pink color and summarized in table below.

Table 4: Interconnection Request Power Factor Requirements outside 0.95 leading to 0.95 lagging

GEN-2014-023

	2015 Summer Peak					2015 Winter Peak					2025 Summer Peak				
Cont. No.	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)
2	79.9	-45	.871	leading	1.0291	79.9	-44.5	.874	leading	1.0281	79.9	-45.5	.869	leading	1.029
3	79.9	85.9	.681	lagging	1.0291	79.9	84.3	.688	lagging	1.0281	79.9	85	.685	lagging	1.029
21	79.9	88	.672	lagging	1.0291	79.9	86.6	.678	lagging	1.0281	79.9	62.7	.787	lagging	1.029

GEN-2014- 039

	2015 Summer Peak					2015 Winter Peak					2025 Summer Peak				
Cont. No.	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)
26	73.4	-20.1	.964	leading	1.021	73.4	-25.8	.943	leading	1.026	73.4	-18.7	.969	leading	1.023
33	73.4	-23.5	.952	leading	1.021	73.4	-20.7	.962	leading	1.026	73.4	-26.3	.941	leading	1.023

GEN-2014-059

	2015 Summer Peak					2015 Winter Peak					2025 Summer Peak				
Cont. No.	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)	P(MW)	Q(MVAR)	Power Factor		V(PU)
67	161.1	62.8	.932	lagging	1.0088	161.1	52	.952	lagging	1.0169	161.1	43.1	.966	lagging	1.0106
74	161.1	99.2	.852	lagging	1.0088	161.1	70.9	.915	lagging	1.0169	161.1	64.8	.928	lagging	1.0106

GEN-2014-060

	2015 Summer Peak					2015 Winter Peak					2025 Summer Peak				
Cont. No.	P (MW)	Q (MVAR)	Power Factor		V (PU)	P (MW)	Q (MVAR)	Power Factor		V (PU)	P (MW)	Q (MVAR)	Power Factor		V (PU)
77	125.8	-34.5	.964	leading	1.029	125.8	-28.7	.975	leading	1.035	125.8	-44	.944	leading	1.02

Based on the results of the power factor analysis interconnection requests should meet the following requirements to maintain nominal voltage at the POI:

- **GEN-2014-023**: The lowest identified lagging power factor is about 0.67 and was registered for outage no. 21 of the 2015 Summer Peak Case. Similarly, the lowest identified leading power factor is 0.87 and occurred in outage no. 2 of the 2015 Winter/Summer and 2025 Summer Peak Cases. Thus, the wind farm represented by

GEN-2014-023 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

- **GEN-2014-039**: The lowest identified leading power factor is about 0.94 and was registered for outage no. 33 of the 2025 Summer Peak Case. There was no lagging power factor requirement observed for this interconnection request. Thus, the wind farm represented by GEN-2014-039 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.
- **GEN-2014-059**: The lowest identified lagging power factor is about 0.85 and was registered for outage no. 74 of the 2015 Summer Peak Case. Similarly, the lowest identified leading power factor is 0.99 and occurred in several outages. Thus, the wind farm represented by GEN-2014-059 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.
- **GEN-2014-060**: The lowest identified leading power factor is about 0.94 and was registered for outage no. 77 of the 2025 Summer Peak Case. There was no lagging power factor requirement observed for this interconnection request. Thus, the wind farm represented by GEN-2014-060 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.
- **GEN-2014-031 & GEN-2014-032**: The lowest identified leading power factor is about 0.98 and was registered in several outages. There was no lagging power factor requirement observed for this interconnection request. Thus, the wind farm represented by GEN-2014-031 and GEN-2014-032 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.
- **GEN-2014-055**: The lowest identified leading power factor is about 0.96 and was registered in several outages. There was no lagging power factor requirement observed for this interconnection request. Thus, the wind farm represented by GEN-2014-055 is required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's reactive power requirements.

8. No Wind Conditions Analysis

For the wind farm interconnection requests that interconnect to a 345-kV bus, an analysis of the project for no power production due to no or low wind conditions was performed. The analysis consists of determining the amount of reactive power required to offset the reactive power injected by the project into the transmission network. The size of a shunt reactor placed at the interconnection request project's substation high side bus to reduce the Mvar flow into the POI to approximately zero was determined. As shown in Table 5, installation of a 345-kV shunt reactor can reduce the Mvar flow into the POI to practically zero in all three Peak cases.

Table 5: Inductive Reactive Power (i.e. Shunt Reactor) Required at the High-Voltage Side Main Transformer of the Wind Farm to Offset the Capacitive Reactive Power Injected by the Project (Mvar)

Request	POI	2015 Summer Peak	2015 Winter Peak	2025 Summer Peak
GEN-2014-023	560718	5.5	5.5	5.5
GEN-2014-031*	640540	4.1	4.1	4.1
GEN-2014-032**	640540	14.9	14.9	14.9
GEN-2014-059	560014	6.8	6.8	6.8

* Note that to accurately measure the reactive power injected only from collector system of GEN-2014-031 project, we disconnected G14-013-GEN1 project, which share the same POI with GEN-2014-031 project.

** Note that to accurately measure the reactive power injected only from collector system of GEN-2014-032 project, we disconnected G14-013-GEN1 and G14-031-GEN1 projects, which share the same POI with GEN-2014-032 project.

9. SHORT-CIRCUIT STUDY

A short-circuit study has been performed on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. Short-circuit analysis includes applying a 3-phase fault on buses up to 5 levels away from the POI of each interconnection request project. PSS/E "Automatic Sequence Fault Calculation (ASCC)" fault analysis module was used for the purpose of short-circuit analysis. The results of the short-circuit analysis have been recorded for all the buses up to five buses away from the point of interconnection of each interconnection request project. Detailed results of the short-circuit study are provided in Appendix F.

10. CONCLUSIONS AND RECOMMENDATIONS

- Dynamic analysis results under Cluster and Stand-Alone Scenarios indicate that DISIS-2014-002 (Group 9) interconnection request projects are expected to successfully interconnect into the transmission system at 100% output power and at the desired location. Dynamic stability analysis also indicates that Group 9 is expected to ride through each N-1 and N-2 fault contingency specified by SPP and the nearby areas will retain angular, frequency and voltage stability. Thus, Group 9 is expected to meet SPP's transient voltage recovery requirement.

- The results of power factor analysis indicate that the wind farms represented by GEN-2014-039, GEN-2014-031, GEN-2014-032, GEN-2014-055, GEN-2014-060, GEN-2014-023 and GEN-2014-059 are required to maintain a power factor of 0.95 lagging to 0.95 leading at the POI to meet SPP's requirements.

- An analysis on the project for no wind power production due to no or low wind conditions indicated that for GEN-2014-023, GEN-2014-031, GEN-2014-032, and GEN-2014-059, which are connected to SPP's 345-kV system, applying respectively 5.5, 4.1, 14.9 and 6.8 Mvar, 345-kV shunt reactors can reduce the Mvar flow into the POI to approximately zero in all three Peak Cases.

- A short-circuit study has been performed on the power flow models for the 2025 Summer Peak Season for each generator using the Cluster Scenario model. A 3-phase fault is applied on buses up to 5 levels away from the POI of each interconnection request project and the results of the study have been presented.

APPENDIX A

SPP'S FAULT DEFINITIONS FOR GROUP 9

Table 6 – Fault Definitions (Group 9) Specified by SPP

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
1	FLT01-3PH	3 phase fault on the G14-023 TAP (560718) to Ft Randall (652509) 230kV line circuit 1, near G14-023 TAP. a. Apply fault at the G14-023 TAP 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X					
2	FLT02-3PH	3 phase fault on the G14-023 TAP (560718) to Meadow Grove (640540) 230kV line circuit 1, near G14-023 TAP. a. Apply fault at the G14-023 TAP 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X					
3	FLT03-3PH	3 phase fault on the Meadow Grove (640540) to Columbus (640133) 230kV line circuit 1, near Meadow Grove 230kV. a. Apply fault at the Meadow Grove 230kV bus. b. Clear fault after 6 cycles and trip the faulted line.	X	X				
4	FLT04-3PH	3 phase fault on the Columbus (640133) to Shell Creek (640343) 230kV line circuit 1, near Columbus. a. Apply fault at the Columbus 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
5	FLT05-3PH	3 phase fault on the Columbus (640133) to Columbus West (640131) 230kV line circuit 1, near Columbus. a. Apply fault at the Columbus 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
6	FLT06-3PH	3 phase fault on the Columbus (640133) to East Columbus (640126) 230kV line circuit 1, near Columbus. a. Apply fault at the Columbus 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
7	FLT07-3PH	3 phase fault on the Columbus (640133) 230/Kelly (640134) 115/(640135) 13.2kV Transformer circuit 1, near Columbus 230kV. a. Apply fault at the Columbus 230kV bus. b. Clear fault after 5.5 cycles, trip the faulted line, and remove the fault.	X	X				

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
8	FLT08-3PH	3 phase fault on the Shell Creek (640342) to East Columbus (640125) 345kV line circuit 1, near Shell Creek. a. Apply fault at the Shell Creek 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				
9	FLT08-3PH	3 phase fault on the Shell Creek (640342) to Hoskins (640226) 345kV line circuit 1, near Shell Creek. a. Apply fault at the Shell Creek 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X		X		
10	FLT10-3PH	3 phase fault on the Hoskins (640226) to Raun (635200) 345kV line circuit 1, near Hoskins. a. Apply fault at the Hoskins 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				
11	FLT11-3PH	**ONLY for 6/1/2016 and BEYOND** 3 phase fault on the Hoskins (640226) to Neligh East (640520) 345kV line circuit 1, near Hoskins. a. Apply fault at the Hoskins 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X		X		
12	FLT12-3PH	3 phase fault on the Grand Island (652571) to McCool (640271) 345kV line circuit 1, near Grand Island. a. Apply fault at the Grand Island 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				
13	FLT13-3PH	**ONLY for 1/1/2018 and BEYOND** 3 phase fault on the Grand Island (652571) to Holt County (640510) 345kV line circuit 1, near Grand Island. a. Apply fault at the Grand Island 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				
14	FLT14-3PH	**ONLY prior to 1/1/2018** 3 phase fault on the Grand Island (652571) to Ft. Thompson (652506) 345kV line circuit 1, near Grand Island. a. Apply fault at the Grand Island 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
15	FLT15-3PH	3 phase fault on the Ft Thompson (652506) to Leland Olds (659105) 345kV line circuit 1, near Ft Thompson. a. Apply fault at the Ft Thompson 345kV bus. b. Clear fault after 5 cycles and trip the faulted line and remove fault.	X	X				
16	FLT16-3PH	3 phase fault on the Ft Randall (652509) to Utica Junction (652526) 230kV line circuit 1, near Ft Randall. a. Apply fault at the Ft Randall 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
17	FLT17-3PH	3 phase fault on the Ft Randall (652509) to Sioux City (652565) 230kV line circuit 1, near Ft Randall. a. Apply fault at the Ft Randall 230kV bus. b. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
18	FLT18-1PH	**Ft Randall 230kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Ft Randall (652509) 230kV bus. b. Wait 16 cycles and remove fault. c. Trip Ft Randall (652509) to Utica Junction (652526) 230kV line circuit 1. d. Trip Ft Randall (652509) 230/(652510) 115kV transformer circuit 1.	X	X				
19	FLT19-1PH	**Ft Randall 230kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Ft Randall (652509) 230kV bus. b. Wait 16 cycles and remove fault. c. Trip Ft Randall (652509) to Sioux City (652565) 230kV line circuit 1. d. Trip Ft Randall (652509) 230/(652510) 115kV transformer circuit 1.	X	X				
20	FLT20-3PH	**Ft. Randall Prior Outage Scenario 1** a. Prior Outage: Switch out Ft Randall (652509) to Utica Junction (652526) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Ft Randall (652509) to Sioux City (652565) 230kV line circuit 1, near Ft Randall. c. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
21	FLT21-3PH	**Ft. Randall Prior Outage Scenario 2** a. Prior Outage: Switch out Ft Randall (652509) to Utica Junction (652526) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Meadow Grove (640540) to Columbus (640133) 345kV line circuit 1, near Ft Randall. c. Clear fault after 6 cycles and trip the faulted line and remove fault.	X	X				
22	FLT22-3PH	**Ft. Randall Prior Outage Scenario 3** a. Prior Outage: Switch out Ft Randall (652509) to Utica Junction (652526) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Ft Randall (652509) 230/(652510) 115kV transformer circuit 1, near Ft Randall 230kV. c. Clear fault after 5.5 cycles and trip the faulted line and remove fault.	X	X				
23	FLT23-1PH	**Columbus 230kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Columbus (640133) 230kV bus. b. Wait 16 cycles and remove fault. c. Trip entire Columbus (640133) 230kV bus.	X	X				
24	FLT24-3PH	**Columbus Prior Outage Scenario 1** a. Prior Outage: Switch out Columbus (640133) to East Columbus (640126) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Columbus (640133) 230/Kelly (640134) 115/(640135) 13.2kV transformer circuit 1, near Columbus 230kV. c. Clear fault after 5.5 cycles, trip the faulted line, and remove fault.	X	X				
25	FLT25-3PH	**Columbus Prior Outage Scenario 2** a. Prior Outage: Switch out Columbus (640133) to East Columbus (640126) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Columbus (640133) to Shell Creek (640343) 230kV circuit 1, near Columbus 230kV. c. Clear fault after 6 cycles, trip the faulted line, and remove fault.	X	X				
26	FLT26-3PH	3 phase fault on the Friend (640174) to Crete (640153) 115kV line circuit 1, near Friend. a. Apply fault at the Friend 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.			X			
27	FLT27-1PH	Single Phase fault like the previous with 19 cycles before breaker action.			X			

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
28	FLT28-3PH	3 phase fault on the Friend (640174) to Geneva (640178) 115kV line circuit 1, near Friend. a. Apply fault at the Friend 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.			X			
29	FLT29-1PH	Single Phase fault like the previous with 19 cycles before breaker action.			X			
30	FLT30-3PH	3 phase fault on the Crete (640153) to Sheldon (640278) 115kV line circuit 1, near Crete. a. Apply fault at the Crete 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.			X			
31	FLT31-1PH	Single Phase fault like the previous with 19 cycles before breaker action.			X			
32	FLT32-3PH	3 phase fault on the GEN-2013-002 Tap (560746) to SW7&Bennett (650244) 115kV line circuit 1, near GEN-2013-002 Tap. a. Apply fault at the GEN-2013-002 Tap 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.			X			
33	FLT33-3PH	3 phase fault on the Geneva (640178) 115/(640179) 69/(643062) 14.4kV transformer circuit 1, near Geneva. a. Apply fault at the Geneva 115kV bus. b. Clear fault after 5.5 cycles and trip the faulted line.			X			
34	FLT34-3PH	**Geneva Prior Outage Scenario 1** a. Prior Outage: Switch out Geneva (640178) to McCool (640272) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Geneva (640178) to Carlisle Junction (640105) 115kV line circuit 1, near Geneva 115kV. c. Clear fault after 6.5 cycles, trip the faulted line, and remove fault.			X			
35	FLT35-3PH	**McCool Prior Outage Scenario 1** a. Prior Outage: Switch out McCool (640271) to Moore (640277) 345kV circuit 1 and solve. b. Apply 3 phase fault on the McCool (640272) to York SW (640413) 115kV line circuit 1, near McCool 115kV. c. Clear fault after 6.5 cycles, trip the faulted line, and remove fault.			X			

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
36	FLT36-1PH	**Sheldon Prior Outage Scenario 1** a. Prior Outage: Switch out Sheldon (640278) to Folsom & Pleasant Hill (650242) 115kV circuit 1 and solve. b. Apply 3 phase fault on the GEN-2013-002 Tap (560746) to SW7&Bennett (650244) 115kV line circuit 1, near GEN-2013-002 115kV. c. Clear fault after 6.5 cycles, trip the faulted line, and remove fault.			X			
37	FLT37-3PH	3 phase fault on the Beldon (640080) to Hartington (640212) 115kV line circuit 1, near Beldon. a. Apply fault at the Beldon 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
38	FLT38-1PH	Single Phase fault like the previous with 19 cycles before breaker action.				X		
39	FLT39-3PH	3 phase fault on the Beldon (640080) to Hoskins (640228) 115kV line circuit 1, near Beldon. a. Apply fault at the Beldon 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
40	FLT40-1PH	Single Phase fault like the previous with 19 cycles before breaker action.				X		
41	FLT41-3PH	3 phase fault on the Beldon (640080) 115/(640081) 69/(643016) 13.8kV transformer circuit 1, near Beldon 115kV. a. Apply fault at the Beldon 115kV bus. b. Clear fault after 5.5 cycles and trip the faulted line.				X		
42	FLT42-1PH	Single Phase fault like the previous with 19 cycles before breaker action.				X		
43	FLT43-3PH	3 phase fault on the Bloomfield (640084) to Creighton (640149) 115kV line circuit 1, near Bloomfield 115kV. a. Apply fault at the Bloomfield 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
44	FLT44-1PH	Single Phase fault like the previous with 19 cycles before breaker action.				X		
45	FLT45-3PH	3 phase fault on the Spirit Mound (659121) to Manning (652517) 115kV line circuit 1, near Spirit Mound 115kV. a. Apply fault at the Spirit Mound 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
46	FLT46-1PH	Single Phase fault like the previous with 19 cycles before breaker action.				X		

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
47	FLT47-3PH	**Gavin Prior Outage Scenario 1** a. Prior Outage: Switch out Gavins (652511) to Yankton Junction (660006) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Bloomfield (640084) to Creighton (640149) 115kV line circuit 1, near Bloomfield. **c.** Clear fault after 6.5 cycles and trip the faulted line and remove the fault.				X		
48	FLT48-3PH	**Spirit Mound Prior Outage Scenario 1** a. Prior Outage: Switch out Spirit Mound (659121) to Manning (652517) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Gavins (652511) to Bloomfield (640084) 115kV line circuit 1, near Gavins. **c.** Clear fault after 6.5 cycles and trip the faulted line and remove the fault.						
49	FLT49-3PH	**Utica Junction Prior Outage Scenario 1** a. Prior Outage: Switch out Utica Junction (652526) to Rasmussen (652536) 230kV circuit 1 and solve. b. Apply 3 phase fault on the Utica Junction (652526) to VFODNES4 (652398) 230kV line circuit 1, near Utica Junction. c. Clear fault after 6 cycles and trip the faulted line and remove the fault.	X	X		X		
50	FLT50-3PH	**Twin Church 230kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Twin Church (640387) 115kV bus. b. Wait 19 cycles and remove fault. c. Trip Twin Church (640387) to Emerson (640163) 115kV line circuit 1. d. Trip Twin Church (640386) 230/(640387) 115/(643155) 13.8kV transformer circuit 1.				X		
51	FLT51-3PH	**Twin Church Prior Outage Scenario 1** a. Prior Outage: Switch out Twin Church (640387) to Emerson (640163) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Twin Church (640386) 230/(640387) 115/(643155) 13.8kV transformer circuit 1. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.				X		

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
52	FLT52-3PH	3 phase fault on the Raun (635200) to Hoskins (640226) 345kV line circuit 1, near Raun 345kV. a. Apply fault at the Raun 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.	X	X		X		
53	FLT53-3PH	3 phase fault on the Raun (635200) to S3451 (645451) 345kV line circuit 1, near Raun 345kV. a. Apply fault at the Raun 345kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.	X	X		X		
54	FLT54-3PH	3 phase fault on the Raun (635200) to Sioux City (652564) 345kV line circuit 1, near Raun 345kV. a. Apply fault at the Raun 345kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.	X	X		X		
55	FLT55-3PH	3 phase fault on the Hoskins (640228) to Norfolk N (640296) 115kV line circuit 1, near Hoskins 115kV. a. Apply fault at the Hoskins 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
56	FLT56-3PH	3 phase fault on the Hoskins (640228) to Norfolk (640298) 115kV line circuit 1, near Hoskins 115kV. a. Apply fault at the Hoskins 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
57	FLT57-3PH	3 phase fault on the Hoskins (640228) to Stanton N (640363) 115kV line circuit 1, near Hoskins 115kV. a. Apply fault at the Hoskins 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.				X		
58	FLT58-3PH	**Hoskins 115kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Hoskins (640228) 115kV bus. b. Wait 19 cycles and remove fault. c. Trip Hoskins (640228) to Norfolk (640298) 115kV line circuit 1. d. Trip Hoskins (640228) to Stanton N (640363) 115kV line circuit 1.				X		
59	FLT59-3PH	**Hoskins 345kV Prior Outage Scenario 1** a. Prior Outage: Switch out Hoskins (640226) to Shell Creek (640342) 345kV circuit 1 and solve. b. Apply 3 phase fault on Hoskins (640226) 345/(640227) 230/(643082) 13.8kV transformer circuit 1, near Hoskins. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.	X	X		X		

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
60	FLT60-3PH	3 phase fault on the GEN-2014-059 Tap (560014) to Ogallala (640298) 230kV line circuit 1, near GEN-2014-059 Tap. a. Apply fault at the GEN-2014-059 Tap 230kV bus. b. Clear fault after 6 cycles and trip the faulted line.					X	
61	FLT61-1PH	Single Phase fault like the previous with 16 cycles before breaker action.					X	
62	FLT62-3PH	3 phase fault on the GEN-2014-059 Tap (560014) to Sidney (659134) 230kV line circuit 1, near GEN-2014-059 Tap. a. Apply fault at the GEN-2014-059 Tap 230kV bus. b. Clear fault after 6 cycles and trip the faulted line.					X	
63	FLT63-1PH	Single Phase fault like the previous with 16 cycles before breaker action.					X	
64	FLT64-3PH	3 phase fault on the Ogallala (640298) 230/(659801) 115/(643115) 13.8kV transformer circuit 1, near Ogallala. a. Apply fault at the Ogallala 230kV bus. b. Clear fault after 5.5 cycles and trip the faulted line.					X	
65	FLT65-3PH	3 phase fault on the Ogallala (640298) to Gentleman (640184) 230kV line circuit 1, near Ogallala. a. Apply fault at the Ogallala 230kV bus. b. Clear fault after 6 cycles and trip the faulted line.					X	
66	FLT66-1PH	Single Phase fault like the previous with 16 cycles before breaker action.					X	
67	FLT67-3PH	3 phase fault on the Keystone (640252) to Sidney (659133) 345kV line circuit 1, near Keystone. a. Apply fault at the Keystone 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.					X	
68	FLT68-1PH	Single Phase fault like the previous with 14 cycles before breaker action.					X	
69	FLT69-3PH	3 phase fault on the Keystone (640252) to Gentleman (640183) 345kV line circuit 1, near Keystone. a. Apply fault at the Keystone 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.					X	
70	FLT70-1PH	Single Phase fault like the previous with 14 cycles before breaker action.					X	
71	FLT71-3PH	3 phase fault on the Gentleman (640184) to N Platte (640286) 230kV line circuit 1, near Gentleman. a. Apply fault at the Gentleman 230kV bus. b. Clear fault after 5 cycles and trip the faulted line.					X	

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
72	FLT72-1PH	Single Phase fault like the previous with 16 cycles before breaker action.					X	
73	FLT73-3PH	3 phase fault on the Sidney (659134) 230/(652572) 115/(659803) 13.8kV transformer circuit 1, near Sidney. a. Apply fault at the Sidney 230kV bus. b. Clear fault after 5.5 cycles and trip the faulted line.					X	
74	FLT74-3PH	**Sidney 230kV Prior Outage Scenario 1** a. Prior Outage: Switch out Sidney (659133) to Keystone (640252) 345kV circuit 1 and solve. b. Apply 3 phase fault on Sidney (659134) 230/(652572) 115/(659803) 13.8kV transformer circuit 1, near Sidney. c. Clear fault after 5.5 cycles and trip the faulted line and remove fault.					X	
75	FLT75-3PH	**Ogallala 230kV Prior Outage Scenario 1** a. Prior Outage: Switch out Ogallala (640302) 230/(659801) 115/(643115) 13.8kV transformer circuit 1 and solve. b. Apply 3 phase fault on Sidney (659133) to Keystone (640252) 345kV circuit 1, near Sidney. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.					X	
76	FLT76-3PH	**Gentleman 345kV Prior Outage Scenario 1** a. Prior Outage: Switch out Gentleman (640183) to Sweetwater (640374) 345kV line circuit 1 and solve. b. Apply 3 phase fault on Gentleman (640183) to Sweetwater (640374) 345kV circuit 2, near Gentleman. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.					X	
77	FLT77-3PH	3 phase fault on the GEN-2014-060 Tap (560733) to Hildreth (640222) 115kV line circuit 1, near GEN-2014-060 Tap. a. Apply fault at the Gentleman 230kV bus. b. Clear fault after 5 cycles and trip the faulted line.						X
78	FLT78-1PH	Single Phase fault like the previous with 19 cycles before breaker action.						X
79	FLT79-3PH	3 phase fault on the GEN-2014-060 Tap (560733) to Pauline (640313) 115kV line circuit 1, near GEN-2014-060 Tap. a. Apply fault at the Gentleman 230kV bus. b. Clear fault after 5 cycles and trip the faulted line.						X

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
80	FLT80-1PH	Single Phase fault like the previous with 19 cycles before breaker action.						X
81	FLT81-3PH	**Holdredge 115kV Prior Outage Scenario 1** a. Prior Outage: Switch out Holdredge (640224) to Axtell (640066) 115kV line circuit 1 and solve. b. Apply 3 phase fault on Axtell (640066) to Pauline (640312) 345kV circuit 1, near Axtell. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.						X
82	FLT82-3PH	**Holdredge 115kV Prior Outage Scenario 2** a. Prior Outage: Switch out Holdredge (640224) to Axtell (640066) 115kV line circuit 1 and solve. b. Apply 3 phase fault on Holdredge (640224) to Johnson 2 (640242) 115kV circuit 1, near Holdredge. c. Clear fault after 6.5 cycles and trip the faulted line and remove fault.						X
83	FLT83-3PH	3 phase fault on the Pauline (640313) 345/(640312) 115/(640315) 13.8kV transformer circuit 1, near Pauline. a. Apply fault at the Pauline 115kV bus. b. Clear fault after 5.5 cycles and trip the faulted line.						X
84	FLT84-3PH	3 phase fault on the Hastings (640215) to Hastings City (641088) 115kV line circuit 1, near Hastings City. a. Apply fault at the Hastings 115kV bus. b. Clear fault after 6.5 cycles and trip the faulted line.						X
85	FLT85-3PH	3 phase fault on the Pauline (640312) to Moore (640277) 345kV line circuit 1, near Pauline. a. Apply fault at the Pauline 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.						X
86	FLT86-3PH	3 phase fault on the Pauline (640312) to Moore (640277) 345kV line circuit 1, near Pauline. c. Apply fault at the Pauline 345kV bus. d. Clear fault after 5 cycles and trip the faulted line.						X

Cont. No.	Cont. Name	Description	GEN-2014-023	GEN-2014-031 GEN-2014-032	GEN-2014-039	GEN-2014-055	GEN-2014-059	GEN-2014-060
87	FLT87-3PH	**Pauline 115kV Prior Outage Scenario 1** a. Prior Outage: Switch out Pauline (532774) to Hastings (640215) 115kV circuit 1 and solve. b. Apply 3 phase fault on the GEN-2008-123N Tap (560137) to Guide Rock (640206) 115kV line circuit 1, near GEN-2008-123N Tap. c. Clear fault after 6.5 cycles and trip the faulted line and remove fault.						**X**
88	FLT88-3PH	**Pauline 345kV Prior Outage Scenario 1** a. Prior Outage: Switch out Pauline (532774) to Moore (640277) 345kV circuit 1 and solve. b. Apply 3 phase fault on the GEN-2008-123N Tap (560137) to Guide Rock (640206) 115kV line circuit 1, near GEN-2008-123N Tap. c. Clear fault after 6.5 cycles and trip the faulted line and remove fault.						**X**
89	FLT89-3PH	**Pauline 115kV Prior Outage Scenario 2** a. Prior Outage: Switch out Pauline (532774) to Hastings (640215) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Pauline (532774) to Hastings (640215) 115kV circuit 2, near Pauline. c. Clear fault after 6.5 cycles and trip the faulted line and remove fault.						**X**
90	FLT90-3PH	**Hastings EC 115kV Prior Outage Scenario 1** a. Prior Outage: Switch out Hastings EC (641087) to Sutton (640372) 115kV circuit 1 and solve. b. Apply 3 phase fault on the Hastings EC (641087) to S 281 7 (641090) 115kV line circuit 1, near Hastings EC. c. Clear fault after 6.5 cycles and trip the faulted line and remove fault.						**X**

APPENDIX B

SOUTHWEST POWER POOL DISTURBANCE PERFORMANCE REQUIREMENTS

OVERVIEW

These Disturbance Performance Requirements ("Requirements") shall be applicable to the Bulk Electric System within the Southwest Power Pool Planning Area. Utilization of these Requirements applies to all registered entities within the Southwest Power Pool Planning Area. These Requirements shall not be applicable to facilities that are not part of Bulk Electric System. More stringent Requirements are at the sole discretion of each Transmission Owner.

Transient and dynamic stability assessments are generally performed to assure adequate avoidance of loss of generator synchronism and prevention of system voltage collapse within the first 20 seconds after a system disturbance. These Requirements provide a basis for evaluating the system response during the initial transient period following a disturbance on the Bulk Electric System by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

ROTOR ANGLE DAMPING REQUIREMENT

Machine Rotor Angles shall exhibit well damped angular oscillations [as defined below] and acceptable power swings following a disturbance on the Bulk Electric System for all NERC Category A, B and C events.

Well damped angular oscillations shall meet one of the following two requirements when calculated directly from the rotor angle:

1. Successive Positive Peak Ratio (SPPR) must be less than or equal to 0.95 where SPPR is calculated as follows:

$$SPPR = \frac{\text{Peak Rotor Angle of } 2^{nd} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.95$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 5%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

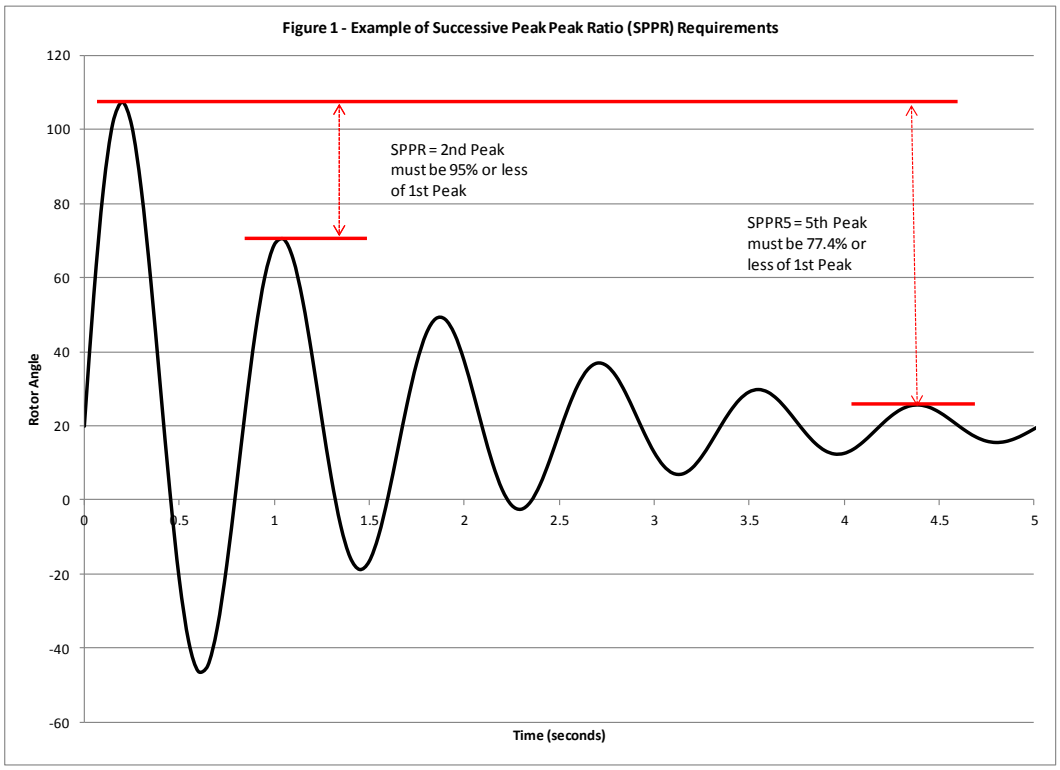
$$SPPR5 = \frac{\text{Peak Rotor Angle of } 5^{th} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.774$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 22.6%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

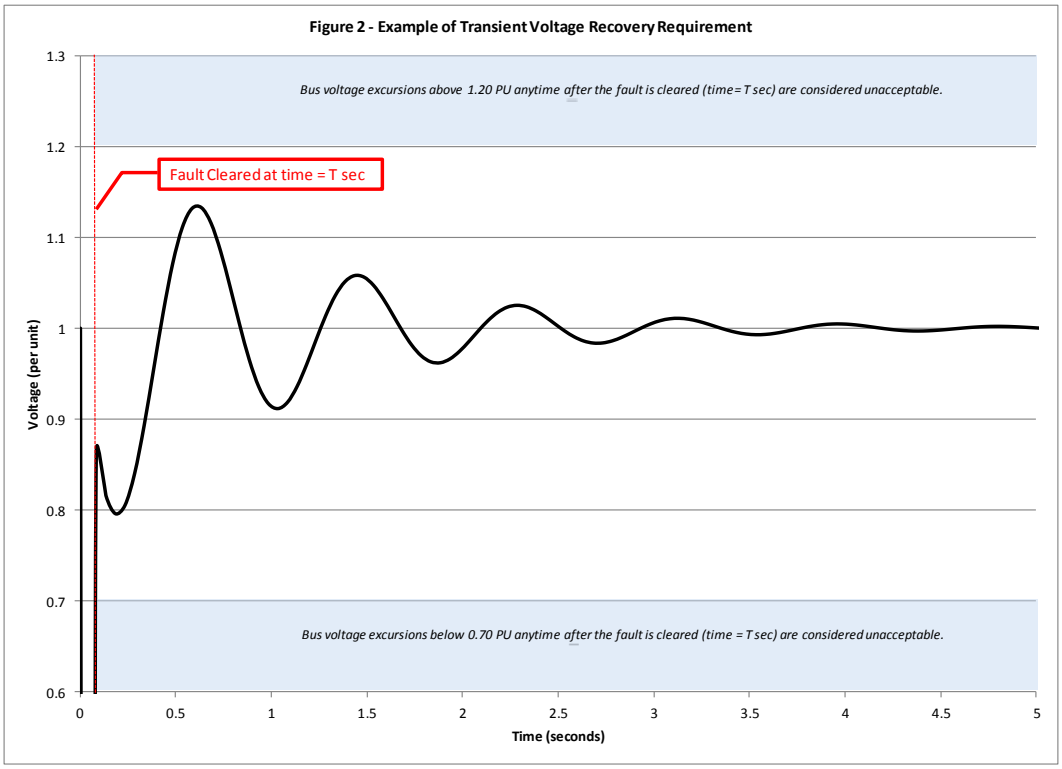
Qualitatively, these Requirements are shown below:



TRANSIENT VOLTAGE RECOVERY REQUIREMENT

Any time after a disturbance is cleared; bus voltages on the Bulk Electric System shall not swing outside of the bandwidth of 0.70 per unit to 1.20 per unit.

Qualitatively, this Requirement is shown below:



APPENDIX C

DYNAMIC STABILITY PLOTS FOR CLUSTER SCENARIO

1)

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX C-1 SUBMITTED IN A SEPARATE FILE)

2)

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX C-2 SUBMITTED IN A SEPARATE FILE)

3)

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX C-3 SUBMITTED IN A SEPARATE FILE)

APPENDIX D

DYNAMIC STABILITY PLOTS FOR STAND-ALONE SCENARIO

1)

"GEN-2014-023"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-1 SUBMITTED IN A SEPARATE FILE)

2)

"GEN-2014-023"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-2 SUBMITTED IN A SEPARATE FILE)

3)

"GEN-2014-023"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-3 SUBMITTED IN A SEPARATE FILE)

4)

"GEN-2014-031"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-4 SUBMITTED IN A SEPARATE FILE)

5)

"GEN-2014-031"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-5 SUBMITTED IN A SEPARATE FILE)

6)

"GEN-2014-031"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-6 SUBMITTED IN A SEPARATE FILE)

7)

"GEN-2014-032"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-7 SUBMITTED IN A SEPARATE FILE)

8)

"GEN-2014-032"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-8 SUBMITTED IN A SEPARATE FILE)

9)

"GEN-2014-032"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-9 SUBMITTED IN A SEPARATE FILE)

10)

"GEN-2014-039"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-10 SUBMITTED IN A SEPARATE FILE)

11)

"GEN-2014-039"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-11 SUBMITTED IN A SEPARATE FILE)

12)

"GEN-2014-039"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-12 SUBMITTED IN A SEPARATE FILE)

13)

"GEN-2014-055"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-13 SUBMITTED IN A SEPARATE FILE)

14)

"GEN-2014-055"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-14 SUBMITTED IN A SEPARATE FILE)

15)

"GEN-2014-055"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-15 SUBMITTED IN A SEPARATE FILE)

16)

"GEN-2014-059"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-16 SUBMITTED IN A SEPARATE FILE)

17)

"GEN-2014-059"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-17 SUBMITTED IN A SEPARATE FILE)

18)

"GEN-2014-059"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-18 SUBMITTED IN A SEPARATE FILE)

19)

"GEN-2014-060"

DYNAMIC STABILITY PLOTS FOR 2015 SUMMER PEAK CASE

(SEE APPENDIX D-19 SUBMITTED IN A SEPARATE FILE)

20)

"GEN-2014-060"

DYNAMIC STABILITY PLOTS FOR 2015 WINTER PEAK CASE

(SEE APPENDIX D-20 SUBMITTED IN A SEPARATE FILE)

21)

"GEN-2014-060"

DYNAMIC STABILITY PLOTS FOR 2025 SUMMER PEAK CASE

(SEE APPENDIX D-21 SUBMITTED IN A SEPARATE FILE)

APPENDIX E

POWER FACTOR ANALYSIS RESULTS

Power Factor Requirements for GEN-2014-023 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.8	.985	leading
1	79.9	21.6	.965	lagging	79.9	17.1	.978	lagging	79.9	21.6	.965	lagging
2	79.9	-45	.871	leading	79.9	-44.5	.874	leading	79.9	-45.5	.869	leading
3	79.9	85.9	.681	lagging	79.9	84.3	.688	lagging	79.9	85	.685	lagging
4	79.9	-13.2	.987	leading	79.9	-9.4	.993	leading	79.9	-13	.987	leading
5	79.9	-13.8	.985	leading	79.9	-13.4	.986	leading	79.9	-13.8	.985	leading
6	79.9	-13.7	.986	leading	79.9	-11.9	.989	leading	79.9	-13.4	.986	leading
7	79.9	-13.7	.986	leading	79.9	-12.2	.989	leading	79.9	-13.5	.986	leading
8	79.9	-13.8	.985	leading	79.9	-12.5	.988	leading	79.9	-13.8	.985	leading
9	79.9	-14	.985	leading	79.9	-10.5	.991	leading	79.9	-13.7	.986	leading
10	79.9	-14	.985	leading	79.9	-10.6	.991	leading	79.9	-14	.985	leading
11									79.9	-13.9	.985	leading
12	79.9	-13.9	.985	leading	79.9	-11.1	.990	leading	79.9	-13.8	.985	leading
13									79.9	-14.5	.984	leading
14	79.9	-14.4	.984	leading	79.9	-12.1	.989	leading				
15	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.8	.985	leading
16	79.9	-14.4	.984	leading	79.9	-19.4	.972	leading	79.9	-14.9	.983	leading
17	79.9	-14.4	.984	leading	79.9	-15.5	.982	leading	79.9	-14.7	.983	leading
20	79.9	-12.9	.987	leading	79.9	-20.7	.968	leading	79.9	-14.4	.984	leading
21	79.9	88	.672	lagging	79.9	86.6	.678	lagging	79.9	62.7	.787	lagging
22	79.9	-14.4	.984	leading	79.9	-19.4	.972	leading	79.9	-14.9	.983	leading
24	79.9	-13	.987	leading	79.9	-10	.992	leading	79.9	-12.5	.988	leading
25	79.9	-11.7	.989	leading	79.9	-4.7	.998	leading	79.9	-11.1	.990	leading
26	79.9	-13.9	.985	leading	79.9	-12.7	.988	leading	79.9	-13.8	.985	leading
28	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.9	.985	leading
30	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
32	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
33	79.9	-13.9	.985	leading	79.9	-12.7	.988	leading	79.9	-13.8	.985	leading
34	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.9	.985	leading
35	79.9	-13.9	.985	leading	79.9	-11.2	.990	leading	79.9	-13.9	.985	leading
36	79.9	-14	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
37	79.9	-14	.985	leading	79.9	-11.9	.989	leading	79.9	-13.8	.985	leading
39	79.9	-14.1	.985	leading	79.9	-12.5	.988	leading	79.9	-14	.985	leading
41	79.9	-13.9	.985	leading	79.9	-12.6	.988	leading	79.9	-13.9	.985	leading
43	79.9	-14	.985	leading	79.9	-12.8	.987	leading	79.9	-14.1	.985	leading
45	79.9	-14	.985	leading	79.9	-9.3	.993	leading	79.9	-13.9	.985	leading

47	79.9	-13.5	.986	leading	79.9	-6.8	.996	leading	79.9	-13.5	.986	leading
48	79.9	-13.9	.985	leading	79.9	-9.2	.993	leading	79.9	-13.9	.985	leading
49	79.9	-14.4	.984	leading	79.9	-19.2	.972	leading	79.9	-14.7	.983	leading
51	79.9	-14	.985	leading	79.9	-13.1	.987	leading	79.9	-13.9	.985	leading
52	79.9	-14	.985	leading	79.9	-10.6	.991	leading	79.9	-14	.985	leading
53	79.9	-14.1	.985	leading	79.9	-13	.987	leading	79.9	-14	.985	leading
54	79.9	-13.7	.986	leading	79.9	-6.6	.997	leading	79.9	-13.5	.986	leading
55	79.9	-13.9	.985	leading	79.9	-12.7	.988	leading	79.9	-13.9	.985	leading
56	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.9	.985	leading
57	79.9	-13.9	.985	leading	79.9	-12.5	.988	leading	79.9	-13.8	.985	leading
59	79.9	-14	.985	leading	79.9	-10.2	.992	leading	79.9	-13.7	.986	leading
60	79.9	-14	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
62	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
64	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.8	.985	leading
65	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
67	79.9	-14.1	.985	leading	79.9	-12.9	.987	leading	79.9	-14.1	.985	leading
69	79.9	-14	.985	leading	79.9	-12.6	.988	leading	79.9	-14	.985	leading
71	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.9	.985	leading
73	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
74	79.9	-14.1	.985	leading	79.9	-13	.987	leading	79.9	-14.1	.985	leading
75	79.9	-14.1	.985	leading	79.9	-13	.987	leading	79.9	-14.1	.985	leading
76	79.9	-14.2	.985	leading	79.9	-12.4	.988	leading	79.9	-14.3	.984	leading
77	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.8	.985	leading
79	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
81	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.8	.985	leading
82	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
83	79.9	-13.9	.985	leading	79.9	-12.7	.988	leading	79.9	-13.8	.985	leading
84	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.8	.985	leading
85	79.9	-13.9	.985	leading	79.9	-11.8	.989	leading	79.9	-13.7	.986	leading
86	79.9	-13.9	.985	leading	79.9	-11.8	.989	leading	79.9	-13.7	.986	leading
87	79.9	-13.9	.985	leading	79.9	-12.8	.987	leading	79.9	-13.9	.985	leading
88	79.9	-14	.985	leading	79.9	-11.6	.990	leading	79.9	-13.9	.985	leading
89	79.9	-13.9	.985	leading	79.9	-12.9	.987	leading	79.9	-13.9	.985	leading
90	79.9	-13.9	.985	leading	79.9	-12.7	.988	leading	79.9	-13.8	.985	leading

Power Factor Requirements for GEN-2014-039 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
1	73.4	-19.5	.966	leading	73.4	-21.4	.960	leading	73.4	-20.4	.963	leading
2	73.4	-19.8	.965	leading	73.4	-21.8	.959	leading	73.4	-20.7	.962	leading
3	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.5	.963	leading
4	73.4	-19.5	.966	leading	73.4	-21.6	.959	leading	73.4	-20.6	.963	leading
5	73.4	-19.8	.965	leading	73.4	-22.4	.956	leading	73.4	-20.3	.964	leading
6	73.4	-19.6	.966	leading	73.4	-21.8	.959	leading	73.4	-20.5	.963	leading
7	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.6	.963	leading
8	73.4	-20.2	.964	leading	73.4	-22.6	.956	leading	73.4	-21	.961	leading
9	73.4	-19.5	.966	leading	73.4	-22	.958	leading	73.4	-19.9	.965	leading
10	73.4	-20	.965	leading	73.4	-20.5	.963	leading	73.4	-19.7	.966	leading
11									73.4	-20.2	.964	leading
12	73.4	-18.8	.969	leading	73.4	-20.6	.963	leading	73.4	-20.9	.962	leading
13									73.4	-19.8	.965	leading
14	73.4	-20	.965	leading	73.4	-20.2	.964	leading				
15	73.4	-19.9	.965	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
16	73.4	-19.3	.967	leading	73.4	-21.5	.960	leading	73.4	-20.3	.964	leading
17	73.4	-19.3	.967	leading	73.4	-21.5	.960	leading	73.4	-20.4	.963	leading
20	73.4	-20	.965	leading	73.4	-20.5	.963	leading	73.4	-19.7	.966	leading
21	73.4	-20.7	.962	leading	73.4	-21.3	.960	leading	73.4	-20	.965	leading
22	73.4	-19.3	.967	leading	73.4	-21.5	.960	leading	73.4	-20.3	.964	leading
24	73.4	-19.3	.967	leading	73.4	-21.5	.960	leading	73.4	-20.3	.964	leading
25	73.4	-19.2	.967	leading	73.4	-21	.961	leading	73.4	-20.3	.964	leading
26	73.4	-20.1	.964	leading	73.4	-25.8	.943	leading	73.4	-18.7	.969	leading
28	73.4	-17.7	.972	leading	73.4	-13.9	.983	leading	73.4	-18.3	.970	leading
30	73.4	-4	.999	leading	73.4	3.2	.999	lagging	73.4	0.7	1.000	lagging
32	73.4	-19.2	.967	leading	73.4	-22	.958	leading	73.4	-19.9	.965	leading
33	73.4	-23.5	.952	leading	73.4	-20.7	.962	leading	73.4	-26.3	.941	leading
34	73.4	-10.2	.990	leading	73.4	-21.9	.958	leading	73.4	-3.8	.999	leading
35	73.4	-17.9	.972	leading	73.4	-16.6	.975	leading	73.4	-18.9	.968	leading
36	73.4	-19.5	.966	leading	73.4	-21.9	.958	leading	73.4	-19.4	.967	leading
37	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
39	73.4	-19.8	.965	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
41	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.6	.963	leading
43	73.4	-19.8	.965	leading	73.4	-22.1	.958	leading	73.4	-20.6	.963	leading
45	73.4	-19.6	.966	leading	73.4	-21.8	.959	leading	73.4	-20.6	.963	leading

47	73.4	-19.9	.965	leading	73.4	-22.1	.958	leading	73.4	-20.6	.963	leading
48	73.4	-19.5	.966	leading	73.4	-21.2	.961	leading	73.4	-20.6	.963	leading
49	73.4	-19.2	.967	leading	73.4	-21.3	.960	leading	73.4	-20.4	.963	leading
51	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.6	.963	leading
52	73.4	-20	.965	leading	73.4	-20.5	.963	leading	73.4	-19.7	.966	leading
53	73.4	-19.1	.968	leading	73.4	-21.8	.959	leading	73.4	-20.3	.964	leading
54	73.4	-19.9	.965	leading	73.4	-22.2	.957	leading	73.4	-20.8	.962	leading
55	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.7	.962	leading
56	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.6	.963	leading
57	73.4	-19.7	.966	leading	73.4	-21.9	.958	leading	73.4	-20.7	.962	leading
59	73.4	-19.5	.966	leading	73.4	-21.9	.958	leading	73.4	-20	.965	leading
60	73.4	-19.7	.966	leading	73.4	-22.1	.958	leading	73.4	-20.6	.963	leading
62	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
64	73.4	-19.5	.966	leading	73.4	-21.9	.958	leading	73.4	-20.5	.963	leading
65	73.4	-19.8	.965	leading	73.4	-22.1	.958	leading	73.4	-20.7	.962	leading
67	73.4	-20.5	.963	leading	73.4	-23	.954	leading	73.4	-21.2	.961	leading
69	73.4	-20.3	.964	leading	73.4	-22.8	.955	leading	73.4	-21	.961	leading
71	73.4	-19.6	.966	leading	73.4	-21.9	.958	leading	73.4	-20.6	.963	leading
73	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
74	73.4	-20.6	.963	leading	73.4	-23.2	.954	leading	73.4	-21.3	.960	leading
75	73.4	-20.2	.964	leading	73.4	-22.9	.955	leading	73.4	-20.9	.962	leading
76	73.4	-19	.968	leading	73.4	-22	.958	leading	73.4	-19.4	.967	leading
77	73.4	-19	.968	leading	73.4	-21.5	.960	leading	73.4	-19.4	.967	leading
79	73.4	-20.2	.964	leading	73.4	-22.4	.956	leading	73.4	-21.5	.960	leading
81	73.4	-19.9	.965	leading	73.4	-21.9	.958	leading	73.4	-21.1	.961	leading
82	73.4	-20.2	.964	leading	73.4	-22	.958	leading	73.4	-21.6	.959	leading
83	73.4	-18.8	.969	leading	73.4	-21	.961	leading	73.4	-19.9	.965	leading
84	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.7	.962	leading
85	73.4	-18.1	.971	leading	73.4	-18.4	.970	leading	73.4	-19.7	.966	leading
86	73.4	-18.1	.971	leading	73.4	-18.4	.970	leading	73.4	-19.7	.966	leading
87	73.4	-17.7	.972	leading	73.4	-21.7	.959	leading	73.4	-19.7	.966	leading
88	73.4	-18	.971	leading	73.4	-18.6	.969	leading	73.4	-19	.968	leading
89	73.4	-19.7	.966	leading	73.4	-22	.958	leading	73.4	-20.5	.963	leading
90	73.4	-14.7	.981	leading	73.4	-22.1	.958	leading	73.4	-13.5	.984	leading

Power Factor Requirements for GEN-2014-059 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
1	161.1	-19.7	.993	leading	161.1	-25.2	.988	leading	161.1	-21.1	.992	leading
2	161.1	-19.4	.993	leading	161.1	-25	.988	leading	161.1	-20.9	.992	leading
3	161.1	-17.6	.994	leading	161.1	-23.9	.989	leading	161.1	-19.4	.993	leading
4	161.1	-19.2	.993	leading	161.1	-24.6	.989	leading	161.1	-20.6	.992	leading
5	161.1	-19.4	.993	leading	161.1	-25.4	.988	leading	161.1	-20.5	.992	leading
6	161.1	-19.4	.993	leading	161.1	-25	.988	leading	161.1	-20.9	.992	leading
7	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.8	.992	leading
8	161.1	-19.3	.993	leading	161.1	-24.9	.988	leading	161.1	-20.8	.992	leading
9	161.1	-19.4	.993	leading	161.1	-25.2	.988	leading	161.1	-20.6	.992	leading
10	161.1	-18.7	.993	leading	161.1	-24.6	.989	leading	161.1	-20.5	.992	leading
11									161.1	-20.7	.992	leading
12	161.1	-17.8	.994	leading	161.1	-24.3	.989	leading	161.1	-18.9	.993	leading
13									161.1	-20.3	.992	leading
14	161.1	-15.1	.996	leading	161.1	-22.7	.990	leading				
15	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
16	161.1	-18.9	.993	leading	161.1	-24.5	.989	leading	161.1	-20.3	.992	leading
17	161.1	-18.9	.993	leading	161.1	-24.5	.989	leading	161.1	-20.4	.992	leading
20	161.1	-17.3	.994	leading	161.1	-23.7	.989	leading	161.1	-19.6	.993	leading
21	161.1	-16	.995	leading	161.1	-23	.990	leading	161.1	-18.1	.994	leading
22	161.1	-18.9	.993	leading	161.1	-24.5	.989	leading	161.1	-20.3	.992	leading
24	161.1	-19.3	.993	leading	161.1	-25	.988	leading	161.1	-20.7	.992	leading
25	161.1	-19	.993	leading	161.1	-24.7	.988	leading	161.1	-20.5	.992	leading
26	161.1	-19.2	.993	leading	161.1	-24.7	.988	leading	161.1	-20.7	.992	leading
28	161.1	-19.5	.993	leading	161.1	-25.1	.988	leading	161.1	-20.9	.992	leading
30	161.1	-19.5	.993	leading	161.1	-25.1	.988	leading	161.1	-20.9	.992	leading
32	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.7	.992	leading
33	161.1	-19.6	.993	leading	161.1	-24.9	.988	leading	161.1	-21	.992	leading
34	161.1	-19.7	.993	leading	161.1	-25	.988	leading	161.1	-21	.992	leading
35	161.1	-17.9	.994	leading	161.1	-24.7	.988	leading	161.1	-18.4	.994	leading
36	161.1	-19	.993	leading	161.1	-24.8	.988	leading	161.1	-20.5	.992	leading
37	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
39	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.8	.992	leading
41	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.8	.992	leading
43	161.1	-19.4	.993	leading	161.1	-25.1	.988	leading	161.1	-20.7	.992	leading
45	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading

47	161.1	-19.8	.993	leading	161.1	-25.3	.988	leading	161.1	-21	.992	leading
48	161.1	-19.5	.993	leading	161.1	-24.5	.989	leading	161.1	-20.9	.992	leading
49	161.1	-18.9	.993	leading	161.1	-24.5	.989	leading	161.1	-20.4	.992	leading
51	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.8	.992	leading
52	161.1	-18.7	.993	leading	161.1	-24.6	.989	leading	161.1	-20.5	.992	leading
53	161.1	-18.9	.993	leading	161.1	-24.9	.988	leading	161.1	-20.6	.992	leading
54	161.1	-19.7	.993	leading	161.1	-25.3	.988	leading	161.1	-21.1	.992	leading
55	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
56	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
57	161.1	-19.4	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
59	161.1	-19.4	.993	leading	161.1	-25.2	.988	leading	161.1	-20.6	.992	leading
60	161.1	4.3	1.000	lagging	161.1	0.5	1.000	lagging	161.1	-11.5	.997	leading
62	161.1	-22.9	.990	leading	161.1	-23.3	.990	leading	161.1	-9.2	.998	leading
64	161.1	-30.9	.982	leading	161.1	-29.5	.984	leading	161.1	-40.9	.969	leading
65	161.1	7.6	.999	lagging	161.1	-4.7	1.000	leading	161.1	3.6	1.000	lagging
67	161.1	62.8	.932	lagging	161.1	52	.952	lagging	161.1	43.1	.966	lagging
69	161.1	5.9	.999	lagging	161.1	0.6	1.000	lagging	161.1	-13.1	.997	leading
71	161.1	-17.7	.994	leading	161.1	-23.5	.990	leading	161.1	-19.2	.993	leading
73	161.1	-12.5	.997	leading	161.1	-21.2	.991	leading	161.1	-14.2	.996	leading
74	161.1	99.2	.852	lagging	161.1	70.9	.915	lagging	161.1	64.8	.928	lagging
75	161.1	43.4	.966	lagging	161.1	38.9	.972	lagging	161.1	14.2	.996	lagging
76	161.1	5.6	.999	lagging	161.1	-0.2	1.000	leading	161.1	-7.8	.999	leading
77	161.1	-18.6	.993	leading	161.1	-24.8	.988	leading	161.1	-19.3	.993	leading
79	161.1	-19	.993	leading	161.1	-24.2	.989	leading	161.1	-20.9	.992	leading
81	161.1	-19.3	.993	leading	161.1	-24.9	.988	leading	161.1	-21	.992	leading
82	161.1	-19.7	.993	leading	161.1	-24.5	.989	leading	161.1	-21.7	.991	leading
83	161.1	-19.4	.993	leading	161.1	-25.4	.988	leading	161.1	-20.8	.992	leading
84	161.1	-19.5	.993	leading	161.1	-24.9	.988	leading	161.1	-20.9	.992	leading
85	161.1	-18.5	.993	leading	161.1	-24.1	.989	leading	161.1	-19.5	.993	leading
86	161.1	-18.5	.993	leading	161.1	-24.1	.989	leading	161.1	-19.5	.993	leading
87	161.1	-19.1	.993	leading	161.1	-24.6	.989	leading	161.1	-20.5	.992	leading
88	161.1	-17.6	.994	leading	161.1	-23.2	.990	leading	161.1	-19.3	.993	leading
89	161.1	-19.3	.993	leading	161.1	-24.8	.988	leading	161.1	-20.8	.992	leading
90	161.1	-19.2	.993	leading	161.1	-24.8	.988	leading	161.1	-20.7	.992	leading

Power Factor Requirements for GEN-2014-060 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	125.8	-28.5	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
1	125.8	-28.3	.976	leading	125.8	-30.5	.972	leading	125.8	-23.7	.983	leading
2	125.8	-28.5	.975	leading	125.8	-30.9	.971	leading	125.8	-23.9	.982	leading
3	125.8	-28.5	.975	leading	125.8	-30.7	.971	leading	125.8	-24	.982	leading
4	125.8	-27.8	.976	leading	125.8	-30.2	.972	leading	125.8	-23.7	.983	leading
5	125.8	-28.6	.975	leading	125.8	-31.7	.970	leading	125.8	-23.7	.983	leading
6	125.8	-28.3	.976	leading	125.8	-31	.971	leading	125.8	-23.8	.983	leading
7	125.8	-28.3	.976	leading	125.8	-30.9	.971	leading	125.8	-23.8	.983	leading
8	125.8	-28.5	.975	leading	125.8	-31.2	.971	leading	125.8	-23.9	.982	leading
9	125.8	-28.3	.976	leading	125.8	-31.1	.971	leading	125.8	-23.7	.983	leading
10	125.8	-27.9	.976	leading	125.8	-29.9	.973	leading	125.8	-23.5	.983	leading
11									125.8	-23.9	.982	leading
12	125.8	-27.5	.977	leading	125.8	-29.7	.973	leading	125.8	-23.8	.983	leading
13									125.8	-23.5	.983	leading
14	125.8	-29.2	.974	leading	125.8	-30.7	.971	leading				
15	125.8	-28.7	.975	leading	125.8	-31	.971	leading	125.8	-24	.982	leading
16	125.8	-27.9	.976	leading	125.8	-30.4	.972	leading	125.8	-23.8	.983	leading
17	125.8	-27.9	.976	leading	125.8	-30.4	.972	leading	125.8	-23.9	.982	leading
20	125.8	-29.8	.973	leading	125.8	-29.4	.974	leading	125.8	-23	.984	leading
21	125.8	-30.3	.972	leading	125.8	-30	.973	leading	125.8	-23.3	.983	leading
22	125.8	-27.9	.976	leading	125.8	-30.4	.972	leading	125.8	-23.8	.983	leading
24	125.8	-28	.976	leading	125.8	-30.8	.971	leading	125.8	-23.5	.983	leading
25	125.8	-29.6	.973	leading	125.8	-29.8	.973	leading	125.8	-23.3	.983	leading
26	125.8	-29.9	.973	leading	125.8	-29.6	.973	leading	125.8	-23.6	.983	leading
28	125.8	-28.8	.975	leading	125.8	-31.6	.970	leading	125.8	-24.3	.982	leading
30	125.8	-28.7	.975	leading	125.8	-31.2	.971	leading	125.8	-24.3	.982	leading
32	125.8	-28.1	.976	leading	125.8	-30.6	.972	leading	125.8	-23.8	.983	leading
33	125.8	-28.5	.975	leading	125.8	-30.7	.971	leading	125.8	-23.9	.982	leading
34	125.8	-28.3	.976	leading	125.8	-30.6	.972	leading	125.8	-23.9	.982	leading
35	125.8	-27.3	.977	leading	125.8	-31.5	.970	leading	125.8	-22.9	.984	leading
36	125.8	-29.6	.973	leading	125.8	-29.7	.973	leading	125.8	-22.7	.984	leading
37	125.8	-28.4	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
39	125.8	-28.5	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
41	125.8	-28.4	.975	leading	125.8	-30.9	.971	leading	125.8	-23.8	.983	leading
43	125.8	-28.6	.975	leading	125.8	-31.2	.971	leading	125.8	-23.9	.982	leading
45	125.8	-28.4	.975	leading	125.8	-30.8	.971	leading	125.8	-23.9	.982	leading
47	125.8	-28.8	.975	leading	125.8	-31.3	.970	leading	125.8	-24	.982	leading

48	125.8	-28.3	.976	leading	125.8	-30.2	.972	leading	125.8	-23.9	.982	leading
49	125.8	-27.8	.976	leading	125.8	-30.3	.972	leading	125.8	-23.8	.983	leading
51	125.8	-28.4	.975	leading	125.8	-30.9	.971	leading	125.8	-23.9	.982	leading
52	125.8	-27.9	.976	leading	125.8	-29.9	.973	leading	125.8	-23.5	.983	leading
53	125.8	-27.7	.977	leading	125.8	-30.9	.971	leading	125.8	-23.6	.983	leading
54	125.8	-28.7	.975	leading	125.8	-31.4	.970	leading	125.8	-24.1	.982	leading
55	125.8	-28.5	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
56	125.8	-28.5	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
57	125.8	-28.4	.975	leading	125.8	-30.9	.971	leading	125.8	-23.9	.982	leading
59	125.8	-28.3	.976	leading	125.8	-31.1	.971	leading	125.8	-23.7	.983	leading
60	125.8	-28.5	.975	leading	125.8	-31.3	.970	leading	125.8	-23.9	.982	leading
62	125.8	-28.4	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
64	125.8	-28.1	.976	leading	125.8	-30.7	.971	leading	125.8	-23.9	.982	leading
65	125.8	-28.7	.975	leading	125.8	-31.3	.970	leading	125.8	-24.1	.982	leading
67	125.8	-29.9	.973	leading	125.8	-32.6	.968	leading	125.8	-24.7	.981	leading
69	125.8	-29.4	.974	leading	125.8	-32.1	.969	leading	125.8	-24.4	.982	leading
71	125.8	-28.3	.976	leading	125.8	-30.9	.971	leading	125.8	-23.6	.983	leading
73	125.8	-28.4	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
74	125.8	-30.2	.972	leading	125.8	-32.9	.967	leading	125.8	-25	.981	leading
75	125.8	-29.5	.974	leading	125.8	-32.2	.969	leading	125.8	-23.9	.982	leading
76	125.8	-27.1	.978	leading	125.8	-27.1	.978	leading	125.8	-21.1	.986	leading
77	125.8	-34.5	.964	leading	125.8	-28.7	.975	leading	125.8	-44	.944	leading
79	125.8	-7.7	.998	leading	125.8	-13	.995	leading	125.8	3.4	1.000	lagging
81	125.8	-22.6	.984	leading	125.8	-32.4	.968	leading	125.8	-9.4	.997	leading
82	125.8	-6.1	.999	leading	125.8	-31.3	.970	leading	125.8	31.6	.970	lagging
83	125.8	-22.3	.985	leading	125.8	-29.2	.974	leading	125.8	-14.3	.994	leading
84	125.8	-28.5	.975	leading	125.8	-31	.971	leading	125.8	-23.9	.982	leading
85	125.8	-28.8	.975	leading	125.8	-31.6	.970	leading	125.8	-22.7	.984	leading
86	125.8	-28.8	.975	leading	125.8	-31.6	.970	leading	125.8	-22.7	.984	leading
87	125.8	-27.4	.977	leading	125.8	-29.6	.973	leading	125.8	-21.5	.986	leading
88	125.8	-29.3	.974	leading	125.8	-30.6	.972	leading	125.8	-22	.985	leading
89	125.8	-28.5	.975	leading	125.8	-30.5	.972	leading	125.8	-22.7	.984	leading
90	125.8	-29.2	.974	leading	125.8	-29.1	.974	leading	125.8	-22.5	.984	leading

Power Factor Requirements for GEN-2014-031 & GEN-2014-032 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	320.5	-57.1	.984	leading	320.5	-58	.984	leading	320.5	-57	.985	leading
1	320.5	-32.1	.995	leading	320.5	-17.2	.999	leading	320.5	-27.5	.996	leading
2	320.5	-16.3	.999	leading	320.5	-8.1	1.000	leading	320.5	-11.8	.999	leading
3	320.5	-54.8	.986	leading	320.5	-50.7	.988	leading	320.5	-54.7	.986	leading
4	320.5	-39.4	.993	leading	320.5	-40.8	.992	leading	320.5	-35.7	.994	leading
5	320.5	-56.1	.985	leading	320.5	-52.1	.987	leading	320.5	-60.8	.982	leading
6	320.5	-61	.982	leading	320.5	-61.4	.982	leading	320.5	-61.3	.982	leading
7	320.5	-53.1	.987	leading	320.5	-58.5	.984	leading	320.5	-53.9	.986	leading
8	320.5	-52.3	.987	leading	320.5	-53.9	.986	leading	320.5	-53.3	.986	leading
9	320.5	-55.2	.985	leading	320.5	-60.6	.983	leading	320.5	-48.9	.989	leading
10	320.5	-40.7	.992	leading	320.5	-46.1	.990	leading	320.5	-45.5	.990	leading
11									320.5	-52.9	.987	leading
12	320.5	-50.9	.988	leading	320.5	-51	.988	leading	320.5	-52.1	.987	leading
13									320.5	-51.9	.987	leading
14	320.5	-45.9	.990	leading	320.5	-51.7	.987	leading				
15	320.5	-57.9	.984	leading	320.5	-58.1	.984	leading	320.5	-57.3	.984	leading
16	320.5	-45.5	.990	leading	320.5	-48.2	.989	leading	320.5	-46.2	.990	leading
17	320.5	-48.4	.989	leading	320.5	-50.1	.988	leading	320.5	-49.6	.988	leading
20	320.5	-23.5	.997	leading	320.5	-32.2	.995	leading	320.5	-27.8	.996	leading
21	320.5	-54.8	.986	leading	320.5	-50.7	.988	leading	320.5	-54.7	.986	leading
22	320.5	-45.5	.990	leading	320.5	-48.2	.989	leading	320.5	-46.2	.990	leading
24	320.5	-59.5	.983	leading	320.5	-64.9	.980	leading	320.5	-59.3	.983	leading
25	320.5	-49.4	.988	leading	320.5	-50.1	.988	leading	320.5	-41.7	.992	leading
26	320.5	-56.7	.985	leading	320.5	-57.2	.984	leading	320.5	-56.5	.985	leading
28	320.5	-57.2	.984	leading	320.5	-59.4	.983	leading	320.5	-57.1	.984	leading
30	320.5	-57.4	.984	leading	320.5	-59.5	.983	leading	320.5	-57.3	.984	leading
32	320.5	-56.3	.985	leading	320.5	-57.4	.984	leading	320.5	-56	.985	leading
33	320.5	-57.4	.984	leading	320.5	-57.9	.984	leading	320.5	-57.3	.984	leading
34	320.5	-57.8	.984	leading	320.5	-58.1	.984	leading	320.5	-57.3	.984	leading
35	320.5	-51.2	.987	leading	320.5	-51.5	.987	leading	320.5	-51.6	.987	leading
36	320.5	-54.1	.986	leading	320.5	-54.5	.986	leading	320.5	-54	.986	leading
37	320.5	-56.9	.985	leading	320.5	-57.9	.984	leading	320.5	-56.9	.985	leading
39	320.5	-56.6	.985	leading	320.5	-58.6	.984	leading	320.5	-56.7	.985	leading
41	320.5	-56.6	.985	leading	320.5	-57.8	.984	leading	320.5	-56.6	.985	leading
43	320.5	-56.8	.985	leading	320.5	-59.4	.983	leading	320.5	-55.2	.985	leading
45	320.5	-56.2	.985	leading	320.5	-56.6	.985	leading	320.5	-56.3	.985	leading

47	320.5	-59.7	.983	leading	320.5	-60.3	.983	leading	320.5	-57.8	.984	leading
48	320.5	-56.2	.985	leading	320.5	-52.6	.987	leading	320.5	-56.4	.985	leading
49	320.5	-47.2	.989	leading	320.5	-48.2	.989	leading	320.5	-49	.989	leading
51	320.5	-56.5	.985	leading	320.5	-57.4	.984	leading	320.5	-56.5	.985	leading
52	320.5	-40.7	.992	leading	320.5	-46.1	.990	leading	320.5	-45.5	.990	leading
53	320.5	-54.7	.986	leading	320.5	-57.9	.984	leading	320.5	-55.8	.985	leading
54	320.5	-59.2	.983	leading	320.5	-61.1	.982	leading	320.5	-58.9	.984	leading
55	320.5	-57.1	.984	leading	320.5	-57.9	.984	leading	320.5	-56.7	.985	leading
56	320.5	-56.8	.985	leading	320.5	-57.8	.984	leading	320.5	-56.4	.985	leading
57	320.5	-57.3	.984	leading	320.5	-58.1	.984	leading	320.5	-57.5	.984	leading
59	320.5	-55.1	.986	leading	320.5	-60.4	.983	leading	320.5	-49	.989	leading
60	320.5	-56.7	.985	leading	320.5	-57.9	.984	leading	320.5	-56.6	.985	leading
62	320.5	-57	.985	leading	320.5	-58	.984	leading	320.5	-56.9	.985	leading
64	320.5	-56.9	.985	leading	320.5	-57.9	.984	leading	320.5	-56.6	.985	leading
65	320.5	-57.1	.984	leading	320.5	-58.1	.984	leading	320.5	-57	.985	leading
67	320.5	-56.1	.985	leading	320.5	-59	.983	leading	320.5	-56.3	.985	leading
69	320.5	-56.7	.985	leading	320.5	-59.1	.983	leading	320.5	-56.7	.985	leading
71	320.5	-57.1	.984	leading	320.5	-58	.984	leading	320.5	-56.9	.985	leading
73	320.5	-57.1	.984	leading	320.5	-58	.984	leading	320.5	-56.9	.985	leading
74	320.5	-56	.985	leading	320.5	-59.1	.983	leading	320.5	-56.2	.985	leading
75	320.5	-55.6	.985	leading	320.5	-58.8	.984	leading	320.5	-55.8	.985	leading
76	320.5	-47	.989	leading	320.5	-49.3	.988	leading	320.5	-49.2	.988	leading
77	320.5	-56.5	.985	leading	320.5	-57.9	.984	leading	320.5	-55.6	.985	leading
79	320.5	-56.9	.985	leading	320.5	-57.8	.984	leading	320.5	-57.2	.984	leading
81	320.5	-57.2	.984	leading	320.5	-58	.984	leading	320.5	-57.3	.984	leading
82	320.5	-57.2	.984	leading	320.5	-57.8	.984	leading	320.5	-57.3	.984	leading
83	320.5	-55.8	.985	leading	320.5	-57.5	.984	leading	320.5	-55.5	.985	leading
84	320.5	-57.1	.984	leading	320.5	-58	.984	leading	320.5	-57	.985	leading
85	320.5	-53	.987	leading	320.5	-51.3	.987	leading	320.5	-54	.986	leading
86	320.5	-53	.987	leading	320.5	-51.3	.987	leading	320.5	-54	.986	leading
87	320.5	-56.4	.985	leading	320.5	-57.6	.984	leading	320.5	-56	.985	leading
88	320.5	-50.4	.988	leading	320.5	-48.6	.989	leading	320.5	-52.5	.987	leading
89	320.5	-57.1	.984	leading	320.5	-58.1	.984	leading	320.5	-57	.985	leading
90	320.5	-56.5	.985	leading	320.5	-57.6	.984	leading	320.5	-56.5	.985	leading

Power Factor Requirements for GEN-2014-055 Interconnection Request

	2015 Summer Peak				2015 Winter Peak				2025 Summer Peak			
Cont. No.	P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor		P (MW)	Q (MVAR)	Power Factor	
0	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
1	160	-33.7	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
2	160	-33.4	.979	leading	160	-36.6	.975	leading	160	-31.5	.981	leading
3	160	-27.5	.986	leading	160	-36.8	.975	leading	160	-28.2	.985	leading
4	160	-35	.977	leading	160	-37.6	.973	leading	160	-33.6	.979	leading
5	160	-33.4	.979	leading	160	-35.9	.976	leading	160	-31.9	.981	leading
6	160	-33.1	.979	leading	160	-36	.976	leading	160	-31	.982	leading
7	160	-33.6	.979	leading	160	-36.3	.975	leading	160	-31.5	.981	leading
8	160	-31.2	.982	leading	160	-38.1	.973	leading	160	-31.6	.981	leading
9	160	-33	.979	leading	160	-38.8	.972	leading	160	-32.9	.980	leading
10	160	-32.1	.980	leading	160	-35.9	.976	leading	160	-32.4	.980	leading
11									160	-32.3	.980	leading
12	160	-32.2	.980	leading	160	-39	.972	leading	160	-32.6	.980	leading
13									160	-32.7	.980	leading
14	160	-31.5	.981	leading	160	-35.5	.976	leading				
15	160	-33.8	.978	leading	160	-36.4	.975	leading	160	-31.6	.981	leading
16	160	-30.1	.983	leading	160	-34.9	.977	leading	160	-30	.983	leading
17	160	-30.4	.982	leading	160	-37.8	.973	leading	160	-31	.982	leading
20	160	-25.6	.987	leading	160	-33.1	.979	leading	160	-26.2	.987	leading
21	160	-23.9	.989	leading	160	-33.4	.979	leading	160	-34.6	.977	leading
22	160	-30.1	.983	leading	160	-34.9	.977	leading	160	-30	.983	leading
24	160	-32.8	.980	leading	160	-37.9	.973	leading	160	-32.5	.980	leading
25	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-32.6	.980	leading
26	160	-33.4	.979	leading	160	-36.2	.975	leading	160	-31.4	.981	leading
28	160	-33.6	.979	leading	160	-36.4	.975	leading	160	-31.6	.981	leading
30	160	-33.6	.979	leading	160	-36.5	.975	leading	160	-31.6	.981	leading
32	160	-33.3	.979	leading	160	-36.2	.975	leading	160	-31.3	.981	leading
33	160	-33.5	.979	leading	160	-36.3	.975	leading	160	-31.5	.981	leading
34	160	-33.7	.979	leading	160	-36.4	.975	leading	160	-31.6	.981	leading
35	160	-32.4	.980	leading	160	-39	.972	leading	160	-32.7	.980	leading
36	160	-32.7	.980	leading	160	-35.7	.976	leading	160	-32.8	.980	leading
37	160	-46.9	.960	leading	160	-47.3	.959	leading	160	-47.7	.958	leading
39	160	-18.5	.993	leading	160	-24.1	.989	leading	160	-16.4	.995	leading
41	160	-35	.977	leading	160	-31.8	.981	leading	160	-37.2	.974	leading
43	160	-27.9	.985	leading	160	-35	.977	leading	160	-27	.986	leading
45	160	-22.9	.990	leading	160	-28.4	.985	leading	160	-24.8	.988	leading

47	160	-8.6	.999	leading	160	-16.3	.995	leading	160	-11.4	.997	leading
48	160	-22.9	.990	leading	160	-31.4	.981	leading	160	-24.3	.989	leading
49	160	-29.4	.984	leading	160	-34.8	.977	leading	160	-32	.981	leading
51	160	-32.4	.980	leading	160	-36.6	.975	leading	160	-32.8	.980	leading
52	160	-32.1	.980	leading	160	-35.9	.976	leading	160	-32.4	.980	leading
53	160	-33.3	.979	leading	160	-36.5	.975	leading	160	-31.5	.981	leading
54	160	-32.8	.980	leading	160	-37	.974	leading	160	-32.5	.980	leading
55	160	-34	.978	leading	160	-37	.974	leading	160	-31.6	.981	leading
56	160	-33.6	.979	leading	160	-36.7	.975	leading	160	-31.5	.981	leading
57	160	-32.7	.980	leading	160	-35	.977	leading	160	-33.3	.979	leading
59	160	-32.9	.980	leading	160	-36.7	.975	leading	160	-32.2	.980	leading
60	160	-33.4	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
62	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
64	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
65	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
67	160	-33.3	.979	leading	160	-36.4	.975	leading	160	-31.4	.981	leading
69	160	-33.3	.979	leading	160	-36.3	.975	leading	160	-31.5	.981	leading
71	160	-33.5	.979	leading	160	-36.5	.975	leading	160	-31.5	.981	leading
73	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
74	160	-33.2	.979	leading	160	-36.4	.975	leading	160	-31.4	.981	leading
75	160	-33.2	.979	leading	160	-36.3	.975	leading	160	-31.3	.981	leading
76	160	-31.7	.981	leading	160	-37	.974	leading	160	-32.2	.980	leading
77	160	-33.4	.979	leading	160	-36.4	.975	leading	160	-31.3	.981	leading
79	160	-33.5	.979	leading	160	-36.3	.975	leading	160	-31.6	.981	leading
81	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.6	.981	leading
82	160	-33.5	.979	leading	160	-36.3	.975	leading	160	-31.6	.981	leading
83	160	-33.3	.979	leading	160	-36.4	.975	leading	160	-31.4	.981	leading
84	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
85	160	-32.5	.980	leading	160	-39.4	.971	leading	160	-36	.976	leading
86	160	-32.5	.980	leading	160	-39.4	.971	leading	160	-36	.976	leading
87	160	-33.3	.979	leading	160	-36.3	.975	leading	160	-31.4	.981	leading
88	160	-32.2	.980	leading	160	-39.2	.971	leading	160	-32.6	.980	leading
89	160	-33.5	.979	leading	160	-36.4	.975	leading	160	-31.5	.981	leading
90	160	-33.3	.979	leading	160	-36.3	.975	leading	160	-31.4	.981	leading

APPENDIX F

SHORT-CIRCUIT STUDY RESULTS

(SEE APPENDIX F SUBMITTED IN SEPARATE FILES)

Group 9 System Impact Study Stability Addendum

DISIS-2014-002

January 2015

Generation Interconnection Studies

SPP Southwest Power Pool

Executive Summary

Definitive Interconnection System Impact Study (DISIS-2014-002) Interconnection Customers have requested a study detailing the impacts of interconnecting the following requests, included in Group 9, to the transmission system governed by the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT). While stability analysis for the DISIS-2014-002 was performed by S&C Electric Company in separate study, additional sensitivities were performed by SPP to determine if any instabilities occur as a result of adding the GEN-2014-059 to the stability limited region of western Nebraska.

One of the Group 9 requests, GEN-2014-059, has requested a Point of Interconnection (POI) on the transmission system of Nebraska Public Power District (NPPD) as a proposed tap on the existing Sidney-Ogallala 230kV transmission line. The requested POI is located in the southwestern region of Nebraska adjacent to facilities that comprise the monitored facilities of the Gerald Gentleman Station (GGS) PTDF NERC permanent flowgate. This flowgate serves as a proxy for the GGS Stability Interface, also known as the Western Nebraska Stability Limitation. Since this Interconnection Customer is requesting interconnection into the region of the Western Nebraska Stability Limitation and is impacting the existing proxy flowgate, additional analysis is needed both in DISIS-2014-002 and within the Interconnection Facilities Study phase. This sensitivity study serves as a preliminary analysis for the Interconnection Customer's GEN-2014-059 impact on these stability limitations.

This preliminary stability sensitivity has determined that the interconnection of GEN-2014-059 WILL cause system instability with regards to the Western Nebraska Stability Interface.

It may NOT be possible to mitigate the system instability even through the construction of transmission facilities and the installation of fast switching reactive power equipment however, that will remain unknown until further analysis can be performed by NPPD during the Interconnection Facilities Study phase. If it is determined that it is NOT possible to mitigate this instability, GEN-2014-059 will not be allowed to interconnect into the transmission system as requested.

Should the GEN-2014-059 Interconnection Customer choose to proceed into the Interconnection Facilities Study phase, they will be required to have additional analysis performed with regards to this stability limitation.

Revision History

Date	Change Description	Comments
1/30/2015	Posted as Final for DISIS-2014-002	n/a

Table of Contents

Executive Summary ..... **i**

Revision History ..... **ii**

Table of Contents ..... **iii**

Introduction **1**

Background 1

Purpose 1

Preliminary Analysis **3**

Method 3

Model Preparation 3

Results 4

Conclusion **7**

Introduction

Background

Definitive Interconnection System Impact Study (DISIS-2014-002) Interconnection Customers have requested a study detailing the impacts of interconnecting the following requests, included in Group 9, to the transmission system governed by the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT).

Request	MW	Area	Point of Interconnection
GEN-2014-023	79.9	NPPD	Tap Ft. Randall-Meadow Grove 230kV
GEN-2014-031	35.38	NPPD	Meadow Grove 230 kV
GEN-2014-032	10.62	NPPD	Meadow Grove 230 kV
GEN-2014-039	73.39	NPPD	Friend 115 kV
GEN-2014-055	160.0	NPPD	Beldon 115 kV
GEN-2014-059	161.1	NPPD	Tap Sidney-Ogallala 230 kV
GEN-2014-060	125.8	NPPD	Tap Pauline-Hildreth 115 kV

Of these requests, GEN-2014-059 has requested interconnection into the western Nebraska region which is limited by specific stability constraints. While stability analysis for the DISIS-2014-002 was performed by S&C Electric Company in a separate study, additional sensitivities were performed by SPP to review the impacts of GEN-2014-059 on the Western Nebraska Stability Limitations as specified within Part 5 "Transmission Planning Assessment Practices" of the FERC Form 715 "Annual Transmission Planning and Evaluation Report" submitted March 28, 2014, by Nebraska Public Power District (NPPD). Although this addendum will show some preliminary results, additional analyses will be required, should the Interconnection Customer choose to pursue an Interconnection Facilities Study, before interconnecting this generation interconnection request into this region of the NPPD transmission system.

Purpose

GEN-2014-059 is comprised of ninety (90) General Electric 1.79 MW wind turbine generators. The requested Point of Interconnection (POI) is on the transmission system of NPPD as a proposed tap on the existing Sidney-Ogallala 230kV transmission line. The requested POI is located in the southwestern region of Nebraska adjacent to facilities that comprise the monitored facilities of the Gerald Gentleman Station (GGS) PTDF NERC permanent flowgate. This flowgate serves as a proxy for the GGS Stability Interface, also known as the Western Nebraska Stability Limitation. Since this

Interconnection Customer is requesting interconnection into the region of the Western Nebraska Stability Limitation and is impacting the existing proxy flowgate, additional analysis is needed both in DISIS-2014-002 and within the Interconnection Facilities Study phase. This study serves as a preliminary analysis for the Interconnection Customer's GEN-2014-059 impact on these stability limitations.

Because the western Nebraska region is fully subscribed, impacts of interconnecting the GEN-2014-059 project must be studied to determine if unreliable situations that could lead to instability, cascading, and loss of load to the entire western Nebraska area will occur.

Preliminary Analysis

Method

This preliminary analysis will perform sensitivities to initially determine the impacts of interconnecting GEN-2014-059 adjacent to elements of the GGS PTDF Flowgate.

According to the NPPD submitted FERC 715, the GGS is a registered NERC Flowgate and posted stability interface on OASIS (https://www.oasis.oati.com/SWPP/index.html). The PTDF Flowgate definition is consistent with the monitored elements for system intact operation of the GGS Stability Interface. The current system intact Total Transfer Capability (TTC) for this interface is fully subscribed. The maximum system intact stability limit has been approved by MAPP and accommodates all of the current firm capacity rights associated with western Nebraska stability limited resources:

Once the stability cases are constructed to ensure these previously reserved system conditions, GEN-2014-059 is added to the case and faults are taken at the GGS 345 kV and the dynamic stability responses are observed for instability.

Model Preparation

Transient stability analysis was performed using modified versions of the 2014 series of Model Development Working Group (MDWG) dynamic study models. The cases are modified to ensure these previously reserved system conditions. The cases are then loaded with prior queued interconnection requests and network upgrades assigned to those interconnection requests. Finally the prior queued and study generation are dispatched into the SPP footprint. Two scenarios were evaluated, a cluster scenario which included all generation with equal queue priority and a stand alone scenario that included only GEN-2014-059. Initial simulations are then carried out for a no-disturbance run of twenty (20) seconds to verify the numerical stability of the model.

Results

After verifying that the system conditions were stable under steady state conditions, the following single phase[1] fault was taken:

"description redacted"

Prior to applying the fault the system remained stable, however with GEN-2014-059 added to the system and applying the GGS_345 Fault, system-wide instability occurs. The following plots demonstrate that interconnecting GEN-2014-059, in either the cluster or stand alone scenario, will cause instability when the Western Nebraska Stability Limitation conditions have been exceeded.

The plots below depict rotor angle departure, slipped poles and/or instability, after the fault was cleared. The synchronous machine rotor angles of Gerald Gentlemen Station Unit # 1 and Unit# 2, Kingsley Hydro Unit# 1, and Laramie River Station Unit# 1 depicted by the dashed green, light blue, fuscia, and red dashed lines demonstrate the loss of synchronicity with the transmission system leading to total system instability. The remaining blue and black plots show the GEN-2014-059 generating facility's response to this instability.

[1] The single-phase line fault was simulated by applying fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage. This method is in agreement with SPP current practice.

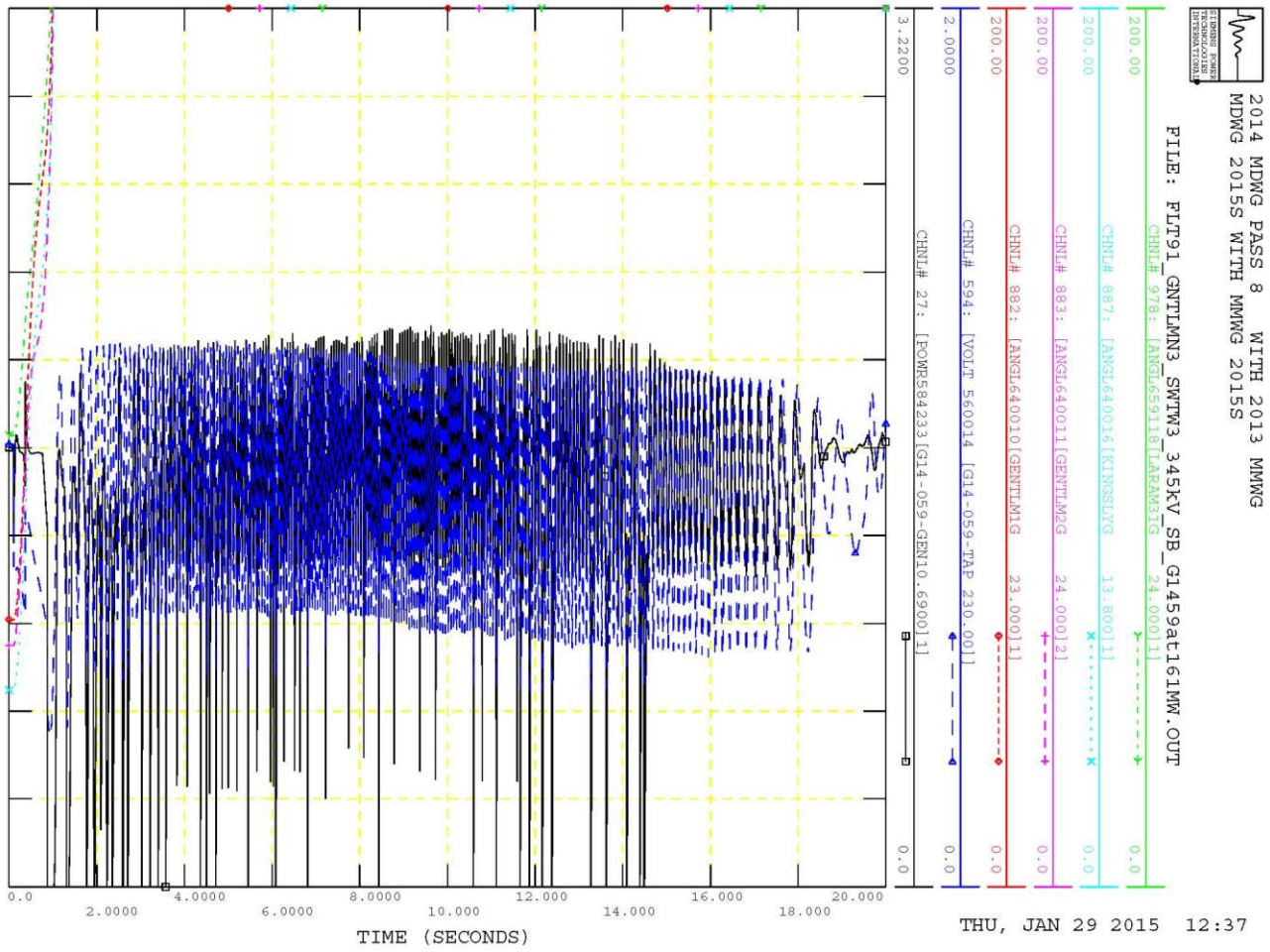


Figure 1: DISIS-2014-002 Group 9 Cluster Scenario

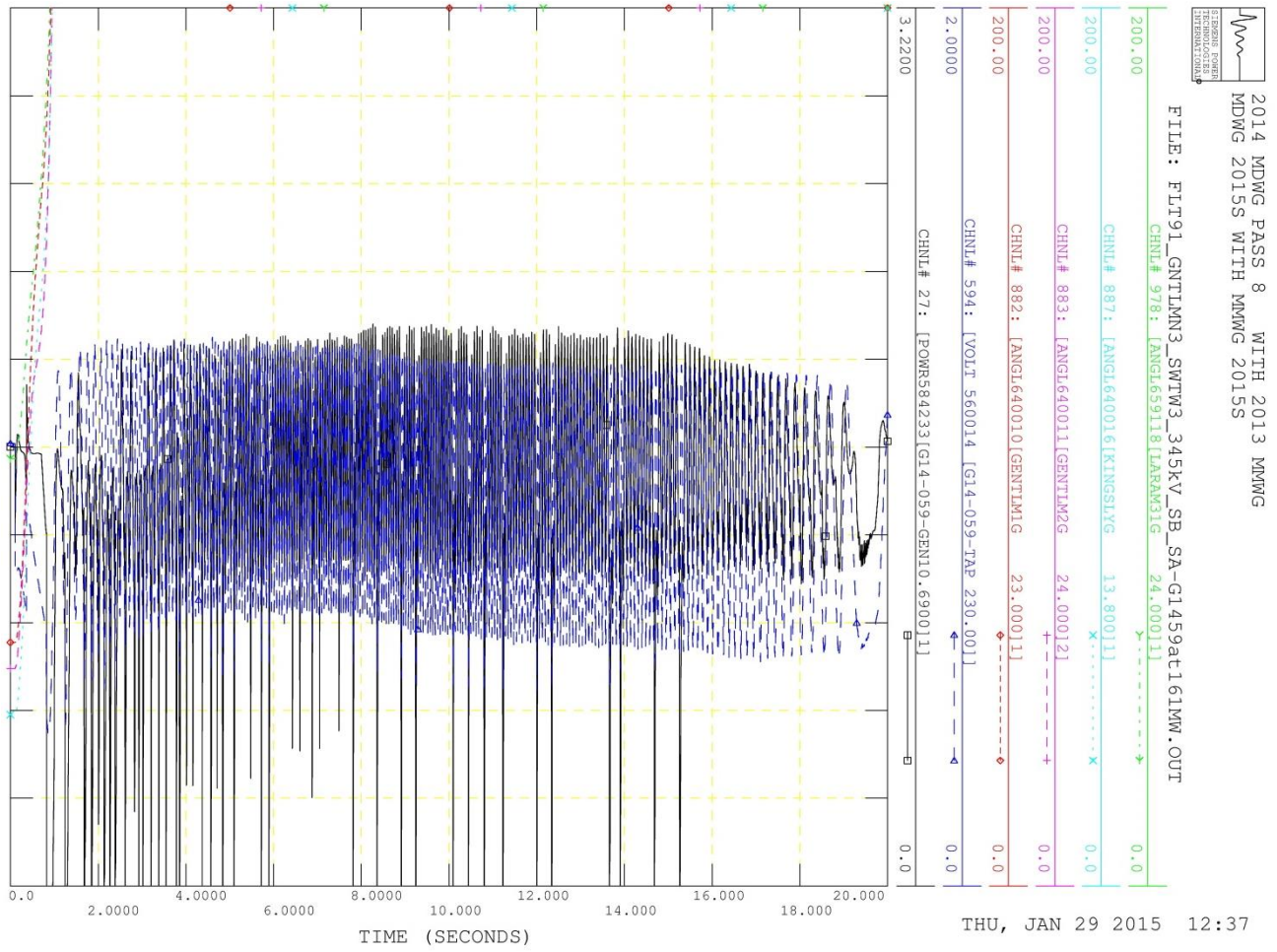


Figure 2: DISIS-2014-002 Group 9 GEN-2014-059 Stand Alone Scenario

It may NOT be possible to mitigate this unstable condition even through the construction of transmission facilities and the installation of fast switching reactive power equipment however, that will remain unknown until further analysis can be performed by NPPD during the Interconnection Facilities Study phase. If it is determined that it is NOT possible to mitigate this instability, GEN-2014-059 will not be allowed to interconnect into the transmission system as requested.

Conclusion

Given the results from this preliminary analysis to review the impacts of interconnecting GEN-2014-059 to the stability limited western Nebraska region, SPP must recommend that GEN-2014-059 be studied further in the Interconnection Facilities Study. It should also be noted that it may not be possible to mitigate this instability or may not be possible without the construction or installation of a significant amount of transmission or other related equipment.

S: Group 10 Dynamic Stability Analysis Report

See ABB report on next page.

DEFINITIVE IMPACT STUDY
DISIS-2014-002 (GROUP 10)

FINAL REPORT

January 27, 2015

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Definitive Impact Study DISIS-2014-002 (Group 10)	1/27/2015	# Pages 17

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Executive Summary

Southwest Power Pool (SPP) has commissioned ABB Inc., to perform a Definitive Impact Study for DISIS-2014-002 (Group 10) which includes generation interconnection request GEN-2014-027 (60 MW combustion-turbine generator at the Weleetka 138 kV substation).

The objective of this study is to evaluate the impact of project GEN-2014-027 on system stability and short-circuit performance. The study is performed on three system scenarios provided by SPP:

- 2015 Summer Peak Case
- 2015 Winter Peak Case
- 2025 Summer Peak Case

Results of the stability analysis show that the SPP system is stable following all simulated faults with the proposed GEN-2014-027 project in-service. There are no voltage violations in the monitored area and the studied generator shows good damping performance which meets the criteria specified.

System short-circuit current levels at up to five buses away from the point of interconnection were calculated and tabulated for SPP's reference.

Based on the results of stability analysis it can be concluded that **the proposed GEN-2014-027 project does not adversely impact the stability of the SPP system**.

The results of this analysis are based on available data and assumptions made at the time of conducting this study. If any of the data and/or assumptions made in developing the study model change, the results provided in this report may not apply.

TABLE OF CONTENTS

1 INTRODUCTION 1
2 STABILITY ANALYSIS 5
2.1 STUDY MODEL DEVELOPMENT 5
2.2 STABILITY ANALYSIS METHODOLOGY 6
2.3 STUDY RESULTS 11
3 SHORT CIRCUIT ANALYSIS 13
4 CONCLUSIONS 16
5 REFERENCES 17
APPENDIX A SOUTHWEST POWER POOL DISTURBANCE PERFORMANCE CRITERIA REQUIREMENTS 18
APPENDIX B SIMULATION PLOTS FOR STABILITY ANALYSIS 21

1 INTRODUCTION

Southwest Power Pool (SPP) has commissioned ABB Inc., to perform a Definitive Impact Study for DISIS-2014-002 (Group 10) which includes generation interconnection request GEN-2014-027 (60 MW combustion-turbine generator at the Weleetka 138 kV substation).

The objective of this study is to evaluate the impact of project GEN-2014-027 on system stability and short-circuit performance. The study is performed on three system scenarios provided by SPP:

- 2015 Summer Peak Case
- 2015 Winter Peak Case
- 2025 Summer Peak Case

SPP provided the study cases for all three system scenarios with GEN-2014-027 included. One line diagrams of the local area for all three seasons are shown in Figure 1-1. The studied generator is circled red.

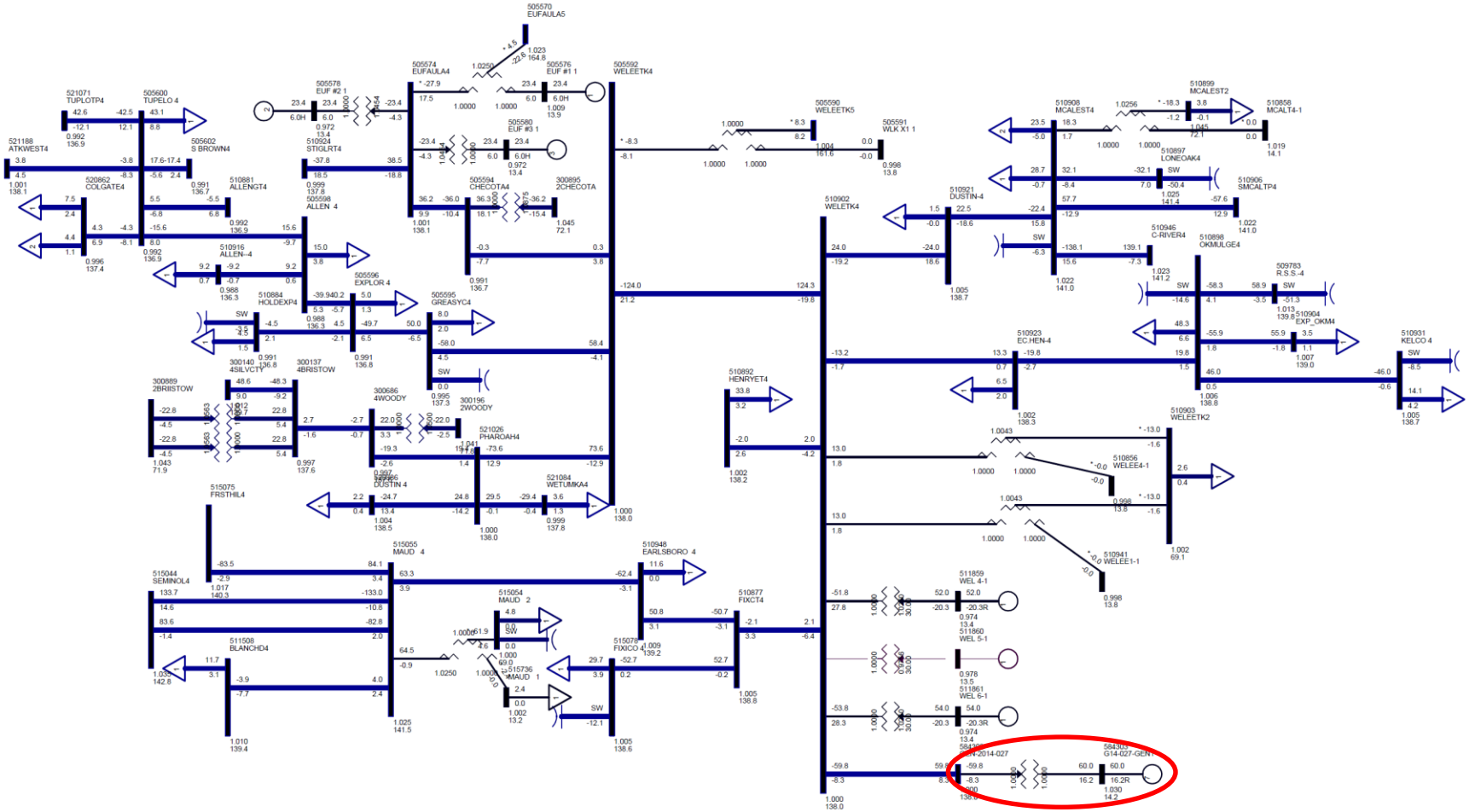


Figure 1-1 (a): One Line Diagram of Weleetka Area for 2015 Summer Peak Case

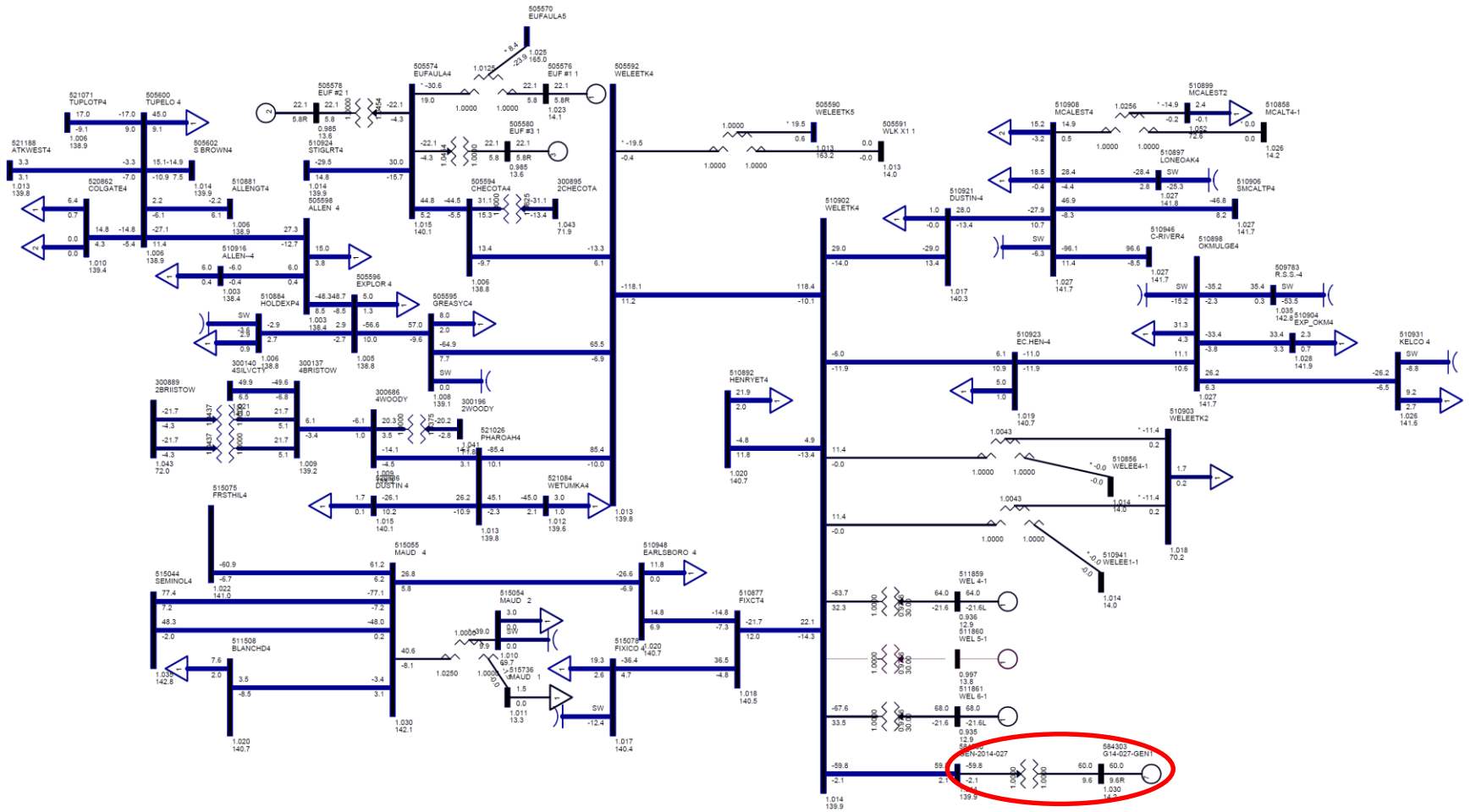


Figure 1-2 (b): One Line Diagram of Weleetka Area for 2015 Winter Peak Case

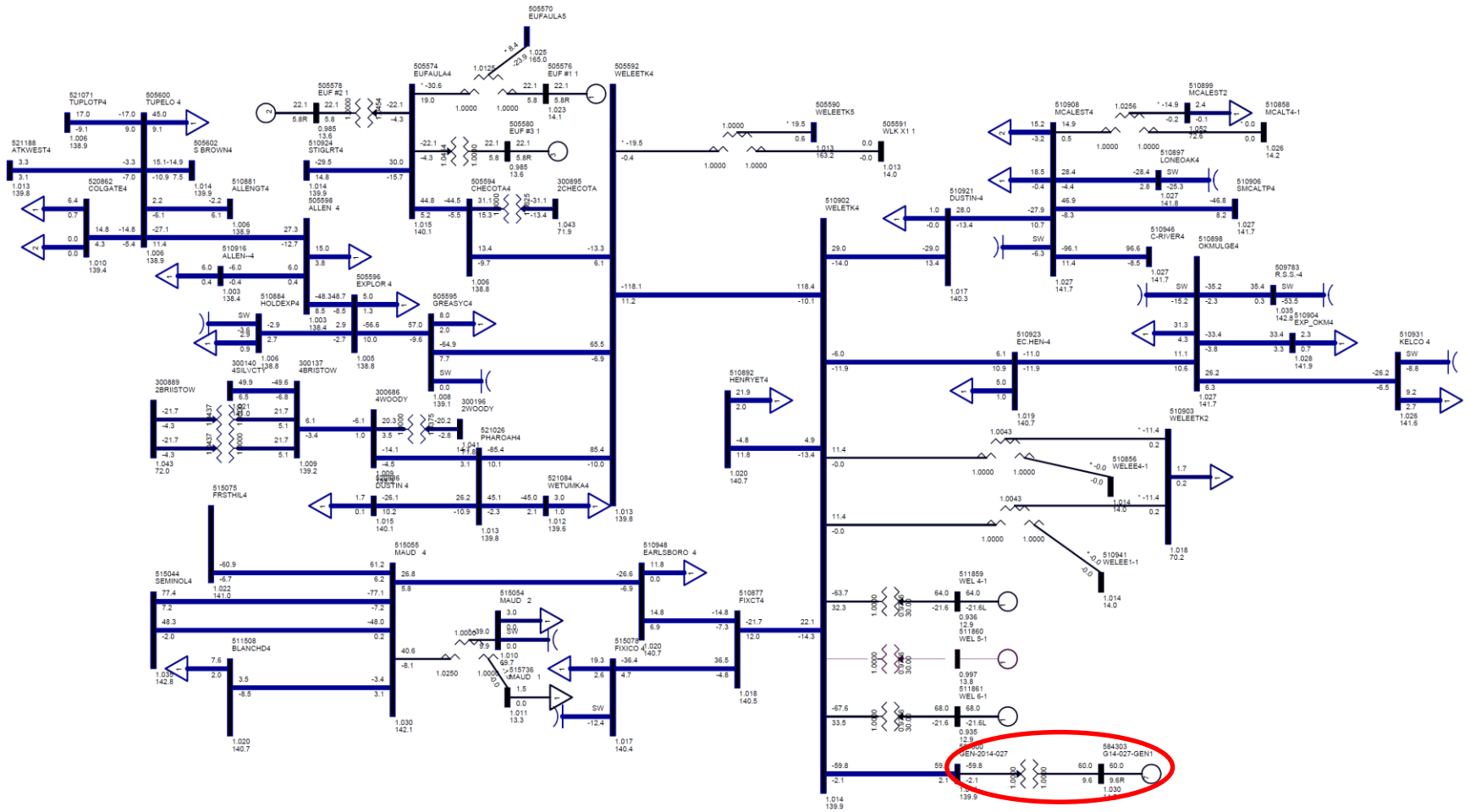


Figure 1-3 (c): One Line Diagram of Weleetka Area for 2025 Summer Peak Case

2 STABILITY ANALYSIS

In this study, ABB investigated the stability of the system for faults in the vicinity of the proposed plant as defined by SPP. The studied faults involve three-phase transformer faults with normal clearing, three-phase line faults with normal clearing and re-closing test, and single-line-to-ground (SLG) faults with stuck breaker.

2.1 STUDY MODEL DEVELOPMENT

SPP provided study models for three seasons:

- 2015 Summer peak
- 2015 Winter Peak
- 2025 Summer Peak

For each study model, the GEN-2014-027 project was already built into the power flow and dynamic cases.

After initial review of the provided study models, the following changes were made for the studied generator (GEN-2014-027) in each of scenarios:

1 Power Flow Var Limits
As suggested by SPP, the Var limits of the studied generator (bus 584303) in power flow cases were changed to +37.1846/-29.0593 instead of fixed zero in the original cases.
2 Saturation Factors of the Excitation System Model
The saturation parameters of the excitation system model for the studied generator were swapped. According to PSS/E modeling convention, field voltages E1 and E2 should be such that E1 < E2. Similarly, saturation parameters S(E1) < S(E2).

Table 2-1 shows changes for all studied scenarios.

Table 2-1 Study Model Modifications for GEN-2014-027

Cases	Power Flow Model		Dynamic Model AC7B			
	Qmin	Qmax	E1	S(E1)	E2	S(E2)
Original Case	0	0	7.06	0.36	5.3	0.05
Modified Case	-29.0593	37.1846	5.3	0.05	7.06	0.36

According to SPP's comments, generator WEL 4-1(511859) and WEL 6-1(511861) should be in-service in the 2015 summer peak and 2015 winter peak cases. The power outputs for both machines are shown in Table 2-2. Since the generator outputs of both machines are out of their turbine governor limits in 2015 winter peak cases, the turbine ratings were increased to obtain a flat run for both machines. The new turbine governor ratings are also presented in Table 2-2.

Table 2-2 Study Model Modifications for Generator WEL 4-1 and WEL 6-1

Cases	Generator Bus	Power Flow Model		Dynamic Model GGOV1
		Status	Pgen (MW)	Trate, Turbine rating (MW)
2015 Summer Peak	511859	1	52	Unchanged
	511861	1	54	Unchanged
2015 Winter Peak	511859	1	64	64
	511861	1	68	68

2.2 STABILITY ANALYSIS METHODOLOGY

Stability analysis is performed to determine whether the electric system would meet stability criteria following the addition of the GEN-2014-027 project. The Southwest Pool Disturbance Performance Criteria Requirements in Appendix A were used to evaluate the system response during the initial transient period following a disturbance on the system.

Stability analysis was performed using Siemens-PTI's PSS/E dynamics program V32.1.0.

All the faults listed in Table 2-3 were simulated for 20 seconds.

Table 2-3: List of Faults for Stability Analysis

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the Weleetka 138V (510902) to Weleetka 138KV (505592) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV (510902) bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	3 phase fault on the Weleetka 138V (510902) to Fixct 138KV (510877) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
3	FLT03-3PH	3 phase fault on the Weleetka 138V (510902) to Henryetta 138KV (510892) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the Weleetka 138V (510902) to Dustin 138KV (510921) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
5	FLT05-3PH	3 phase fault on the Weleetka 138V (510902) to EC Henryetta 138KV (510923) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
6	FLT06-3PH	3 phase fault on the Weleetka 138V (510902) to Weleetka 69kv (510903) to Weleetka 13.8kV (510856) XMFR CKT 2, near Weleetka 138kV. a. Apply fault at the Weleetka 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
7	FLT07-3PH	3 phase fault on the Weleetka 138V (505592) to Checota 138KV (505594) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
8	FLT08-3PH	3 phase fault on the Weleetka 138V (505592) to Greasy Creek 138KV (505595) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT09-3PH	3 phase fault on the Weleetka 138V (505592) to Pharoah 138KV (521026) CKT 1, near Weleetka. a. Apply fault at the Weleetka 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
10 *	FLT10-3PH	3 phase fault on the Weleetka 138V (505592) to Weleetka 161kv (505590) to Weleetka 13.8kV (505991) XMFR CKT 1, near Weleetka 138kV. a. Apply fault at the Weleetka 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
11	FLT11-3PH	3 phase fault on the Checota 138V (505594) to Eufala 138KV (505574) CKT 1, near Checota. a. Apply fault at the Checota 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
12	FLT12-3PH	3 phase fault on the Checota 138V (505594) to Checota 69kv (300895) 2WND XMFR CKT 1, near Checota 138kV. a. Apply fault at the Checota 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
13 **	FLT13-3PH	3 phase fault on the Pharoah 138V (521026) to Dustin 138KV (520866) CKT 1, near Pharoah. a. Apply fault at the Pharoah 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT14-3PH	3 phase fault on the Maud 138V (515055) to Seminole 138KV (515044) CKT 1, near Maud. a. Apply fault at the Maud 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
15	FLT15-3PH	3 phase fault on the Okmulgee 138V (510898) to Explorer- Okmulgee 138KV (510904) CKT 1, near Okmulgee. a. Apply fault at the Okmulgee 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT16-3PH	3 phase fault on the Okmulgee 138V (510898) to Kelco 138KV (510931) CKT 1, near Okmulgee. a. Apply fault at the Okmulgee 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
17	FLT17-3PH	3 phase fault on the McAlester 138V (510908) to Lone Oak 138KV (510897) CKT 1, near McAlester. a. Apply fault at the McAlester 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT18-3PH	3 phase fault on the McAlester 138V (510908) to SMCALTP 138KV (510906) CKT 1, near McAlester. a. Apply fault at the McAlester 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
19	FLT19-3PH	3 phase fault on the McAlester 138V (510908) to Canadian River 138KV (510946) CKT 1, near McAlester. a. Apply fault at the McAlester 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT20-3PH	3 phase fault on the Bristow 138V (300137) to Silver City 138KV (300140) CKT 1, near Bristow. a. Apply fault at the Bristow 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT21-3PH	3 phase fault on the Bristow 138V (300137) to Woody 138KV (300686) CKT 1, near Bristow. a. Apply fault at the Bristow 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
22	FLT22-3PH	3 phase fault on the Tupelo 138V (505600) to Allen 138KV (505598) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Cont. No.	Cont. Name	Description
23	FLT23-3PH	3 phase fault on the Tupelo 138V (505600) to S. Brown 138KV (505602) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
24	FLT24-3PH	3 phase fault on the Tupelo 138V (505600) to Colgate 138KV (520862) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
25	FLT25-3PH	3 phase fault on the Tupelo 138V (505600) to Allengt 138KV (510881) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
26	FLT26-3PH	3 phase fault on the Tupelo 138V (505600) to Tuplo Tap 138KV (521071) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT27-3PH	3 phase fault on the Tupelo 138V (505600) to ATKWest 138KV (521188) CKT 1, near Tupelo. a. Apply fault at the Tupelo 138KV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
28	FLT28-3PH	3 phase fault on the Eufala 138V (505574) to Eufala 161kv (505570) to Eufala 13.8kV (505576) XMFR CKT 1, near Eufala 138kV. a. Apply fault at the Eufala 138kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
29	FLT29-SB	**Single phase fault with stuck breaker** on the Okmulgee (510898) to EC Henryetta (510923) 138kV line, near Okmulgee. a. Apply fault at the Okmulgee 138kV bus. b. After 18 cycles remove fault and disconnect Okmulgee (510898) 138kV bus
30	FLT30-SB	**Single phase fault with stuck breaker** on the Weleetka (505592) to Greasy Creek (505595) 138kV line, near Weleetka. a. Apply fault at the Weleetka 138kV bus. b. After 18 cycles remove fault and disconnect Weleetka (505592) 138kV bus
31	FLT31-PO	**Prior outage on the Dustin (520886) - Pharoah (521026) 138kV** 3 phase fault on Dustin (510921) to Weleetka 138kV (510902) CKT 1, near Dustin. a. Apply fault at the Dustin (510921)138kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

* Bus number for Weleetka 13.8kV is 505591

** Bus number for Dustin 138kV is 520886

Single- line-to-ground faults were simulated with the standard method of applying fault impedance to the positive sequence network to represent the effect of the negative and zero sequence networks on the positive sequence network. The SLG fault impedance was computed by assuming a positive sequence voltage at the fault location at approximately 60% of pre-fault voltage, which is a typical value.

Generator response and bus voltages (115 kV and above) in Area 515, 520, 524, 525, 526, 531, 534, and 536 were monitored to ensure the system performance meets criteria requirements. Rotor angles of the studied generator GEN-2014-027 and other nearby synchronous machines were investigated to make sure they maintained synchronism and had adequate damping following system faults.

2.3 STUDY RESULTS

2.3.1 Initialization

During initialization, there is a warning message shown for the studied generator GEN-2014-027 as “EXCITATION SYSTEM AC7B AT BUS 584303 [G14-027-GEN113.800] MACHINE 7 INITIALIZED OUT OF LIMIT VRMIN”. In order to provide more information to understand this warming message, further analysis was performed for the studied generator model.

Figure 2-1 presents the block diagram of excitation model AC7B in PSS/E [1].

PSS/E AC7B model programming code was reviewed to provide detailed information:

> The signal V_R is initialized by calculating K_{F2}*V_{FE}+K_{F1}*E_{FD}. Since both K_{F2} and K_{F1} are zero for the studied model, V_R is also equal to zero during initialization. Once V_R is less or equal to VRMIN which is zero in this case, the above initialization warning message will be shown in the log file. Therefore, this warning message is inherent within the model caused by model parameters (K_{F2} and K_{F1}) and should not be treated as concern in the dynamic simulation.

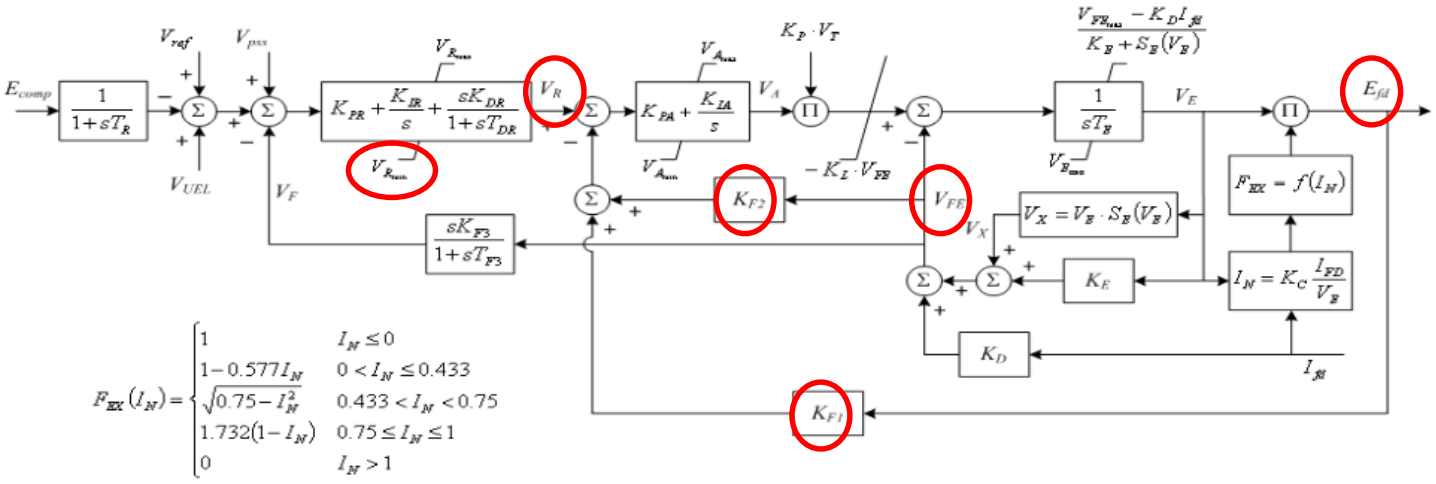


Figure 2-1 PSS/E AC7B Block Diagram

2.3.2 Simulation Results

The results of all studied disturbances show **no instability problems or voltage violations** for all three seasons. All generators in the system are kept online without tripping following all simulated faults. The studied generator GEN-2014-027 shows good damping performance which meets the criteria specified in Appendix A .

Figure 2-2 shows the response of the studied generator following fault FLT01-3PH for 2015 Summer Peak case. The machine speed, active and reactive power output and terminal voltage are plotted to show the generator response. All the simulation plots are included in Appendix B.

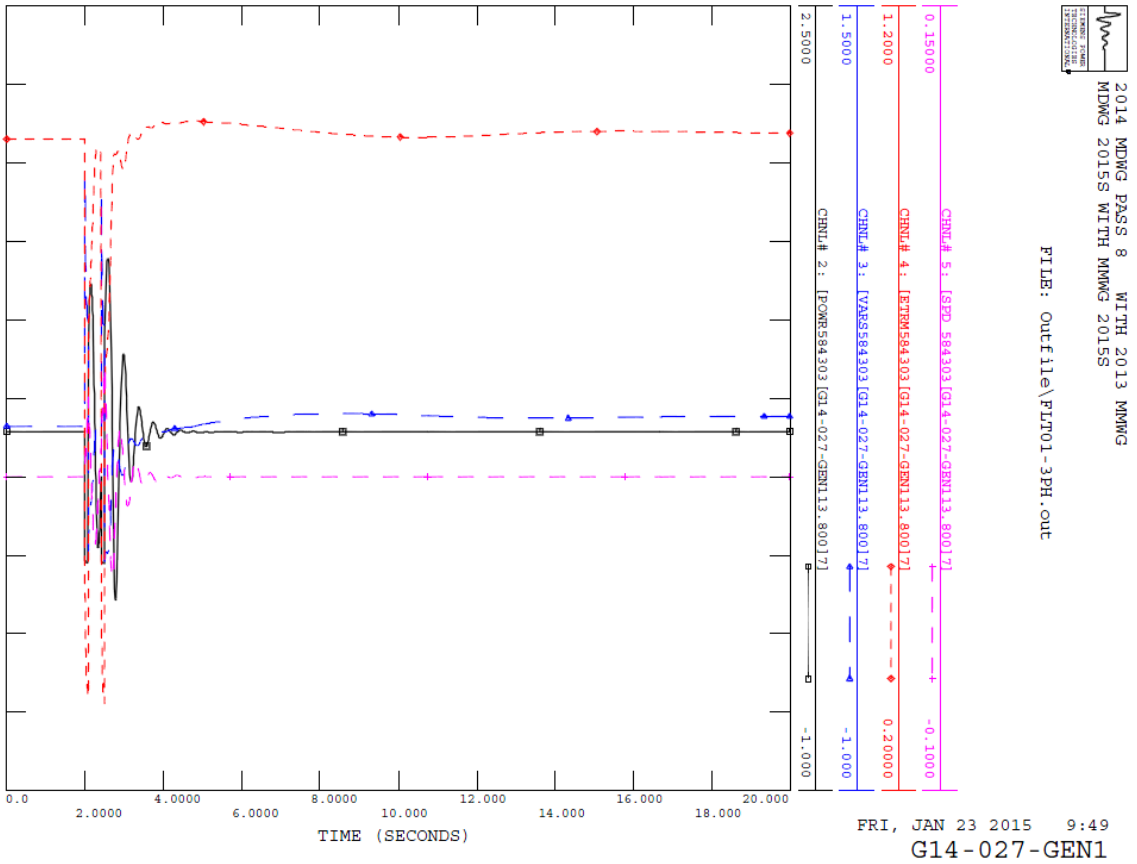


Figure 2-2 GEN-2014-027 Response Following Fault FLT01-3PH for 2015 Summer Peak Case

2.3.3 Generator COVANTA1 Damping Violation

As shown in the simulation results, generator at bus COVANTA1 [509890] shows damping violations for all simulated disturbances. This was investigated further by developing a pre-project case for 2015 Summer Peak system conditions. FLT01-3PH was tested for this pre-project case, and it was determined that GEN-2014-027 does not adversely impact damping performance. After further review of the dynamics database, it was determined that the Covanta generator is represented as a classical model (GENCLS) and the response from the generator is typical of that model.

3 SHORT CIRCUIT ANALYSIS

Short circuit analysis was performed on the 2025 Summer Peak power flow case using the PSS/E program. Since the power flow model does not contain negative and zero sequence data, only three-phase symmetrical fault current levels were calculated at up to five buses away from the point of interconnection.

Table 3-1 tabulates all the three-phase fault current levels, and the calculated values were listed here for SPP's reference.

Table 3-1 Three-Phase Fault Currents

Number	Name	3PH(Amp)	Number	Name	3PH(Amp)
515073	ERLSBOR2 69.000	8357.2	509775	136YALE4 138.00	23096.7
515074	FRSTHIL2 69.000	11208.4	300880	2WEBFALS 69.000	5420.7
515075	FRSTHIL4 138.00	14210.7	509782	R.S.S.-7 345.00	30043.3
515076	FIXICOT2 69.000	5447.8	509783	R.S.S.-4 138.00	58499.8
515077	FIXICO 2 69.000	8380.3	515044	SEMINOL4 138.00	58248.5
515078	FIXICO 4 138.00	6850.8	509788	T.P.S.-4 138.00	38595.1
515079	KOLACHE2 69.000	2267.2	300893	2CHECDST 69.000	3949.4
515080	LIMATAP2 69.000	5987.2	515422	C-RIVER7 345.00	9414.6
521047	SAVANNA4 138.00	5010.4	300895	2CHECOTA 69.000	5088.8
515086	LETHA 2 69.000	4153.7	511842	RSS1-1 24.000	109995.2
515089	WEWOKA 2 69.000	4358.1	511843	RSS2-1 22.000	133464.9
511508	BLANCHD4 138.00	5899.3	511844	RSS NG3 13.800	60234.8
300889	2BRIISTOW 69.000	9122.9	511845	RSS NG4 13.800	60228.9
515503	LTRIVRT2 69.000	4824.4	515473	EXPGLNT4 138.00	23840.5
515100	PAOLI- 4 138.00	10282.3	300906	2NUYAKA 69.000	3820.6
509875	RSS T2 4 138.00	49813.5	300907	2OKEMAH 69.000	3360.8
515423	SEMINL4G 20.900	214822.9	300908	2PIERCE 69.000	1594.2
509882	RSST1 T1 13.800	40575.3	300911	2SUMMITK 69.000	4686.7
300137	4BRISTOW 138.00	7232.0	300912	2TEXANNA 69.000	3687.4
515178	PARKLN 4 138.00	17179.0	511859	WEL 4-1 13.800	37089.8
584300	GEN-2014-027138.00	16942.8	511861	WEL 6-1 13.800	37076.8
584303	G14-027-GEN113.800	31104.2	509814	52DELWT4 138.00	22529.6
512644	GORE GR2 69.000	10423.1	509759	JENKS--4 138.00	24923.8
520840	CANADAN4 138.00	4864.2	521084	WETUMKA4 138.00	9567.7
300140	4SILVCTY 138.00	15662.1	300864	2ILINOTP 69.000	9619.1
520844	CARBON 4 138.00	6281.0	521094	WEWOKA 4 138.00	6335.3
515725	FRSTHIL1 13.800	13306.5	510856	WELEE4-1 13.800	13941.5
300686	4WOODY 138.00	7637.6	510858	MCALT4-1 13.800	7077.4
515222	MUSKOGE5 161.00	16232.2	510865	S-MCALT4 138.00	5774.6
515736	MAUD 1 13.200	20328.7	509845	KIMCLRK4 138.00	21929.0

Number	Name	3PH(Amp)	Number	Name	3PH(Amp)
300196	2WOODY 69.000	4720.6	509846	OAKS--E4 138.00	13530.0
520869	CROMWEL4 138.00	6453.3	510871	OKEMAH 2 69.000	2584.7
515756	SEMINO11 14.400	38203.3	300952	2OAKRIDG 69.000	2917.4
515757	SEMINO21 14.400	23356.5	509849	ORU ETP4 138.00	33276.8
515247	BEELINE4 138.00	21618.8	509850	OAKSETP4 138.00	26625.1
515248	EXPLGLN4 138.00	23424.3	510877	FIXCT4 138.00	7315.5
505574	EUFAULA4 138.00	8958.3	509858	WARNTAP4 138.00	28145.9
520886	DUSTIN 4 138.00	7529.7	510883	WETUMTP2 69.000	5256.2
515255	SEQUOYA2 69.000	6585.5	515492	CRMWLTP2 69.000	4049.6
515224	MUSKOGE7 345.00	28521.1	515496	KNAWATP2 69.000	4512.5
509813	SHILETP4 138.00	27298.4	515499	SEMINL5G 20.900	214822.9
515531	VANOSTP4 138.00	13881.2	510892	HENRYET4 138.00	8944.9
505550	SALISAW5 161.00	7494.5	509853	ORU-WTP4 138.00	29199.3
505552	GORE 5 161.00	11249.3	510896	LONEOAK2 69.000	6888.8
505554	WEBFALL5 161.00	9132.7	510897	LONEOAK4 138.00	8341.9
505556	WEB123 1 13.800	25795.4	510898	OKMULGE4 138.00	11709.0
505558	MUSKTAP5 161.00	13941.5	510899	MCALEST2 69.000	4488.9
505560	FT GIB 5 161.00	10282.8	509876	RSST2 T1 13.800	40518.6
505566	TENKIL 5 161.00	7353.0	510902	WELETK4 138.00	16942.8
505568	TEN1&2 1 13.800	18560.9	510903	WELEETK2 69.000	10783.0
505570	EUFAULA5 161.00	7856.8	510904	EXP_OKM4 138.00	10044.9
520932	HANNA 4 138.00	5509.7	510905	WILBURT2 69.000	4148.2
520934	HARTSHN4 138.00	8149.2	510906	SMCALTP4 138.00	8271.3
505576	EUF #1 1 13.800	25777.7	510907	PITTSB-7 345.00	13365.9
505578	EUF #2 1 13.800	16377.3	510908	MCALEST4 138.00	9593.3
505580	EUF #3 1 13.800	16377.3	510912	A.DEPOT2 69.000	2840.6
505588	STIGLER5 161.00	6561.1	510913	SAVANNA2 69.000	2745.6
505590	WELEETK5 161.00	6529.0	510916	ALLEN--4 138.00	5324.2
505591	WLK X1 1 13.800	3566.9	510921	DUSTIN-4 138.00	9279.5
505592	WELEETK4 138.00	16495.1	510922	LEQUIRE4 138.00	3190.3
505594	CHECOTA4 138.00	6374.9	510923	EC.HEN-4 138.00	9032.2
505595	GREASYC4 138.00	7157.8	510924	STIGLRT4 138.00	3902.5
505596	EXPLOR 4 138.00	5439.3	510926	SARDIS 4 138.00	3923.1
505598	ALLEN 4 138.00	5331.4	510931	KELCO 4 138.00	10460.0
505600	TUPELO 4 138.00	10042.4	515029	CROMWEL2 69.000	4036.2
512652	SALSWGR2 69.000	9198.2	510934	STIGLER4 138.00	3656.3
515286	STRLGTP4 138.00	14030.6	510884	HOLDEXP4 138.00	5309.5
529309	OMWEUMK2 69.000	2953.8	300879	2VIAN 69.000	5762.9
511449	CORNVIL4 138.00	16669.0	510940	LOAK1-1 13.800	11929.2
520986	MANNING4 138.00	3786.0	510941	WELEE1-1 13.800	13941.5

Number	Name	3PH(Amp)	Number	Name	3PH(Amp)
520991	MCALSTR4 138.00	4805.0	509859	S HILLW4 138.00	16596.6
509732	ORU W4 138.00	22899.1	510944	ENOWILT4 138.00	8160.4
509738	ORU E4 138.00	24204.2	510945	ENOWILB4 138.00	4756.4
301366	5AKINS 161.00	7473.6	510946	C-RIVER4 138.00	12773.1
509753	116JENK4 138.00	41415.0	510947	C-RIVER1 13.800	27273.2
512831	SALTER1 13.800	20652.3	510948	EARLSBORO 4138.00	7706.0
512832	GORTER1 13.800	23717.6	515045	SEMINOL7 345.00	28306.3
515040	SEMINL1G 20.900	214967.7	515053	PEARSNT2 69.000	4497.3
521026	PHAROAH4 138.00	16158.9	515054	MAUD 2 69.000	12157.3
515724	FIXICO 1 13.200	12037.4	515055	MAUD 4 138.00	21987.1
509773	RSS T1 4 138.00	48977.6			

4 CONCLUSIONS

Southwest Power Pool (SPP) has commissioned ABB Inc., to perform a Definitive Impact Study for DISIS-2014-002 (Group 10) which includes generation interconnection request GEN-2014-027 (60 MW combustion-turbine generator at the Weleetka 138 kV substation).

The objective of this study is to evaluate the impact of project GEN-2014-027 on system stability and short-circuit performance. The study is performed on three system scenarios provided by SPP:

- 2015 Summer Peak Case
- 2015 Winter Peak Case
- 2025 Summer Peak Case

Results of the stability analysis show that the SPP system is stable following all simulated faults with the proposed GEN-2014-027 project in-service. There are no voltage violations in the monitored area and the studied generator shows good damping performance which meets the criteria specified.

System short-circuit current levels at up to five buses away from the point of interconnection were calculated and tabulated for SPP's reference.

Based on the results of stability analysis it can be concluded that **the proposed GEN-2014-027 project does not adversely impact the stability of the SPP system**.

The results of this analysis are based on available data and assumptions made at the time of conducting this study. If any of the data and/or assumptions made in developing the study model change, the results provided in this report may not apply.

5 REFERENCES

[1] PSS/E Program Operation Manual, Siemens PTI, PSS/E Version 32.0.5.

APPENDIX A SOUTHWEST POWER POOL DISTURBANCE PERFORMANCE CRITERIA REQUIREMENTS

OVERVIEW

These Disturbance Performance Requirements ("Requirements") shall be applicable to the Bulk Electric System within the Southwest Power Pool Planning Area. Utilization of these Requirements applies to all registered entities within the Southwest Power Pool Planning Area. These Requirements shall not be applicable to facilities that are not part of Bulk Electric System. More stringent Requirements are at the sole discretion of each Transmission Owner.

Transient and dynamic stability assessments are generally performed to assure adequate avoidance of loss of generator synchronism and prevention of system voltage collapse within the first 20 seconds after a system disturbance. These Requirements provide a basis for evaluating the system response during the initial transient period following a disturbance on the Bulk Electric System by establishing minimum requirements for machine rotor angle damping and transient voltage recovery.

ROTOR ANGLE DAMPING REQUIREMENT

Machine Rotor Angles shall exhibit well damped angular oscillations [as defined below] and acceptable power swings following a disturbance on the Bulk Electric System for all NERC Category A, B and C events.

Well damped angular oscillations shall meet one of the following two requirements when calculated directly from the rotor angle:

1. Successive Positive Peak Ratio (SPPR) must be less than or equal to 0.95 where SPPR is calculated as follows:

$$SPPR = \frac{\text{Peak Rotor Angle of } 2^{nd} \text{ Positive Swing Peak}}{\text{Peak Rotor Angle of } 1^{st} \text{ Positive Swing Peak}} \leq 0.95$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 5%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

2. Successive Positive Peak Ratio Five (SPPR5) must be less than or equal to 0.774 where SPPR5 is calculated as follows:

Peak Rotor Angle of 5^{th} Positive Swing Peak

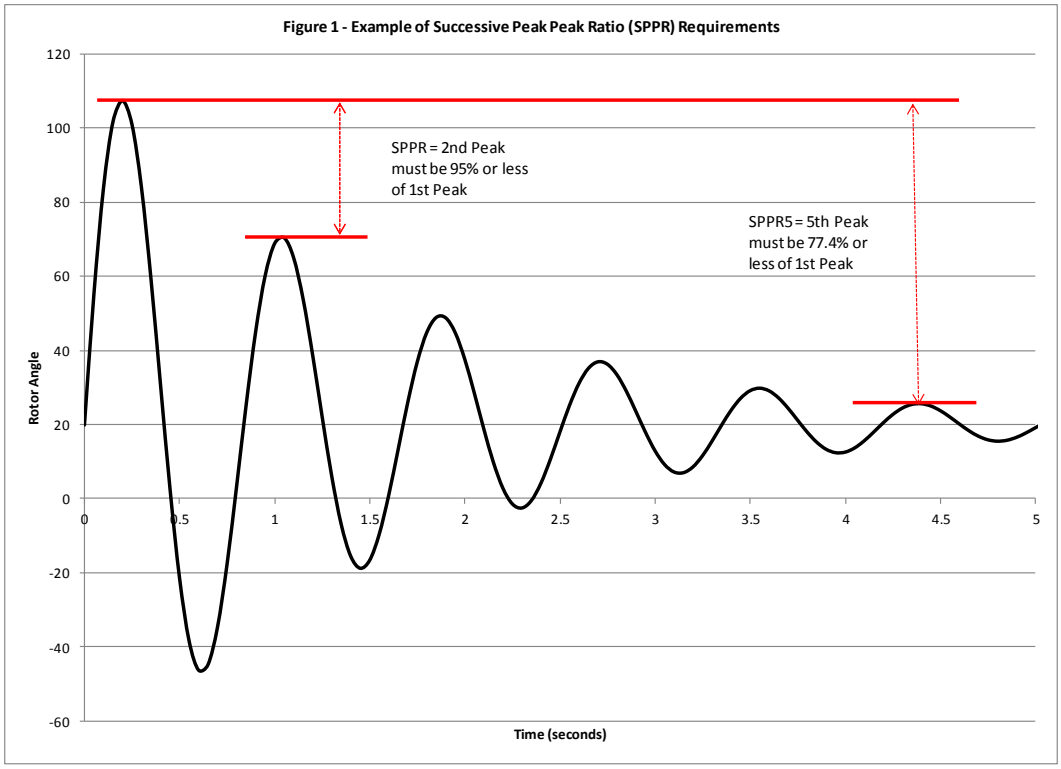
$$SPPR5 = \frac{\text{Peak Rotor Angle of 5th Positive Swing Peak}}{\text{Peak Rotor Angle of 1st Positive Swing Peak}} \leq 0.774$$

-or- Damping Factor % = (1 – SPPR) x 100% ≥ 22.6%

The machine rotor angle damping ratio may be determined by appropriate modal analysis (i.e. Prony Analysis) where the following equivalent requirement must be met:

Damping Ratio ≥ 0.0081633

Qualitatively, these Requirements are shown in Figure 1 below.



TRANSIENT VOLTAGE RECOVERY REQUIREMENT

Any time after a disturbance is cleared; bus voltages on the Bulk Electric System shall not swing outside of the bandwidth of 0.70 per unit to 1.20 per unit.

Qualitatively, this Requirement is shown in Figure 2 below.

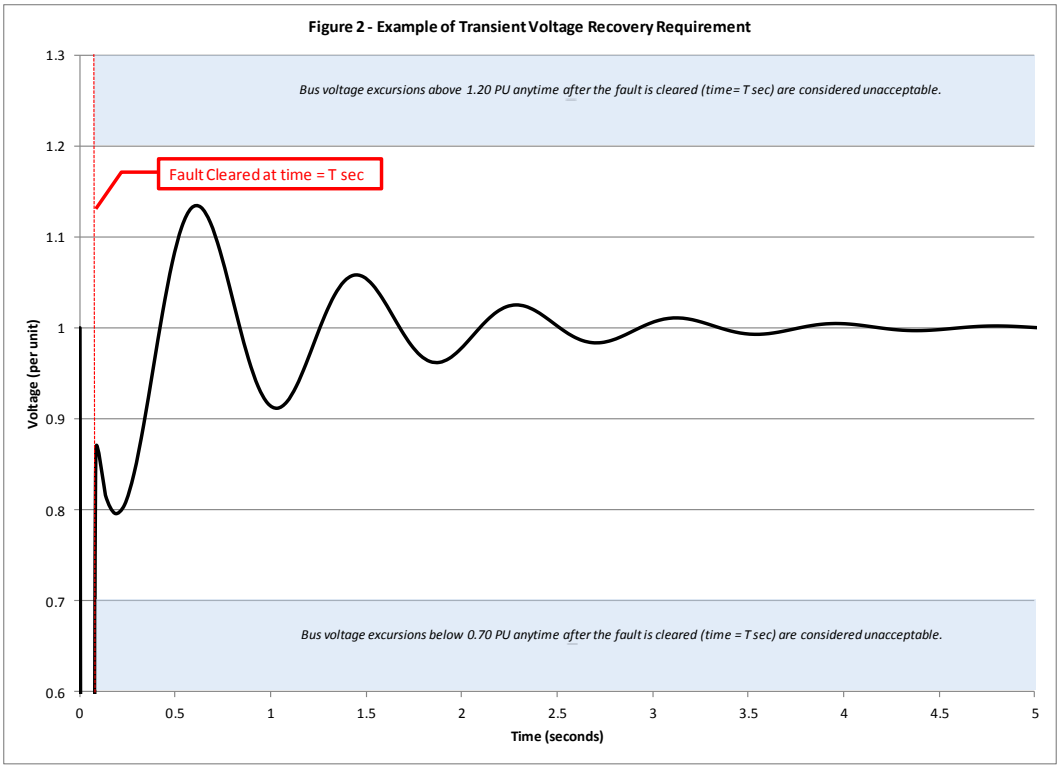


Figure 2 - Example of Transient Voltage Recovery Requirement
Bus voltage excursions above 1.20 PU anytime after the fault is cleared (time= T sec) are considered unacceptable.
Fault Cleared at time = T sec
Bus voltage excursions below 0.70 PU anytime after the fault is cleared (time = T sec) are considered unacceptable.
Voltage (per unit)
Time (seconds)
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

APPENDIX B SIMULATION PLOTS FOR STABILITY ANALYSIS

T: Group 13 Dynamic Stability Analysis Report

See MEPPI report on next page.

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Southwest Power Pool (SPP)

DISIS-2014-002 (Group 13) Definitive Impact Study

Final Report

PXE-0981
Revision #02

January 2015

Submitted By:
Mitsubishi Electric Power Products, Inc. (MEPPI)
Power Systems Engineering Services Department
Warrendale, PA

Title:	**DISIS-2014-002 (Group 13) Definitive Impact Study: Final Report PXE-0981**	
Date:	January 2015	
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Approved:	Elizabeth M. Cook; Senior Engineer, Power Systems Engineering Dept.	*Elizabeth M. Cook*

EXECUTIVE SUMMARY

SPP requested a Definitive Interconnection System Impact Study (DISIS). The DISIS required a Stability Analysis, Short Circuit Analysis, Power Factor Analysis, and Low Wind/No Wind Analysis detailing the impacts of the interconnecting projects as shown in Table ES-1.

Table ES-1
Interconnection Projects Evaluated

Request	Size (MW)	Generator Model (Gen Bus Number)	Point of Interconnection (Bus Numbers for Stability/Powerflow)
GEN-2014-021	300	Vestas V110 2.0MW (583913,583917)	Tap Nebraska City/S3458 (645458) to Mullens Creek (541197) 345kV (560009)
GEN-2014-050	100	GE 2.0MW (584003)	Swissvale 345kV (532774)
GEN-2014-051	174	GE 2.0MW (584013)	JEC N 345kV (532766)

SUMMARY OF THE STABILITY ANALYSIS

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak the Stability Analysis determined that there was no wind turbine tripping or system instability that occurred for n-1 outages or conditions. In both the Cluster Scenario study and the Stand Alone Scenario study, the Stability Analysis determined that there was system instability that occurred for the loss of the Jeffrey to Hoyt 345kV line after a prior line outage. It was determined that this is a pre-existing condition and not caused by the addition of the interconnection projects under study. The mitigation plan is to curtail GEN-2014-051 to 0MW as needed when the first line outage occurs. For the rest of the contingencies tested, the Stability Analysis determined that there was no system instability and that no wind turbines tripped off-line as a result of interconnecting GEN-2014-021, GEN-2014-050, and GEN-2014-051 at 100% output for both the Cluster Scenario study and the Stand Alone Scenario study.

SUMMARY OF THE SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed on the 2025 Summer Peak power flow for all study projects. For the GEN-2014-021 study area, the maximum fault current observed was 50.88 kA at the Hawthorne 161 kV bus. For the GEN-2014-050 study area, the maximum fault current observed was 41.06 kA at the Gordon Evans 138 kV bus. For the GEN-2014-051 study area, the maximum fault current observed was 41.06 kA at the Gordon Evans 138 kV bus.

SUMMARY OF POWER FACTOR ANALYSIS

Study Generator GEN-2014-021

The Power Factor Analysis shows that GEN-2014-021 has a power factor range of 0.9721 leading (absorbing) to 0.9889 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9630 leading (absorbing) to 0.9875 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9655 leading (absorbing) to 0.9885 lagging (supplying) for 2025 Summer Peak conditions.

Study Generator GEN-2014-050

The Power Factor Analysis shows that GEN-2014-050 has a power factor range of 0.9751 leading (absorbing) to 0.5042 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9220 leading (absorbing) to 0.5455 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9408 leading (absorbing) to 0.5796 lagging (supplying) for 2025 Summer Peak conditions.

Study Generator GEN-2014-051

The Power Factor Analysis shows that GEN-2014-051 has a power factor range of 0.7982 to 0.8912 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.8318 to 0.9359 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.8330 to 0.9379 lagging (supplying) for 2025 Summer Peak conditions.

GEN-2014-050 and GEN-2014-051 will be required to provide the pro-forma standard 0.95 leading (absorbing) to 0.95 lagging (supplying) at the Point of Interconnection (POI).

SUMMARY OF LOW WIND/NO WIND ANALYSIS

The amount of reactive power injected into the transmission network was recorded at the point of interconnection for GEN-2014-021, GEN-2014-050, and GEN-2014-051 for each season. A reactance of 28.1 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-021 for all three seasons. A reactance of 15.8 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-050 for all three seasons. A reactance of 25.4 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-051 for all three seasons.

Table of Contents

Section 1: Objectives 6
Section 2: Background 6
Section 3: Stability Analysis 26
3.1: Approach 26
3.2: Cluster Scenario Results 28
3.3: Stand Alone Scenario Results: GEN-2014-021 31
3.4: Stand Alone Scenario Results: GEN-2014-050 33
3.5: Stand Alone Scenario Results: GEN-2014-051 34
Section 4: Short Circuit Analysis 36
4.1: Approach 36
4.2: Short Circuit Analysis Results 36
Section 5: Power Factor Analysis 39
5.1: Study Project – GEN-2014-021 40
5.2: Study Project – GEN-2014-050 42
5.3: Study Project – GEN-2014-051 45
Section 6: Low Wind/No Wind Analysis 48
6.1: Approach 48
6.2: Short Circuit Analysis Results 49
Section 7: Conclusions 49

List of Tables

Table 2-1: Interconnection Project Evaluated 7
Table 2-2: Previously Queued Nearby Interconnection Projects Included 7
Table 2-3: Case List with Contingency Description 11
Table 3-1: Calculated Single-Phase Fault Impedances 27
Table 3-2: Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions 29
Table 3-3: Stand Alone Scenario GEN-2014-021: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions 32
Table 3-4: Stand Alone Scenario GEN-2014-050: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions 34
Table 3-5: Stand Alone Scenario GEN-2014-051: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions 35
Table 4-1: Short Circuit Analysis for Study Project GEN-2014-021 37
Table 4-2: Short Circuit Analysis for Study Project GEN-2014-050 38
Table 4-3: Short Circuit Analysis for Study Project GEN-2014-051 39
Table 5-1: Power Factor Analysis: GEN-2014-021 (Pgen=300 MW) 41
Table 5-2: Power Factor Analysis: GEN-2014-050 (Pgen=100 MW) 44

Table 5-3: Power Factor Analysis: GEN-2014-051 (Pgen=174 MW) 47
Table 6-1: Low Wind/No Wind Analysis 49

List of Figures

Figure 2-1. Power flow one-line diagram for interconnection project GEN-2014-021 (300 MW). 8
Figure 2-2. Power flow one-line diagram for interconnection project GEN-2014-050 (100 MW). 9
Figure 2-3. Power flow one-line diagram for interconnection project GEN-2014-051 (174 MW). 10

SECTION 1: OBJECTIVES

The objective of this report is to provide Southwest Power Pool, Inc. (SPP) with the deliverables for the "GEN-2014-002 (Group 13) Definitive Impact Study." SPP requested an Interconnection System Impact Study for three generation interconnections, which require a Short Circuit Analysis, Power Factor Analysis, Stability Analysis, Low Wind/No Wind Analysis and an Impact Study Report.

SECTION 2: BACKGROUND

The Siemens Power Technologies, Inc. PSS/E power system simulation program Version 32.2.0 was used for this study. SPP provided the stability database cases for 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions and a list of contingencies to be examined. The model includes the study projects and the previously queued projects as listed in Table 2-1 and Table 2-2, respectively. Refer to Appendix A for the steady-state and dynamic model data for the study projects. A power flow one-line diagram for each generation interconnection project is shown in Figures 2-1 through 2-3.

The Stability Analysis will determine the impacts of the new interconnecting projects on the stability and voltage recovery of the nearby systems and the ability of the interconnecting project to meet FERC Order 661A. If problems with stability or voltage recovery are identified, the need for reactive compensation or system upgrades will be investigated. Three-phase faults and single line-to-ground faults will be examined as listed in Table 2-3. All contingencies listed in Table 2-3 were simulated for the Cluster Scenario study. Table 2-3 lists which contingencies (marked by an "X") were simulated for each individual study generator for the Stand Alone Scenario study.

A short circuit analysis was performed on the 2025 summer peak study year for each study generator in the Cluster Scenario. The study was performed for five buses out from the study generator's point of interconnection and results were documented.

The Power Factor analysis will determine the power factor at the point of interconnection for the wind interconnection projects for pre-contingency and post-contingency conditions. All N-1, three phase contingencies listed in Table 2-3 were simulated for the Power Factor Analysis.

The Low Wind/No Wind Analysis was completed for wind farm interconnections that interconnect to a 345 kV or 230 kV bus. This analysis will determine if reactor support is needed to have an Mvar flow of approximately zero at the point of interconnection (POI).

Table 2-1
Interconnection Project Evaluated

Request	Size (MW)	Generator Model (Gen Bus Number)	Point of Interconnection (Bus Numbers for Stability/Powerflow)
GEN-2014-021	300	Vestas V110 2.0MW (583913,583917)	Tap Nebraska City/S3458 (645458) to Mullens Creek (541197) 345kV (560009)
GEN-2014-050	100	GE 2.0MW (584003)	Swissvale 345kV (532774)
GEN-2014-051	174	GE 2.0MW (584013)	JEC N 345kV (532766)

Table 2-2
Previously Queued Nearby Interconnection Projects Included

Request	Size (MW)	Generator Model (Gen Bus Number)	Point of Interconnection (Bus Numbers for Stability/Powerflow)
GEN-2008-129	641/675	Combined Cycle (541163/541164)	Pleasant Hill 161kV (541225)
GEN-2010-036	4.6	GENROU (533264)	6th Street 115kV (533264)
GEN-2011-011	900	GENROU (542962)	Iatan 345kV (542982)
ASGI-2013-007	90	GE 2.5MW (562454)	Tap Hickory Creek (300087) – Locust Creek (300094) 161kV (562450)

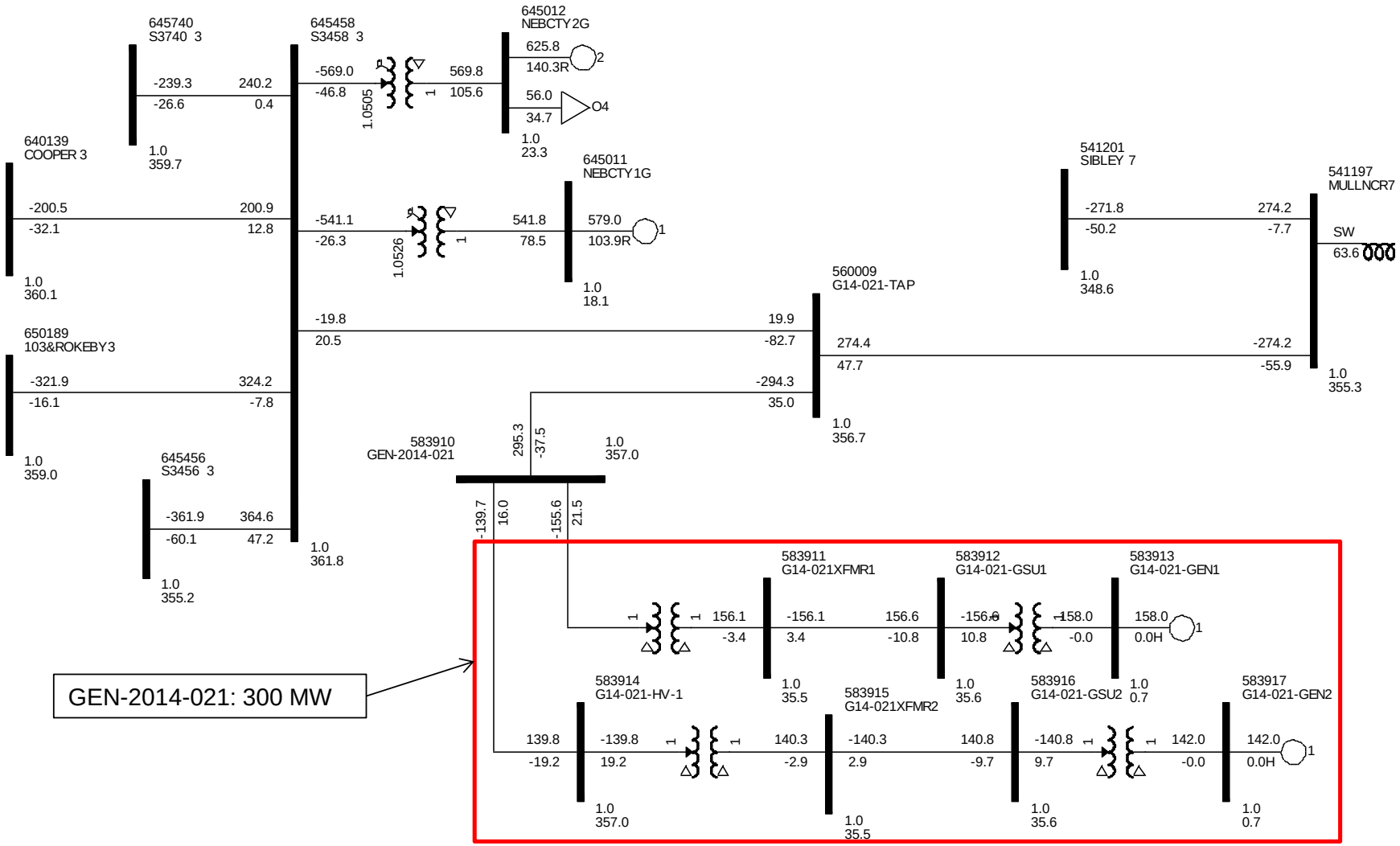

Figure 2-1. Power flow one-line diagram for interconnection project GEN-2014-021 (300 MW).

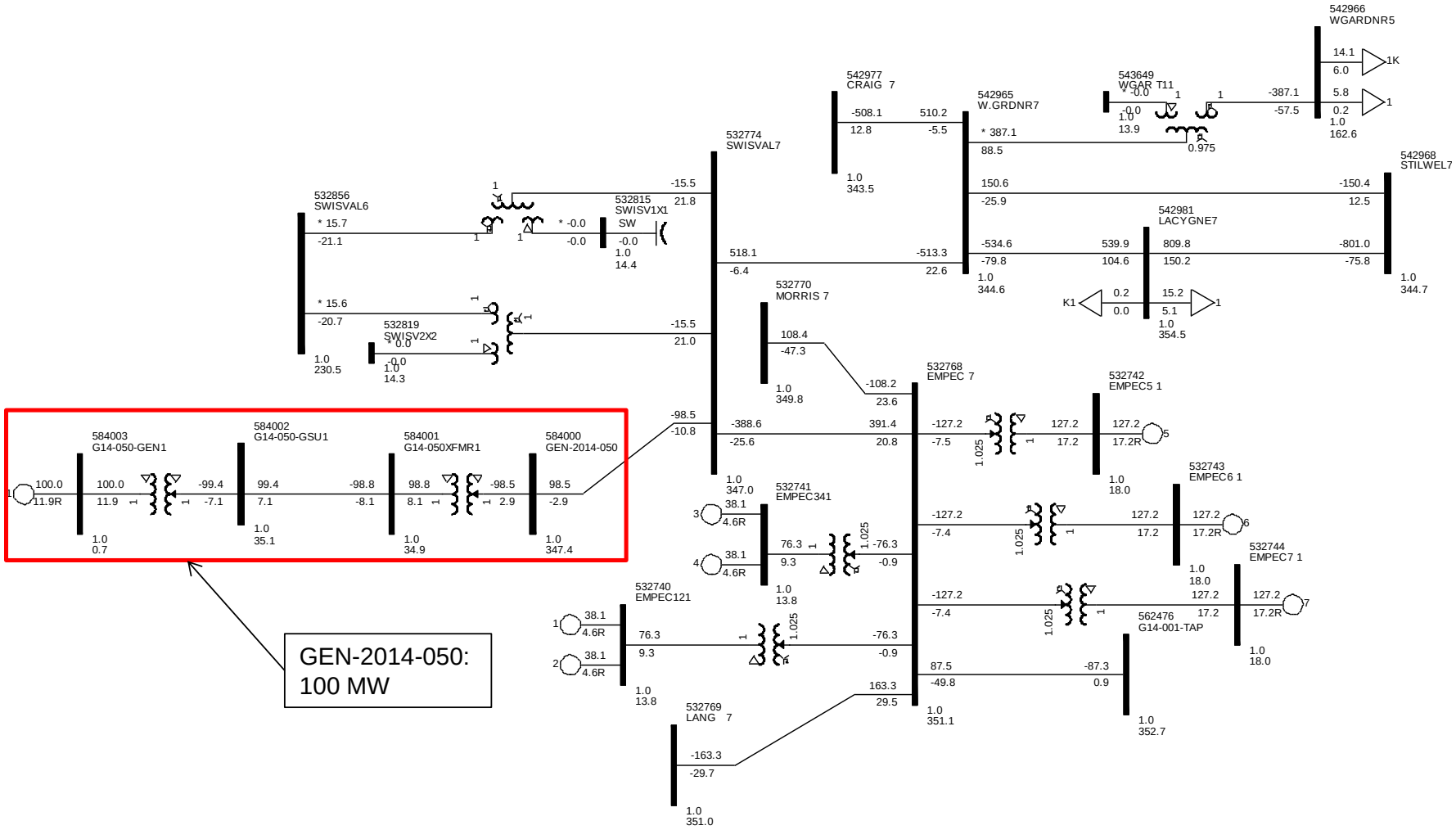

Figure 2-2. Power flow one-line diagram for interconnection project GEN-2014-050 (100 MW).

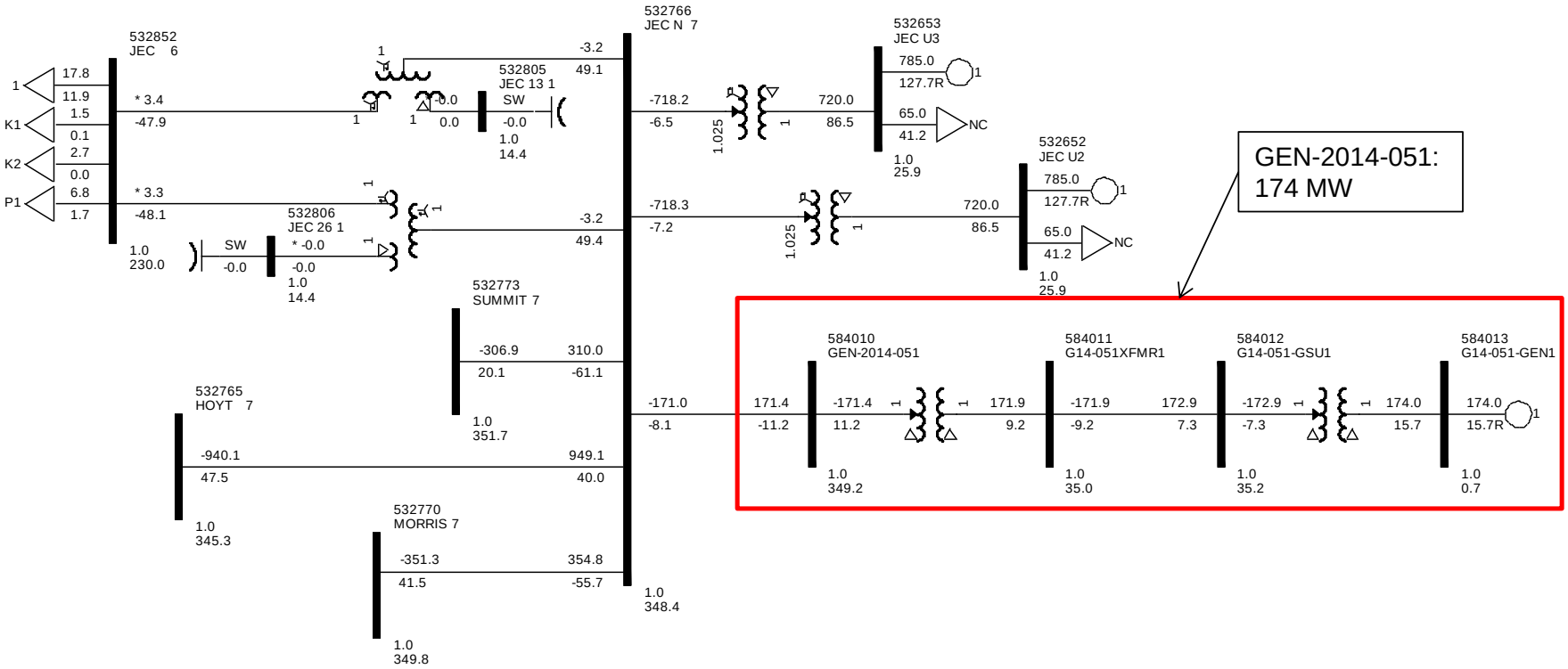

Figure 2-3. Power flow one-line diagram for interconnection project GEN-2014-051 (174 MW).

Table 2-3
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
1	FLT01-3PH	3 phase fault on the G14-021 TAP (560009) to Nebraska City/S3458 (645458) 345kV line circuit 1, near G14-021 TAP. a. Apply fault at the G14-021 TAP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
2	FLT02-3PH	3 phase fault on the G14-021 TAP (560009) to Mullen Creek (541197) 345kV line circuit 1, near G14-021 TAP. a. Apply fault at the G14-021 TAP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
3	FLT03-3PH	3 phase fault on the Sibley (541201) to Hawthorne (542972) 345kV line circuit 1, near Sibley 345kV. a. Apply fault at the Sibley 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
4	FLT04-3PH	3 phase fault on the Sibley (541201) to Pleasant Hill (541200) 345kV line circuit 1, near Sibley. a. Apply fault at the Sibley 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
5	FLT05-3PH	3 phase fault on the Sibley (541201) to Overton (345408) 345kV line circuit 1, near Sibley. a. Apply fault at the Sibley 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
6	FLT06-3PH	3 phase fault on the Overton (345408) to McCredie (345088) 345kV line circuit 1, near Overton. a. Apply fault at the Overton 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
7	FLT07-3PH	3 phase fault on the Sibley (541201) 345/(541202) 161/(541360) 13.8kV Transformer circuit 1, near Sibley 345kV. a. Apply fault at the Sibley 345kV bus. b. Clear fault after 5 cycles, trip the faulted line, and remove the fault.	X		
8	FLT08-3PH	3 phase fault on the Pleasant Hill (541200) to Peculiar (541198) 345kV line circuit 1, near Pleasant Hill. a. Apply fault at the Pleasant Hill 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
9	FLT09-3PH	3 phase fault on the Hawthorne (542972) 345/(542973) 161/(543644) 13.8kV Transformer (Hawt 20) circuit 20, near Hawthorne 345kV. a. Apply fault at the Hawthorne 345kV bus. b. Clear fault after 5 cycles, trip the faulted line, and remove fault.	X		
10	FLT10-3PH	3 phase fault on the Iatan (542982) to Nashua (542980) 345kV line circuit 1, near Iatan. a. Apply fault at the Iatan 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
11	FLT11-3PH	3 phase fault on the Iatan (542982) 345/(541350) 161/(541150) 13.8kV Transformer (IATAN 11) circuit 11, near Iatan. a. Apply fault at the Hugo 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
12	FLT12-3PH	3 phase fault on the Iatan (542982) to Stranger (532772) 345kV line circuit 1, near Iatan. a. Apply fault at the Iatan 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
13	FLT13-3PH	3 phase fault on the Iatan (542982) to Eastown (541400) 345kV line circuit 1, near Iatan. a. Apply fault at the Iatan 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
14	FLT14-3PH	3 phase fault on the Cooper (640139) to St Joe (541199) 345kV line circuit 1, near Cooper. a. Apply fault at the Cooper 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
15	FLT15-3PH	3 phase fault on the Cooper (640139) to Fairport (300039) 345kV line circuit 1, near Cooper. a. Apply fault at the Cooper 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
16	FLT16-3PH	3 phase fault on the Atchison Tap (635017) to Boonville (635630) 345kV line circuit 1, near Atchison Tap. a. Apply fault at the Atchison Tap 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
17	FLT17-3PH	3 phase fault on the Cooper (640139) to Moore (640277) 345kV line circuit 1, near Cooper. a. Apply fault at the Cooper 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
18	FLT18-3PH	3 phase fault on the Nebraska City/S3458 (645458) to Cooper (640139) 345kV line circuit 1, near Nebraska City/S3458. a. Apply fault at the Nebraska City/S3458 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
19	FLT19-3PH	3 phase fault on the Nebraska City/S3458 (645458) to Cass/S3740 (645740) 345kV line circuit 1, near Nebraska City/S3458. a. Apply fault at the Nebraska City/S3458 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
20	FLT20-3PH	3 phase fault on the Nebraska City/S3458 (645458) to 103&Rokeby (650189) 345kV line circuit 1, near Nebraska City/S3458. a. Apply fault at the Nebraska City/S3458 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
21	FLT21-3PH	3 phase fault on the Nebraska City/S3458 (645458) to Sarpy/S3456 (645456) 345kV line circuit 1, near Nebraska City/S3458. a. Apply fault at the Nebraska City/S3458 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
22	FLT22-3PH	3 phase fault on the Nebraska City/S3458 (645458) to G14-021 TAP (560009) 345kV line circuit 1, near Nebraska City/S3458 345kV. a. Apply fault at the Nebraska City/S3458 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
23	FLT23-3PH	3 phase fault on the Cass/S3740 (645740) to S3455 (645455) 345kV line circuit 1, near Cass/S3740 345kV. a. Apply fault at the near Cass/S3740 345kV bus. b. Clear fault after 4.5 cycles, trip the faulted line, and remove fault.	X		
24	FLT24-3PH	3 phase fault on the Fallow (635590) to Grimes (635600) 345kV line circuit 1, near Fallow 345kV. a. Apply fault at the Fallow 345kV bus. b. Clear fault after 5 cycles, trip the faulted line, and remove fault.	X		
25	FLT25-3PH	3 phase fault on the Sarpy/S3456 (645456) to Council Bluffs (635000) 345kV line circuit 1, near Sarpy/S3456 345kV. a. Apply fault at the Sarpy/S3456 345kV bus. b. Clear fault after 5 cycles, trip the faulted line, and remove fault.	X		
26	FLT26-1PH	**Sibley 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Sibley (541201) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Sibley (541201) 345/(541202) 161/(541360) 13.8kV transformer circuit 1. d. Trip Sibley (541201) to Hawthorne (542972) 345kV line circuit 1.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
27	FLT27-1PH	**Sibley 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Sibley (541201) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Sibley (541201) to Pleasant Hill (541200) 345kV line circuit 1. d. Trip Sibley (541201) to Hawthorne (542972) 345kV line circuit 1.	X		
28	FLT28-1PH	**Sibley 345kV Stuck Breaker Scenario 3** a. Apply single phase fault at the Sibley (541201) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Sibley (541201) to Pleasant Hill (541200) 345kV line circuit 1. d. Trip Sibley (541201) to Overton (345408) 345kV line circuit 1.	X		
29	FLT29-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Nebraska City/S3458 (645458) end of the Nebraska City/S3458 to Cooper (640139) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
30	FLT30-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Nebraska City/S3458 (645458) end of the Nebraska City/S3458 to Cass/S3740 (645740) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
31	FLT31-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 3** a. Apply single phase fault at the Nebraska City/S3458 (645458) end of the Nebraska City/S3458 to 103&Rokeby (650189) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
32	FLT32-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 4** a. Apply single phase fault at the Nebraska City/S3458 (645458) end of the Nebraska City/S3458 to Sarpy/S3456 (645456) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
33	FLT33-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 5** a. Apply single phase fault at the Nebraska City/S3458 (645458) end of the Nebraska City/S3458 to G14-021 TAP (560009) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
34	FLT34-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 6** a. Apply single phase fault at the Nebraska City/S3458 (645458) 345kV bus. b. After 14 cycles, trip Nebraska City/S3458 to Cooper (640139) 345kV line and remove fault.	X		
35	FLT35-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 7** a. Apply single phase fault at the Nebraska City/S3458 (645458) 345kV bus. b. After 14.5 cycles, trip Nebraska City/S3458 to Sarpy/S3456 (645456) 345kV line and remove fault.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
36	FLT36-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 8** a. Apply single phase fault at the Nebraska City/S3458 (645458) 345kV bus. b. After 14.5 cycles, trip Nebraska City/S3458 to Cass/S3740 (645740) 345kV line and remove fault.	X		
37	FLT37-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 9** a. Apply single phase fault at the Nebraska City/S3458 (645458) 345kV bus. b. After 14 cycles, trip Nebraska City/S3458 to 103&Rokeby (650189) 345kV line and remove fault.	X		
38	FLT38-1PH	**Nebraska City/S3458 345kV Stuck Breaker Scenario 10** a. Apply single phase fault at the Nebraska City/S3458 (645458) 345kV bus. b. After 14 cycles, trip Nebraska City/S3458 to G14-021 TAP (560009) 345kV line and remove fault.	X		
39	FLT39-1PH	**Cass/S3470 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Cass/S3740 (645740) end of the Cass/S3740 (645740) to the S3455 (645455) 345kV line. b. After 4.5 cycles, open remote end of faulted line. c. Wait 9 cycles, remove fault and trip faulted line.	X		
40	FLT40-1PH	**Cass/S3470 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Cass/S3740 (645740) 345kV bus. b. After 14.5 cycles, trip Cass/S3740 to S3455 (645455) 345kV line and remove fault.	X		
41	FLT41-3PH	**Sibley Prior Outage Scenario 1** a. Prior Outage: Switch out Sibley (541201) to Mullen Creek (541197) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Nebraska City/S3458 (645458) to Cooper (640139) 345kV line circuit 1, near Nebraska City/S3458. c. Clear fault after 4.5 cycles and trip the faulted line and remove the fault.	X		
42	FLT42-3PH	**Sibley Prior Outage Scenario 2** a. Prior Outage: Switch out Sibley (541201) to Mullen Creek (541197) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Nebraska City/S3458 (645458) to 103&Rokeby (650189) 345kV line circuit 1, near Nebraska City/S3458. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.	X		
43	FLT43-3PH	**Sibley Prior Outage Scenario 3** a. Prior Outage: Switch out Sibley (541201) to Mullen Creek (541197) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Cass/S3740 (645740) to S3455 (645455) 345kV line circuit 1, near Cass/S3740. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
44	FLT44-3PH	**Sibley Prior Outage Scenario 4** a. Prior Outage: Switch out Sibley (541201) to Mullen Creek (541197) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Nebraska City/S3458 (645458) to Sarpy/S3456 (645456) 345kV line circuit 1, near Nebraska City/S3458. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.	X		
45	FLT45-3PH	**Deleted**			
46	FLT46-3PH	**St. Joe Prior Outage Scenario 1** a. Prior Outage: Switch out St. Joe (541199) to Nashua (542980) 345kV circuit 1 and solve. b. Apply 3 phase fault on the St. Joe (541199) to Eastown (541400) 345kV line circuit 1, near St. Joe. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
47	FLT47-3PH	**Cooper Prior Outage Scenario 1** a. Prior Outage: Switch out Cooper (640139) to Fairport (300039) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Cooper (640139) to St. Joe (541199) 345kV line circuit 1, near Cooper. c. Clear fault after 5 cycles, then trip the line in (b) and remove fault.	X		
48	FLT48-3PH	**Cooper Prior Outage Scenario 2** a. Prior Outage: Switch out Cooper (640139) to the Nebraska City/S3458 (645458) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Cooper (640139) to Moore (640277) 345kV line circuit 1, near Cooper. c. Clear fault after 5 cycles, then trip the line in (b) and remove fault.	X		
49	FLT49-3PH	**Cass/S3740 Prior Outage Scenario 1** a. Prior Outage: Switch out Cass/S3740 (645740) to S3455 (645455) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Nebraska City/S3458 (645458) to Sarpy/S3456 (645456) 345kV line circuit 1, near Nebraska City/S3458. c. Clear fault after 4.5 cycles and trip the faulted line and remove fault.	X		
50	FLT50-3PH	**Cass/S3740 Prior Outage Scenario 2** a. Prior Outage: Switch out Cass/S3740 (645740) to S3455 (645455) 345kV circuit 1 and solve. b. Apply 3 phase fault on the S3455 (645455) to Sarpy/S3456 (645456) 345kV line circuit 1, near Cooper. c. Clear fault after 4.5 cycles, then trip the line in (b) and remove fault.	X		

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
51	FLT51-3PH	**Nebraska City/S3458 Prior Outage Scenario 1** a. Prior Outage: Switch out Nebraska City/S3458 (645458) to G14-021 TAP (560009) 345kV circuit 1 and solve. b. Apply 3 phase fault on Sibley (541201) to Pleasant Hill (541200) 345kV line circuit 1, near Sibley. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
52	FLT52-3PH	**Nebraska City/S3458 Prior Outage Scenario 2** a. Prior Outage: Switch out Nebraska City/S3458 (645458) to G14-021 TAP (560009) 345kV circuit 1 and solve. b. Apply 3 phase fault on Sibley (541201) to Hawthorne (542972) 345kV line circuit 1, near Sibley. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
53	FLT53-3PH	**Nebraska City/S3458 Prior Outage Scenario 3** a. Prior Outage: Switch out Nebraska City/S3458 (645458) to G14-021 TAP (560009) 345kV circuit 1 and solve. b. Apply 3 phase fault on Sibley (541201) to Overton (345408) 345kV line circuit 1, near Sibley. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.	X		
54	FLT54-3PH	**Nebraska City/S3458 Prior Outage Scenario 4** a. Prior Outage: Switch out Nebraska City/S3458 (645458) to G14-021 TAP (560009) 345kV circuit 1 and solve. b. Apply 3 phase fault on Sibley (541201) 345/(541202) 161/(541360) 13.8kV transformer circuit 1. c. Clear fault after 5 cycles and trip the faulted transformer and remove fault.	X		
55	FLT55-3PH	3 phase fault on the Swissvale (532774) to West Gardner (542965) 345kV line circuit 1, near Swissvale 345kV bus. a. Apply fault at the Swissvale 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
56	FLT56-3PH	3 phase fault on the Swissvale (532774) to Emporia EC (532768) 345kV line circuit 1, near Swissvale 345kV bus. a. Apply fault at the Swissvale 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
57	FLT57-3PH	3 phase fault on the Swissvale (532774) 345/ (532856) 230/ (532815) 14.4kV transformer circuit 1, near Swissvale 345kV bus. a. Apply fault at the Swissvale 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.		X	

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
58	FLT58-3PH	3 phase fault on the West Gardner (542965) to Stilwell (542968) 345kV line circuit 1, near West Gardner 345kV bus. a. Apply fault at the West Gardner 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
59	FLT59-3PH	**Deleted**			
60	FLT60-3PH	3 phase fault on the West Gardner (542965) to LaCygne (542981) 345kV line circuit 1, near West Gardner 345kV bus. a. Apply fault at the West Gardner 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
61	FLT61-3PH	3 phase fault on the West Gardner (542965) 345/ (542966) 161/ (543649) 13.8kV line circuit 1, near West Gardner 345kV bus. a. Apply fault at the West Gardner 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.		X	
62	FLT62-3PH	3 phase fault on the LaCygne (542981) to Stilwell (542968) 345kV line circuit 1, near LaCygne 345kV bus. a. Apply fault at the LaCygne 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
63	FLT63-3PH	3 phase fault on the LaCygne (542981) to Waverly (532799) 345kV line circuit 1, near LaCygne 345kV bus. a. Apply fault at the LaCygne 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
64	FLT64-3PH	3 phase fault on the Emporia EC (532768) to Wichita (532796) 345kV line circuit 1, near Emporia EC 345kV bus. a. Apply fault at the Emporia EC 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
65	FLT65-3PH	3 phase fault on the Emporia EC (532768) to Morris (532770) 345kV line circuit 1, near Emporia EC 345kV bus. a. Apply fault at the Emporia EC 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
66	FLT66-3PH	3 phase fault on the Emporia EC (532768) to Lang (532769) 345kV line circuit 1, near Emporia EC 345kV bus. a. Apply fault at the Emporia EC 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
67	FLT67-1PH	**Swissvale 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Swissvale (532774) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1. d. Trip Swissvale (532774) to Emporia EC (532768) 345kV line circuit 1.		X	
68	FLT68-1PH	**Swissvale 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Swissvale (532774) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1. d. Trip Swissvale (532774) to W Gardner (542965) 345kV line circuit 1.		X	
69	FLT69-1PH	**Swissvale 345kV Stuck Breaker Scenario 3** a. Apply single phase fault at the Swissvale (532774) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1. d. Trip Swissvale (532774) 345/(532856) 230/(532819) 14.4kV transformer circuit 2.		X	
70	FLT70-1PH	**Swissvale 230kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Swissvale (532856) 230kV bus. b. Wait 16 cycles and remove fault. c. Trip Swissvale (532856) 230 to Auburn (532851) 230kV circuit 1. d. Trip Swissvale (532856) 230 to Morris (532863) 230kV circuit 1.		X	
71	FLT71-1PH	**Swissvale 230kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Swissvale (532856) 230kV bus. b. Wait 16 cycles and remove fault. c. Trip Swissvale (532856) 230 to Lawrence Hill (532853) 230kV circuit 1. d. Trip Swissvale (532856) 230 to Tecumseh Hill (532857) 230kV circuit 1.		X	
72	FLT72-3PH	**Swissvale Prior Outage Scenario 1** a. Prior Outage: Switch out Swissvale (532774) to Emporia EC (542965) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Swissvale (532774) to W Gardner (542965) 345kV line circuit 1, near Swissvale. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
73	FLT73-3PH	**Swissvale Prior Outage Scenario 2** a. Prior Outage: Switch out Swissvale (532774) to Emporia EC (542965) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1, near Swissvale 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b), and remove fault.		X	
74	FLT74-3PH	**Swissvale Prior Outage Scenario 3** a. Prior Outage: Switch out Swissvale (532774) to Lang (532769) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1, near Swissvale 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault.		X	
75	FLT75-3PH	**Swissvale Prior Outage Scenario 4** a. Prior Outage: Switch out Swissvale (532774) 345/(532856) 230/(532815) 14.4kV transformer circuit 1 and solve. b. Apply 3 phase fault on the Swissvale (532774) 345/(532856) 230/(532819) 14.4kV transformer circuit 2, near Swissvale 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault.		X	
76	FLT76-3PH	**Emporia EC Prior Outage Scenario 1** a. Prior Outage: Switch out Emporia EC (532768) to Wichita (532768) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Emporia EC (532768) to Morris (532768) 345kV line circuit 1, near Emporia EC. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
77	FLT77-3PH	**Emporia EC Prior Outage Scenario 2** a. Prior Outage: Switch out Emporia EC (532768) to Wichita (532768) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Emporia EC (532768) to Lang (532769) 345kV line circuit 1, near Emporia EC. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
78	FLT78-3PH	**Emporia EC Prior Outage Scenario 3** a. Prior Outage: Switch out Emporia EC (532768) to Wichita (532768) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Swissvale (532774) to W Gardner (542965) 345kV line circuit 1, near Swissvale. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
79	FLT79-3PH	**Emporia EC Prior Outage Scenario 4** a. Prior Outage: Switch out Emporia EC (532768) to Wichita (532768) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Emporia EC (532768) to Lang (532769) 345kV line circuit 1, near Emporia EC. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	X
80	FLT80-1PH	**W Gardner 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the W Gardner (542965) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip W Gardner (542965) 345/(542966) 161/(543649) 13.8kV transformer circuit 1. d. Trip W Gardner (542965) to Craig (542977) 345kV line circuit 1.		X	
81	FLT81-1PH	**W Gardner 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the W Gardner (542965) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip W Gardner (542965) 345/(542966) 161/(543649) 13.8kV transformer circuit 1. d. Trip W Gardner (542965) to LaCygne (542981) 345kV line circuit 1.		X	
82	FLT82-1PH	**W Gardner 345kV Stuck Breaker Scenario 3** a. Apply single phase fault at the W Gardner (542965) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip W Gardner (542965) to Stilwell (542968) 345kV line circuit 1. d. Trip W Gardner (542965) to LaCygne (542981) 345kV line circuit 1.		X	
83	FLT83-3PH	**W Gardner Prior Outage Scenario 1** a. Prior Outage: Switch out W Gardner (542965) 345/(542966) 161/(543649) 13.8kV transformer circuit 1 and solve. b. Apply 3 phase fault on the W Gardner (542965) to Craig (542977) 345kV circuit 1, near W Gardner 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
84	FLT84-3PH	**W Gardner Prior Outage Scenario 2** a. Prior Outage: Switch out W Gardner (542965) 345/(542966) 161/(543649) 13.8kV transformer circuit 1 and solve. b. Apply 3 phase fault on the W Gardner (542965) to Stilwell (542968) 345kV circuit 1, near W Gardner 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
85	FLT85-3PH	**W Gardner Prior Outage Scenario 3** a. Prior Outage: Switch out W Gardner (542965) to Craig (542977) 345kV circuit 1 and solve. b. Apply 3 phase fault on the W Gardner (542965) to Stilwell (542965) 345kV circuit 1, near W Gardner 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
86	FLT86-3PH	**LaCygne Prior Outage Scenario 1** a. Prior Outage: Switch out LaCygne (542981) to Stilwell (542965) 345kV circuit 1 and solve. b. Apply 3 phase fault on the LaCygne (542981) to Neosho (532793) 345kV circuit 1, near LaCygne 345kV. c. Clear fault after 5 cycles, trip the faulted line in (b) and remove fault. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.		X	
87	FLT87-3PH	3 phase fault on the JEC N (532766) to Hoyt (532765) 345kV line circuit 1, near JEC N. a. Apply fault at the JEC N 345kV bus. b. Clear fault after 4.6 cycles and trip the faulted line.			X
88	FLT88-3PH	3 phase fault on the JEC N (532766) to Morris (532770) 345kV line circuit 1, near JEC N. a. Apply fault at the JEC N 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
89	FLT89-3PH	**ONLY FOR USE PRIOR TO 6/2017** 3 phase fault on the JEC N (532766) to Summit (532773) 345kV line circuit 1, near JEC N. a. Apply fault at the JEC N 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
90	FLT90-3PH	**ONLY FOR USE IN 6/2017 AND BEYOND** 3 phase fault on the JEC N (532766) to Geary (532767) 345kV line circuit 1, near JEC N. a. Apply fault at the JEC N 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
91	FLT91-3PH	**ONLY FOR USE IN 6/2017 AND BEYOND** 3 phase fault on the Geary (532767) to Summit (532773) 345kV line circuit 1, near Geary. a. Apply fault at the Geary 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
92	FLT92-3PH	**ONLY FOR USE IN 6/2017 AND BEYOND** 3 phase fault on the Geary (532767) 345/(533336) 115/(532834) 13.8kV transformer circuit 1, near Geary. a. Apply fault at the Geary 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
93	FLT93-3PH	3 phase fault on the JEC N (532766) 345/(532852) 230/(532805) 14.4kV transformer circuit 1, near JEC N. a. Apply fault at the JEC N 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
94	FLT94-3PH	3 phase fault on the Hoyt (532765) to Stranger (532772) 345kV line circuit 1, near Hoyt. a. Apply fault at the Hoyt 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
95	FLT95-3PH	3 phase fault on the Hoyt (532765) 345/(533163) 115/(532804) 14.4kV transformer circuit 1, near Hoyt. a. Apply fault at the Hoyt 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
96	FLT96-3PH	3 phase fault on the Stranger (532772) to 87th (532775) 345kV line circuit 1, near Stranger. a. Apply fault at the Stranger 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
97	FLT97-3PH	3 phase fault on the Stranger (532772) to Iatan (542982) 345kV line circuit 1, near Stranger. a. Apply fault at the Stranger 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
98	FLT98-3PH	3 phase fault on the Stranger (533772) 345/(533268) 115/(532811) 14.4kV transformer circuit 1, near Stranger. a. Apply fault at the Stranger 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
99	FLT99-3PH	3 phase fault on the Stranger (533772) 345/(541231) 161/(532812) 14.4kV transformer circuit 1, near Stranger. a. Apply fault at the Stranger 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
100	FLT100-3PH	**ONLY FOR USE IN 3/2018 AND BEYOND** 3 phase fault on the Summit (532773) to Elm Creek (539805) 345kV line circuit 1, near Summit. a. Apply fault at the Summit 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
101	FLT101-3PH	3 phase fault on the Summit (532773) to Reno (532771) 345kV line circuit 1, near Summit. a. Apply fault at the Summit 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
102	FLT102-3PH	3 phase fault on the Summit (532773) 345/(532873) 230/(532813) 14.4kV transformer circuit 1, near Summit. a. Apply fault at the Summit 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
103	FLT103-3PH	3 phase fault on the Morris (532770) to Emporia EC (532768) 345kV line circuit 1, near Morris. a. Apply fault at the Morris 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
104	FLT104-3PH	3 phase fault on the Morris (532770) 345/(532863) 230/(532809) 14.4kV transformer circuit 1, near Morris. a. Apply fault at the Morris 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.			X
105	FLT105-3PH	3 phase fault on the Emporia EC (532768) to Swissvale (532774) 345kV line circuit 1, near Emporia EC. a. Apply fault at the Emporia EC 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.			X
106	FLT106-1PH	**JEC 230kV Stuck Breaker Scenario 1** a. Apply single phase fault at the JEC N (532852) 230kV bus. b. Wait 18 cycles and remove fault. c. Trip JEC N (532852) 230 to Auburn (532851) 230kV circuit 1. Trip JEC N (532852) 230/(532766) 345/ (532805) transformer circuit 1.			X
107	FLT107-1PH	**JEC 230kV Stuck Breaker Scenario 2** a. Apply single phase fault at the JEC N (532852) 230kV bus. b. Wait 18 cycles and remove fault. c. Trip JEC N (532852) 230 to EMANHAT (53261) 230kV circuit 1. Trip JEC N (532852) 230/(532766) 345/ (532806) transformer circuit 1.			X
108	FLT108-1PH	**JEC 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Hoyt (532765) 345kV circuit 1. Trip JEC N (532766) 345/(532852) 230/ (532805) transformer circuit 1.			X
109	FLT109-1PH	**JEC 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Hoyt (532765) 345kV circuit 1. Trip Trip JEC N (532766) to JEN Unit 2 (532652) circuit 1			X

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
110	FLT110-1PH	**JEC 230kV Stuck Breaker Scenario 5** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Morris (532770) 345kV circuit 1. Trip Trip JEC N (532766) to JEN Unit 3 (532653) circuit 1			X
111	FLT111-1PH	**JEC 230kV Stuck Breaker Scenario 6** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Morris (532861) 230kV circuit 1. Trip JEC N (532766) 345/(532852) 230/ (532805) transformer circuit 1.			X
112	FLT112-1PH	**ONLY FOR USE PRIOR TO 6/2017** **JEC 230kV Stuck Breaker Scenario 7** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Summit (532773) 345kV circuit 1. Trip JEC N (532766) 345/(532852) 230/ (532805) transformer circuit 1			X
113	FLT113-1PH	**ONLY FOR USE IN 6/2017 AND BEYOND** **JEC 230kV Stuck Breaker Scenario 8** a. Apply single phase fault at the JEC N (532766) 345kV bus. b. Wait 13 cycles and remove fault. c. Trip JEC N (532766) 345 to Geary (532767) 345kV circuit 1. Trip JEC N (532766) 345/(532852) 230/ (532806) transformer circuit 1			X
114	FLT114-3PH	**ONLY FOR USE PRIOR TO 6/2017** **JEC Prior Outage Scenario 1** a. Prior Outage: Switch out JEC N (542766) to Morris (542770) 345kV circuit 1 and solve. b. Apply 3 phase fault on the JEC N (542766) to Summit (532773) 345kV circuit 1, near LaCygne 345kV. c. Clear fault after 4.6 cycles, trip the faulted line in (b) and remove fault.			X
115	FLT115-3PH	**ONLY FOR USE IN 6/2017 AND BEYOND** **JEC Prior Outage Scenario 2** a. Prior Outage: Switch out JEC N (542766) to Morris (542770) 345kV circuit 1 and solve. b. Apply 3 phase fault on the JEC N (542766) to Geary (53232767) 345kV circuit 1, near JEC N 345kV. c. Clear fault after 4.6 cycles, trip the faulted line in (b) and remove fault.			X
116	FLT116-3PH	**ONLY FOR USE PRIOR TO 6/2017** **JEC Prior Outage Scenario 3** a. Prior Outage: Switch out JEC N (542766) to Summit (532773) 345kV circuit 1 and solve. b. Apply 3 phase fault on the JEC N (542766) to Hoyt (532765) 345kV circuit 1, near JEC N 345kV. c. Clear fault after 4.6 cycles, trip the faulted line in (b) and remove fault.			X

Table 2-3 (Continued)
Case List with Contingency Description

Cont. No.	Cont. Name	Description	GEN-2014-021	GEN-2014-050	GEN-2014-051
117	FLT117-3PH	**ONLY FOR USE IN 6/2017 AND BEYOND** **JEC Prior Outage Scenario 4** a. Prior Outage: Switch out JEC N (542766) to Geary (532767) 345kV circuit 1 and solve. b. Apply 3 phase fault on the JEC N (542766) to Hoyt (532765) 345kV circuit 1, near JEC N 345kV. c. Clear fault after 4.6 cycles, trip the faulted line in (b) and remove fault.			X
118	FLT118-3PH	**JEC Prior Outage Scenario 5** a. Prior Outage: Switch out JEC N (542766) to Morris (532770) 345kV circuit 1 and solve. b. Apply 3 phase fault on the JEC N (542766) to Hoyt (532765) 345kV circuit 1, near JEC N 345kV. c. Clear fault after 4.6 cycles, trip the faulted line in (b) and remove fault.			X

SECTION 3: STABILITY ANALYSIS

The objective of the Stability Analysis was to determine the impacts of the new wind farms on the stability and voltage recovery on the SPP transmission system. If problems with stability or voltage recovery were identified the need for reactive compensation or system upgrades were investigated.

3.1 Approach

SPP provided MEPPI with the following three saved cases:

- 2015 Winter Peak
- 2015 Summer Peak
- 2025 Summer Peak

Each case was examined prior to the Stability Analysis to ensure the case contained the proposed study projects and any previously queued projects listed in Tables 2-1 and 2-2 respectively. There was no suspect power flow data in the study area. The dynamic datasets were also verified and stable initial system conditions (i.e., "flat lines") were achieved. Three-phase and single line-to-ground faults listed in Table 2-3 were examined. Single-phase fault impedances were calculated for each season to result in a voltage of approximately 60% of the pre-fault voltage. Refer to Table 3-1 for a list of the calculated single-phase fault impedances used for this analysis.

Table 3-1
Calculated Single-Phase Fault Impedances

Ref. No.	Casename	Single-Phase Fault Impedance (MVA)		
		2015 Winter Peak	2015 Summer Peak	2025 Summer Peak
26	FLT26-1PH	-7687.5	-8500.0	-8500.0
27	FLT27-1PH	-7687.5	-8500.0	-8500.0
28	FLT28-1PH	-7687.5	-8500.0	-8500.0
29	FLT29-1PH	-10531.3	-11750.0	-11750.0
30	FLT30-1PH	-10531.3	-11750.0	-11750.0
31	FLT31-1PH	-10531.3	-11750.0	-11750.0
32	FLT32-1PH	-10531.3	-11750.0	-11750.0
33	FLT33-1PH	-10531.3	-11750.0	-11750.0
34	FLT34-1PH	-10531.3	-11750.0	-11750.0
35	FLT35-1PH	-10531.3	-11750.0	-11750.0
36	FLT36-1PH	-10531.3	-11750.0	-11750.0
37	FLT37-1PH	-10531.3	-11750.0	-11750.0
38	FLT38-1PH	-10531.3	-11750.0	-11750.0
39	FLT39-1PH	-6062.5	-7281.3	-7687.5
40	FLT40-1PH	-6062.5	-7281.3	-7687.5
67	FLT67-1PH	-6062.5	-6468.8	-6468.8
68	FLT68-1PH	-6062.5	-6468.8	-6468.8
69	FLT69-1PH	-6062.5	-6468.8	-6468.8
70	FLT70-1PH	-5250.0	-5656.3	-5656.3
71	FLT71-1PH	-5250.0	-5656.3	-5656.3
80	FLT80-1PH	-9312.5	-9312.5	-9312.5
81	FLT81-1PH	-9312.5	-9312.5	-9312.5
82	FLT82-1PH	-9312.5	-9312.5	-9312.5
106	FLT106-1PH	-6062.5	-6468.8	-6468.8
107	FLT107-1PH	-6062.5	-6468.8	-6468.8
108	FLT108-1PH	-8906.3	-9312.5	-9312.5
109	FLT109-1PH	-8906.3	-9312.5	-9312.5
110	FLT110-1PH	-8906.3	-9312.5	-9312.5
111	FLT111-1PH	-8906.3	-9312.5	-9312.5
112	FLT112-1PH	-8906.3	-9312.5	-9312.5
113	FLT113-1PH	-	-	-9312.5

Bus voltages, machine speed, machine frequency, and previously queued generation in the study area were monitored in addition to the bus voltages and machine characteristics in the following areas:

- 330 AECI
- 356 AMMO
- 536 WERE
- 540 GMO
- 541 KCPL
- 542 KACY
- 544 EMDE
- 545 INDN

- 640 NPPD
- 645 OPPD
- 650 LES
- 635 MEC
- 652 WAPA

The results of the analysis determined if reactive compensation or system upgrades were required to obtain acceptable system performance. If additional reactive compensation was required, the size, type, and location were determined. The proposed reactive reinforcements would ensure the wind farm meets FERC Order 661A low voltage requirements and return the wind farm to its pre-disturbance operating voltage. If the results indicated the need for fast responding reactive support, dynamic support such as an SVC or STATCOM was investigated. If tripping of the prior queued projects was observed during the stability analysis (for under/over voltage or under/over frequency) the simulations were re-ran with the prior queued project's voltage and frequency tripping disabled.

3.2 Cluster Scenario Results

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, the Stability Analysis determined that there were no voltage violations, wind turbine tripping, or system instability that occurred from interconnecting GEN-2014-021, GEN-2014-050, or GEN-2014-051 at 100% output for n-1 conditions.

Refer to Table 3-2 for a summary of the Stability Analysis results for the cases listed in Table 2-3. Table 3-2 is a summary of the stability results for the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions and states whether the system remained stable and if acceptable voltage recovery was observed (i.e. voltage recovers between 0.7 p.u. and 1.2 p.u.) after the fault was cleared. Note FLT116-3PH, FLT117-3PH, and FLT118-3PH (Jeffrey to Hoyt 345kV line outage following a prior line outage) were observed to cause system instability. These three faults were run in the pre-project conditions (i.e. before generation was interconnected) and the results showed system instability. These three faults are prior outage conditions (N-1-1 contingencies/NERC Category C3). The mitigation plan is to curtail GEN-2014-051 to 0MW as needed when the first line outage occurs.

Refer to Appendix B, Appendix C, and Appendix D for a complete set of plots for all contingencies for 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, respectively, for the Cluster Scenario results. Additional plots are available upon request.

Table 3-2
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
1	FLT01-3PH	Yes	Yes	Yes	Yes	Yes	Yes
2	FLT02-3PH	Yes	Yes	Yes	Yes	Yes	Yes
3	FLT03-3PH	Yes	Yes	Yes	Yes	Yes	Yes
4	FLT04-3PH	Yes	Yes	Yes	Yes	Yes	Yes
5	FLT05-3PH	Yes	Yes	Yes	Yes	Yes	Yes
6	FLT06-3PH	Yes	Yes	Yes	Yes	Yes	Yes
7	FLT07-3PH	Yes	Yes	Yes	Yes	Yes	Yes
8	FLT08-3PH	Yes	Yes	Yes	Yes	Yes	Yes
9	FLT09-3PH	Yes	Yes	Yes	Yes	Yes	Yes
10	FLT10-3PH	Yes	Yes	Yes	Yes	Yes	Yes
11	FLT11-3PH	Yes	Yes	Yes	Yes	Yes	Yes
12	FLT12-3PH	Yes	Yes	Yes	Yes	Yes	Yes
13	FLT13-3PH	Yes	Yes	Yes	Yes	Yes	Yes
14	FLT14-3PH	Yes	Yes	Yes	Yes	Yes	Yes
15	FLT15-3PH	Yes	Yes	Yes	Yes	Yes	Yes
16	FLT16-3PH	Yes	Yes	Yes	Yes	Yes	Yes
17	FLT17-3PH	Yes	Yes	Yes	Yes	Yes	Yes
18	FLT18-3PH	Yes	Yes	Yes	Yes	Yes	Yes
19	FLT19-3PH	Yes	Yes	Yes	Yes	Yes	Yes
20	FLT20-3PH	Yes	Yes	Yes	Yes	Yes	Yes
21	FLT21-3PH	Yes	Yes	Yes	Yes	Yes	Yes
22	FLT22-3PH	Yes	Yes	Yes	Yes	Yes	Yes
23	FLT23-3PH	Yes	Yes	Yes	Yes	Yes	Yes
24	FLT24-3PH	Yes	Yes	Yes	Yes	Yes	Yes
25	FLT25-3PH	Yes	Yes	Yes	Yes	Yes	Yes
26	FLT26-1PH	Yes	Yes	Yes	Yes	Yes	Yes
27	FLT27-1PH	Yes	Yes	Yes	Yes	Yes	Yes
28	FLT28-1PH	Yes	Yes	Yes	Yes	Yes	Yes
29	FLT29-1PH	Yes	Yes	Yes	Yes	Yes	Yes
30	FLT30-1PH	Yes	Yes	Yes	Yes	Yes	Yes
31	FLT31-1PH	Yes	Yes	Yes	Yes	Yes	Yes
32	FLT32-1PH	Yes	Yes	Yes	Yes	Yes	Yes
33	FLT33-1PH	Yes	Yes	Yes	Yes	Yes	Yes
34	FLT34-1PH	Yes	Yes	Yes	Yes	Yes	Yes
35	FLT35-1PH	Yes	Yes	Yes	Yes	Yes	Yes
36	FLT36-1PH	Yes	Yes	Yes	Yes	Yes	Yes
37	FLT37-1PH	Yes	Yes	Yes	Yes	Yes	Yes
38	FLT38-1PH	Yes	Yes	Yes	Yes	Yes	Yes
39	FLT39-1PH	Yes	Yes	Yes	Yes	Yes	Yes
40	FLT40-1PH	Yes	Yes	Yes	Yes	Yes	Yes
41	FLT41-3PH	Yes	Yes	Yes	Yes	Yes	Yes

Table 3-2 (continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
42	FLT42-3PH	Yes	Yes	Yes	Yes	Yes	Yes
43	FLT43-3PH	Yes	Yes	Yes	Yes	Yes	Yes
44	FLT44-3PH	Yes	Yes	Yes	Yes	Yes	Yes
46	FLT46-3PH	Yes	Yes	Yes	Yes	Yes	Yes
47	FLT47-3PH	Yes	Yes	Yes	Yes	Yes	Yes
48	FLT48-3PH	Yes	Yes	Yes	Yes	Yes	Yes
49	FLT49-3PH	Yes	Yes	Yes	Yes	Yes	Yes
50	FLT50-3PH	Yes	Yes	Yes	Yes	Yes	Yes
51	FLT51-3PH	Yes	Yes	Yes	Yes	Yes	Yes
52	FLT52-3PH	Yes	Yes	Yes	Yes	Yes	Yes
53	FLT53-3PH	Yes	Yes	Yes	Yes	Yes	Yes
54	FLT54-3PH	Yes	Yes	Yes	Yes	Yes	Yes
55	FLT55-3PH	Yes	Yes	Yes	Yes	Yes	Yes
56	FLT56-3PH	Yes	Yes	Yes	Yes	Yes	Yes
57	FLT57-3PH	Yes	Yes	Yes	Yes	Yes	Yes
58	FLT58-3PH	Yes	Yes	Yes	Yes	Yes	Yes
60	FLT60-3PH	Yes	Yes	Yes	Yes	Yes	Yes
61	FLT61-3PH	Yes	Yes	Yes	Yes	Yes	Yes
62	FLT62-3PH	Yes	Yes	Yes	Yes	Yes	Yes
63	FLT63-3PH	Yes	Yes	Yes	Yes	Yes	Yes
64	FLT64-3PH	Yes	Yes	Yes	Yes	Yes	Yes
65	FLT65-3PH	Yes	Yes	Yes	Yes	Yes	Yes
66	FLT66-3PH	Yes	Yes	Yes	Yes	Yes	Yes
67	FLT67-1PH	Yes	Yes	Yes	Yes	Yes	Yes
68	FLT68-1PH	Yes	Yes	Yes	Yes	Yes	Yes
69	FLT69-1PH	Yes	Yes	Yes	Yes	Yes	Yes
70	FLT70-1PH	Yes	Yes	Yes	Yes	Yes	Yes
71	FLT71-1PH	Yes	Yes	Yes	Yes	Yes	Yes
72	FLT72-3PH	Yes	Yes	Yes	Yes	Yes	Yes
73	FLT73-3PH	Yes	Yes	Yes	Yes	Yes	Yes
74	FLT74-3PH	Yes	Yes	Yes	Yes	Yes	Yes
75	FLT75-3PH	Yes	Yes	Yes	Yes	Yes	Yes
76	FLT76-3PH	Yes	Yes	Yes	Yes	Yes	Yes
77	FLT77-3PH	Yes	Yes	Yes	Yes	Yes	Yes
78	FLT78-3PH	Yes	Yes	Yes	Yes	Yes	Yes
79	FLT79-3PH	Yes	Yes	Yes	Yes	Yes	Yes
80	FLT80-1PH	Yes	Yes	Yes	Yes	Yes	Yes
81	FLT81-1PH	Yes	Yes	Yes	Yes	Yes	Yes
82	FLT82-1PH	Yes	Yes	Yes	Yes	Yes	Yes
83	FLT83-3PH	Yes	Yes	Yes	Yes	Yes	Yes
84	FLT84-3PH	Yes	Yes	Yes	Yes	Yes	Yes
85	FLT85-3PH	Yes	Yes	Yes	Yes	Yes	Yes

Table 3-2 (continued)
Cluster Scenario: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
86	FLT86-3PH	Yes	Yes	Yes	Yes	Yes	Yes
87	FLT87-3PH	Yes	Yes	Yes	Yes	Yes	Yes
88	FLT88-3PH	Yes	Yes	Yes	Yes	Yes	Yes
89	FLT89-3PH	Yes	Yes	Yes	Yes	N/A	N/A
90	FLT90-3PH	N/A	N/A	N/A	N/A	Yes	Yes
91	FLT91-3PH	N/A	N/A	N/A	N/A	Yes	Yes
92	FLT92-3PH	N/A	N/A	N/A	N/A	Yes	Yes
93	FLT93-3PH	Yes	Yes	Yes	Yes	Yes	Yes
94	FLT94-3PH	Yes	Yes	Yes	Yes	Yes	Yes
95	FLT95-3PH	Yes	Yes	Yes	Yes	Yes	Yes
96	FLT96-3PH	Yes	Yes	Yes	Yes	Yes	Yes
97	FLT97-3PH	Yes	Yes	Yes	Yes	Yes	Yes
98	FLT98-3PH	Yes	Yes	Yes	Yes	Yes	Yes
99	FLT99-3PH	Yes	Yes	Yes	Yes	Yes	Yes
100	FLT100-3PH	N/A	N/A	N/A	N/A	Yes	Yes
101	FLT101-3PH	Yes	Yes	Yes	Yes	Yes	Yes
102	FLT102-3PH	Yes	Yes	Yes	Yes	Yes	Yes
103	FLT103-3PH	Yes	Yes	Yes	Yes	Yes	Yes
104	FLT104-3PH	Yes	Yes	Yes	Yes	Yes	Yes
105	FLT105-3PH	Yes	Yes	Yes	Yes	Yes	Yes
106	FLT106-3PH	Yes	Yes	Yes	Yes	Yes	Yes
107	FLT107-3PH	Yes	Yes	Yes	Yes	Yes	Yes
108	FLT108-3PH	Yes	Yes	Yes	Yes	Yes	Yes
109	FLT109-3PH	Yes	Yes	Yes	Yes	Yes	Yes
110	FLT110-3PH	Yes	Yes	Yes	Yes	Yes	Yes
111	FLT111-3PH	Yes	Yes	Yes	Yes	Yes	Yes
112	FLT112-3PH	Yes	Yes	Yes	Yes	N/A	N/A
113	FLT113-3PH	N/A	N/A	N/A	N/A	Yes	Yes
114	FLT114-3PH	Yes	Yes	Yes	Yes	N/A	N/A
115	FLT115-3PH	N/A	N/A	N/A	N/A	Yes	Yes
116	FLT116-3PH	No[1]	No[1]	No[1]	No[1]	N/A	N/A
117	FLT117-3PH	N/A	N/A	N/A	N/A	No[1]	No[1]
118	FLT118-3PH	No[1]	No[1]	No[1]	No[1]	No[1]	No[1]

[1]System instability observed for pre-project conditions (i.e. before addition of the three study projects).

3.3 Stand-Alone Scenario Results: GEN-2014-021

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, the Stability Analysis determined that there were no voltage violations, wind turbine tripping, or system instability that occurred from interconnecting GEN-2014-021 at 100% output.

Refer to Table 3-3 for a summary of the Stability Analysis results for the cases listed in Table 2-3 specific to GEN-2014-021. Table 3-3 is a summary of the stability results for the 2015 Winter

Peak, 2015 Summer Peak, and 2025 Summer Peak conditions and states whether the system remained stable and if acceptable voltage recovery was observed (i.e. voltage recovers between 0.7 p.u. and 1.2 p.u.) after the fault was cleared.

Refer to Appendix E, Appendix F, and Appendix G for a complete set of plots for 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, respectively. Additional plots area available upon request.

Table 3-3
Stand Alone Scenario GEN-2014-021: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
1	FLT01-3PH	Yes	Yes	Yes	Yes	Yes	Yes
2	FLT02-3PH	Yes	Yes	Yes	Yes	Yes	Yes
3	FLT03-3PH	Yes	Yes	Yes	Yes	Yes	Yes
4	FLT04-3PH	Yes	Yes	Yes	Yes	Yes	Yes
5	FLT05-3PH	Yes	Yes	Yes	Yes	Yes	Yes
6	FLT06-3PH	Yes	Yes	Yes	Yes	Yes	Yes
7	FLT07-3PH	Yes	Yes	Yes	Yes	Yes	Yes
8	FLT08-3PH	Yes	Yes	Yes	Yes	Yes	Yes
9	FLT09-3PH	Yes	Yes	Yes	Yes	Yes	Yes
10	FLT10-3PH	Yes	Yes	Yes	Yes	Yes	Yes
11	FLT11-3PH	Yes	Yes	Yes	Yes	Yes	Yes
12	FLT12-3PH	Yes	Yes	Yes	Yes	Yes	Yes
13	FLT13-3PH	Yes	Yes	Yes	Yes	Yes	Yes
14	FLT14-3PH	Yes	Yes	Yes	Yes	Yes	Yes
15	FLT15-3PH	Yes	Yes	Yes	Yes	Yes	Yes
16	FLT16-3PH	Yes	Yes	Yes	Yes	Yes	Yes
17	FLT17-3PH	Yes	Yes	Yes	Yes	Yes	Yes
18	FLT18-3PH	Yes	Yes	Yes	Yes	Yes	Yes
19	FLT19-3PH	Yes	Yes	Yes	Yes	Yes	Yes
20	FLT20-3PH	Yes	Yes	Yes	Yes	Yes	Yes
21	FLT21-3PH	Yes	Yes	Yes	Yes	Yes	Yes
22	FLT22-3PH	Yes	Yes	Yes	Yes	Yes	Yes
23	FLT23-3PH	Yes	Yes	Yes	Yes	Yes	Yes
24	FLT24-3PH	Yes	Yes	Yes	Yes	Yes	Yes
25	FLT25-3PH	Yes	Yes	Yes	Yes	Yes	Yes
26	FLT26-1PH	Yes	Yes	Yes	Yes	Yes	Yes
27	FLT27-1PH	Yes	Yes	Yes	Yes	Yes	Yes
28	FLT28-1PH	Yes	Yes	Yes	Yes	Yes	Yes
29	FLT29-1PH	Yes	Yes	Yes	Yes	Yes	Yes
30	FLT30-1PH	Yes	Yes	Yes	Yes	Yes	Yes
31	FLT31-1PH	Yes	Yes	Yes	Yes	Yes	Yes
32	FLT32-1PH	Yes	Yes	Yes	Yes	Yes	Yes
33	FLT33-1PH	Yes	Yes	Yes	Yes	Yes	Yes

Table 3-3 (continued)
Stand Alone Scenario GEN-2014-021: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
34	FLT34-1PH	Yes	Yes	Yes	Yes	Yes	Yes
35	FLT35-1PH	Yes	Yes	Yes	Yes	Yes	Yes
36	FLT36-1PH	Yes	Yes	Yes	Yes	Yes	Yes
37	FLT37-1PH	Yes	Yes	Yes	Yes	Yes	Yes
38	FLT38-1PH	Yes	Yes	Yes	Yes	Yes	Yes
39	FLT39-1PH	Yes	Yes	Yes	Yes	Yes	Yes
40	FLT40-1PH	Yes	Yes	Yes	Yes	Yes	Yes
41	FLT41-3PH	Yes	Yes	Yes	Yes	Yes	Yes
42	FLT42-3PH	Yes	Yes	Yes	Yes	Yes	Yes
43	FLT43-3PH	Yes	Yes	Yes	Yes	Yes	Yes
44	FLT44-3PH	Yes	Yes	Yes	Yes	Yes	Yes
46	FLT46-3PH	Yes	Yes	Yes	Yes	Yes	Yes
47	FLT47-3PH	Yes	Yes	Yes	Yes	Yes	Yes
48	FLT48-3PH	Yes	Yes	Yes	Yes	Yes	Yes
49	FLT49-3PH	Yes	Yes	Yes	Yes	Yes	Yes
50	FLT50-3PH	Yes	Yes	Yes	Yes	Yes	Yes
51	FLT51-3PH	Yes	Yes	Yes	Yes	Yes	Yes
52	FLT52-3PH	Yes	Yes	Yes	Yes	Yes	Yes
53	FLT53-3PH	Yes	Yes	Yes	Yes	Yes	Yes
54	FLT54-3PH	Yes	Yes	Yes	Yes	Yes	Yes

3.4 Stand-Alone Scenario Results: GEN-2014-050

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, the Stability Analysis determined that there were no voltage violations, wind turbine tripping, or system instability that occurred from interconnecting GEN-2014-050 at 100% output.

Refer to Table 3-4 for a summary of the Stability Analysis results for the cases listed in Table 2-3 specific to GEN-2014-050. Table 3-4 is a summary of the stability results for the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions and states whether the system remained stable and if acceptable voltage recovery was observed (i.e. voltage recovers between 0.7 p.u. and 1.2 p.u.) after the fault was cleared.

Refer to Appendix H, Appendix I, and Appendix J for a complete set of plots for 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, respectively. Additional plots are available upon request.

Table 3-4
Stand Alone Scenario GEN-2014-050: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
55	FLT55-3PH	Yes	Yes	Yes	Yes	Yes	Yes
56	FLT56-3PH	Yes	Yes	Yes	Yes	Yes	Yes
57	FLT57-3PH	Yes	Yes	Yes	Yes	Yes	Yes
58	FLT58-3PH	Yes	Yes	Yes	Yes	Yes	Yes
60	FLT60-3PH	Yes	Yes	Yes	Yes	Yes	Yes
61	FLT61-3PH	Yes	Yes	Yes	Yes	Yes	Yes
62	FLT62-3PH	Yes	Yes	Yes	Yes	Yes	Yes
63	FLT63-3PH	Yes	Yes	Yes	Yes	Yes	Yes
64	FLT64-3PH	Yes	Yes	Yes	Yes	Yes	Yes
65	FLT65-3PH	Yes	Yes	Yes	Yes	Yes	Yes
66	FLT66-3PH	Yes	Yes	Yes	Yes	Yes	Yes
67	FLT67-1PH	Yes	Yes	Yes	Yes	Yes	Yes
68	FLT68-1PH	Yes	Yes	Yes	Yes	Yes	Yes
69	FLT69-1PH	Yes	Yes	Yes	Yes	Yes	Yes
70	FLT70-1PH	Yes	Yes	Yes	Yes	Yes	Yes
71	FLT71-1PH	Yes	Yes	Yes	Yes	Yes	Yes
72	FLT72-3PH	Yes	Yes	Yes	Yes	Yes	Yes
73	FLT73-3PH	Yes	Yes	Yes	Yes	Yes	Yes
74	FLT74-3PH	Yes	Yes	Yes	Yes	Yes	Yes
75	FLT75-3PH	Yes	Yes	Yes	Yes	Yes	Yes
76	FLT76-3PH	Yes	Yes	Yes	Yes	Yes	Yes
77	FLT77-3PH	Yes	Yes	Yes	Yes	Yes	Yes
78	FLT78-3PH	Yes	Yes	Yes	Yes	Yes	Yes
79	FLT79-3PH	Yes	Yes	Yes	Yes	Yes	Yes
80	FLT80-1PH	Yes	Yes	Yes	Yes	Yes	Yes
81	FLT81-1PH	Yes	Yes	Yes	Yes	Yes	Yes
82	FLT82-1PH	Yes	Yes	Yes	Yes	Yes	Yes
83	FLT83-3PH	Yes	Yes	Yes	Yes	Yes	Yes
84	FLT84-3PH	Yes	Yes	Yes	Yes	Yes	Yes
85	FLT85-3PH	Yes	Yes	Yes	Yes	Yes	Yes
86	FLT86-3PH	Yes	Yes	Yes	Yes	Yes	Yes

3.5 Stand-Alone Scenario Results: GEN-2014-051

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, the Stability Analysis determined that there were no voltage violations, wind turbine tripping, or system instability for n-1 conditions that occurred from interconnecting GEN-2014-051 at 100% output.

Refer to Table 3-5 for a summary of the Stability Analysis results for the cases listed in Table 2-3 specific to GEN-2014-051. Table 3-5 is a summary of the stability results for the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions and states whether the system remained stable and if acceptable voltage recovery was observed (i.e. voltage recovers between 0.7 p.u. and 1.2 p.u.) after the fault was cleared. Note FLT116-3PH, FLT117-3PH, and FLT118-3PH (Jeffrey to Hoyt 345kV line outage following a prior line outage) were observed to cause

system instability. These three faults were run in the pre-project conditions (i.e. before generation was interconnected) and the results showed system instability. These three faults are prior outage conditions (N-1-1 contingencies/NERC Category C3). The mitigation plan is to curtail GEN-2014-051 to 0MW as needed when the first line outage occurs.

Refer to Appendix K, Appendix L, and Appendix M for a complete set of plots for 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak conditions, respectively. Additional plots are available upon request.

Table 3-5
Stand Alone Scenario GEN-2014-051: Stability Analysis Summary of Results for 2015 Winter, 2015 Summer, and 2025 Summer Peak Conditions

Ref. No.	Case Name	2015 Winter Peak		2015 Summer Peak		2025 Summer Peak	
		Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?	Stable?	Acceptable Voltages?
64	FLT64-3PH	Yes	Yes	Yes	Yes	Yes	Yes
66	FLT66-3PH	Yes	Yes	Yes	Yes	Yes	Yes
76	FLT76-3PH	Yes	Yes	Yes	Yes	Yes	Yes
77	FLT77-3PH	Yes	Yes	Yes	Yes	Yes	Yes
78	FLT78-3PH	Yes	Yes	Yes	Yes	Yes	Yes
79	FLT79-3PH	Yes	Yes	Yes	Yes	Yes	Yes
87	FLT87-3PH	Yes	Yes	Yes	Yes	Yes	Yes
88	FLT88-3PH	Yes	Yes	Yes	Yes	Yes	Yes
89	FLT89-3PH	Yes	Yes	Yes	Yes	N/A	N/A
90	FLT90-3PH	N/A	N/A	N/A	N/A	Yes	Yes
91	FLT91-3PH	N/A	N/A	N/A	N/A	Yes	Yes
92	FLT92-3PH	N/A	N/A	N/A	N/A	Yes	Yes
93	FLT93-3PH	Yes	Yes	Yes	Yes	Yes	Yes
94	FLT94-3PH	Yes	Yes	Yes	Yes	Yes	Yes
95	FLT95-3PH	Yes	Yes	Yes	Yes	Yes	Yes
96	FLT96-3PH	Yes	Yes	Yes	Yes	Yes	Yes
97	FLT97-3PH	Yes	Yes	Yes	Yes	Yes	Yes
98	FLT98-3PH	Yes	Yes	Yes	Yes	Yes	Yes
99	FLT99-3PH	Yes	Yes	Yes	Yes	Yes	Yes
100	FLT100-3PH	N/A	N/A	N/A	N/A	Yes	Yes
101	FLT101-3PH	Yes	Yes	Yes	Yes	Yes	Yes
102	FLT102-3PH	Yes	Yes	Yes	Yes	Yes	Yes
103	FLT103-3PH	Yes	Yes	Yes	Yes	Yes	Yes
104	FLT104-3PH	Yes	Yes	Yes	Yes	Yes	Yes
105	FLT105-3PH	Yes	Yes	Yes	Yes	Yes	Yes
106	FLT106-3PH	Yes	Yes	Yes	Yes	Yes	Yes
107	FLT107-3PH	Yes	Yes	Yes	Yes	Yes	Yes
108	FLT108-3PH	Yes	Yes	Yes	Yes	Yes	Yes
109	FLT109-3PH	Yes	Yes	Yes	Yes	Yes	Yes
110	FLT110-3PH	Yes	Yes	Yes	Yes	Yes	Yes
111	FLT111-3PH	Yes	Yes	Yes	Yes	Yes	Yes
112	FLT112-3PH	Yes	Yes	Yes	Yes	N/A	N/A
113	FLT113-3PH	N/A	N/A	N/A	N/A	Yes	Yes
114	FLT114-3PH	Yes	Yes	Yes	Yes	N/A	N/A
115	FLT115-3PH	N/A	N/A	N/A	N/A	Yes	Yes
116	FLT116-3PH	No[1]	No[1]	No[1]	No[1]	N/A	N/A
117	FLT117-3PH	N/A	N/A	N/A	N/A	No[1]	No[1]
118	FLT118-3PH	No[1]	No[1]	No[1]	No[1]	No[1]	No[1]

[1]System instability observed for pre-project conditions (i.e. before addition of the three study projects).

SECTION 4: SHORT CIRCUIT ANALYSIS

The objective of this task is to quantify the three-phase to ground fault currents for 2025 Summer Peak season for each generator.

4.1 Approach

The short-circuit analysis will assess breaker adequacy and fault duties for the generator interconnection bus and five buses away from the point of interconnection. MEPPI will assume no outages to find maximum short-circuit currents that flow through the breaker. The Automatic Sequencing Fault Calculation (ASCC) function in PSS/E was utilized to perform this task. FLAT conditions were applied to pre-fault conditions and the following adjustments were utilized:

- All synchronous and asynchronous machine P and Q output was set to zero
- All transformer tap ratios were set to 1.0 p.u. and all phase shift angles were set to zero
- All generator reactance's were fixed to the subtransient reactance
- All line charging was set to zero
- All shunts were set to zero
- All loads were set to zero
- All pre-fault bus voltages were set to 1.0 p.u. and a phase shift angle of zero

4.2 Short Circuit Results

The maximum fault current for each bus is provided. Refer to Table 4-1 for the short circuit currents calculated for study project GEN-2014-021. Refer to Table 4-2 for the short circuit currents calculated for study project GEN-2014-050. Refer to Table 4-3 for the short circuit currents calculated for study project GEN-2014-051.

Table 4-1
Short Circuit Analysis for Study Project GEN-2014-021

Study Generator GEN-2014-021				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
300039	7FAIRPT	345	330	11.88
300044	7MCCRED	345	330	16.05
300073	5GENTRY	161	330	8.95
300076	5FAIRPT	161	330	15.53
300087	5HICKCK	161	330	5.14
300107	5OSBORN	161	330	7.14
300249	2FAIRPT	69	330	16.23
300500	5HUNTSDL	161	330	13.16
301347	5WINSLOW	161	330	8.76
345088	7MCCREDIE	345	356	16.05
345221	5MOBERLY	161	356	14.66
345230	7MONTGMRY	345	356	26.88
345408	7OVERTON	345	356	10.91
345409	5OVERTON	161	356	19.84
345411	5OVERTON 2	161	356	19.84
541197	MULLNCR7	345	540	7.51
541198	PECULR 7	345	540	19.65
541199	ST JOE 3	345	540	18.78
541200	PHILL 7	345	540	17.84
541201	SIBLEY 7	345	540	20.00
541202	SIBLEY 5	161	540	29.96
541225	PHILL 5	161	540	30.45
541235	DUNCAN 5	161	540	18.94
541239	HSNVL 5	161	540	15.19
541243	LKWINGB5	161	540	22.83
541244	ORRICK 5	161	540	14.26
541250	SIBLEYPL	161	540	32.18
541252	ST JOEREA 5	161	540	6.28
541253	ST JOE 5	161	540	19.91
541257	COOK 5	161	540	14.21
541258	WOODBIN5	161	540	16.76
541263	SIBLEY 2	69	540	15.86
541280	PHILL 2	69	540	9.63
541313	HARRIS	161	540	22.56
541342	PECULR 5	161	540	24.08
541346	RTCHFLD5	161	540	12.90
541400	EASTOWN7	345	540	17.39
541401	EASTOWN5	161	540	17.28
542968	STILWEL7	345	541	23.45
542972	HAWTH 7	345	541	21.16
542973	HAWTHRN5	161	541	50.88
542976	LEVEE 5	161	541	45.67
542980	NASHUA 7	345	541	20.44
542982	IATAN 7	345	541	26.11
542997	LEEDS 5	161	541	30.96
543000	BLUEVLY5	161	541	35.32
543011	CHOUTEU5	161	541	32.89
543020	BRMGHAM5	161	541	24.96

Study Generator GEN-2014-021				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
543027	RANDLPH5	161	541	30.03
543028	NASHUA-5	161	541	26.61
543080	HAWTH 2	69	541	12.56
548808	ECKLES-161	161	545	26.19
548814	SUB M-161	161	545	19.92
560009	G14-021-TAP	345	540	8.24
560746	G13-002-TAP	115	640	28.95
583910	GEN-2014-021	345	540	6.48
583914	G14-021-HV-1	345	540	5.85
635000	CBLUFFS3	345	635	30.33
635001	CBLUFFS5	161	635	37.90
635002	CBLUFFS8	69	635	25.63
635011	INDNCRK5	161	635	22.05
635013	PNYCRK 3	345	635	24.09
635014	POTTCO 3	345	635	22.66
635015	POTTCO 5	161	635	26.32
635017	ATCHSNT3	345	635	15.60
635018	ATCHSN 3	345	635	15.47
635030	RIVRBND5	161	635	33.84
635100	RLHILLS3	345	635	9.90
635200	RAUN 3	345	635	25.46
635590	FALLOW 3	345	635	9.57
635600	GRIMES 3	345	635	19.57
635630	BOONVIL3	345	635	16.61
635631	BOONVIL5	161	635	20.65
635635	MADISON3	345	635	15.38
640065	AXTELL 3	345	640	8.78
640088	BPS SUB7	115	640	15.78
640111	CLATONA7	115	640	10.20
640125	COLMB.E3	345	640	9.51
640139	COOPER 3	345	640	25.60
640140	COOPER 5	161	640	17.16
640141	COOPER_ESST8	69	640	4.46
640143	CORNFLD8	69	645	1.78
640153	CRETE__7	115	640	8.15
640171	FIRTH 7	115	640	6.10
640234	HUMBOLT5	161	645	7.46
640271	MCCOOL 3	345	640	10.01
640272	MCCOOL 7	115	640	13.89
640277	MOORE 3	345	640	20.47
640278	SHELDON7	115	640	32.55
640312	PAULINE3	345	640	7.66
640313	PAULINE7	115	640	16.47
640446	COOPER 8	69	640	4.55
645451	S3451 3	345	645	22.72
645454	S3454 3	345	645	25.56
645455	S3455 3	345	645	29.81
645456	S3456 3	345	645	32.65

Study Generator GEN-2014-021				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
645458	S3458 3	345	645	28.48
645459	S3459 3	345	645	23.26
645740	S3740 3	345	645	18.67
646201	S1201 5	161	645	30.90
646206	S1206 5	161	645	41.77
646209	S1209 5	161	645	39.10
646216	S1216 5	161	645	28.88
646217	S1217 5	161	645	31.32
646220	S1220 5	161	645	27.99
646221	S1221 5	161	645	32.23
646229	S1229 5	161	645	27.69
646231	S1231 5	161	645	38.90
646232	S1232 5	161	645	25.26
646233	S1233 5	161	645	26.21
646244	S1244 5	161	645	21.00
646250	S1250 5	161	645	34.92
646251	S1251 5	161	645	31.67
646252	S1252 5	161	645	18.96
646254	S1254 5	161	645	26.87
646255	S1255 5	161	645	42.06
646259	S1259 5	161	645	32.04
646263	S1263 5	161	645	7.62
646278	S1278 5	161	645	24.62
646280	S1280 5	161	645	9.68
646286	S1286 5	161	645	26.10
646366	S1366 5	161	645	15.33
647006	S906 N 8	69	645	32.22
647016	915TP3 8	69	645	14.97
647017	915TP9 8	69	645	13.35
647079	979TP 8	69	645	6.11
647901	S901 8	69	645	21.33
647904	S904 8	69	645	8.18
647906	S906 S 8	69	645	30.32
647909	S909 8	69	645	25.66
647916	S916 8	69	645	22.71
647924	S924 8	69	645	22.85
647928	S928 8	69	645	15.01
647938	S938 8	69	645	22.95
650114	NW68HOLDRG3	345	650	16.28
650185	WAGENER 3	345	650	19.74
650189	103&ROKEBY3	345	650	19.54
650214	NW68HOLDRG7	115	650	25.44
650242	FOLSM&PHIL7	115	650	27.71
650267	84LEIGHTON7	115	650	28.74
650271	81&OCHENEY7	115	650	23.96
650283	WAVERLY 7	115	650	20.83
650285	WAGENER 7	115	650	31.16
652571	GR ISLD3	345	640	11.47

Table 4-2
Short Circuit Analysis for Study Project GEN-2014-050

Study Generator GEN-2014-050				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
300071	5CLINTN	161	330	15.49
300739	7BLACKBERRY	345	330	12.21
300740	7SPORTSMAN	345	330	23.72
300949	7JASPER	345	330	10.62
510379	DELWARE4	138	520	10.64
510380	DELWARE7	345	520	11.27
510406	N.E.S.-7	345	520	18.35
515375	WWRDEHV7	345	524	20.51
515543	RENFROW7	345	524	12.06
530592	SMOKYHL6	230	531	6.97
532765	HOYT 7	345	536	15.40
532766	JEC N 7	345	536	23.67
532767	GEARY 7	345	536	9.84
532768	EMPEC 7	345	536	16.82
532769	LANG 7	345	536	16.62
532770	MORRIS 7	345	536	12.55
532771	RENO 7	345	536	12.14
532772	STRANGR7	345	536	22.02
532773	SUMMIT 7	345	536	10.98
532774	SWISVAL7	345	536	16.26
532775	87TH 7	345	536	19.33
532780	CANEYRV7	345	536	9.78
532781	CANEYWF7	345	536	9.52
532791	BENTON 7	345	536	18.75
532792	FR2EAST7	345	536	6.34
532793	NEOSHO 7	345	536	16.06
532794	ROSEHIL7	345	536	18.06
532796	WICHITA7	345	536	23.85
532797	WOLFCRK7	345	536	15.93
532798	VIOLA 7	345	536	13.27
532799	WAVERLY7	345	536	14.74
532800	LATHAMS7	345	536	10.32
532851	AUBURN 6	230	536	13.45
532852	JEC 6	230	536	24.73
532853	LAWHILL6	230	536	13.52
532854	LEC U5 6	230	536	13.39
532855	MIDLAND6	230	536	12.06
532856	SWISVAL6	230	536	21.47
532857	TECHILL6	230	536	11.24
532861	EMANHAT6	230	536	9.70
532862	MCDOWEL6	230	536	6.86
532863	MORRIS 6	230	536	13.36
532865	NMANHT6	230	536	8.91
532872	EMCPHER6	230	536	9.45
532873	SUMMIT 6	230	536	13.60
532874	UNIONRG6	230	536	7.32
532913	KELLY 5	161	536	5.85
532920	TECHILL5	161	536	5.77
532926	BAKER 5	161	536	8.34
532934	MARMTNE5	161	536	6.87
532937	NEOSHO 5	161	536	21.73
532986	BENTON 4	138	536	27.91
533020	NEOSHOS4	138	536	22.85
533021	NEOSHO 4	138	536	22.85
533022	NEOSHON4	138	536	22.85
533040	EVANS N4	138	536	41.06
533041	EVANS S4	138	536	41.06
533065	SG12COL4	138	536	22.51
533075	VIOLA 4	138	536	20.46
533151	AUBURN 3	115	536	21.90
533153	COLINE 3	115	536	23.38
533155	CROOKED3	115	536	20.67
533156	54&MERI3	115	536	16.92
533157	FORBES 3	115	536	12.14
533160	41CALIF3	115	536	18.86

Study Generator GEN-2014-050				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
533162	INDNOLA3	115	536	20.20
533163	HOYT 3	115	536	22.86
533166	INDIANH3	115	536	17.82
533167	KEENE 3	115	536	10.02
533171	OSAGE J3	115	536	5.15
533172	QUINTON3	115	536	18.06
533175	17&FAIR3	115	536	18.85
533176	SHAWNEE3	115	536	12.22
533177	6 GOLDN3	115	536	16.27
533178	S GAGEE3	115	536	20.83
533180	TEC E 3	115	536	29.70
533182	TECHILE3	115	536	30.13
533183	WM BROS3	115	536	10.13
533187	27CROCO3	115	536	20.33
533192	HOOKJCT3	115	536	23.96
533194	SHERWOD3	115	536	20.06
533195	CARB-KW 3	115	536	6.14
533197	HARTLND3	115	536	11.28
533219	TONGATP3	115	536	15.03
533232	BALDCRK3	115	536	14.03
533234	BISMARK3	115	536	18.60
533241	FMC 3	115	536	17.57
533248	LEC U3 3	115	536	25.24
533249	LEC U4 3	115	536	24.75
533250	LWRNCHL3	115	536	26.42
533251	MIDLNDJ3	115	536	14.46
533252	MIDLAND3	115	536	25.64
533253	MOCKBRD3	115	536	16.97
533257	19THSTJ3	115	536	15.01
533261	PENTAGN3	115	536	20.96
533264	6TH ST 3	115	536	18.09
533268	STRANGR3	115	536	31.76
533269	STULL 3	115	536	11.83
533270	STULL T3	115	536	11.95
533271	SWLWRNC3	115	536	16.97
533273	TIMBRLN3	115	536	13.02
533278	WAVERLY3	115	536	14.08
533280	WREN 3	115	536	13.26
533281	MNTCLLO3	115	536	21.93
533283	87TH 3	115	536	25.73
533284	95WAJ 3	115	536	14.87
533301	EAST ST3	115	536	9.19
533304	LANG 3	115	536	14.38
533305	MORRIS 3	115	536	12.27
533306	READING3	115	536	6.38
533307	PRAIRIE3	115	536	9.24
533308	VAUGHN 3	115	536	2.81
533309	WEMPORI3	115	536	9.77
533311	WMBROSJ3	115	536	6.79
533326	EMANHAT3	115	536	13.20
533328	FT JCT 3	115	536	14.64
533335	MCDOWEL3	115	536	17.78
533336	GEARY 3	115	536	17.16
533339	S ALMA 3	115	536	8.66
533340	SMANHAT3	115	536	12.00
533341	STAGGHL3	115	536	9.55
533359	UNIONRG3	115	536	3.63
533360	TCHOPE 3	115	536	3.24
533381	SUMMIT 3	115	536	17.65
533390	MAIZEW 4	138	536	27.50
533416	RENO 3	115	536	29.68
533456	COLINE 2	69	536	8.33
533462	TEC 2	69	536	12.43
533653	WOLFCRK2	69	536	5.90
533768	NEOSHO 2	69	536	18.61

Study Generator GEN-2014-050				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
539800	CLARKCOUNTY7	345	534	12.51
539801	THISTLE7	345	534	15.81
539804	THISTLE4	138	534	16.40
541198	PECULR 7	345	540	19.65
541200	PHILL 7	345	540	17.84
541201	SIBLEY 7	345	540	20.00
541207	ARCHIE 5	161	540	16.76
541225	PHILL 5	161	540	30.45
541231	STRANGR5	161	540	15.14
541245	KCSOUTH5	161	540	16.62
541317	NRAYMORE	161	540	7.82
541340	BELTONS5	161	540	19.62
541341	S.HARP 5	161	540	24.76
541342	PECULR 5	161	540	24.08
541343	S.HARP 2	69	540	4.30
541344	PECULRS5	161	540	23.36
542965	W.GRDNR7	345	541	23.85
542966	WGARDNR5	161	541	21.91
542968	STILWEL7	345	541	23.45
542969	STILWEL5	161	541	37.61
542977	CRAIG 7	345	541	20.67
542978	CRAIG 5	161	541	37.42
542979	PFLUMM 5	161	541	26.09
542981	LACYGNE7	345	541	24.58
542982	IATAN 7	345	541	26.11
542993	STHTOWN5	161	541	31.99
542994	HICKMAN5	161	541	18.22
542995	MONTROS5	161	541	19.78
543002	MARTCIT5	161	541	23.55
543031	SHWNMSN5	161	541	30.17
543032	MERRIAM5	161	541	28.45
543036	OLATHE 5	161	541	24.40
543037	QUARRY 5	161	541	15.61
543038	LENEXAS5	161	541	25.36
543039	LENEXAN5	161	541	26.39
543041	SHAWNEE5	161	541	23.50
543042	SPRGHL 5	161	541	10.74
543044	MOONLT 5	161	541	14.89
543046	OXFORD 5	161	541	19.44
543047	OVERLPK5	161	541	28.69
543048	COLLEGE5	161	541	26.79
543049	CEDRCRK5	161	541	26.22
543050	ANTIOCH5	161	541	21.40
543052	REEDER 5	161	541	18.53
543053	REDEL 5	161	541	23.41
543054	CEDARNL5	161	541	12.43
543055	SEOTTWA5	161	541	6.26
543056	GARDNER5	161	541	13.93
543057	BUCYRUS5	161	541	18.30
543058	NLOUISB5	161	541	8.53
543066	S.OTTWA5	161	541	6.14
543068	WAGSTAF5	161	541	12.48
543077	PLSTVAL5	161	541	9.00
543105	BULLCRK5	161	541	19.52
543126	LACKMAN5	161	541	12.90
543131	CLARE 5	161	541	12.89
543132	BNSF 5	161	541	17.77
546742	METRO 5	161	542	22.40
547469	RIV4525	161	544	23.31
562476	G14-001-TAP	345	536	10.52
572091	GEN-2008-098	345	536	12.57
583850	GEN-2014-001	345	536	7.84
583990	GEN-2014-049	345	534	7.84
584000	GEN-2014-050	345	536	9.03
584010	GEN-2014-051	345	536	8.41

Table 4-3
Short Circuit Analysis for Study Project GEN-2014-051

Study Generator GEN-2014-051				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
530558	KNOLL 6	230	531	10.95
530592	SMOKYHL6	230	531	6.97
530593	SMKYP1 6	230	531	6.05
530599	SMKYP2 6	230	531	6.47
532765	HOYT 7	345	536	15.40
532766	JEC N 7	345	536	23.67
532767	GEARY 7	345	536	9.84
532768	EMPEC 7	345	536	16.82
532769	LANG 7	345	536	16.62
532770	MORRIS 7	345	536	12.55
532771	RENO 7	345	536	12.14
532772	STRANGR7	345	536	22.02
532773	SUMMIT 7	345	536	10.98
532774	SWISVAL7	345	536	16.26
532775	87TH 7	345	536	19.33
532791	BENTON 7	345	536	18.75
532796	WICHITA7	345	536	23.85
532798	VIOLA 7	345	536	13.27
532851	AUBURN 6	230	536	13.45
532852	JEC 6	230	536	24.73
532853	LAWHILL6	230	536	13.52
532854	LEC U5 6	230	536	13.39
532855	MIDLAND6	230	536	12.06
532856	SWISVAL6	230	536	21.47
532857	TECHILL6	230	536	11.24
532861	EMANHAT6	230	536	9.70
532862	MCDOWEL6	230	536	6.86
532863	MORRIS 6	230	536	13.36
532865	NMANHT6	230	536	8.91
532871	CIRCLE 6	230	536	10.64
532872	EMCPHER6	230	536	9.45
532873	SUMMIT 6	230	536	13.60
532874	UNIONRG6	230	536	7.32
533040	EVANS N4	138	536	41.06
533151	AUBURN 3	115	536	21.90
533152	CIRCLVL3	115	536	5.91
533153	COLINE 3	115	536	23.38
533155	CROOKED3	115	536	20.67
533156	54&MERI3	115	536	16.92
533162	INDNOLA3	115	536	20.20
533163	HOYT 3	115	536	22.86
533164	HTI 3	115	536	13.42
533165	HTI JCT3	115	536	16.58
533166	INDIANH3	115	536	17.82
533167	KEENE 3	115	536	10.02
533168	N TYLER3	115	536	17.00
533169	NTHLAND3	115	536	15.14
533175	17&FAIR3	115	536	18.85

Study Generator GEN-2014-051				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
533178	S GAGEE3	115	536	20.83
533182	TECHILE3	115	536	30.13
533194	SHERWOD3	115	536	20.06
533196	EDUCATE3	115	536	16.59
533198	HOYTJS 3	115	536	19.93
533199	HOYTJN 3	115	536	18.94
533211	ARNOLD 3	115	536	7.20
533216	KERFORD3	115	536	7.22
533218	PARALEL3	115	536	5.62
533219	TONGATP3	115	536	15.03
533233	166TH 3	115	536	15.72
533242	HALLMRK3	115	536	11.91
533244	JARBALO3	115	536	24.68
533246	EFAIRMNT3	115	536	10.46
533250	LWRNCHL3	115	536	26.42
533251	MIDLNDJ3	115	536	14.46
533259	NW LEAV3	115	536	15.70
533266	SPRUCE 3	115	536	14.29
533268	STRANGR3	115	536	31.76
533272	THORNTN3	115	536	14.92
533273	TIMBRLN3	115	536	13.02
533278	WAVERLY3	115	536	14.08
533281	MNTCLLO3	115	536	21.93
533283	87TH 3	115	536	25.73
533284	95WAJ 3	115	536	14.87
533301	EAST ST3	115	536	9.19
533304	LANG 3	115	536	14.38
533305	MORRIS 3	115	536	12.27
533306	READING3	115	536	6.38
533307	PRAIRIE3	115	536	9.24
533308	VAUGHN 3	115	536	2.81
533309	WEMPORI3	115	536	9.77
533311	WMBROSJ3	115	536	6.79
533320	CLAYCSS3	115	536	2.28
533321	ANZIO 3	115	536	10.18
533323	CLAYCTR3	115	536	2.90
533326	EMANHAT3	115	536	13.20
533327	LEVEE 3	115	536	12.58
533328	FT JCT 3	115	536	14.64
533329	NCFOUND3	115	536	11.26
533330	JCTCTY 3	115	536	12.48
533333	KSU 3	115	536	11.62
533334	MATTERS3	115	536	11.71
533335	MCDOWEL3	115	536	17.78
533336	GEARY 3	115	536	17.16
533339	S ALMA 3	115	536	8.66
533340	SMANHAT3	115	536	12.00

Study Generator GEN-2014-051				
Bus				Fault Current
Number	Name	Voltage (kV)	Area	3LG (kA)
533341	STAGGHL3	115	536	9.55
533342	WJCCTY 3	115	536	13.14
533344	WJCCTYW3	115	536	13.05
533345	WILDCAT3	115	536	9.76
533347	NMANHT3	115	536	12.53
533359	UNIONRG3	115	536	3.63
533360	TCHOPE 3	115	536	3.24
533361	AEC 3	115	536	7.53
533362	CHAPMAN3	115	536	10.45
533365	EABILEN3	115	536	7.69
533368	EXIDE J3	115	536	12.59
533371	NORTHVW3	115	536	11.73
533379	SO GATE3	115	536	10.80
533381	SUMMIT 3	115	536	17.65
533413	CIRCLE 3	115	536	29.26
533415	DAVIS 3	115	536	9.15
533416	RENO 3	115	536	29.68
533417	EMCPHER3	115	536	15.32
533429	MOUNDRG3	115	536	9.74
533438	WMCPHER3	115	536	15.91
533471	ARNOLD 2	69	536	7.25
533474	ATCHCST2	115	536	6.71
539637	MRWYP16	230	534	7.58
539639	ELMCREK6	230	534	8.20
539658	CONCRD6	230	534	5.79
539801	THISTLE7	345	534	15.81
539805	ELMCREEK7	345	534	5.72
541199	ST JOE 3	345	540	18.78
541221	PLTCTY 5	161	540	15.35
541231	STRANGR5	161	540	15.14
541350	IATAN5	161	540	19.88
541400	EASTOWN7	345	540	17.39
541401	EASTOWN5	161	540	17.28
542965	W.GRDNR7	345	541	23.85
542966	WGARDNR5	161	541	21.91
542968	STILWEL7	345	541	23.45
542972	HAWTH 7	345	541	21.16
542977	CRAIG 7	345	541	20.67
542978	CRAIG 5	161	541	37.42
542980	NASHUA 7	345	541	20.44
542981	LACYGNE7	345	541	24.58
542982	IATAN 7	345	541	26.11
543028	NASHUA-5	161	541	26.61
562476	G14-001-TAP	345	536	10.52
583850	GEN-2014-001	345	536	7.84
584000	GEN-2014-050	345	536	9.03
584010	GEN-2014-051	345	536	8.41

SECTION 5: POWER FACTOR ANALYSIS

The objective of this task is to quantify the power factor at the point of interconnection for the wind farms during base case and system contingencies. SPP transmission planning practice requires interconnecting generation projects to maintain the power factor (pf) at the Point of Interconnection (POI) within +/- 0.95 pf for system intact conditions and for post-contingency conditions. This is analyzed by having the wind farm maintain a prescribed voltage schedule at the point of interconnection of 1.0 p.u. voltage, or if the pre-project voltage is higher than 1.0 p.u., to maintain the pre-project voltage schedule.

The 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak power flows provided by SPP were examined prior to the Power Factor Analysis to ensure they contained the proposed study project modeled at 100% of the nameplate rating and any previously queued projects listed in Table 2-2. There was no suspect power flow data in the study area. The proposed study project and any previously queued projects at the same point of interconnection were turned off during the power factor analysis. The wind farm(s) were then replaced by a generator modeled at the high side bus with the same real power (MW) capability as the wind farm(s) and open limits for the reactive power set points (Mvar). The generator was set to hold the POI scheduled bus voltage. Contingencies from the three-phase fault definitions provided in Table 2-3 were then applied and the reactive power required to maintain the bus voltage was recorded.

5.1 Study Project – GEN-2014-021

Approach

GEN-2014-021 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 300 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-021 generator were disabled. The pre-project voltage at the POI (Tap Nebraska City/S3458 to Mullens Creek 345 kV) for the 2015 Winter Peak conditions is 1.037 p.u., for the 2015 Summer Peak conditions is 1.034 p.u., and for the 2025 Summer Peak conditions is 1.035 p.u. Therefore, the scheduled voltage for the POI was set accordingly for each of the three cases.

Results

The power factor was calculated for 2015 Winter, 2015 Summer, and 2025 Summer Peak conditions. Table 5-1 shows the power factor results for GEN-2014-021. Note that a positive Q (Mvar) output illustrates that the generator is absorbing reactive power from the system, implying a leading power factor; a negative Q (Mvar) illustrates that the generator is supplying reactive power to the system, implying a lagging power factor.

Table 5-1
Power Factor Analysis: GEN-2014-021 (P_{GEN}=300 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-021 (P_{GEN} = 300 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
Base	0.9926	Leading	36.73	0.9924	Leading	37.26	0.9925	Leading	37.04
C1	0.9889	Lagging	-45.02	0.9875	Lagging	-47.83	0.9885	Lagging	-45.93
C2	0.9721	Leading	72.45	0.9630	Leading	83.97	0.9655	Leading	80.91
C3	0.9897	Leading	43.38	0.9890	Leading	44.81	0.9900	Leading	42.70
C4	0.9880	Leading	46.87	0.9891	Leading	44.76	0.9889	Leading	45.06
C5	0.9954	Leading	28.77	0.9955	Leading	28.64	0.9949	Leading	30.35
C6	0.9945	Leading	31.47	0.9950	Leading	30.22	0.9951	Leading	29.89
C7	0.9911	Leading	40.29	0.9896	Leading	43.68	0.9900	Leading	42.75
C8	0.9902	Leading	42.31	0.9915	Leading	39.41	0.9913	Leading	39.94
C9	0.9922	Leading	37.73	0.9916	Leading	39.16	0.9918	Leading	38.64
C10	0.9944	Leading	31.80	0.9957	Leading	27.75	0.9954	Leading	28.79
C11	0.9930	Leading	35.62	0.9931	Leading	35.43	0.9932	Leading	35.28
C12	0.9923	Leading	37.34	0.9926	Leading	36.58	0.9930	Leading	35.62
C13	0.9923	Leading	37.48	0.9915	Leading	39.38	0.9915	Leading	39.31
C14	0.9934	Leading	34.64	0.9950	Leading	30.06	0.9949	Leading	30.54
C15	0.9938	Leading	33.65	0.9948	Leading	30.81	0.9947	Leading	30.93
C16	0.9939	Leading	33.30	0.9934	Leading	34.54	0.9937	Leading	33.88
C17	0.9930	Leading	35.57	0.9925	Leading	36.97	0.9925	Leading	36.89
C18	0.9911	Leading	40.20	0.9937	Leading	33.91	0.9933	Leading	34.92
C19	0.9921	Leading	37.95	0.9933	Leading	34.95	0.9930	Leading	35.64
C20	0.9936	Leading	34.03	0.9943	Leading	32.25	0.9931	Leading	35.32
C21	0.9914	Leading	39.49	0.9917	Leading	38.83	0.9908	Leading	40.89
C22	0.9889	Lagging	-45.02	0.9875	Lagging	-47.83	0.9885	Lagging	-45.93
C23	0.9902	Leading	42.38	0.9921	Leading	37.91	0.9945	Leading	31.67
C24	0.9933	Leading	34.96	0.9934	Leading	34.68	0.9933	Leading	34.84
C25	0.9940	Leading	32.96	0.9918	Leading	38.76	0.9941	Leading	32.81
C55	0.9937	Leading	33.73	0.9944	Leading	32.00	0.9943	Leading	32.23
C56	0.9930	Leading	35.80	0.9933	Leading	34.85	0.9934	Leading	34.74
C57	0.9926	Leading	36.69	0.9923	Leading	37.33	0.9924	Leading	37.12
C58	0.9929	Leading	36.03	0.9926	Leading	36.67	0.9926	Leading	36.82
C60	0.9935	Leading	34.45	0.9943	Leading	32.25	0.9943	Leading	32.06
C61	0.9930	Leading	35.64	0.9931	Leading	35.34	0.9932	Leading	35.19
C62	0.9949	Leading	30.50	0.9964	Leading	25.70	0.9962	Leading	26.18
C63	0.9927	Leading	36.43	0.9930	Leading	35.76	0.9929	Leading	35.82
C64	0.9926	Leading	36.73	0.9924	Leading	37.26	0.9925	Leading	37.04
C65	0.9927	Leading	36.37	0.9924	Leading	37.11	0.9925	Leading	36.87
C66	0.9925	Leading	36.97	0.9923	Leading	37.32	0.9924	Leading	37.12
C87	0.9934	Leading	34.52	0.9937	Leading	33.74	0.9937	Leading	33.87

*The scheduled voltage for the POI (Tap Nebraska City/S3458 to Mullens Creek 345 kV) was 1.03748 p.u. for 2015 Winter Peak conditions, 1.0339 p.u. for 2015 Summer Peak conditions, and 1.03526 p.u. for 2025 Summer Peak conditions.

**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Table 5-1 (continued)
Power Factor Analysis: GEN-2014-021 (P_{GEN}=300 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-021 (P_{GEN} = 300 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
C88	0.9930	Leading	35.76	0.9926	Leading	36.65	0.9927	Leading	36.56
C89	0.9930	Leading	35.80	0.9924	Leading	37.28	N/A	N/A	N/A
C90	N/A	N/A	N/A	N/A	N/A	N/A	0.9925	Leading	37.01
C91	N/A	N/A	N/A	N/A	N/A	N/A	0.9925	Leading	37.04
C92	N/A	N/A	N/A	N/A	N/A	N/A	0.9925	Leading	36.99
C93	0.9926	Leading	36.74	0.9924	Leading	37.26	0.9925	Leading	37.04
C94	0.9936	Leading	34.20	0.9934	Leading	34.65	0.9933	Leading	34.85
C95	0.9927	Leading	36.50	0.9924	Leading	37.20	0.9925	Leading	36.95
C96	0.9938	Leading	33.50	0.9947	Leading	30.99	0.9948	Leading	30.70
C97	0.9923	Leading	37.34	0.9926	Leading	36.58	0.9930	Leading	35.62
C98	0.9926	Leading	36.73	0.9924	Leading	37.13	0.9925	Leading	36.87
C99	0.9925	Leading	37.00	0.9922	Leading	37.60	0.9923	Leading	37.41
C100	N/A	N/A	N/A	N/A	N/A	N/A	0.9925	Leading	36.98
C101	0.9927	Leading	36.42	0.9924	Leading	37.17	0.9925	Leading	36.95
C102	0.9926	Leading	36.78	0.9923	Leading	37.42	0.9924	Leading	37.09
C103	0.9927	Leading	36.37	0.9924	Leading	37.11	0.9925	Leading	36.87
C104	0.9926	Leading	36.68	0.9924	Leading	37.19	0.9925	Leading	37.00
C105	0.9930	Leading	35.80	0.9933	Leading	34.85	0.9934	Leading	34.74

*The scheduled voltage for the POI (Tap Nebraska City/S3458 to Mullens Creek 345 kV) was 1.03748 p.u. for 2015 Winter Peak conditions, 1.0339 p.u. for 2015 Summer Peak conditions, and 1.03526 p.u. for 2025 Summer Peak conditions.
**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Summary

The Power Factor Analysis shows that GEN-2014-021 has a power factor range of 0.9721 leading (absorbing) to 0.9889 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9630 leading (absorbing) to 0.9875 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9655 leading (absorbing) to 0.9885 lagging (supplying) for 2025 Summer Peak conditions.

5.2 Study Project – GEN-2014-050

Approach

GEN-2014-050 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 100 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-050 generator were disabled. The pre-project voltage at the POI (Swissvale 345 kV) for the 2015 Winter Peak conditions is 1.005 p.u., for the 2015 Summer Peak conditions is

1.006 p.u., and for the 2025 Summer Peak conditions is 1.005 p.u. Therefore, the scheduled voltage for the POI was set accordingly for each of the three cases.

Results

The power factor was calculated for 2015 Winter, 2015 Summer, and 2025 Summer Peak conditions. Table 5-2 shows the power factor results for GEN-2014-050. Note that a positive Q (Mvar) output illustrates that the generator is absorbing reactive power from the system, implying a leading power factor; a negative Q (Mvar) illustrates that the generator is supplying reactive power to the system, implying a lagging power factor.

Table 5-2
Power Factor Analysis: GEN-2014-050 (P_{GEN}=100 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-050 (P_{GEN} = 100 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
Base	0.9997	Leading	2.30	0.9994	Leading	3.35	0.9997	Leading	2.59
C1	0.9996	Leading	2.66	0.9998	Leading	1.91	0.9998	Leading	1.82
C2	0.9986	Lagging	-5.29	0.9988	Lagging	-4.92	0.9981	Lagging	-6.18
C3	0.9999	Leading	1.68	0.9999	Leading	1.66	0.9999	Leading	1.16
C4	0.9969	Lagging	-7.91	0.9989	Lagging	-4.68	0.9984	Lagging	-5.74
C5	0.9999	Lagging	-1.45	1.0000	Lagging	-0.89	1.0000	Lagging	-0.53
C6	0.9997	Lagging	-2.42	0.9998	Lagging	-1.94	0.9997	Lagging	-2.60
C7	0.9997	Leading	2.25	0.9995	Leading	3.26	0.9996	Leading	2.68
C8	0.9958	Lagging	-9.22	0.9993	Lagging	-3.62	0.9986	Lagging	-5.27
C9	1.0000	Lagging	-0.64	1.0000	Lagging	-0.55	1.0000	Lagging	-0.38
C10	0.9927	Lagging	-12.12	0.9934	Lagging	-11.54	0.9943	Lagging	-10.76
C11	0.9999	Lagging	-1.31	0.9999	Lagging	-1.56	0.9998	Lagging	-1.75
C12	0.9675	Lagging	-26.15	0.9714	Lagging	-24.45	0.9648	Lagging	-27.25
C13	0.9988	Lagging	-4.96	1.0000	Lagging	-0.73	0.9999	Lagging	-1.31
C14	0.9999	Lagging	-1.38	0.9998	Lagging	-1.93	0.9998	Lagging	-1.93
C15	1.0000	Lagging	-0.53	1.0000	Lagging	-0.81	0.9999	Lagging	-1.32
C16	0.9997	Leading	2.51	0.9994	Leading	3.61	0.9996	Leading	2.74
C17	0.9993	Leading	3.62	0.9990	Leading	4.47	0.9992	Leading	4.02
C18	0.9998	Leading	1.75	0.9997	Leading	2.45	0.9999	Leading	1.70
C19	0.9996	Leading	2.71	0.9994	Leading	3.54	0.9996	Leading	2.75
C20	0.9994	Leading	3.35	0.9990	Leading	4.41	0.9993	Leading	3.76
C21	0.9996	Leading	2.83	0.9993	Leading	3.85	0.9995	Leading	3.15
C22	0.9996	Leading	2.66	0.9998	Leading	1.91	0.9998	Leading	1.82
C23	0.9996	Leading	2.92	0.9992	Leading	3.89	0.9996	Leading	2.91
C24	0.9998	Leading	1.75	0.9996	Leading	2.87	0.9997	Leading	2.25
C25	0.9997	Leading	2.27	0.9993	Leading	3.62	0.9997	Leading	2.54
C55	0.9751	Leading	22.73	0.9220	Leading	42.01	0.9408	Leading	36.03
C56	0.9421	Lagging	-35.59	0.8585	Lagging	-59.74	0.8424	Lagging	-63.97
C57	1.0000	Leading	0.42	0.9909	Leading	13.59	0.9892	Leading	14.83
C58	0.9994	Leading	3.55	1.0000	Lagging	-0.20	0.9986	Lagging	-5.38
C60	0.9237	Lagging	-41.48	0.8518	Lagging	-61.50	0.8535	Lagging	-61.07
C61	0.9788	Lagging	-20.95	0.9668	Lagging	-26.43	0.9665	Lagging	-26.54
C62	0.9098	Lagging	-45.63	0.8332	Lagging	-66.37	0.8492	Lagging	-62.18
C63	0.9924	Lagging	-12.40	0.9982	Lagging	-6.06	0.9991	Lagging	-4.23
C64	0.9997	Leading	2.30	0.9994	Leading	3.35	0.9997	Leading	2.59
C65	0.9998	Leading	1.92	0.9958	Leading	9.19	0.9980	Leading	6.39
C66	0.9816	Leading	19.44	0.9999	Leading	1.27	0.9997	Leading	2.40
C87	0.5042	Lagging	-171.28	0.5455	Lagging	-153.65	0.5796	Lagging	-140.58
C88	1.0000	Leading	0.46	0.9853	Leading	17.34	0.9852	Leading	17.42

*The scheduled voltage for the POI (Swissvale 345 kV) was 1.00468 p.u. for 2015 Winter Peak conditions, 1.0058 p.u. for 2015 Summer Peak conditions, and 1.00523 p.u. for 2025 Summer Peak conditions.

**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Table 5-2 (continued)
Power Factor Analysis: GEN-2014-050 (P_{GEN}=100 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-050 (P_{GEN} = 100 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
C89	0.9597	Lagging	-29.29	0.9911	Lagging	-13.43	N/A	N/A	N/A
C90	N/A	N/A	N/A	N/A	N/A	N/A	0.9942	Lagging	-10.79
C91	N/A	N/A	N/A	N/A	N/A	N/A	0.9997	Leading	2.59
C92	N/A	N/A	N/A	N/A	N/A	N/A	0.9999	Leading	1.62
C93	0.9999	Leading	1.61	0.9995	Leading	3.30	0.9997	Leading	2.47
C94	0.6709	Lagging	-110.54	0.7659	Lagging	-83.95	0.8021	Lagging	-74.45
C95	0.9930	Lagging	-11.85	0.9725	Lagging	-23.94	0.9664	Lagging	-26.60
C96	0.9716	Lagging	-24.35	0.9215	Lagging	-42.15	0.9254	Lagging	-40.96
C97	0.9675	Lagging	-26.15	0.9714	Lagging	-24.45	0.9648	Lagging	-27.25
C98	1.0000	Leading	0.78	0.9999	Leading	1.26	1.0000	Lagging	-0.09
C99	1.0000	Lagging	-0.51	1.0000	Leading	0.87	1.0000	Lagging	-0.01
C100	N/A	N/A	N/A	N/A	N/A	N/A	1.0000	Lagging	-0.08
C101	0.9974	Lagging	-7.24	1.0000	Lagging	-0.96	0.9999	Lagging	-1.05
C102	0.9999	Leading	1.05	1.0000	Lagging	-0.76	1.0000	Lagging	-0.41
C103	0.9998	Leading	1.92	0.9958	Leading	9.19	0.9980	Leading	6.39
C104	0.9997	Lagging	-2.33	0.9961	Lagging	-8.91	0.9983	Lagging	-5.80
C105	0.9421	Lagging	-35.59	0.8585	Lagging	-59.74	0.8424	Lagging	-63.97

*The scheduled voltage for the POI (Swissvale 345 kV) was 1.00468 p.u. for 2015 Winter Peak conditions, 1.0058 p.u. for 2015 Summer Peak conditions, and 1.00523 p.u. for 2025 Summer Peak conditions.
**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Summary

The Power Factor Analysis shows that GEN-2014-050 has a power factor range of 0.9751 leading (absorbing) to 0.5042 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9220 leading (absorbing) to 0.5455 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9408 leading (absorbing) to 0.5796 lagging (supplying) for 2025 Summer Peak conditions.

5.3 Study Project – GEN-2014-051

Approach

GEN-2014-051 was disabled and a generator was placed at the study project's point of interconnect bus. The generator was modeled with PGEN = 174 MW, QMin = -9999 Mvar, and QMax = 9999 Mvar. All buses and transformers connected from the study project's POI bus to the GEN-2014-051 generator were disabled. The pre-project voltage at the POI (JEC N 345 kV) is 1.01 p.u. for all study years. Therefore, the scheduled voltage for the POI was set accordingly for each of the three cases.

Results

The power factor was calculated for 2015 Winter, 2015 Summer, and 2025 Summer Peak conditions. Table 5-3 shows the power factor results for GEN-2014-051. Note that a positive Q (Mvar) output illustrates that the generator is absorbing reactive power from the system, implying a leading power factor; a negative Q (Mvar) illustrates that the generator is supplying reactive power to the system, implying a lagging power factor.

Table 5-3
Power Factor Analysis: GEN-2014-051 (P_{GEN}=174 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-051 (P_{GEN} = 174 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
Base	0.8764	Lagging	-95.63	0.9053	Lagging	-81.67	0.9072	Lagging	-80.69
C1	0.8763	Lagging	-95.67	0.9048	Lagging	-81.88	0.9071	Lagging	-80.74
C2	0.8739	Lagging	-96.79	0.9024	Lagging	-83.08	0.9044	Lagging	-82.10
C3	0.8747	Lagging	-96.39	0.9034	Lagging	-82.57	0.9058	Lagging	-81.38
C4	0.8742	Lagging	-96.66	0.9042	Lagging	-82.21	0.9062	Lagging	-81.20
C5	0.8750	Lagging	-96.29	0.9039	Lagging	-82.36	0.9062	Lagging	-81.20
C6	0.8748	Lagging	-96.38	0.9036	Lagging	-82.49	0.9056	Lagging	-81.50
C7	0.8762	Lagging	-95.70	0.9050	Lagging	-81.77	0.9071	Lagging	-80.74
C8	0.8730	Lagging	-97.23	0.9036	Lagging	-82.48	0.9057	Lagging	-81.46
C9	0.8758	Lagging	-95.89	0.9045	Lagging	-82.02	0.9068	Lagging	-80.89
C10	0.8731	Lagging	-97.17	0.9036	Lagging	-82.49	0.9049	Lagging	-81.85
C11	0.8732	Lagging	-97.12	0.9013	Lagging	-83.64	0.9035	Lagging	-82.52
C12	0.8356	Lagging	-114.41	0.8578	Lagging	-104.27	0.8541	Lagging	-105.97
C13	0.8720	Lagging	-97.68	0.9031	Lagging	-82.72	0.9044	Lagging	-82.08
C14	0.8730	Lagging	-97.21	0.9015	Lagging	-83.55	0.9042	Lagging	-82.17
C15	0.8740	Lagging	-96.75	0.9024	Lagging	-83.08	0.9045	Lagging	-82.03
C16	0.8765	Lagging	-95.56	0.9052	Lagging	-81.69	0.9071	Lagging	-80.76
C17	0.8772	Lagging	-95.25	0.9058	Lagging	-81.39	0.9079	Lagging	-80.33
C18	0.8758	Lagging	-95.91	0.9047	Lagging	-81.96	0.9066	Lagging	-80.98
C19	0.8764	Lagging	-95.60	0.9052	Lagging	-81.67	0.9072	Lagging	-80.70
C20	0.8767	Lagging	-95.48	0.9055	Lagging	-81.52	0.9075	Lagging	-80.56
C21	0.8765	Lagging	-95.59	0.9053	Lagging	-81.62	0.9073	Lagging	-80.65
C22	0.8763	Lagging	-95.67	0.9048	Lagging	-81.88	0.9071	Lagging	-80.74
C23	0.8766	Lagging	-95.54	0.9053	Lagging	-81.63	0.9070	Lagging	-80.78
C24	0.8760	Lagging	-95.81	0.9049	Lagging	-81.82	0.9070	Lagging	-80.80
C25	0.8763	Lagging	-95.65	0.9054	Lagging	-81.58	0.9071	Lagging	-80.73
C55	0.8541	Lagging	-105.98	0.8845	Lagging	-91.77	0.8896	Lagging	-89.35
C56	0.8718	Lagging	-97.75	0.8915	Lagging	-88.41	0.8940	Lagging	-87.20
C57	0.8756	Lagging	-95.98	0.9051	Lagging	-81.76	0.9070	Lagging	-80.81
C58	0.8750	Lagging	-96.26	0.9039	Lagging	-82.32	0.9055	Lagging	-81.55
C60	0.8698	Lagging	-98.70	0.8944	Lagging	-86.99	0.8967	Lagging	-85.90
C61	0.8720	Lagging	-97.67	0.9011	Lagging	-83.75	0.9027	Lagging	-82.93
C62	0.8635	Lagging	-101.61	0.8900	Lagging	-89.15	0.8931	Lagging	-87.63
C63	0.8685	Lagging	-99.32	0.9004	Lagging	-84.06	0.9033	Lagging	-82.63
C64	0.8764	Lagging	-95.63	0.9053	Lagging	-81.67	0.9072	Lagging	-80.69
C65	0.8510	Lagging	-107.37	0.8815	Lagging	-93.20	0.8878	Lagging	-90.20
C66	0.8832	Lagging	-92.42	0.9022	Lagging	-83.19	0.9046	Lagging	-82.01
C87	0.8031	Lagging	-129.11	0.8454	Lagging	-109.95	0.8559	Lagging	-105.12
C88	0.8027	Lagging	-129.29	0.8301	Lagging	-116.88	0.8330	Lagging	-115.57

*The scheduled voltage for the POI (JEC N 345 kV) was 1.01 p.u. for all three study years.
**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Table 5-3 (continued)
Power Factor Analysis: GEN-2014-051 (P_{GEN}=174 MW)

Power Factor Analysis Power Factor Analysis: GEN-2014-051 (P_{GEN} = 174 MW)*									
Case	2015 Winter Peak			2015 Summer Peak			2025 Summer Peak		
	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)	Power Factor		Q** (MVAR)
C89	0.7982	Lagging	-131.30	0.8318	Lagging	-116.13	N/A	N/A	N/A
C90	N/A	N/A	N/A	N/A	N/A	N/A	0.8348	Lagging	-114.74
C91	N/A	N/A	N/A	N/A	N/A	N/A	0.9072	Lagging	-80.69
C92	N/A	N/A	N/A	N/A	N/A	N/A	0.9379	Lagging	-64.36
C93	0.8912	Lagging	-88.56	0.9359	Lagging	-65.46	0.9378	Lagging	-64.42
C94	0.8084	Lagging	-126.71	0.8466	Lagging	-109.39	0.8536	Lagging	-106.20
C95	0.8791	Lagging	-94.36	0.9212	Lagging	-73.49	0.9245	Lagging	-71.74
C96	0.8790	Lagging	-94.39	0.9174	Lagging	-75.46	0.9180	Lagging	-75.14
C97	0.8356	Lagging	-114.41	0.8578	Lagging	-104.27	0.8541	Lagging	-105.97
C98	0.8772	Lagging	-95.24	0.9056	Lagging	-81.51	0.9080	Lagging	-80.29
C99	0.8724	Lagging	-97.50	0.9015	Lagging	-83.52	0.9031	Lagging	-82.76
C100	N/A	N/A	N/A	N/A	N/A	N/A	0.8974	Lagging	-85.54
C101	0.8705	Lagging	-98.40	0.9002	Lagging	-84.15	0.8990	Lagging	-84.78
C102	0.8667	Lagging	-100.14	0.9043	Lagging	-82.14	0.9087	Lagging	-79.91
C103	0.8510	Lagging	-107.37	0.8815	Lagging	-93.20	0.8878	Lagging	-90.20
C104	0.8702	Lagging	-98.51	0.9033	Lagging	-82.63	0.9025	Lagging	-83.06
C105	0.8718	Lagging	-97.75	0.8915	Lagging	-88.41	0.8940	Lagging	-87.20

*The scheduled voltage for the POI (JEC N 345 kV) was 1.01 p.u. for all three study years.
**A positive Q (Mvar) output illustrates the generator is absorbing Mvars from the system, which implies a leading power factor; negative Q (Mvar) output shows the generator is supplying Mvars to the system implying a lagging power factor.

Summary

The Power Factor Analysis shows that GEN-2014-051 has a power factor range of 0.7982 to 0.8912 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.8318 to 0.9359 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.8330 to 0.9379 lagging (supplying) for 2025 Summer Peak conditions.

SECTION 6: LOW WIND/NO WIND ANALYSIS

The objective of this task is to determine the impact of low wind or no wind conditions on wind farms that interconnect to a 345 kV or 230 kV bus. The 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak power flows provided by SPP were examined for this analysis.

6.1 Approach

GEN-2014-021, GEN-2014-050, and GEN-2014-051 were disabled independently, but the collector systems remained in-service. In order to maintain generation and load balance in the SPP area, the generation was scaled after disabling the respective generator. The amount of reactive power injected into the transmission network was recorded at the respective point of

interconnection. This reactive power comes from the capacitance of the project's transmission lines and collector cables. A shunt reactor was added at the high side bus to bring the Mvar flow into the POI down to approximately zero.

6.2 Results

The reactance needed to bring the Mvar flow into the point of interconnect to zero Mvar was recorded for each season for GEN-2014-021, GEN-2014-050, and GEN-2014-051. Refer to Table 6-1 for the Low Wind/No Wind Analysis results.

Table 6-1
Low Wind/No Wind Analysis

Request	Size (MW)	Point of Interconnection	Shunt Reactors to Result in Zero Mvar Flow (Mvar)		
			2015 Winter Peak	2015 Summer Peak	2025 Summer Peak
GEN-2014-021	300	Tap Nebraska City/S3458 to Mullens Creek 345 kV	28.1	28.1	28.1
GEN-2014-050	100	Swissvale 345 kV	15.8	15.8	15.8
GEN-2014-051	174	JEC N 345 kV	25.4	25.4	25.4

SECTION 7: CONCLUSIONS

SUMMARY OF THE STABILITY ANALYSIS

For the 2015 Winter Peak, 2015 Summer Peak, and 2025 Summer Peak the Stability Analysis determined that there was no wind turbine tripping or system instability that occurred for n-1 outages or conditions. In both the Cluster Scenario study and the Stand Alone Scenario study, the Stability Analysis determined that there was system instability that occurred for the loss of the Jeffrey to Hoyt 345kV line after a prior line outage. It was determined that this is a pre-existing condition that is currently addressed by operating guides and not caused by the addition of the interconnection projects under study. The mitigation plan is to curtail GEN-2014-051 to 0MW when the first line outage occurs. For the rest of the contingencies tested, the Stability Analysis determined that there was no system instability and that no wind turbines tripped off-line as a result of interconnecting GEN-2014-021, GEN-2014-050, and GEN-2014-051 at 100% output for both the Cluster Scenario study and the Stand Alone Scenario study.

SUMMARY OF THE SHORT CIRCUIT ANALYSIS

The short circuit analysis was performed on the 2025 Summer Peak power flow for all study projects. For the GEN-2014-021 study area, the maximum fault current observed was 50.88 kA at the Hawthorne 161 kV bus. For the GEN-2014-050 study area, the maximum fault current

observed was 41.06 kA at the Gordon Evans 138 kV bus. For the GEN-2014-051 study area, the maximum fault current observed was 41.06 kA at the Gordon Evans 138 kV bus.

SUMMARY OF POWER FACTOR ANALYSIS

Study Generator GEN-2014-021

The Power Factor Analysis shows that GEN-2014-021 has a power factor range of 0.9721 leading (absorbing) to 0.9889 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9630 leading (absorbing) to 0.9875 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9655 leading (absorbing) to 0.9885 lagging (supplying) for 2025 Summer Peak conditions.

Study Generator GEN-2014-050

The Power Factor Analysis shows that GEN-2014-050 has a power factor range of 0.9751 leading (absorbing) to 0.5042 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.9220 leading (absorbing) to 0.5455 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.9408 leading (absorbing) to 0.5796 lagging (supplying) for 2025 Summer Peak conditions.

Study Generator GEN-2014-051

The Power Factor Analysis shows that GEN-2014-051 has a power factor range of 0.7982 to 0.8912 lagging (supplying) for 2015 Winter Peak conditions, a power factor range of 0.8318 to 0.9359 lagging (supplying) for 2015 Summer Peak conditions, and a power factor range of 0.8330 to 0.9379 lagging (supplying) for 2025 Summer Peak conditions.

GEN-2014-050 and GEN-2014-051 will be required to provide the pro-forma standard 0.95 leading (absorbing) to 0.95 lagging (supplying) at the Point of Interconnection (POI).

SUMMARY OF LOW WIND/NO WIND ANALYSIS

The amount of reactive power injected into the transmission network was recorded at the point of interconnection for GEN-2014-021, GEN-2014-050, and GEN-2014-051 for each season. A reactance of 28.1 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-021 for all three seasons. A reactance of 15.8 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-050 for all three seasons. A reactance of 25.4 Mvar was observed to produce zero Mvar flow at the POI for GEN-2014-051 for all three seasons.

U: Group 14 Dynamic Stability Analysis Report

See SPP report on next page.

Group 14 Impact Study

DISIS-2014-002

January 2015
Generator Interconnection

SPP Southwest Power Pool

Executive Summary

DISIS-2014-002 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the generation projects shown below.

- GEN-2014-057 – 250.0MW wind project using GE 2.0MW generators connected to a tap on the Lawton Eastside (LES) to Sunnyside 345kV circuit on the American Electric Power (AEPW) Transmission System.

There are four (4) previously queued generation projects in the Group 14 area.

A stability analysis, short circuit analysis, no wind/low wind (reduced generation) reactive analysis and power factor analysis were performed for the addition of the generation project in Group 14. The analyses were performed on three seasonal models, the modified versions of the 2015 summer peak, the 2015 winter peak, and the 2025 summer peak cases. A total of eighteen (18) contingencies were evaluated.

GEN-2014-057 was found to be stable for all conditions studied. The wind turbine generators in GEN-2014-057 have the capability of pre-contingency voltage recovery, and the post fault voltage recovery was found to be within the criterion of 0.7 pu to 1.2 pu.

A power factor analysis was performed for each interconnection project. All three study cases, 2015 summer, 2015 winter, and 2025 winter peak conditions were used in the analyses. The power factor analyses showed that GEN-2014-057 will be required to provide the pro-forma standard 0.95 leading (absorbing vars) to 0.95 lagging (supplying vars) at the Point of Interconnection (POI).

Additionally, a reduced generation analysis has shown that the interconnection request will need some type of reactor support to offset the capacitive effect on the transmission network caused by the project's transmission line and collector system during reduced generation conditions. GEN-2014-057 requires approximately 21Mvars of reactor support.

A short circuit analysis was performed for the Group 14 request. The results of the short circuit value are shown in an appendix of this report.

The Low Voltage Ride Through (LVRT) analysis showed that none of the interconnection requests in this study tripped offline when their respective POI's were faulted to draw the POI voltage down to 0.0 pu. Therefore, each interconnection request in this study meets the FECR Order #661 requirement.

All generators in the monitored areas remained stable for all of the modeled disturbances.

Nothing in this study should be construed as a guarantee of delivery or transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

Table of Contents

Executive Summary i

Table of Contents ii

1. Introduction 1

2. Facilities 2

Generating Facility 2

Interconnection Facilities 2

3. Stability Analysis 3

Model Preparation 3

Disturbances 3

Results 6

FERC LVRT Compliance 7

4. Power Factor Analysis 8

Model Preparation 8

Disturbances 8

Results 8

5. Reduced Generation Analysis 9

Model Preparation 9

Results 9

6. Short Circuit Analysis 10

Results 10

7. Conclusion 11

Appendix A: Power Factor Analysis Results 12

Appendix B: Charging Current Compensation Analysis Results 14

Appendix C: Study Plots 16

Appendix D: Short Circuit Analysis Results 17

1. Introduction

DISIS-2014-001 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting the generation projects shown below.

- GEN-2014-057 – 250.0MW wind project using GE 2.0MW wind turbine generators interconnected to a tap on the Lawton Eastside (LES) to Sunnyside 345kV circuit on the American Electric Power (AEPW) Transmission System.

There are eighteen (18) previously queued generation projects in the Group 14 area. These Interconnection Requests are listed below.

- GEN-2011-040 – 110.4MW of Vestas V100 2.0MW wind turbine generators interconnected to a tap on the Ratliff to Pooleville 138kV line.
- GEN-2011-050 – 109.8MW of Vestas V90 1.8MW wind turbine generators interconnected to a tap on the Cornville to Duncan 138kV line.
- GEN-2012-004 – 41.4MW of Vestas V100 2.0MW wind turbine generators interconnected to a tap on the Ratliff to Pooleville 138kV line.
- GEN-2013-007 – 100.0MW of Vestas V100 2.0MW wind turbine generators interconnected to a tap on the Arbuckle to Jollyville 138kV line.

A stability analysis and a power factor analysis were performed for the addition of the generation projects in Group 14. The analyses were performed on three seasonal models, the modified versions of the 2015 summer peak, the 2015 winter peak, and the 2025 summer peak cases.

The stability analysis determines the impacts of the new interconnecting projects on the stability and voltage recovery of the nearby systems and the ability of the interconnecting projects to meet FERC Order 661A. If problems with stability or voltage recovery are identified, the need for reactive compensation or system upgrades is investigated. The three-phase faults and the single line-to-ground faults listed in **Error! Reference source not found.Error! Reference source not found.** were used in the stability analysis.

The power factor analysis determines the power factor at the point of interconnection (POI) for the wind interconnection projects for pre-contingency and post-contingency conditions. The contingencies used in the power factor analysis are a subset of the stability analysis contingencies shown in **Error! Reference source not found.**.

Nothing in this System Impact Study constitutes a request for transmission service or grants the Interconnection Customer any rights to transmission service.

2. Facilities

Generating Facility

GEN-2014-057 Interconnection Customer's request to interconnect a total of 250.0MW is comprised of one hundred twenty-five (125) GE 2.0MW wind turbine generators and associated interconnection facilities.

Interconnection Facilities

The POI for GEN-2014-057 interconnection request is a tap on the Lawton Eastside to Sunnyside 345kV circuit. **Figure 2-1** depicts the one-line diagram of the local transmission system including the POI as well as the power flow model representing the request.

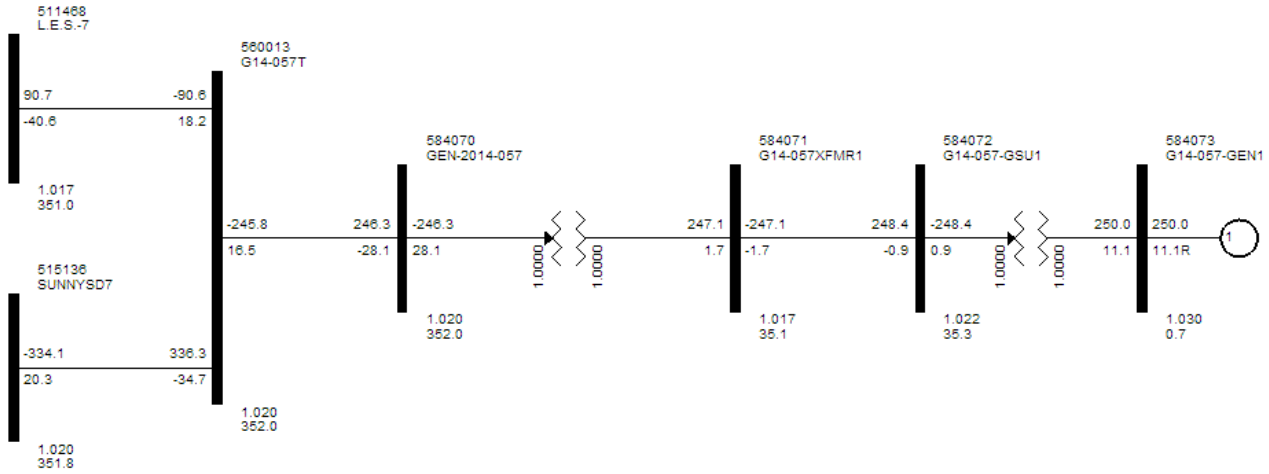

Figure 2-1: Proposed POI Configuration and Request Power Flow Model for GEN-2014-057

3. Stability Analysis

Transient stability analysis is used to determine if the transmission system can maintain angular stability and ensure bus voltages stay within planning criteria bandwidth during and after a disturbance while considering the addition of a generator interconnection request.

Model Preparation

Transient stability analysis was performed using modified versions of the 2014 series of Model Development Working Group (MDWG) dynamic study models including the 2015 summer peak, 2015 winter peak, and the 2025 summer peak seasonal models. The cases are then loaded with prior queued interconnection requests and network upgrades assigned to those interconnection requests. Finally, the prior queued and study generation are dispatched into the SPP footprint. Initial simulations are then carried out for a no-disturbance run of twenty (20) seconds to verify the numerical stability of the model.

Disturbances

Eighteen (18) contingencies were identified for use in this study and are listed in **Error! Reference source not found.**. These contingencies included three-phase faults and single-phase line faults at locations defined by SPP. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage. This method is in agreement with SPP current practice.

Except for transformer faults, the typical sequence of events for a three-phase and a single-phase fault is as follows:

1. apply fault at particular location
2. continue fault for five (5) cycles, clear the fault by tripping the faulted facility
3. after an additional twenty (20) cycles, re-close the previous facility back into the fault
4. continue fault for five (5) additional cycles
5. trip the faulted facility and remove the fault

Transformer faults are typically modeled as three-phase faults, unless otherwise noted. The sequence of events for a transformer fault is as follows:

1. apply fault for five (5) cycles
2. clear the fault by tripping the affected transformer facility (unless otherwise noted there will be no re-closing into a transformer fault)

Table 3-1: Fault Definitions

Cont. No.	Cont. Name	Description
1	FLT01-3PH	3 phase fault on the G14-057 TAP (560013) to L.E.S. (511468) 345kV line circuit 1, near G14-057 TAP. a. Apply fault at the G14-057 TAP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT02-3PH	3 phase fault on the G14-057 TAP (560013) to Sunnyside (515136) 345kV line circuit 1, near G14-057 TAP. a. Apply fault at the G14-057 TAP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
3	FLT03-3PH	3 phase fault on the L.E.S. (511468) to Gracemont (515800) 345kV line circuit 1, near L.E.S. 345kV. a. Apply fault at the L.E.S. 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT04-3PH	3 phase fault on the L.E.S. (511468) to O.K.U. (511456) 345kV line circuit 1, near L.E.S. Requires Operation Guide Actions. a. Apply fault at the L.E.S. 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Required Operation Guide Actions: Trip Oklaun (599891) – O.K.U (511456) DC Line and trip O.K.U. (511456) to TUCO INT (525832) 345 kV line circuit 1. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
5	FLT05-3PH	3 phase fault on the L.E.S. (511468) 345/(511467) 138/(511414) 13.8kV Transformer circuit 1, near L.E.S. 345kV. a. Apply fault at the L.E.S. 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
6	FLT06-3PH	3 phase fault on the Minco (514801) to Cimarron (514901) 345kV line circuit 1, near Minco. a. Apply fault at the Minco 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
7	FLT07-3PH	3 phase fault on the Sunnyside (515136) to JohnCo (514809) 345kV line circuit 1, near Sunnyside. a. Apply fault at the Sunnyside 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Table 3-1: Fault Definitions

Cont. No.	Cont. Name	Description
8	FLT08-3PH	3 phase fault on the Sunnyside (515136) to Hugo (521157) 345kV line circuit 1, near Sunnyside. a. Apply fault at the Sunnyside 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT09-3PH	3 phase fault on the Sunnyside (515136) 345/(515135) 138/(515762) 13.8kV Transformer circuit 1, near Sunnyside 345kV. a. Apply fault at the Sunnyside 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
10	FLT10-3PH	3 phase fault on the JohnCo (514809) 345/(514808) 138/(514810) 13.8kV Transformer circuit 1, near JohnCo 345kV. a. Apply fault at the JohnCo 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
11	FLT11-3PH	3 phase fault on the Hugo (521157) to Valiant (510911) 345kV line circuit 1, near Hugo. a. Apply fault at the Hugo 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
12	FLT12-3PH	3 phase fault on the Valiant (510911) to Pittsb (510907) 345kV line circuit 1, near Valiant. a. Apply fault at the Valiant 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
13	FLT13-1PH	**LES 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the L.E.S. (511468) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip L.E.S. (511468) 345/(511467) 138/(511414) 13.8kV transformer circuit 1. d. Trip L.E.S. (511468) to Gracemont (515800) 345kV line circuit 1.
14	FLT14-1PH	**LES 345kV Stuck Breaker Scenario 2** (Requires Operation Guide Actions) a. Apply single phase fault at the L.E.S. (511468) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip L.E.S. (511468) 345/(511467) 138/(511414) 13.8kV transformer circuit 1. d. Trip the L.E.S. (511468) to O.K.U. (511456) 345kV line circuit 1, near L.E.S. Requires Operation Guide Actions. e. Required Operation Guide Actions: Trip Oklaun (599891) – O.K.U (511456) DC Line and trip O.K.U. (511456) to TUCO INT (525832) 345 kV line circuit 1.

Table 3-1: Fault Definitions

Cont. No.	Cont. Name	Description
15	FLT15-1PH	**Sunnyside 345kV Stuck Breaker Scenario 1** a. Apply single phase fault at the Sunnyside (515136) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Sunnyside (515136) 345/(515135) 138/(515405) 13.8kV transformer circuit 1. d. Trip Sunnyside (511468) to Hugo (521157) 345kV line circuit 1.
16	FLT16-1PH	**Sunnyside 345kV Stuck Breaker Scenario 2** a. Apply single phase fault at the Sunnyside (515136) 345kV bus. b. Wait 16 cycles and remove fault. c. Trip Sunnyside (515136) 345/(515135) 138/(515405) 13.8kV transformer circuit 1. d. Trip Sunnyside (511468) to JohnCo (514809) 345kV line circuit 1.
17	FLT17-3PH	**Prior Outage Scenario 1** a. Prior Outage: Switch out Minco (514801) to Cimarron (514901) 345kV circuit 1 and solve. b. Apply 3 phase fault on the G14-057 TAP (560013) to Sunnyside (515136) 345kV line circuit 1, near G14-057 TAP. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT18-3PH	**Prior Outage Scenario 2** a. Prior Outage: Switch out Sunnyside (515136) to Pittb (510907) 345kV circuit 1 and solve. b. Apply 3 phase fault on the Sunnyside (515136) to Hugo (521157) 345kV line circuit 1, near Sunnyside. c. Clear fault after 5 cycles and trip the faulted line. d. Wait 20 cycles, and then re-close the line in (b) back into the fault. e. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Results

The stability analysis was performed and the results are summarized in **Table 3-1**. The results indicate that the transmission system remained stable for all contingencies studied. The plots will be available upon request.

Table 3-1: Stability Analysis Results

Contingency Number and Name		2015SP	2015WP	2025SP
1	FLT01-3PH	Stable	Stable	Stable
2	FLT02-3PH	Stable	Stable	Stable
3	FLT03-3PH	Stable	Stable	Stable
4	FLT04-3PH	Stable	Stable	Stable

Table 3-1: Stability Analysis Results

Contingency Number and Name		2015SP	2015WP	2025SP
5	FLT05-3PH	Stable	Stable	Stable
6	FLT06-3PH	Stable	Stable	Stable
7	FLT07-3PH	Stable	Stable	Stable
8	FLT08-3PH	Stable	Stable	Stable
9	FLT09-3PH	Stable	Stable	Stable
10	FLT10-3PH	Stable	Stable	Stable
11	FLT11-3PH	Stable	Stable	Stable
12	FLT12-3PH	Stable	Stable	Stable
13	FLT13-1PH	Stable	Stable	Stable
14	FLT14-1PH	Stable	Stable	Stable
15	FLT15-1PH	Stable	Stable	Stable
16	FLT16-1PH	Stable	Stable	Stable
17	FLT17-3PH	Stable	Stable	Stable
18	FLT18-3PH	Stable	Stable	Stable

FERC LVRT Compliance

FERC Order #661A places specific requirements on wind farms through its Low Voltage Ride Through (LVRT) provisions. For Interconnection Agreements signed after December 31, 2006, wind farms shall stay on line for faults at the point of interconnection (POI) that draw the voltage down at the POI to 0.0 pu.

Fault contingencies were developed to verify that wind farms remain on line when the POI voltage is drawn down to 0.0 pu. These contingencies are shown in **Table 3-2**.

Table 3-2: LVRT Contingencies

Contingency Number and Name		Description
1	FLT01-3PH	3 phase fault on the G14-057 TAP (560013) to L.E.S. (511468) 345kV line circuit 1, near G14-057 TAP.
2	FLT02-3PH	3 phase fault on the G14-057 TAP (560013) to Sunnyside (515136) 345kV line circuit 1, near G14-057 TAP.

The prior queued project wind farms remained online for the fault contingencies described in this section as well as the fault contingencies described in the Disturbances section of this report. GEN-2014-057 was found to be in compliance with FERC Order #661A.

4. Power Factor Analysis

The power factor analysis was performed for each wind project included in this study and is designed to demonstrate the reactive power requirements at the point of interconnection (POI). The power factor analysis was done for the 2015 summer, the 2015 winter, and the 2025 summer seasons. For all wind projects that require reactive power, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the POI.

Model Preparation

For each wind project included in this study, as well as previous queued projects modeled at the same POI, the wind projects were turned off for the power factor analysis. The wind farms were replaced by an equivalent generator located at the POI producing the total MW of the wind farms at that POI and 0.0 var capability.

A var generator without limits was modeled at the wind farm's POI to hold a voltage schedule at the POI consistent with the greater of the voltage schedule in the base case or unity (1.0 pu) voltage.

Disturbances

Each N-1 contingency evaluated in the Stability Analysis found in **Error! Reference source not found.** was included in the determination of the power factor requirements.

Results

The power factor ranges are summarized in **Table 4-1** and the resultant ranges are shown in **Appendix A: Power Factor Analysis Results** for each contingency. Since the analysis showed that reactive power is required for each of the study projects, the final requirement in the Generation Interconnection Agreement (GIA) for each project will be the pro-forma 95% lagging to 95% leading at the POI.

Table 4-1: Summary of Power Factor Analysis at the POI

Request	Capacity	POI	Fuel	Generator	Power Factor at POI	
					Leading (absorbing vars)	Lagging (providing vars)
GEN-2014-057	250.0MW	Tap on the Lawton Eastside to Sunnyside 345kV circuit	Wind	GE 2.0MW	0.996	0.989

NOTE: As reactive power is required for all projects, the final requirement in the GIA will be the pro-forma 95% lagging to 95% leading at the point of interconnection.

5. Reduced Generation Analysis

Interconnection requests for wind generation projects that interconnect to a 345kV or 230kV bus on the SPP system are analyzed for the capacitive charging effects during reduced generation conditions (unsuitable wind speeds, curtailment, etc.) at the generation site.

Model Preparation

The project generators and capacitors (if any), and all other wind projects that share the same POI, were turned off in the base case. The resulting reactive power injection into the transmission network comes from the capacitance of the project's transmission lines and collector cables. This reactive power injection is measured at the POI. Shunt reactors were added at the study project substation low voltage bus to bring the Mvar flow into the POI down to approximately zero.

Results

A final shunt reactor requirement for each of the studied interconnection requests is shown in **Table 5-1**. One line drawings used in the analysis are shown in **Appendix B: Charging Current Compensation Analysis Results**.

Table 5-1: Summary of Shunt Reactor Requirements

Request	Capacity	POI	Approximate Shunt Reactor Required
GEN-2014-057	200.0MW	Tap on the Lawton Eastside to Sunnyside 345kV circuit	21Mvar

The results shown are for the 2015 summer case. The other two cases (2015winter and 2025summer) were almost identical since the generation plant design is the same in all cases.

6. Short Circuit Analysis

The short circuit analysis was performed on the 2025 Summer Peak power flow case using the PSS/E ASCC program. Since the power flow model does not contain negative and zero sequence data, only three-phase symmetrical fault current levels were calculated at the point of interconnection up to and including five levels away. The following pages list the results of the analysis.

Results

The results of the short circuit analysis are shown in **Table D-1** in **Appendix D: Short Circuit Analysis Results**.

7. Conclusion

DISIS-2014-001 Interconnection Customers have requested a Definitive Interconnection System Impact Study detailing the impacts of interconnecting generation to the SPP Transmission System

GEN-2014-057 was found to be stable for all contingencies studied. The wind turbine generators in GEN-2014-057 have the capability of pre-contingency voltage recovery, and the post fault voltage recovery was found to be within the criterion of 0.7 pu to 1.2 pu.

A power factor analysis was performed for each interconnection project. All three study cases, 2015 summer, 2015 winter, and 2025 summer peak conditions were used in the analyses. The power factor analyses showed that GEN-2014-057 will be required to provide the pro-forma standard 0.95 leading (absorbing vars) to 0.95 lagging (supplying vars) at the POI.

A reduced generation analysis was done on the interconnection request. GEN-2014-057 will be required to install approximately 21 Mvar of reactors. The reactor requirements can be implemented by external reactor banks or other means.

A short circuit analysis was performed for the Group 14 request. The results of the short circuit value are shown in an appendix of this report.

The Low Voltage Ride Through (LVRT) analysis showed that GEN-2014-057 interconnection request did not trip offline when POI was faulted to draw the POI voltage down to 0.0 pu. Therefore, this interconnection request meets the FECR Order #661 requirement.

All generators in the monitored areas remained stable for all of the modeled disturbances.

Any changes to the assumptions made in this study, for example, one or more of the previously queued requests withdraw, may require a re-study at the expense of the Customer.

Nothing in this study should be construed as a guarantee of delivery or transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

Appendix A: Power Factor Analysis Results

Table A1: Power Factor Analysis at the GEN-2014-057 POI

DISIS-2014-002 Group 14 POI – Tap on the Lawton Eastside to Sunnyside 345kV circuit		2015 Summer Voltage = 1.018 pu				2015 Winter Voltage = 1.023 pu				2025 Summer Voltage = 1.024 pu			
Cont. No.	Contingency Name	Power @ POI	VARS @ POI	Power Factor		Power @ POI	VARS @ POI	Power Factor		Power @ POI	VARS @ POI	Power Factor	
0	FLT_00_NoFault	250	-6.293	1.000	LEAD	250	-4.680	1.000	LEAD	250	-8.612	0.999	LEAD
1	FLT_01_G14057Tap_LES_345kV	250	1.082	1.000	LAG	250	-4.398	1.000	LEAD	250	22.927	0.996	LAG
2	FLT_02_G14057Tap_Sunnyside_345kV	250	17.392	0.998	LAG	250	32.881	0.991	LAG	250	10.400	0.999	LAG
3	FLT_03_LES_Gracemont_345kV	250	25.062	0.995	LAG	250	22.590	0.996	LAG	250	18.042	0.997	LAG
4	FLT_04_LES_OKU_345kV	250	-16.407	0.998	LEAD	250	-11.821	0.999	LEAD	250	16.287	0.998	LAG
5	FLT_05_LES_LES_345_138kV	250	-11.731	0.999	LEAD	250	-11.474	0.999	LEAD	250	-20.843	0.997	LEAD
6	FLT_06_Minco_Cimarron_345kV	250	-5.335	1.000	LEAD	250	-12.695	0.999	LEAD	250	-18.392	0.997	LEAD
7	FLT_07_Sunnyside_JohnCo_345kV	250	3.941	1.000	LAG	250	6.404	1.000	LAG	250	-2.009	1.000	LEAD
8	FLT_08_Sunnyside_Hugo_345kV	250	30.791	0.993	LAG	250	26.290	0.995	LAG	250	36.643	0.989	LAG
9	FLT_09_Sunnyside_Sunnyside_345_138kV	250	-18.580	0.997	LEAD	250	-17.077	0.998	LEAD	250	-22.116	0.996	LEAD
10	FLT_10_JohnCo_JohnCo_345_138kV	250	-6.293	1.000	LEAD	250	-4.681	1.000	LEAD	250	-8.612	0.999	LEAD
11	FLT_11_Hugo_Valiant_345kV	250	-10.774	0.999	LEAD	250	-12.055	0.999	LEAD	250	-18.556	0.997	LEAD
12	FLT_12_Valiant_Pittsburg_345kV	250	3.456	1.000	LAG	250	7.839	1.000	LAG	250	-0.435	1.000	LEAD
13	FLT_13_LES_Gracemont_SB_345kV	250	25.062	0.995	LAG	250	22.590	0.996	LAG	250	18.042	0.997	LAG
14	FLT_14_LES_OKU_SB_345kV	250	-16.407	0.998	LEAD	250	-11.821	0.999	LAG	250	16.287	0.998	LAG
15	FLT_15_Sunnyside_Hugo_SB_345kV	250	30.791	0.993	LAG	250	26.290	0.995	LAG	250	36.643	0.989	LAG
16	FLT_16_Sunnyside_JohnCo_SB_345kV	250	3.941	1.000	LAG	250	6.404	1.000	LAG	250	-2.009	1.000	LEAD
17	FLT_17_G14057Tap_Sunnyside_PO_345kV	250	17.392	0.998	LAG	250	32.881	0.991	LAG	250	10.400	0.999	LAG
18	FLT_18_Sunnyside_Hugo_PO_345kV	250	30.791	0.993	LAG	250	26.290	0.995	LAG	250	36.643	0.989	LAG

Notes:

1. 0.nnn represents most lagging (supplying vars) power factor for the season.
2. 0.nnn represents most leading (absorbing vars) power factor for the season.
3. Contingencies 13 through 18 were not N-1 faults and were not used to show power factor requirements. These are listed for reference only.

Appendix B: Charging Current Compensation Analysis Results

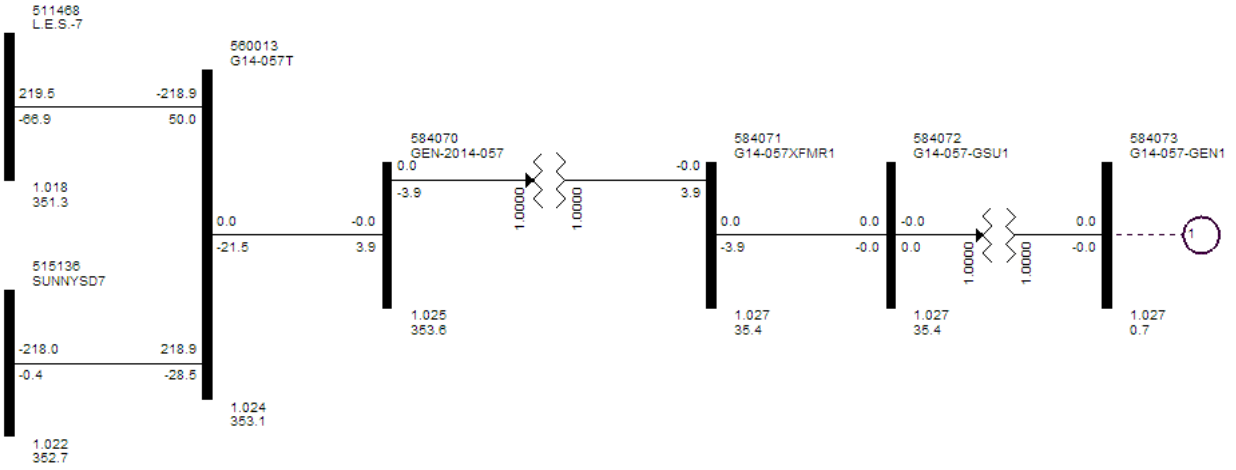

Figure B 1: GEN-2014-057 with generators off and no shunt reactors

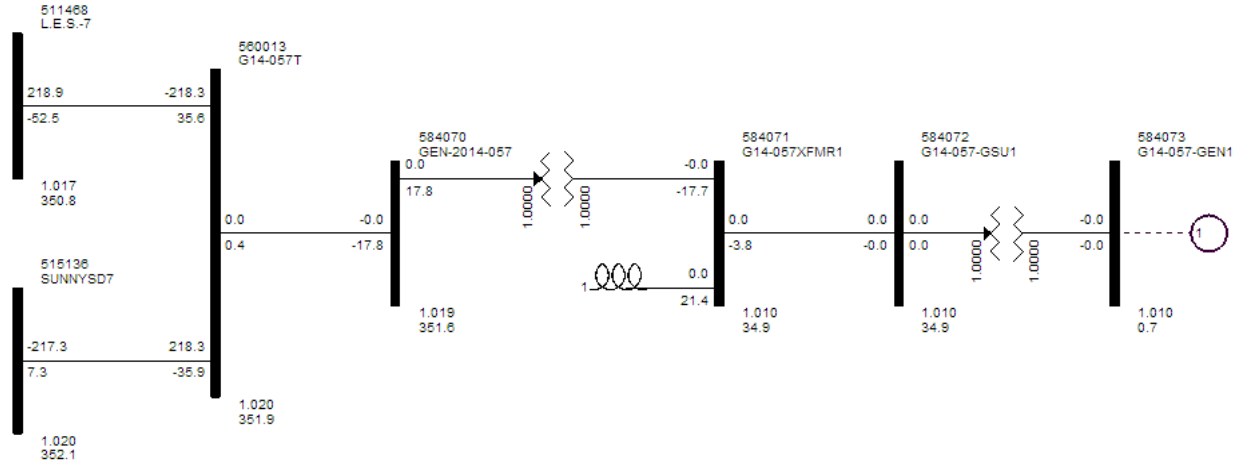

Figure B 2: GEN-2014-057 with generator turned off and shunt reactor added to the low side of the substation 345/34.5kV transformer

Appendix C: Study Plots

(Plots are available on request)

Appendix D: Short Circuit Analysis Results

Table D-1: Short Circuit Currents at GEN-2014-057 POI (G14-057T 560013) and five levels away

PSS(R)E-32.2.2 ASCC SHORT CIRCUIT CURRENTS
FRI, JAN 23 2015 10:55

2014 MDWG PASS 8 WITH 2013 MMWG

MDWG 2025S WITH MMWG 2024S

OPTIONS USED:

- DC LINES AND FACTS DEVICES BLOCKED

X---------- BUS ----------X		THREE PHASE FAULT /I+/	AN(I+)
507455 [TURK 7	345.00] AMP	8950.4	-94.94
508071 [NWTXARK4	138.00] AMP	24895.5	-94.92
508072 [NWTXARK7	345.00] AMP	13189.8	-94.46
508100 [NWTEX1-1	13.800] AMP	28826.1	-133.68
508101 [NWTEX2-1	13.800] AMP	28636.9	-133.90
508298 [LYDIA 7	345.00] AMP	12602.7	-95.20
508359 [WELSH 7	345.00] AMP	20791.5	-94.67
510866 [V-WEYCO4	138.00] AMP	9792.1	-94.71
510886 [IDABEL-4	138.00] AMP	6862.7	-95.62
510901 [HUGO---4	138.00] AMP	3505.5	-94.04
510907 [PITTSB-7	345.00] AMP	13372.4	-94.74
510910 [VALIANT2	69.000] AMP	7397.2	-100.13
510911 [VALIANT7	345.00] AMP	13074.4	-94.91
510918 [VALIANT4	138.00] AMP	14757.2	-96.84
510925 [KIOWA 7	345.00] AMP	13148.0	-94.82
510937 [VALN1-1	13.800] AMP	9064.7	-132.53
510938 [VALN2-1	13.800] AMP	39104.5	-131.46

```
 510939 [VALN3-1     13.800] AMP    32354.5  -131.70

 510946 [C-RIVER4    138.00] AMP    12776.5   -99.10

 510947 [C-RIVER1    13.800] AMP    27284.2  -100.24

 511411 [LES#5-1     13.800] AMP    28055.0  -130.75

 511412 [ELGJT1-1    13.800] AMP    10413.4  -131.51

 511413 [SWS#1--1    13.800] AMP     6469.5  -125.53

 511414 [LES#4-1     13.800] AMP    47395.6  -128.48

 511415 [LES#2-1     13.800] AMP    15525.0  -129.47

 511416 [LES#1-1     13.800] AMP    14341.7  -133.32

 511421 [VERDEN 4    138.00] AMP    10018.5   -89.56

 511422 [FLETCHR4    138.00] AMP     7951.4   -89.97

 511423 [FLE TAP4    138.00] AMP     8687.4   -90.48

 511428 [LG-YEAR4    138.00] AMP    11846.1   -91.75

 511431 [LWS   S4    138.00] AMP    11023.2   -92.36

 511436 [COMANC-2    69.000] AMP     9810.9   -93.26

 511437 [COMANC-4    138.00] AMP    17936.4   -92.64

 511439 [LWSTAP 4    138.00] AMP    11488.8   -92.30

 511445 [CARNEG-4    138.00] AMP     5875.0   -86.12

 511451 [CYRIL--2    69.000] AMP     4725.4   -87.23

 511453 [DUNCAN-4    138.00] AMP     6359.5   -81.93

 511456 [O.K.U.-7    345.00] AMP     5125.0   -93.41

 511461 [FT.SILL2    69.000] AMP     6020.6   -89.21

 511466 [L.E.S.-2    69.000] AMP    16407.9   -95.45

 511467 [L.E.S.-4    138.00] AMP    24041.3   -92.35

 511468 [L.E.S.-7    345.00] AMP    12163.5   -93.06

 511469 [LGORE-N2    69.000] AMP     8099.1   -90.42

 511470 [LGORE-S2    69.000] AMP     7056.0   -90.77

 511471 [LWS-NTP4    138.00] AMP    11604.6   -91.71
```

```
 511473 [PO.HILL2    69.000] AMP     5904.9   -89.76
 511474 [SHERID4     138.00] AMP    12272.7   -92.70
 511476 [S.W.S.-2    69.000] AMP     4315.1   -95.36
 511477 [S.W.S.-4    138.00] AMP    34211.1   -90.38
 511483 [NORGE--4    138.00] AMP    11516.7   -85.05
 511486 [ELGINJT4    138.00] AMP    10099.5   -90.87
 511487 [ELGINJT2    69.000] AMP     8663.7   -92.85
 511488 [112GORE4    138.00] AMP    12622.0   -92.05
 511490 [ELKCITY6    230.00] AMP     6986.1   -93.90
 511494 [COMMTAP4    138.00] AMP    21135.0   -92.20
 511503 [LAW  WC2    69.000] AMP     4632.5   -89.95
 511509 [53CACHE4    138.00] AMP    11645.4   -91.83
 511510 [LAIRGST4    138.00] AMP    12220.1   -92.15
 511512 [RPPAPER4    138.00] AMP    11900.2   -92.19
 511524 [L-DISTP2    69.000] AMP     9047.2   -92.30
 511537 [ARTVLTP4    138.00] AMP    11665.4   -91.87
 511538 [ARTVILL4    138.00] AMP     8477.0   -93.62
 511541 [SWEETWT6    230.00] AMP     7578.3   -92.78
 511553 [CHISHOLM7   345.00] AMP     5518.5   -95.01
 511557 [CHISHOLM6   230.00] AMP     8549.4   -94.08
 511558 [CHISHOLM1   13.200] AMP    29106.1   -98.82
 511846 [SWS1-1      14.400] AMP    59886.2   -61.14
 511847 [SWS2-1      14.400] AMP    59876.9   -60.94
 511848 [SWS3-1      24.000] AMP    91168.2   -60.18
 511849 [SWS NG4     13.800] AMP    62799.0  -121.42
 511850 [SWS NG5     13.800] AMP    62852.0  -121.42
 511851 [COM1-1      13.800] AMP    73485.1   -64.68
 511852 [COM2-1      13.800] AMP    46415.2   -64.71
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 511853 [COM3-1      13.800] AMP    38358.4   -64.74
 511944 [KIOWA G1    18.000] AMP    57615.0   -68.26
 511945 [KIOWA G2    18.000] AMP    57615.0   -68.26
 511946 [KIOWA S1    18.000] AMP    31241.4   -70.99
 511947 [KIOWA S2    18.000] AMP    31241.4   -70.99
 511948 [KIOWA G3    18.000] AMP    57615.0   -68.26
 511949 [KIOWA G4    18.000] AMP    57615.0   -68.26
 514801 [MINCO  7    345.00] AMP    16371.8   -94.49
 514808 [JOHNCO 4    138.00] AMP    14550.6   -94.82
 514809 [JOHNCO 7    345.00] AMP     8977.3   -94.83
 514810 [JOHNCO11    13.800] AMP    38820.7  -132.59
 514880 [NORTWST7    345.00] AMP    30427.7   -94.68
 514898 [CIMARON4    138.00] AMP    41131.3   -96.08
 514901 [CIMARON7    345.00] AMP    31380.5   -94.43
 514908 [ARCADIA7    345.00] AMP    24765.8   -94.47
 514934 [DRAPER 7    345.00] AMP    21477.9   -94.21
 515041 [SEMINL2G    17.100] AMP   193197.4  -124.00
 515042 [SEMINL3G    20.900] AMP   187399.7  -123.20
 515044 [SEMINOL4    138.00] AMP    58247.3   -90.21
 515045 [SEMINOL7    345.00] AMP    28305.9   -93.40
 515120 [RUSSET-4    138.00] AMP    10910.5   -91.02
 515121 [MILLCKT4    138.00] AMP    10635.7   -92.49
 515122 [SXMLCKT4    138.00] AMP    10771.8   -92.67
 515128 [RATLIFF2    69.000] AMP     4936.0   -92.53
 515129 [RATLIFF4    138.00] AMP     6055.2   -86.96
 515130 [POOLVIL4    138.00] AMP     7215.7   -89.12
 515131 [FOX    4    138.00] AMP     6165.4   -89.05
 515134 [PRARPNT4    138.00] AMP     5187.9   -86.28
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 515135 [SUNNYSD4    138.00] AMP    16964.4   -93.69
 515136 [SUNNYSD7    345.00] AMP     9905.9   -93.93
 515137 [UNIROY 4    138.00] AMP    11969.3   -91.29
 515138 [CARTER 4    138.00] AMP    12034.6   -90.50
 515143 [WOLFCRK4    138.00] AMP     9061.4   -91.32
 515144 [LONEGRV4    138.00] AMP    12407.5   -92.69
 515147 [GLASSES4    138.00] AMP     7927.7   -90.05
 515149 [MADINDT4    138.00] AMP     7919.6   -90.09
 515150 [CANEYCK4    138.00] AMP     8349.5   -92.16
 515151 [LTLCITY4    138.00] AMP     6975.0   -93.20
 515160 [MRIETA 2    69.000] AMP     1975.2   -77.14
 515162 [FNDTION4    138.00] AMP    11219.1   -89.90
 515163 [ROCKYPT2    69.000] AMP     7587.4   -93.59
 515164 [ROCKYPT4    138.00] AMP    10022.4   -92.85
 515172 [SPRNDAL4    138.00] AMP    11023.5   -90.11
 515224 [MUSKOGE7    345.00] AMP    28521.2   -96.06
 515372 [ARDWEST4    138.00] AMP    11831.5   -91.15
 515405 [SUNYSD 1    13.800] AMP    45945.3  -130.32
 515415 [CHEEKTP4    138.00] AMP    11258.9   -92.25
 515420 [SCMMRCT2    69.000] AMP     8777.7   -93.25
 515422 [C-RIVER7    345.00] AMP     9418.1   -95.95
 515443 [MNCOWND1    34.500] AMP    28829.2   -97.83
 515444 [MCNOWND7    345.00] AMP    16326.8   -94.48
 515445 [MNCOWNDT    13.800] AMP    51097.0  -128.85
 515458 [BORDER     7345.00] AMP     5214.1   -90.41
 515497 [MATHWSN7    345.00] AMP    30059.5   -94.69
 515549 [MNCWND37    345.00] AMP    11124.8   -94.56
 515550 [MNCWND31    34.500] AMP    25370.7   -98.18
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 515551 [MNCWND3T    13.800] AMP    46305.9   -99.26
 515555 [ORIGIN1XFMR134.500] AMP     9777.3   -89.31
 515557 [ORIGIN1XFMR234.500] AMP     9834.0   -89.22
 515561 [CARTRCO4    138.00] AMP     7417.8   -89.02
 515563 [ORIGINW4    138.00] AMP     4493.7   -87.97
 515566 [ORIGINT1    13.200] AMP    19403.6   -89.75
 515567 [ORIGINT2    13.200] AMP    19500.1   -89.64
 515610 [FSHRTAP7    345.00] AMP    16681.5   -94.83
 515714 [CIMARO11    13.800] AMP    37465.0  -133.80
 515715 [CIMARO21    13.800] AMP    52530.4  -131.17
 515752 [RATLIFF1    13.200] AMP     9690.1  -128.20
 515754 [ROCKYPT1    13.200] AMP     5638.9  -133.84
 515756 [SEMINO11    14.400] AMP    38202.0  -123.35
 515757 [SEMINO21    14.400] AMP    23353.1  -123.70
 515762 [SUNNYSD1    13.800] AMP    61984.6  -130.99
 515781 [RUSSET11    34.500] AMP     1880.8  -106.50
 515782 [RUSSET21    7.2000] AMP     4930.4  -136.57
 515800 [GRACMNT7    345.00] AMP    14803.2   -94.14
 515801 [GRCMNT11    13.800] AMP    45896.6  -126.60
 515802 [GRACMNT4    138.00] AMP    28651.3   -92.36
 520395 [SLICKHILLS  138.00] AMP    12817.8   -92.25
 520810 [ANADARK2    69.000] AMP    23806.2   -93.80
 520811 [ANADRK4     13.800] AMP    56248.2   -92.03
 520812 [ANADRK5     13.800] AMP    56312.1   -91.90
 520813 [ANADRK6     13.800] AMP    56245.5   -91.87
 520814 [ANADARK4    138.00] AMP    33192.3   -91.14
 520828 [BLANCHD4    138.00] AMP    21811.3   -91.79
 520867 [CORN TP4    138.00] AMP    14197.5   -87.39
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 520874 [DARWIN 4    138.00] AMP     4691.5   -98.48
 520918 [FROGVIL4    138.00] AMP    11171.1   -96.74
 520923 [GEORGIA4    138.00] AMP    18596.4   -92.25
 520947 [HUGO1       23.400] AMP   112702.4   -95.48
 520948 [HUGO PP4    138.00] AMP    22518.3   -96.21
 520953 [IDABEL 4    138.00] AMP     6217.3   -96.79
 521017 [ONEY   4    138.00] AMP    10894.4   -91.56
 521031 [POCASET4    138.00] AMP     7730.3   -91.88
 521036 [RATTAN 4    138.00] AMP     6772.7   -97.36
 521044 [RUSSETT4    138.00] AMP    10844.0   -91.04
 521067 [TEXOMAJ4    138.00] AMP     8293.4   -92.11
 521079 [VALLANT4    138.00] AMP     9513.3   -96.65
 521088 [WASHITA2    69.000] AMP    10035.7   -89.06
 521089 [WASHITA4    138.00] AMP    28226.2   -91.19
 521098 [WSTBANK4    138.00] AMP     7205.4   -97.50
 521101 [GENCO1 4    13.800] AMP    33187.0   -93.95
 521102 [GENCO2 4    13.800] AMP    33251.7   -93.92
 521110 [ORME1       13.800] AMP    51726.7   -94.52
 521111 [ORME2       13.800] AMP    51726.7   -94.52
 521112 [ORME3       13.800] AMP    51726.7   -94.52
 521122 [HOWE 4      138.00] AMP    10672.7   -92.65
 521125 [CHEEK_4     138.00] AMP     9067.9   -90.74
 521129 [BLUCAN5 4   138.00] AMP     5855.0   -88.99
 521157 [HUGO   7    345.00] AMP    10884.5   -95.87
 521179 [WASHTERT    13.800] AMP    10455.8  -128.15
 521181 [ADRKTERT    13.800] AMP    22468.5  -126.55
 521189 [HUGO TERTA  13.800] AMP     8055.9  -101.38
 525213 [SWISHER    6230.00] AMP    10543.8   -85.72
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 525524 [TOLK_EAST  6230.00] AMP    29877.9   -85.89
 525819 [TUCO_TR3   113.200] AMP    23161.9  -128.97
 525820 [TUCO_SVC   113.000] AMP    36327.2   -95.12
 525821 [TUCO_TR4   113.200] AMP    28899.7  -128.74
 525824 [TUCO_TR1   113.200] AMP    31909.0  -123.86
 525825 [TUCO_TR2   113.200] AMP    23891.3  -125.25
 525828 [TUCO_INT   3115.00] AMP    20170.3   -90.85
 525830 [TUCO_INT   6230.00] AMP    22719.3   -88.88
 525832 [TUCO_INT   7345.00] AMP    12305.0   -90.55
 525840 [ANTELOPE_1 6230.00] AMP    22543.6   -88.91
 525844 [ELK_1      118.000] AMP    43932.5  -118.13
 525845 [ELK_4     1 18.000] AMP    43925.3  -117.33
 526161 [CARLISLE   6230.00] AMP    13881.8   -91.15
 526337 [JONES      6230.00] AMP    21447.5   -91.12
 526935 [YOAKUM     6230.00] AMP    17804.2   -93.72
 526936 [YOAKUM_345  345.00] AMP     9080.5   -97.59
 526937 [YOAKUM_TR1  13.200] AMP    34246.4  -131.16
 527896 [HOBBS_INT  7345.00] AMP     8900.2   -99.66
 529304 [OMDUNCN4    138.00] AMP     6598.2   -81.71
 560013 [G14-057T    345.00] AMP     9220.4   -93.59
 562487 [G14_007-TAP 345.00] AMP     6850.3   -90.21
 583340 [GEN-2012-020230.00] AMP     9261.0   -89.06
 583790 [GEN-2014-007345.00] AMP     6850.3   -90.21
 584060 [GEN-2014-056345.00] AMP     8329.5   -94.85
 584061 [G14-056XFMR134.500] AMP    28997.2   -96.80
 584070 [GEN-2014-057345.00] AMP     6272.5   -93.10
 584071 [G14-057XFMR134.500] AMP    26790.3   -89.76
 584072 [G14-057-GSU134.500] AMP    26388.7   -88.40
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