



Feasibility Cluster Study for Generation Interconnection Requests (FCS-2010-004)

December 2010
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Tariff Studies – Generation Interconnection

Revision History

Date or Version Number	Author	Change Description	Comments
12/29/2010	Southwest Power Pool	N/A	Report Issued
01/13/2011	Southwest Power Pool	GEN-2010-044 one-line diagrams and cost allocation	

Executive Summary

Generation Interconnection customers have requested a Feasibility Study under the Generation Interconnection Procedures (GIP) in the Southwest Power Pool Open Access Transmission Tariff (OATT). The Interconnection Customers' requests have been clustered together for the following Feasibility Cluster Study. This Feasibility Cluster Study analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling approximately 350.2 MW of new generation which would be located within the transmission systems of Nebraska Public Power District (NPPD) and Sunflower Electric Power Corporation (SUNC). The various generation interconnection requests have differing proposed in-service dates¹. The generation interconnection requests included in this Feasibility Cluster Study are listed in Appendix A by their queue number, amount, area, requested interconnection point, proposed interconnection point, and the requested in-service date.

Power flow analysis has indicated that for the powerflow cases studied, 350.2 MW of nameplate generation may be interconnected with transmission system reinforcements within the SPP transmission system. The need for reactive compensation in accordance with Order No. 661-A for wind farm interconnection requests will be evaluated in the Interconnection System Impact Study based on the wind turbine manufacturer and type requested by the Customer. Dynamic stability studies performed as part of the System Impact Cluster Study will provide additional guidance as to whether the required reactive compensation can be static or a portion must be dynamic (such as a SVC).

The total estimated minimum cost for interconnecting the studied generation interconnection request is \$119,000,000. These costs are shown in Appendix E. 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 the possible need for reactive compensation or additional interconnection facilities or network upgrades that may be identified through additional analyses performed in the Preliminary Interconnection System Impact Study (PISIS).

Network Constraints listed in Appendix F are in the local area of the new generation when this generation is injected throughout the SPP footprint for the Energy Resource (ER) Interconnection Request. Certain interconnection requests have been studied for Network Resource (NR) 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 does 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.

Based on the SPP Tariff Attachment O, transmission facilities that are part of the SPP Transmission Expansion Plan (STEP) including Sponsored Economic Upgrades or the Balanced Portfolio that

¹ The generation interconnection requests in-service dates will need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customer's that proceed to the Facility Study will be provided a new in-service date based on the competition of the Facility Study.

may be approved by the SPP Board of Directors will receive notifications to construct. These projects will then be considered construction pending projects and would not be assignable to the Feasibility Cluster Study Generation Interconnection Requests. The network Upgrades identified in the Base Case Upgrades will not be assigned to the Feasibility Cluster Study for Generation Interconnection Requests.

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Introduction

Generation Interconnection customers have requested a Feasibility Study under the Generation Interconnection Procedures (GIP) in the Southwest Power Pool Open Access Transmission Tariff (OATT). The Interconnection Customers' requests have been clustered together for the following Feasibility Cluster Study. This Feasibility Cluster Study analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling approximately 350.2 MW of new generation which would be located within the transmission systems of Nebraska Public Power District (NPPD) and Sunflower Electric Power Corporation (SUNC) The various generation interconnection requests have differing proposed in-service dates². The generation interconnection requests included in this Feasibility Cluster Study are listed in Appendix A by their queue number, amount, area, requested interconnection service, requested interconnection point, proposed interconnection point, and the requested in-service date.

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

Model Development

Interconnection Requests Included in the Cluster – SPP has included the interconnection requests listed in Appendix A to be analyzed in this cluster study. These interconnection requests represent requests with an executed Feasibility Study Agreement signed by 9/30/2010.

Electrically Isolated Interconnection Requests – Electrically isolated requests are discussed in the “Regional Groupings” section.

Previous Queued Projects - The previous queued projects included in this study are listed in Appendix B. In addition to the Base Case Upgrades, the previous queued projects 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.

Development of Base Cases - The 2010 series Transmission Service Request (TSR) Models 2011 spring, summer, and winter scenario 0 peak cases were used. Also, the 2016 summer and winter scenario 0 peak cases were used for this study. After the 2011 and 2016 cases were developed, each of the control areas' resources were then redispatched using current dispatch orders.

² The generation interconnection requests in-service dates will need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customer's that proceed to the Facility Study will be provided a new in-service date based on the competition of the Facility Study.

Base Case Upgrades - The following facilities are part of the SPP Transmission Expansion Plan, Balanced Portfolio, or High Priority Projects. These facilities have been approved or are in the construction stages and were assumed to be in-service at the time of dispatch and added to the base case models. The FCS-2010-004 Customers do not have cost for the below listed projects. However, the FCS-2010-004 Customer Generation Facilities in service dated may need to be delayed until the completion of the following upgrades. If for some reason, construction on these projects is discontinued, additional restudies will be needed to determine the interconnection needs of the FCS-2010-004 customers.

- Hitchland 345/230/115kV upgrades to be built by SPS for 2010/2011 in-service³.
 - Hitchland – Moore County 230kV line
 - Hitchland – Perryton 230kV line
 - Hitchland – Texas County 115kV line
 - Hitchland – Hansford County 115kV line
 - Hitchland – Sherman County Tap 115kV line
- Valliant – Hugo – Sunnyside 345kV – assigned to Aggregate Study AG3-2006 Customers for 2012 in-service
- Wichita – Reno County – Summit 345kV to be built by WERE for 2010 in-service⁴.
- Rose Hill – Sooner 345kV to be built by WERE/OKGE for 2013 in-service.
- Knob Hill – Steele City 115kV to be built by NPPD/WERE for 2010 in-service.
- Balanced Portfolio Projects⁵:
 - Anadarko 345/138/13.2kV Autotransformer
 - Woodward– TUCO 345kV line
 - Iatan– Nashua 345kV line
 - Muskogee– Seminole 345kV line
 - Knoll– Axtell 345kV line
 - Spearville– Knoll 345kV line
 - Tap Stillwell – Swissvale 345kV line at West Gardner
- Priority Projects⁶:
 - Hitchland - Woodward double circuit 345kV
 - Woodward – Medicine Lodge double circuit 345kV
 - Spearville – Comanche double circuit 345kV
 - Comanche – Medicine Lodge double circuit 345kV
 - Medicine Lodge – Wichita double circuit 345kV
 - Medicine Lodge 345/138kV autotransformer

³ Approved 230kV upgrades are based on SPP 2007 STEP. Upgrades may need to be re-evaluated in the system impact study.

⁴ Approved based on an order of the Kansas Corporation Commission issued in Docket no. 07-WSEE-715-MIS

⁵ Notice to Construct (NTC) issued June, 2009

⁶ Notice to Construct (NTC) issued June, 2010. NTC for double circuit lines indicated that NTC may be revised at a later time to be built at a higher voltage.

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 FCS-2010-004 study and are assumed to be in service. The FCS-2010-004 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 GIA or withdraw from the interconnection queue. The FCS-2010-004 Customer Generation Facilities in service dates may need to be delayed until the completion of the following upgrades.

- Finney – Holcomb 345kV ckt #2 line assigned to GEN-2006-044 interconnection customer. This customer is currently in suspension⁷.
- Central Plains – Setab 115kV transmission line assigned to GEN-2007-013 interconnection customer.
- Spearville 345/230kV autotransformer #2 assigned to 1st Cluster Interconnection Customers (100% to GEN-2006-006)
- Grassland 230/115kV autotransformer #2 assigned to 1st Cluster Interconnection Customers (100% to GEN-2008-016)
- Spearville 230/115kV autotransformer #2 assigned to DISIS-2009-001-1 Interconnection Customers (100% to GEN-2008-079)
- Petersburg – Madison 115kV assigned to DISIS-2009-001-1 Interconnection Customers
- Judson Large – North Judson Large – Spearville Ckt #2 assigned to DISIS-2009-001-1 Interconnection Customers (100% to GEN-2008-079)
- GEN-2008-038 Tap – Barnsdall 138kV assigned to DISIS-2009-001-1 Interconnection Customers (100% to GEN-2008-038)
- Belden – Bloomfield 115kV assigned to DISIS-2009-001-1 Interconnection Customers
- Wheeler – Anadarko 345kV Ckt #1 assigned to DISIS-2010-001 Interconnection Customers
- Hitchland – Wheeler double circuit 345kV assigned to DISIS-2010-001 Interconnection Customers
- Madison County 230/115kV autotransformer #1 assigned to DISIS-2010-001 Interconnection Customers
- Norfolk – Madison County Tap 115kV Ckt #1 assigned to DISIS-2010-001 Interconnection Customers
- Washita – Anadarko 138kV Ckt #2 assigned to DISIS-2010-001 Interconnection Customers
- Knoll 345/230kV autotransformer #2 assigned to DISIS-2010-001 Interconnection Customers
- Mullergren – Rice County 230kV Ckt #1 assigned to DISIS-2010-001 Interconnection Customers
- Rice County 230/115kV autotransformer #1 assigned to DISIS-2010-001 Interconnection Customers
- Washita – Weatherford 138kV Ckt #1 assigned to DISIS-2010-001 Interconnection Customers
- GEN-2008-079 Tap – Spearville 115kV Ckt #1 assigned to DISIS-2010-001 Interconnection Customers
- Spearville 345/230kV autotransformer #3 assigned to DISIS-2010-001 Interconnection Customers

⁷ Based on Facility Study Posting November 2008

Potential Upgrades Not in the Base Case - Any potential upgrades that do not have a Notification to Construct (NTC) to construct 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 in three different regional groups based on geographical and electrical impacts. These groupings are shown in Appendix C.

To determine interconnection impacts, three different dispatch variations of the spring base case models were developed to accommodate the regional groupings.

For each group, the various wind generating plants were modeled at 80% nameplate of maximum generation. The wind generating plants in the other areas were modeled at 20% nameplate of maximum generation. This process created three different scenarios with each group being studied at 80% nameplate rating. These projects were dispatched as Energy Resources with equal distribution across the SPP footprint. Certain projects that requested Network Resource Interconnection Service were dispatched in an additional analysis into the balancing authority of the interconnecting transmission owner. 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. Additionally, each wind interconnection request was studied as a stand alone project at 100% nameplate for certain analyses.

Peaking units were not dispatched in the 2011 spring model. To study peaking units' impacts, the 2016 summer peak model was chosen and peaking units were modeled at 100% of the nameplate rating and wind generating facilities were modeled at 10% of the nameplate rating.

Identification of Network Constraints

The initial set of network constraints were found by using PTI MUST First Contingency Incremental Transfer Capability (FCITC) analysis on the entire cluster grouping dispatched at the various levels mentioned above. These constraints were then screened to determine if any of the generation interconnection requests had at least a 20% Distribution Factor (DF) upon the constraint. Constraints that measured at least a 20% DF from at least one interconnection request were considered for mitigation. Interconnection Requests that were being studied for Network Resource Interconnection Service were studied in the additional NRIS analysis to determine if any constraint had at least a 3% DF. If so, these constraints were considered for mitigation.

Identification of Electrically Isolated Groups and Requests – From the FCITC analysis, it was determined that some of the regional groups had no common impacts with the other groups. However, this determination may change as the Interconnection Customers depending upon the time at which the interconnection customers enter either the Preliminary Interconnection System Impact Study (PISIS) or the Definitive Interconnection System Impact Study (DISIS).

Determination of Cost Allocated Network Upgrades

Cost Allocated Network Upgrades of wind generation interconnection requests were determined using the 2011 spring model. Cost Allocated Network Upgrades of peaking units was determined using the 2016 summer peak model. Once a determination of the required Network Upgrades was made, a powerflow model of the 2011 spring case was developed with all cost allocated Network Upgrades in-service. A MUST FCITC analysis was performed to determine the Power Transfer Distribution Factors (PTDF), 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:

$$\text{Request X Impact Factor on Upgrade Project 1} = \text{PTDF}(\%)(X) * \text{MW}(X) = X1$$

$$\text{Request Y Impact Factor on Upgrade Project 1} = \text{PTDF}(\%)(Y) * \text{MW}(Y) = Y1$$

$$\text{Request Z Impact Factor on Upgrade Project 1} = \text{PTDF}(\%)(Z) * \text{MW}(Z) = Z1$$

- 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 for Amounts Advanced for Network Upgrades - Interconnection

Customer shall be entitled to credits in accordance with Attachment Z1 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.

Interconnection Facilities

The requirement to interconnect the 350.2 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 E with an approximate cost of \$119,000,000. Appendix E also includes Interconnection Facilities specific to each generation interconnection request.

Other Network Constraints in the AEPW, MIDW, OKGE, SPS, MIPU, NPPD, SUNC, SWPA, MKEC, WERE, and WFEC transmission systems that were identified that may be needed to deliver to load are listed in Appendix F. With a defined source and sink in a TSR, a list of Network Constraints will be refined and expanded to account for all Network Upgrade requirements.

A preliminary one-line drawing for each generation interconnection request are listed in Appendix D.

Powerflow Analysis Methodology

The Southwest Power Pool (SPP) Criteria states that:

“The transmission system of the SPP region shall be planned and constructed so that the contingencies as set forth in the Criteria will meet the applicable *NERC Reliability Standards* for transmission planning. All MDWG power flow models shall be tested to verify compliance with the System Performance Standards from NERC Table 1 – Category A.”

The FCITC function of MUST was used to simulate single contingencies in portions or all of the modeled control areas of AEPW, EMDE, Grand River Dam Authority (GRDA), Kansas City Power & Light (KCPL), LES, MIDW, MIPU, NPPD, OPPD, OKGE, SPS, SUNC, WERE, WFEC and other control areas were applied and the resulting scenarios analyzed. This satisfies the “more probable” contingency testing criteria mandated by NERC and the SPP criteria.

Powerflow Analysis

A powerflow analysis was conducted for each Interconnection Customer's facility using modified versions of the 2011 (spring, summer, and winter) peak models and the 2016 (summer and winter) 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 (ER) Interconnection Request. The available seasonal models used were through the 2016 Winter Peak. Certain requests that requested Network Resource Interconnection Service (NRIS) had an additional analysis conducted for sinking the energy in the interconnecting Transmission Owner's balancing authority.

This analysis was conducted assuming that previous queued requests in the immediate area of these interconnect requests were in-service. The analysis of the each Customer's project indicates that additional criteria violations will occur on the AEPW, MIDW, MIPU, NPPD, OKGE, SPS, SUNC, SWPA, MKEC, WERE, and WFEC transmission systems under steady state and contingency conditions in the peak seasons.

The need for reactive compensation will be determined during the Interconnection System Impact Study. The need for reactive compensation will be based on the Interconnection Customer's choice of wind turbine make and manufacturer. Dynamic Stability studies performed as part of the System Impact Cluster Study will provide additional guidance as to whether the reactive compensation can be static or a portion must be dynamic (such as a SVC or STATCOM). It is possible that an SVC or STATCOM device will be required at the Customer facility because of FERC Order 661A Low Voltage Ride-Through Provisions (LVRT) which went into effect January 1, 2006. FERC Order 661A orders that wind farms stay on-line for 3-phase faults at the point of interconnection even if that requires the installation of a SVC or STATCOM device.

Spearville Area - This study area contained 100.8 MW of interconnection requests. Constraints were observed in the Judson Large area. To mitigate the issues observed, a third 115kV circuit from a new Spearville Greenfield substation to the North Dodge substation was added. In addition, a second Spearville 345/115kV autotransformer was added.

North Nebraska Area - This group had 150.4 MW of requested generation. The major constraint in the North Nebraska area was noticed on the Ainsworth – Stuart – Atkinson – Emmet - O'Neill 115kV transmission line. To mitigate this constraint, a new transmission line must be constructed from Stuart to O'Neill and the existing transmission line will need to be rebuilt.

Southwest Nebraska Area - This group had 99 MW of requested generation. A higher queued request, GEN-2010-047, is currently being studied in DISIS-2010-002. GEN-2010-047 triggered some of the upgrades in this area and will be cost allocated those upgrades in DISIS-2010-002. The major constraints in this area were overloads on the Harbine – GEN-2010-047 Tap – Beatrice 115kV line and the Fairbury – Harbine 115kV line. To mitigate these constraints the Harbine – GEN-2010-047 Tap – Beatrice 115kV line was rebuilt. In addition, a new 115kV transmission line from Beatrice Power Station – Crete substation will be needed (with related substation work) as well as a new 115kV line from GEN-2010-047 Tap – Beatrice Power Station.

Conclusion

The minimum cost of interconnecting all of the interconnection requests included in the Feasibility Cluster Study is estimated at \$119,000,000 for the Allocated Network Upgrades and Transmission Owner Interconnection Facilities are listed in Appendix E. These costs do not include the cost of upgrades of other transmission facilities listed in Appendix F which are Network Constraints.

These interconnection costs do not include any cost of Network Upgrades determined to be required by AC powerflow, short circuit or transient stability analysis. These studies will be performed if the Interconnection Customer executes the appropriate Interconnection System Impact Study Agreement and provides the required data along with demonstration of Site Control and the appropriate deposit. At the time of the System Impact Cluster Study, a better determination of the interconnection facilities may be available.

The required interconnection costs listed in Appendix E, 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).

Appendix

A: Generation Interconnection Requests Considered for Feasibility Study

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date
GEN-2010-037	100.8	ER	MKEC	North Fort Dodge 115kV	North Fort Dodge 115kV	12/31/2011
GEN-2010-039	150.4	NR	NPPD	Stuart 115kV	Stuart 115kV	12/31/2012
GEN-2010-044	99	NR	NPPD	^Harbine 115kV or *Tap Harbine – Beatrice 115kV	Studied at both points for Feasibility Study	11/1/2012
TOTAL	350.2					

* Planned Facility

^ Proposed Facility

*** Electrically Remote Interconnection Requests

B: Prior Queued Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2001-014	96	WFEC	Fort Supply 138kV	On-Line
GEN-2001-026	74	WFEC	Washita 138kV	On-Line
GEN-2001-033	180	SPS	San Juan Mesa Tap 230kV	On-Line
GEN-2001-036	80	SPS	Caprock Tap 115kV	On-Line
GEN-2001-037	100	OKGE	Windfarm Switching 138kV	On-Line
GEN-2001-039A	105	WPEK	Greensburg - Judson-Large 115kV	On Schedule for 2011
GEN-2001-039M	100	SUNC	Central Plains Tap 115kV	On-Line
GEN-2002-004	200	WERE	Latham 345kV	On-Line
GEN-2002-005	120	WFEC	Red Hills Tap 138kV	On-Line
GEN-2002-006	150	SPS	Texas County 115kV	IA Executed/On Schedule 12/31/2010
GEN-2002-008	240	SPS	*Hitchland 345kV	On-Line at 120MW
GEN-2002-009	80	SPS	Hansford County 115kV	On-Line
GEN-2002-022	240	SPS	Bushland 230kV	On-Line at 160MW
GEN-2002-025A	150	WPEK	Spearville 230kV	On-Line at 100.5MW
GEN-2003-005	100	WFEC	Anadarko - Paradise 138kV	On Line
GEN-2003-006A-E	100	EMDE	Elm Creek 230kV	On-Line
GEN-2003-006A-W	100	WERE	Elm Creek 230kV	On-Line
GEN-2003-013**	198	SPS	*Hitchland - Finney 345kV	On Schedule for 2012
GEN-2003-019	250	MIDW	Smoky Hills Tap 230kV	On-Line
GEN-2003-020	160	SPS	Martin 115kV	On-Line at 80MW
GEN-2003-022	120	AEPW	Washita 138kV	On-Line
GEN-2004-014	155	MKEC	Spearville 230kV	On Schedule for 2010
GEN-2004-020	27	AEPW	Washita 138kV	On-Line
GEN-2005-005	18	OKGE	Windfarm Tap 138kV	IA Pending
GEN-2005-008	120	OKGE	Woodward 138kV	On-Line
GEN-2005-012	250	WPEK	Spearville 345kV	On Suspension
GEN-2005-013	201	WERE	Tap Latham - Neosho	On Schedule for 2012
GEN-2005-015	150	SPS	Tuco - Oklaunion 345kV	On Suspension
GEN-2005-016	150	WFEC	Tap Latham - Neosho	On Scheudle for 2012
GEN-2005-017	340	SPS	Tap *Hitchland - Potter County 345kV	On Suspension
GEN-2005-021	86	SPS	Kirby 115kV	On Suspension
GEN-2006-002	150	AEPW	Grapevine - Elk City 230kV	On Suspension
GEN-2006-006	206	MKEC	Spearville 230kV	Under Study (ICS-2008-001)
GEN-2006-014	300	MIPU	Tap Maryville – Clarinda and tie Midway (WFARMS) 161kV	On Suspension
GEN-2006-017	300	MIPU	Tap Maryville – Clarinda and tie Midway (WFARMS) 161kV	On Suspension
GEN-2006-018	170	SPS	Tuco 230kV	On Schedule for 2010
GEN-2006-020S	20	SPS	DWS Frisco Tap	IA Executed/On Schedule 12/31/2010
GEN-2006-020N	42	NPPD	Bloomfield 115kV	1/1/2009
GEN-2006-021	101	WPEK	Flat Ridge Tap 138kV	On-Line (100MW)
GEN-2006-022	150	WPEK	Ninnescah Tap 115kV	On Suspension
GEN-2006-024S	20	WFEC	South Buffalo Tap 69kV	On-Line
GEN-2006-031	75	MIDW	Knoll 115kV	On-Line
GEN-2006-032	200	MIDW	South Hays 230kV	On Suspension
GEN-2006-034	81	SUNC	Tap Kanarado - Sharon Springs 115kV	On Suspension
GEN-2006-035	225	AEPW	Tap Grapevine - Elk City 230kV	On Schedule for 2010
GEN-2006-037N1	75	NPPD	Broken Bow 115kV	Under Study (DISIS-2009-001)
GEN-2006-038N019	80	NPPD	Petersburg 115kV	5/1/2011
GEN-2006-038	750	WFEC	Hugo 345kV	On Suspension

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2006-039	400	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV	On Suspension
GEN-2006-040	108	SUNC	Mingo 115kV	On Schedule for 2010
GEN-2006-043	99	AEPW	Grapevine - Elk City 230kV	On Line
GEN-2006-044	370	SPS	*Hitchland 345kV	On Suspension
GEN-2006-044N	40.5	NPPD	Tap Neligh – Petersburg 115kV	Under Study (DISIS-2009-001)
GEN-2006-044N02	100.5	NPPD	GEN-2008-086N02 230kV	Under Study (DISIS-2010-001)
GEN-2006-045	240	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV	On Suspension
GEN-2006-046	131	OKGE	Dewey 138kV	On Schedule for 2010
GEN-2006-047	240	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV	On Schedule for 2013
GEN-2006-049	400	SPS	*Hitchland - Finney 345kV	IA Pending
GEN-2007-002	160	SPS	Grapevine 115kV	On Suspension
GEN-2007-005	200	SPS	Pringle 115kV	Under Study (ICS-2008-001)
GEN-2007-006	160	OKGE	Roman Nose 138kV	On Suspension
GEN-2007-011	135	SUNC	Syracuse 115kV	On Schedule
GEN-2007-011N06	75	NPPD	Tap Neligh – Petersburg 115kV	Under Study (DISIS-2009-001)
GEN-2007-011N08	81	NPPD	Bloomfield 115kV	On-Line
GEN-2007-011N09	75	NPPD	Bloomfield 115kV	Under Study (DISIS-2009-001)
GEN-2007-013	99	SUNC	Selkirk 115kV	On Schedule for 2011
GEN-2007-015	135	WERE	Tap Humboldt – Kelly 161kV	On Schedule for 2011
GEN-2007-017	101	MIPU	Tap Maryville – Clarinda and tie Midway (WFARMS) 161kV	On Schedule for 2012
GEN-2007-021	201	OKGE	*Tatonga 345kV	Under Study (ICS-2008-001)
GEN-2007-025	300	WERE	Tap Woodring – Wichita 345kV	Under Study (ICS-2008-001)
GEN-2007-032	150	WFEC	Tap Clinton Junction – Clinton 138kV	Under Study (ICS-2008-001)
GEN-2007-034	150	SPS	Tap Eddy – Tolk 345kV	Under Study (ICS-2008-001)
GEN-2007-038	200	SUNC	Spearville 345kV	Under Study (ICS-2008-001)
GEN-2007-040	200	SUNC	Tap Holcomb – Spearville 345kV	Under Study (DISIS-2009-001)
GEN-2007-043	300	AEPW	Tap Lawton Eastside – Cimarron 345kV	IA Pending
GEN-2007-044	300	OKGE	*Tatonga 345kV	Under Study (ICS-2008-001)
GEN-2007-046	200	SPS	Tap & Tie Texas County – Hitchland & DWS Frisco Tap – Hitchland 115kV	Under Study (ICS-2008-001)
GEN-2007-048	400	SPS	Tap Amarillo South – Swisher 230kV	Under Study (ICS-2008-001)
GEN-2007-050	170	OKGE	*Woodward 138kV	Under Study (ICS-2008-001)
GEN-2007-051	200	WFEC	Mooreland 138kV	Under Study (ICS-2008-001)
GEN-2007-052	150	WFEC	Anadarko 138kV	Under Study (ICS-2008-001)
GEN-2007-053	110	MIPU	Tap Maryville – Clarinda and tie Midway (WFARMS) 161kV	Under Study (ICS-2008-001)
GEN-2007-057	35	SPS	Moore County East 115kV	Under Study (ICS-2008-001)
GEN-2007-062**	765	OKGE	*Woodward 345kV	Under Study (ICS-2008-001)
GEN-2008-003	101	OKGE	*Woodward EHV 138kV	Under Study (ICS-2008-001)
GEN-2008-008	60	SPS	Graham 115kV	Under Study (ICS-2008-001)

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2008-009	60	SPS	San Juan Mesa Tap 230kV	Under Study (ICS-2008-001)
GEN-2008-013	300	OKGE	Tap Woodring – Wichita 345kV	Under Study (ICS-2008-001)
GEN-2008-014	150	SPS	Tap Tuco – Oklaunion 345kV	Under Study (ICS-2008-001)
GEN-2008-016	248	SPS	Grassland 230kV	Under Study (ICS-2008-001)
GEN-2008-017	300	SUNC	Setab 345kV	Under Study (ICS-2008-001)
GEN-2008-018	405	SUNC	Finney 345kV	Under Study (ICS-2008-001)
GEN-2008-019**	300	OKGE	*Tatonga 345kV	Under Study (ICS-2008-001)
GEN-2008-021	42	WERE	Wolf Creek 345kV	Under Study (DISIS-2009-001)
GEN-2008-022	300	SWPS	Tap Eddy – GEN-2007-034 345kV	Under Study (DISIS-2010-001)
GEN-2008-023	150	AEPW	Hobart Junction 138kV	Under Study (DISIS-2009-001)
GEN-2008-025	101.2	SUNC	Ruleton 115kV	Under Study (DISIS-2009-001)
GEN-2008-029	250.5	OKGE	Woodward EHV 138kV	Under Study (DISIS-2009-001)
GEN-2008-037	100.8	WFEC	Tap Washita – Blue Canyon 138kV	Under Study (DISIS-2010-001)
GEN-2008-038	144	AEPW	Tap Shidler – West Pawhuska 138kV	Under Study (DISIS-2009-001)
GEN-2008-044	197.8	OKGE	Tatonga 345kV	Under Study (DISIS-2010-001)
GEN-2008-046	200	OKGE	Sunnyside 345kV	Under Study (DISIS-2010-001)
GEN-2008-047	300	SWPS	Tap Hitchland - Woodward 345kV	Under Study (DISIS-2010-001)
GEN-2008-051	322	SPS	Potter 345kV	Under Study (DISIS-2009-001)
GEN-2008-071	76.8	OKGE	Newkirk 138kV	Under Study (DISIS-2010-001)
GEN-2008-079	100.5	MKEC	Tap Judson Large – Cudahy 115kV	Under Study (DISIS-2009-001)
GEN-2008-086N02	200	NPPD	Tap Ft. Randall – Columbus 230kV	Under Study (DISIS-2009-001)
GEN-2008-088	50.6	SWPS	Vega 69kV	Under Study (DISIS-2010-001)
GEN-2008-092	201	MIDW	Knoll 115kV	Under Study (DISIS-2009-001)
GEN-2008-098	100.8	WERE	Tap Wolf Creek – LaCygne 345kV	Under Study (DISIS-2010-001)
GEN-2008-110	299.2	SWPS	Hitchland 345kV	Under Study (DISIS-2010-001)
GEN-2008-119O	60	OPPD	Tap Humboldt – Kelly (North of GEN-2007-015) 161kV	On-Line
GEN-2008-123N	89.7	NPPD	Tap Guide - Pauline 115kV	Under Study (DISIS-2010-001)
GEN-2008-124	200.1	MKEC	Spearville 230kV	Under Study (DISIS-2009-001)
GEN-2008-127	200.1	WERE	Tap Sooner – Rose Hill 345kV	Under Study (DISIS-2009-001)
GEN-2008-129	80	MIPU	Pleasant Hill 161kV	Under Study (DISIS-2009-001)
GEN-2009-008	200	SUNC	South Hays 230kV	Under Study (DISIS-2010-001)
GEN-2009-011	50	MKEC	Tap Plainville – Phillipsburg 115kV	Under Study (DISIS-2009-001)
GEN-2009-016	140	MKEC	Falcon Road 138kV	Under Study (DISIS-2009-001)
GEN-2009-017**	60	SPS	Tap Pembroke – Stiles 138kV	Under Study (DISIS-2009-001)
GEN-2009-020	48.6	MIDW	Tap Bazine – Nekoma 69kV	Under Study (DISIS-2010-001)

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2009-025	60	OKGE	Tap Deer Creek – Sinclair 69kV	Under Study (DISIS-2009-001)
GEN-2009-030	100.8	WFEC	Weatherford 138kV	Under Study (DISIS-2010-001)
GEN-2009-032S	6.4	OKGE	Foster 138kV	Under Study (DISIS-2010-001)
GEN-2009-040	73.8	WERE	Tap Smittyville - Knob Hill 115kV	Under Study (DISIS-2010-001)
GEN-2009-059	100.5	SUNC	Tap GEN-2008-079 - Cudahy 115kV	Under Study (DISIS-2010-001)
GEN-2009-060	84	WFEC	Gotebo 69kV	Under Study (DISIS-2010-001)
GEN-2009-062	115	SUNC	Hugoton 115kV	Under Study (DISIS-2010-001)
GEN-2009-067S	20	SWPS	7 Rivers 69kV	Under Study (DISIS-2010-001)
GEN-2010-001	300	WFEC	Tap Woodward – Hitchland 230kV	Under Study (DISIS-2010-002)
GEN-2010-003	100.8	WERE	GEN-2008-098 345kV	Under Study (DISIS-2010-001)
GEN-2010-005	300	MKEC	GEN-2007-025 345kV	Under Study (DISIS-2010-001)
GEN-2010-006	205	SWPS	Jones 230kV	Under Study (DISIS-2010-001)
GEN-2010-007	73.8	SWPS	TAP PRINGLE - RIVERVIEW 115kV	Under Study (DISIS-2010-001)
GEN-2010-008	64.4	WFEC	FARGO 69kV	Under Study (DISIS-2010-001)
GEN-2010-009	165.6	SUNC	GRAY COUNTY 345kV	Under Study (DISIS-2010-001)
GEN-2010-010	100.5	NPPD	EMERICK 69kV	Under Study (DISIS-2010-001)
GEN-2010-011	29.7	OKGE	GEN-2008-044 345kV	Under Study (DISIS-2010-001)
GEN-2010-012	125	WFEC	BRANTLEY 138kV	Under Study (DISIS-2010-002)
GEN-2010-013	50.4	WERE	GEN-2005-013 345kV	Under Study (DISIS-2010-001)
GEN-2010-014	358.8	SWPS	HITCHLAND 345kV	Under Study (DISIS-2010-001)
GEN-2010-015	200.1	SUNC	SPEARVILLE 345kV	Under Study (DISIS-2010-001)
GEN-2010-016	199.8	SUNC	TAP SPEARVILLE - KNOLL 345kV	Under Study (DISIS-2010-001)
GEN-2010-027	900	SUNC	SPEARVILLE 345kV	Under Study (DISIS-2010-002)
GEN-2010-036	4.6	WERE	6 th STREET 115kV	Under Study (DISIS-2010-002)
GEN-2010-038	74.9	NPPD	BROKEN BOW 115kV	Under Study (DISIS-2010-002)
GEN-2010-040	300	OKGE	CIMARRON 345kV	Under Study (DISIS-2010-002)
GEN-2010-041	10.5	OPPD	S 1399 161kV	Under Study (DISIS-2010-002)
GEN-2010-043	320	WFEC	MOORELAND 138kV	Under Study (DISIS-2010-002)
GEN-2010-045	197.8	SUNC	TAP HOLCOMB – SPEARVILLE 345kV	Under Study (DISIS-2010-002)
GEN-2010-046	56	SWPS	TUCO 230kV	Under Study (DISIS-2010-002)
GEN-2010-047	72	NPPD	TAP BEATRICE – HARBINE 115kV	Under Study (DISIS-2010-002)
GEN-2010-048	70	MIDW	TAP BEACH STATION – REDLINE 115kV	Under Study (DISIS-2010-002)
GEN-2010-049	49.6	SUNC	PRATT 115kV	Under Study (DISIS-2010-002)
GEN-2010-050	150.4	KCPL	TAP CENTERVILLE – MARMATON 161kV	Under Study (DISIS-2010-002)

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2010-051	200	NPPD	TAP TWIN CHURCH – HOSKINS 230kV	Under Study (DISIS-2010-002)
GEN-2010-052	301.3	SUNC	FINNEY 345kV	Under Study (DISIS-2010-002)
GEN-2010-053	199.8	SUNC	COMANCHE 345kV	Under Study (DISIS-2010-002)
Broken Bow	8.3	NPPD	Genoa 115kV	On-Line
Ord	13.9	NPPD	Bloomfield 115kV	On-Line
Stuart	2.1	NPPD	Petersburg 115kV	On-Line
Ainsworth	75	NPPD	Ainsworth Wind Tap 115kV	On-Line
Rosebud Wind Project	30	NPPD	St. Francis 115kV	On-Line
Broken Bow	80	NPPD	Broken Bow 115kV	On-Line
Wolf Creek	1170	WERE	Wolf Creek 345kV	On-Line
Genoa	4	NPPD	Genoa 115kV	On-Line
ASGI-2010-001	400	AECI	Tap Cooper – Fairport 345kV	AECI queue Affected Study
ASGI-2010-002	201	AECI	Lathrop 161kV	AECI queue Affected Study
ASGI-2010-003	300	AECI	MARYVILLE 161kV	AECI queue Affected Study
ASGI-2010-004	50	AECI	TAP QUEEN CITY – LANCASTER 69kV	AECI queue Affected Study
ASGI-2010-005	99	AECI	LATHROP 161kV	AECI queue Affected Study
ASGI-2010-006	150	AECI	TAP FAIRFAX – FAIRFAX TAP 138kV	AECI queue Affected Study
ASGI-2010-007	150	AECI	TAP FAIRFAX – FAIRFAX TAP 138kV	AECI queue Affected Study
ASGI-2010-008	100	AECI	MARYVILLE 161kV	AECI queue Affected Study
ASGI-2010-009	201	AECI	OSBORN 161kV	AECI queue Affected Study
ASGI-2010-010	42	SWPS	LOVINGTON 115kV	AECI queue Affected Study
ASGI-2010-020	50	SWPS	TAP (LE) TATUM – (LE) CROSSROADS 69kV	AECI queue Affected Study
ASGI-2010-021	36.6	SWPS	TAP (LE) SAUNDERS TAP – (LE) ANDERSON 69kV	AECI queue Affected Study
Llanoest	80	SPS	Llano Wind Farm Tap 115kV	On-Line
SPSDISTR	90	SPS	DUMAS_19ST 115kV	On-Line
			Etter 115kV	On-Line
			Sherman 115kV	On-Line
			Spearman 115kV	On-Line
			Texas County 115kV	On-Line
BLUCAN2	153	WFEC	Washita 138kV (GEN-2003-004)	On-Line
			Washita 138kV (GEN-2004-023)	On-Line
			Washita 138kV (GEN-2005-003)	On-Line
Monte	110	MKEC	Haggard 115kV	On-Line
GROUPED TOTAL	30,092.9			

** Interconnection on Caprock Electric tested for impacts on SPP

* Planned Facility

^ Proposed Facility

C: Study Groupings

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2001-014	96	WFEC	Fort Supply 138kV
	GEN-2001-037	100	OKGE	Windfarm Switching 138kV
	GEN-2002-005	120	WFEC	Tap Morewood - Elk City 138kV
	GEN-2005-005	18	OKGE	Windfarm Tap 138kV
	GEN-2005-008	120	OKGE	Woodward 138kV
	GEN-2006-024S	20	WFEC	South Buffalo Tap 69kV
	GEN-2006-046	131	OKGE	Dewey 138kV
	GEN-2007-006	160	OKGE	Roman Nose 138kV
	GEN-2007-021	201	OKGE	*Tatonga 345kV
	GEN-2007-044	300	OKGE	*Tatonga 345kV
	GEN-2007-050	170	OKGE	*Woodward 138kV
	GEN-2007-051	200	WFEC	Mooreland 138kV
	GEN-2007-062	765	OKGE	*Woodward 345kV
	GEN-2008-003	101	OKGE	*Woodward EHV 138kV
	GEN-2008-019	300	OKGE	*Tatonga 345kV
	GEN-2008-029	250.5	OKGE	WOODWARD EHV 138kV
	GEN-2008-044	197.8	OKGE	Tatonga 345kV
	GEN-2010-008	64.4	WFEC	Fargo 69kV
	GEN-2010-011	29.7	OKGE	GEN-2008-044 345kV
GEN-2010-043	320	WFEC	Mooreland 138kV	
PRIOR QUEUED SUBTOTAL		3,664.4		
WOODWARD SUBTOTAL		3,664.4		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	SPS Distribution	90	SPS	Various
	GEN-2002-006	150	SPS	Texas County 115kV
	GEN-2002-008	240	SPS	*Hitchland 345kV
	GEN-2002-009	80	SPS	Hansford County 115kV
	GEN-2003-013	198	SPS	*Tap Hitchland - Finney 345kV
	GEN-2003-020	160	SPS	Martin 115kV
	GEN-2005-017	340	SPS	*Tap Hitchland - Potter County 345kV
	GEN-2006-020	20	SPS	DWS Frisco Tap
	GEN-2006-044	370	SPS	*Hitchland 345kV
	GEN-2006-049	400	SPS	*Tap Hitchland - Finney 345kV
	GEN-2007-005	200	SPS	Pringle 115kV
	GEN-2007-046	200	SPS	Tap & Tie Texas County – Hitchland & DWS Frisco Tap – Hitchland 115kV
	GEN-2007-057	35	SPS	Moore County East 115kV
	GEN-2008-047	300	SPS	Tap Hitchland – Woodward 345kV
	GEN-2008-110	299.2	SPS	Hitchland 345kV
	GEN-2010-001	300	WFEC	Tap Woodward – Hitchland 230kV
	GEN-2010-007	73.8	SPS	Tap Pringle – Riverview 115kV
	GEN-2010-014	358.8	SPS	Hitchland 345kV
	PRIOR QUEUED SUBTOTAL		3,814.8	
HITCHLAND SUBTOTAL		3,814.8		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	Montezuma	110	MKEC	Haggard 115kV
	GEN-2001-039A	105	WPEK	Tap Greensburg - Judson-Large 115kV
	GEN-2002-025A	150	WPEK	Spearville 230kV
	GEN-2004-014	155	MKEC	Spearville 230kV
	GEN-2005-012	250	WPEK	Spearville 345kV
	GEN-2006-006	206	MKEC	Spearville 230kV
	GEN-2006-021	101	WPEK	Flat Ridge Tap 138kV
	GEN-2006-022	150	WPEK	Ninnescah Tap 115kV
	GEN-2007-038	200	SUNC	Spearville 345kV
	GEN-2007-040	200	SUNC	Tap Holcomb – Spearville 345kV
	GEN-2008-018	405	SUNC	Finney 345kV
	GEN-2008-079	100.5	MKEC	Tap Judson Large – Cudahy 115kV
	GEN-2008-124	200.1	MKEK	Spearville 230kV
	GEN-2009-059	100.5	SUNC	Tap GEN-2008-079 – Cudahy 115kV
	GEN-2009-062	115	SUNC	Hugoton 115kV
	GEN-2010-009	165.6	SUNC	Gray County 345kV
	GEN-2010-015	200.1	SUNC	Spearville 345kV
	GEN-2010-016	199.8	MIDW	Tap Spearville – Knoll 345kV
	GEN-2010-027	900	SUNC	Spearville 345kV
	GEN-2010-045	197.8	SUNC	Tap Holcomb – Spearville 345kV
GEN-2010-049	49.6	SUNC	Pratt 115kV	
GEN-2010-052	301.3	SUNC	Finney 345kV	
GEN-2010-053	199.8	SUNC	Comanche 345kV	
PRIOR QUEUED SUBTOTAL		4,762.1		
Cluster	Request	Amount	Area	Proposed Point of Interconnection
Spearville	GEN-2010-037	100.8	MKEC	North Fort Dodge 115kV
SPEARVILLE SUBTOTAL		100.8		
AREA SUBTOTAL		4,862.9		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2001-039M	100	SUNC	Central Plains Tap 115kV
	GEN-2006-034	81	SUNC	Tap Kanarado - Sharon Springs 115kV
	GEN-2006-040	108	SUNC	Mingo 115kV
	GEN-2007-011	135	SUNC	Syracuse 115kV
	GEN-2007-013	99	SUNC	Selkirk 115kV
	GEN-2008-017	300	SUNC	Setab 345kV
	GEN-2008-025	101.2	SUNC	Ruleton 115kV
PRIOR QUEUED SUBTOTAL		924.2		
MINGO/NW KANSAS SUBTOTAL		924.2		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	Llano Estacado	80	SPS	Llano Estacado Tap 115kV
	GEN-2002-022	240	SPS	Bushland 230kV
	GEN-2005-021	86	SPS	Kirby 115kV
	GEN-2006-039	400	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV
	GEN-2006-045	240	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV
	GEN-2006-047	240	SPS	Tap and Tie both Potter County - Plant X 230kV and Bushland - Deaf Smith 230kV
	GEN-2007-002	160	SPS	Grapevine 115kV
	GEN-2007-048	400	SPS	Tap Amarillo South – Swisher 230kV
	GEN-2008-051	322	SPS	Potter 345kV
	GEN-2008-088	50.6	SPS	Vega 69kV
PRIOR QUEUED SUBTOTAL		2,218.6		
AMARILLO SUBTOTAL		2,218.6		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	ASGI-2010-010	42	SPS	Lovington 115kV
	ASGI-2010-020	50	SPS	Tap (LE) Tatum – (LE) Crossroads 69kV
	ASGI-2010-021	36.6	SPS	Tap (LE) Saunders Tap – (LE) Anderson 69kV
	GEN-2001-033	180	SPS	San Juan Mesa Tap 230kV
	GEN-2001-036	80	SPS	Caprock Tap 115kV
	GEN-2005-015	150	SPS	Tap Tuco - Oklaunion 345kV
	GEN-2006-018	170	SPS	Tuco 230kV
	GEN-2007-034	150	SPS	Tap Eddy – Tolk 345kV
	GEN-2008-008	60	SPS	Graham 115kV
	GEN-2008-009	60	SPS	San Juan Mesa Tap 230kV
	GEN-2008-014	150	SPS	Tap Tuco – Oklaunion 345kV
	GEN-2008-016	248	SPS	Grassland 230kV
	GEN-2008-022	300	SPS	Tap Eddy – GEN-2007-034 345kV
	GEN-2009-017	60	SPS	Tap Pembroke – Stiles 138kV
	GEN-2009-067S	20	SPS	7 Rivers 69kV
	GEN-2010-006	205	SPS	Jones 345kV
	GEN-2010-046	56	SPS	Tuco 230kV
PRIOR QUEUED SUBTOTAL		2,017.6		
SOUTH PANHANDLE/NM SUBTOTAL		2,017.6		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2001-026	74	WFEC	Washita 138kV
	GEN-2003-004	101	WFEC	Washita 138kV
	GEN-2003-005	100	WFEC	Anadarko - Paradise 138kV
	GEN-2003-022	120	AEPW	Washita 138kV
	GEN-2004-020	27	AEPW	Washita 138kV
	GEN-2004-023	21	WFEC	Washita 138kV
	GEN-2005-003	31	WFEC	Washita 138kV
	GEN-2006-002	150	AEPW	Grapevine - Elk City 230kV
	GEN-2006-035	225	AEPW	Grapevine - Elk City 230kV
	GEN-2006-043	99	AEPW	Grapevine - Elk City 230kV
	GEN-2007-032	150	WFEC	Tap Clinton Junction – Clinton 138kV
	GEN-2007-043	300	AEPW	Tap Lawton Eastside – Cimarron 345kV
	GEN-2007-052	150	WFEC	Anadarko 138kV
	GEN-2008-023	150	AEPW	Hobart Junction 138kV
	GEN-2008-037	100.8	WFEC	Tap Washita – Blue Canyon 138kV
	GEN-2009-016	140	AEPW	Falcon Road 138kV
	GEN-2009-030	100.8	WFEC	Weatherford 138kV
	GEN-2009-060	84	WFEC	Gotebo 69kV
GEN-2010-012	125	WFEC	Brantley 138kV	
PRIOR QUEUED SUBTOTAL		2,248.6		
SW OKLAHOMA SUBTOTAL		2,248.6		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	Wolf Creek	1170	WERE	Wolf Creek 345kV
	ASGI-2010-006	150	AECI	Tap Fairfax – Fairfax Tap 138kV
	ASGI-2010-007	150	AECI	Tap Fairfax – Fairfax Tap 138kV
	GEN-2002-004	200	WERE	Latham 345kV
	GEN-2005-013	201	WERE	Tap Latham - Neosho
	GEN-2005-016	150	WFEC	Tap Latham - Neosho
	GEN-2007-025	300	WERE	Tap Woodring – Wichita 345kV
	GEN-2008-013	300	OKGE	Tap Woodring – Wichita 345kV
	GEN-2008-021	42	WERE	Wolf Creek 25kV
	GEN-2008-038	144	AEPW	Tap Shidler – West Pawhuska 138kV
	GEN-2008-071	76.8	OKGE	Newkirk 138kV
	GEN-2008-098	100.8	WERE	Tap Wolf Creek – LaCygne 345kV
	GEN-2008-127	200.1	WERE	Tap Sooner – Rose Hill 345kV
	GEN-2009-025	60	OKGE	Tap Deer Creek – Sinclair 69kV
	GEN-2010-003	100.8	WERE	GEN-2008-098 345kV
	GEN-2010-005	300	MKEC	GEN-2007-025 345kV
GEN-2010-013	50.4	WERE	GEN-2005-013 345kV	
PRIOR QUEUED SUBTOTAL		3,695.9		
NORTH OKLAHOMA SUBTOTAL		3,695.9		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	Genoa	4	NPPD	Genoa 115kV
	GEN-2006-020N	42	NPPD	Bloomfield 115kV
	GEN-2006-038N019	80	NPPD	Petersburg 115kV
	GEN-2006-044N	40.5	NPPD	Tap Neligh – Petersburg 115kV
	GEN-2006-044N02	100.5	NPPD	GEN-2008-086N02 230kV
	GEN-2007-011N06	75	NPPD	Tap Neligh – Petersburg 115kV
	GEN-2007-011N08	81	NPPD	Bloomfield 115kV
	GEN-2007-011N09	75	NPPD	Bloomfield 115kV
	GEN-2008-086N02	200	NPPD	Tap Ft. Randall – Columbus 230kV
	GEN-2010-010	100.5	NPPD	Emerick 69kV
GEN-2010-051	200	NPPD	Tap Twin Church – Hoskins 230kV	
PRIOR SUBTOTAL		998.5		
NE NEBRASKA SUBTOTAL		998.5		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	Broken Bow	8.3	NPPD	Genoa 115kV
	Ord	13.9	NPPD	Bloomfield 115kV
	Stuart	2.1	NPPD	Petersburg 115kV
	Ainsworth	75	NPPD	Ainsworth Wind Tap 115kV
	Rosebud Wind Project	30	NPPD	St. Francis 115kV
	Broken Bow	80	NPPD	Broken Bow 115kV
	GEN-2006-037N1	75	NPPD	Broken Bow 115kV
GEN-2010-038	74.9	NPPD	Broken Bow 115kV	
PRIOR QUEUED SUBTOTAL		359.2		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
North Nebraska	GEN-2010-039	150.4	NPPD	Stuart 115kV
NORTH NEBRASKA SUBTOTAL		150.4		
AREA SUBTOTAL		509.6		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2003-006A-E	100	EMDE	Elm Creek 230kV
	GEN-2003-006A-W	100	WERE	Elm Creek 230kV
	GEN-2003-019	250	MIDW	Smoky Hills Tap 230kV
	GEN-2006-031	75	MIDW	Knoll 115kV
	GEN-2006-032	200	MIDW	South Hays 230kV
	GEN-2008-092	201	MIDW	Knoll 115kV
	GEN-2009-008	200	SUNC	South Hays 230kV
	GEN-2009-011	50	MKEC	Tap Plainville – Phillipsburg 115kV
	GEN-2009-020	48.6	MIDW	Tap Bazine – Nekoma 69kV
	GEN-2009-040	73.8	WERE	Tap Smittyville – Knob Hill 115kV
GEN-2010-048	70	MIDW	Tap Beach Station – Redline 115kV	
PRIOR QUEUED SUBTOTAL		1,368.4		
NORTH KANSAS SUBTOTAL		1,368.4		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	ASGI-2010-001	400	AECI	Tap Cooper – Fairport 345kV
	ASGI-2010-002	201	AECI	Lathrop 161kV
	ASGI-2010-003	300	AECI	Maryville 161kV
	ASGI-2010-004	50	AECI	Tap Queen City – Lancaster 69kV
	ASGI-2010-005	99	AECI	Lathrop 161kV
	ASGI-2010-008	100	AECI	Maryville 161kV
	ASGI-2010-009	201	AECI	Osborn 161kV
	GEN-2006-014	300	MIPU	Tap Maryville – Clarinda 161kV & Tie to Midway 161kV
	GEN-2006-017	300	MIPU	Tap Maryville – Clarinda 161kV & Tie to Midway 161kV
	GEN-2007-015	135	WERE	Tap Humboldt – Kelly 161kV
	GEN-2007-017	101	MIPU	Tap Maryville – Clarinda 161kV & Tie to Midway 161kV
	GEN-2007-053	110	MIPU	Tap Maryville – Clarinda 161kV & Tie to Midway 161kV
	GEN-2008-1190	60	OPPD	Tap Humboldt – Kelly 161kV
	GEN-2008-129	80	MIPU	Pleasant Hill 161kV
	GEN-2010-036	4.6	WERE	6 th Street 115kV
	GEN-2010-041	10.5	OPPD	S 1399 161kV
	GEN-2010-047	72	NPPD	Tap Beatrice – Harbine 115kV
	GEN-2010-050	150.4	KCPL	Tap Centerville – Marmaton 161kV
PRIOR QUEUED SUBTOTAL		2,674.5		
NORTHWEST MISSOURI SUBTOTAL		2,674.5		

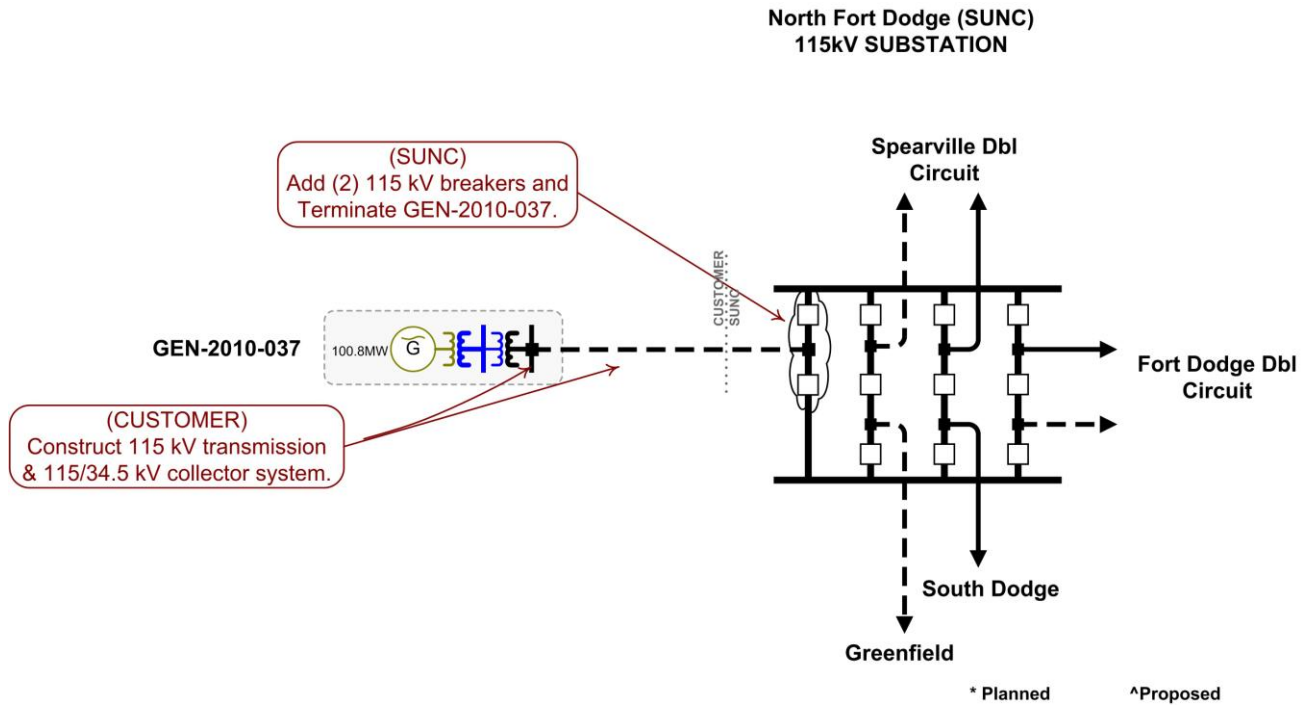
Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2006-038	750	WFEC	Hugo 345kV
	GEN-2008-046	200	OKGE	Sunnyside 345kV
	GEN-2009-032S	6.4	OKGE	Foster 138kV
	GEN-2010-040	300	OKGE	Cimarron 345kV
PRIOR QUEUED SUBTOTAL		1,256.4		
SOUTH CENTRAL OKLAHOMA SUBTOTAL		1,256.4		

Cluster	Request	Amount	Area	Proposed Point of Interconnection
Prior Queued	GEN-2008-123N	89.7	NPPD	Tap Guide – Pauline 115kV
PRIOR QUEUED SUBTOTAL		89.7		
SUBTOTAL		89.7		
Cluster	Request	Amount	Area	Proposed Point of Interconnection
Southwest Nebraska	GEN-2010-044	99	NPPD	Harbine 115kV/ Tap Harbine – Beatrice 115kV
SOUTHWEST NEBRASKA SUBTOTAL		99		
AREA SUBTOTAL		188.7		
***CLUSTERED TOTAL (w/o PRIOR QUEUED)		350.2		
***CLUSTERED TOTAL (w/PRIOR QUEUED)		30,092.9		

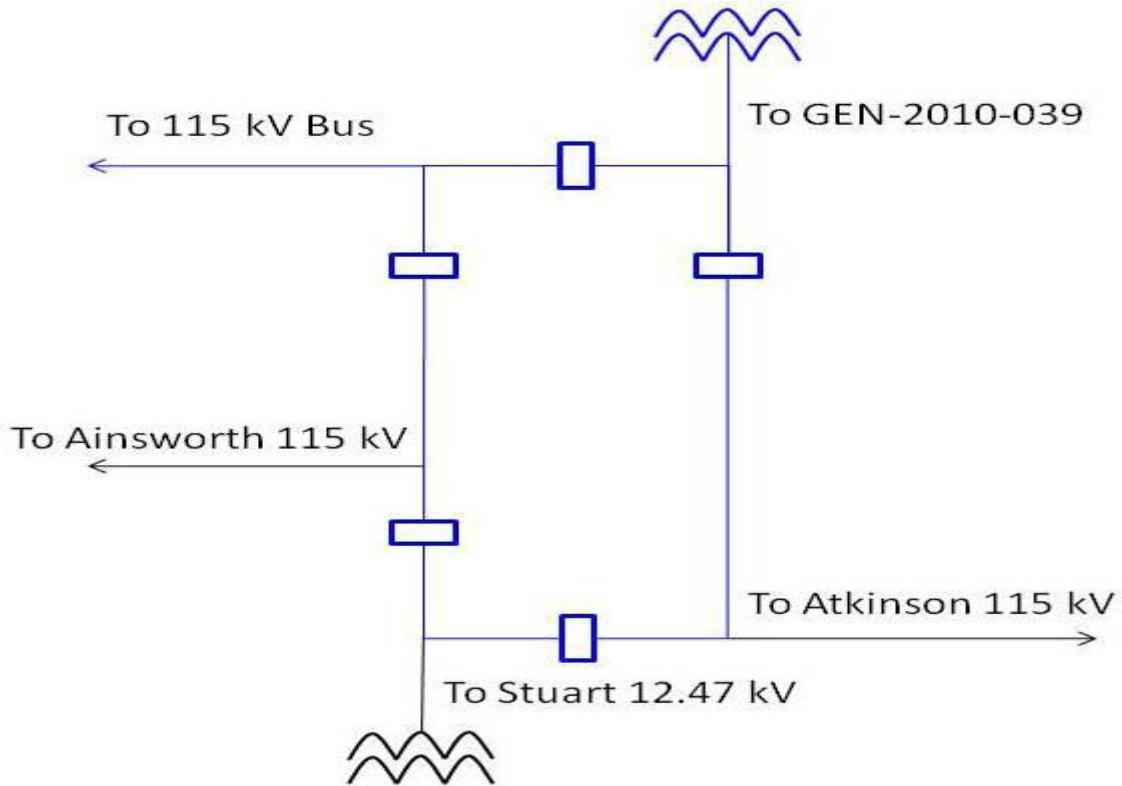
- * Planned Facility
- ^ Proposed Facility
- ** Alternate requests - counted as one request for study purpose
- *** Electrically Remote Interconnection Requests

D: Proposed Point of Interconnection One line Diagrams

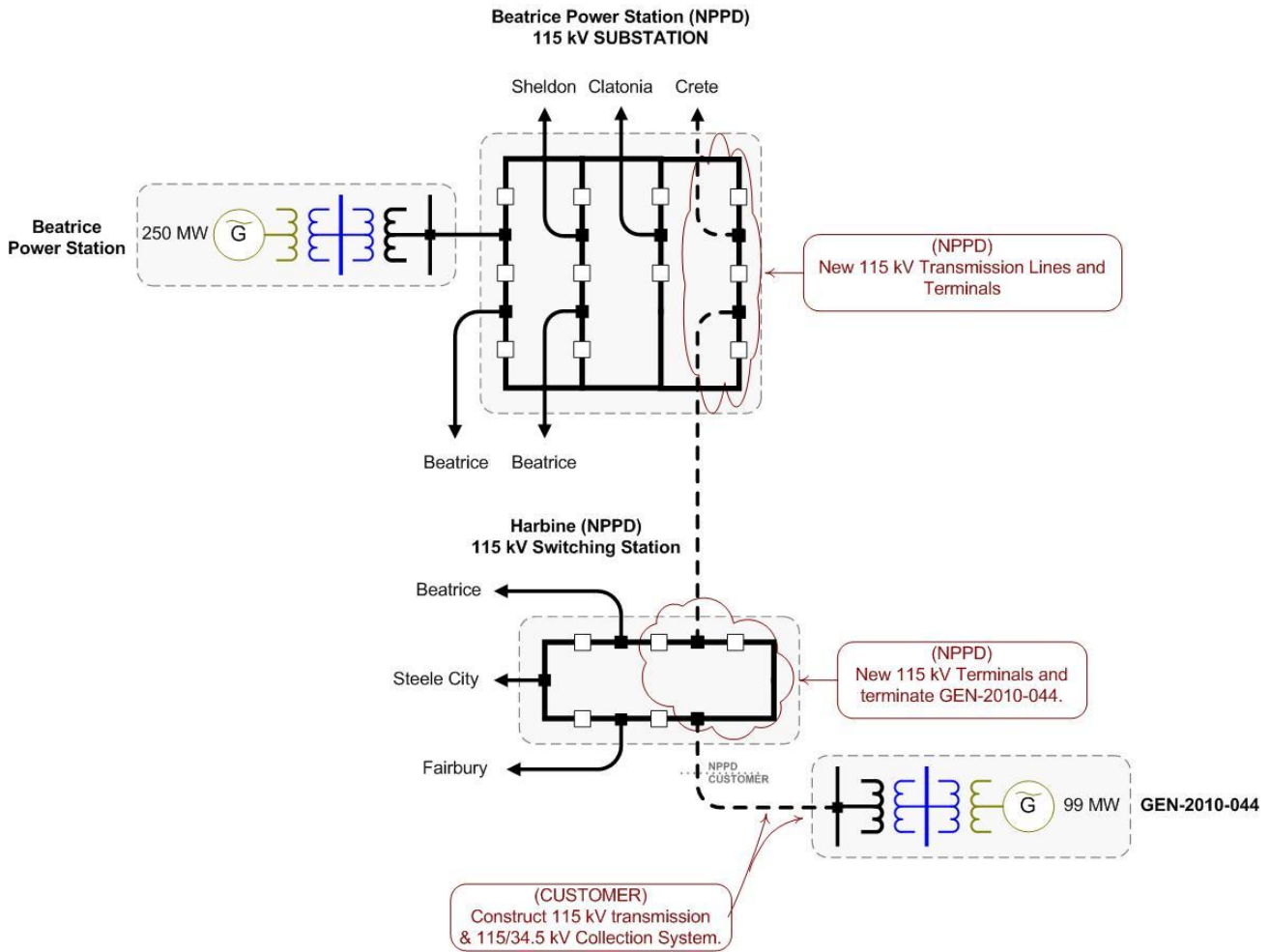
GEN-2010-037



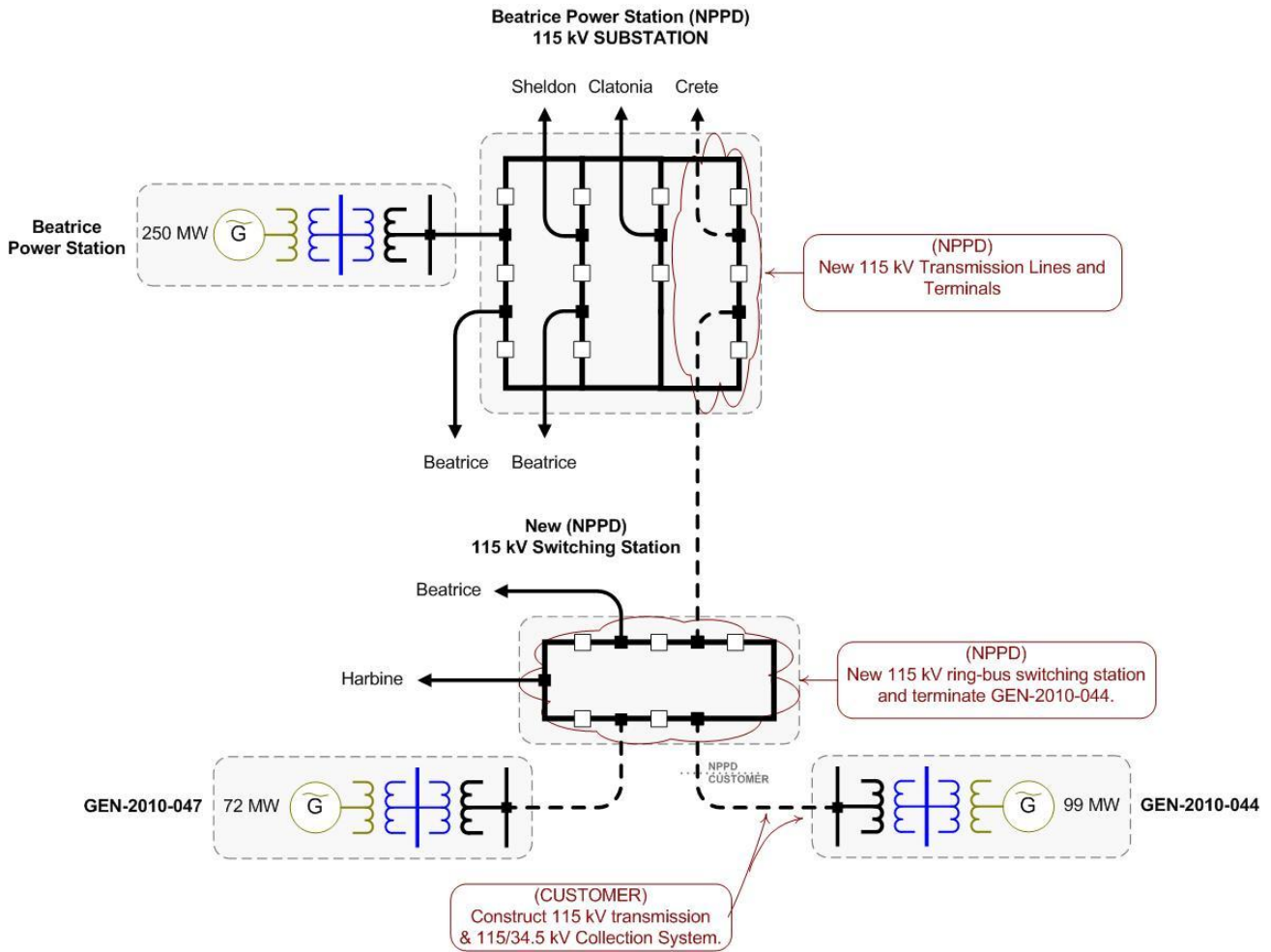
GEN-2010-039



GEN-2010-044 (Option A)



GEN-2010-044 (Option B)



E: Cost Allocation per Interconnection Request**GEN-2010-037**

Facility	Cost
Interconnection Costs	\$6,000,000
Greenfield – North Fort Dodge Build approximately 20 miles of 115kV	\$8,000,000
Spearville 345/115/xxkV Transformer CKT 2 Install second 345/115/xxkV Transformer at Spearville 345kV	\$12,000,000
Current Study Total	\$26,000,000

GEN-2010-039

Facility	Cost
Interconnection Costs	\$4,000,000
Ainsworth – Stuart – Atkinson – Emmet - O'Neill Rebuild approximately 65 miles of 115kV	\$35,000,000
O'Neill North Build new 115kV 5 breaker ring bus	\$4,000,000
Stuart – O'Neill North Build approximately 30 miles of 115kV	\$15,000,000
Current Study Total	\$58,000,000

GEN-2010-044 (Interconnection at Harbine)

Facility	Cost
Interconnection Costs (Option A) Harbine 115kV	\$1,500,000
Harbine – Beatrice Power Station Build approximately 15 miles of 115kV transmission line	\$9,500,000
Beatrice – GEN-2010-047 – Harbine Rebuild approximately 14 miles of 115kV	\$7,000,000*
Beatrice Power Station – Crete Build approximately 25 miles of 115kV and Crete 115kV substation work	\$14,000,000*
Current Study Total	\$32,000,000
*Tentatively assigned to GEN-2010-047 in DISIS-2010-002. Withdrawal of GEN-2010-047 will cause a restudy to be performed to determine the updated cost responsibilities of GEN-2010-044.	

GEN-2010-044 (Interconnection at new station on Harbine-Beatrice)

Facility	Cost
Interconnection Costs (Option B) GEN-2010-047 115kV	\$500,000
Interconnection Costs GEN-2010-047 115kV	\$4,000,000*
GEN-2010-047 115kV – Beatrice Power Station Build approximately 15 miles of 115kV transmission line	\$9,500,000
Beatrice – GEN-2010-047 – Harbine Rebuild approximately 14 miles of 115kV	\$7,000,000*
Beatrice Power Station – Crete Build approximately 25 miles of 115kV and Crete 115kV substation work	\$14,000,000*
Current Study Total	\$35,000,000
*Tentatively assigned to GEN-2010-047 in DISIS-2010-002. Withdrawal of GEN-2010-047 will cause a restudy to be performed to determine the updated cost responsibilities of GEN-2010-044.	

F: FCITC Analysis (No Upgrades)

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_037	3	11G	'SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1'	FROM->TO	0.72956	204.8	127.673	'SPEARVILLE (SPEARVLX) 345/115/13.8KV TRANSFORMER CKT 3'
G10_037	3	11G	'SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1'	FROM->TO	0.72956	204.8	127.673	'SPEARVILLE (SPEARVLX) 345/115/13.8KV TRANSFORMER CKT 3'
G10_037	3	11G	'NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 2'	FROM->TO	0.62509	177.5	116.162	'NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1'
G10_037	3	11G	'NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1'	FROM->TO	0.62509	177.5	116.162	'NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 2'
G10_037	3	11G	'SPEARVILLE (SPEARVLX) 345/115/13.8KV TRANSFORMER CKT 3'	FROM->TO	0.75887	335.5	102.276	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'
G10_037	3	11G	'SPEARVILLE (SPEARVLX) 345/115/13.8KV TRANSFORMER CKT 3'	FROM->TO	0.74097	335.5	101.933	'CUDAHY - G09-59T 115.00 115KV CKT 1'
G10_044	13	11G	'BEATRICE POWER STATION - CLATONIA 115KV CKT 1'	FROM->TO	0.22543	136.8	103.424	'BEATRICE POWER STATION - SHELDON 115KV CKT 1'
G10_044*	13	11G	'BEATRICE POWER STATION - CLATONIA 115KV CKT 1'	FROM->TO	0.26559	136.9	100.447	'BEATRICE POWER STATION - SHELDON 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.44837	79.6	134.58	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.44837	79.6	132.947	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.44837	79.6	132.57	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73657	119.4	134.819	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74139	119.4	134.422	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73657	119.4	132.557	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73657	119.4	131.887	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74139	119.4	132.16	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74139	119.4	131.49	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74139	119.4	128.857	'LN-1091'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74139	119.4	128.727	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.738	119.4	126.802	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74139	119.4	126.596	'LN-1091'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74139	119.4	126.465	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74139	119.4	125.926	'LN-1091'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74139	119.4	125.795	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.738	119.4	124.457	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.738	119.4	123.787	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.77164	119.4	121.557	'LN-1090'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.77164	119.4	121.557	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.77164	119.4	121.474	'CALAMUS - THEDFORD 115KV CKT 1'
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45657	80	118.437	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65403	119.4	116.756	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.77164	119.4	119.296	'LN-1090'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.77164	119.4	119.296	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.77164	119.4	119.212	'CALAMUS - THEDFORD 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65357	119.4	116.109	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45657	80	116.812	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65411	119.4	115.9	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.77164	119.4	118.793	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.77164	119.4	118.626	'LN-1090'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.77164	119.4	118.626	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.77164	119.4	118.542	'CALAMUS - THEDFORD 115KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45657	80	116.437	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.68384	119.4	116.17	'MAXWELL - NORTH PLATTE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.4	123.786	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	123.579	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65403	119.4	114.494	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.77164	119.4	116.532	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65357	119.4	113.848	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65403	119.4	113.824	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.4	121.525	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	121.322	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65411	119.4	113.638	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65413	119.4	113.463	'BASE CASE'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.77164	119.4	115.862	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.4	120.855	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	120.653	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.68384	119.4	113.909	'MAXWELL - NORTH PLATTE 115KV CKT 1'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.45079	80	113.494	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65357	119.4	113.178	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65411	119.4	112.968	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.68384	119.4	113.239	'MAXWELL - NORTH PLATTE 115KV CKT 1'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.45079	80	111.869	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65413	119.4	111.201	'BASE CASE'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.45079	80	111.369	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65413	119.4	110.531	'BASE CASE'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65413	119.4	110.018	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65413	119.4	108.57	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65413	119.4	107.757	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65413	119.4	107.087	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.5562	119.4	106.037	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.5562	119.4	105.45	'LN-WAPA6'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.5562	119.4	105.45	'NEB001NPPB2'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.5562	119.4	105.45	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65413	119.4	106.308	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.65413	119.4	105.638	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.5562	119.4	103.775	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.5562	119.4	103.189	'LN-WAPA6'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.5562	119.4	103.189	'NEB001NPPB2'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.5562	119.4	103.105	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.5562	119.4	103.105	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.5562	119.4	102.519	'NEB001NPPB2'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.5562	119.4	102.519	'LN-WAPA6'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.5562	119.4	102.435	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.4341	79.6	126.656	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73468	119.4	131.938	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.72163	119.4	129.281	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.4341	79.6	125.023	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'MISSION - ST FRANCIS 115KV CKT 1'	TO->FROM	0.4341	79.6	124.646	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73468	119.4	129.676	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73468	119.4	129.006	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.72163	119.4	127.019	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.72163	119.4	126.349	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73468	119.4	126.31	'LN-1091'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73468	119.4	126.243	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73468	119.4	124.049	'LN-1091'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73468	119.4	123.981	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73468	119.4	123.379	'LN-1091'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73468	119.4	123.311	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.72479	119.4	121.911	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.72479	119.4	119.566	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.72479	119.4	118.896	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45635	80	118.31	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45635	80	116.685	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.76095	119.4	117.6	'LN-1090'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.76095	119.4	117.6	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.76095	119.4	117.516	'CALAMUS - THEDFORD 115KV CKT 1'
G10_039	10	11G	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45635	80	116.31	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.4	123.786	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	123.579	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64449	119.4	113.22	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.4	121.525	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	121.322	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.76095	119.4	115.339	'LN-1090'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.76095	119.4	115.339	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.76095	119.4	115.255	'CALAMUS - THEDFORD 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.4	120.855	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11G	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.6	120.653	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64423	119.4	112.648	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.76095	119.4	114.836	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.76095	119.4	114.669	'LN-1090'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.76095	119.4	114.669	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64445	119.4	112.32	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.76095	119.4	114.585	'CALAMUS - THEDFORD 115KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64449	119.4	110.959	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.76095	119.4	112.575	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64423	119.4	110.386	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64449	119.4	110.289	'BROKEN BOW - LOUP CITY 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64445	119.4	110.059	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64505	119.4	110.098	'BASE CASE'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.76095	119.4	111.905	'MAXWELL - THEDFORD 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64423	119.4	109.716	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64445	119.4	109.389	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64505	119.4	107.836	'BASE CASE'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.4395	80	107.251	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64505	119.4	107.166	'BASE CASE'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64505	119.4	107.105	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.4395	80	105.626	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64505	119.4	105.738	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.4395	80	105.126	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64505	119.4	104.843	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64505	119.4	104.173	'GERALD GENTLEMAN STATION 345/24.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54939	119.4	103.512	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64505	119.4	103.477	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54939	119.4	102.926	'LN-WAPA6'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54939	119.4	102.926	'NEB001NPPB2'
G10_039	10	11G	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54939	119.4	102.926	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64505	119.4	102.807	'GERALD GENTLEMAN STATION 230/23.0KV TRANSFORMER CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54939	119.4	101.251	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54939	119.4	100.664	'NEB001NPPB2'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54939	119.4	100.664	'LN-WAPA6'
G10_039	10	11G	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54939	119.4	100.581	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	11G	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.54939	119.4	100.581	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	122.584	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11SP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	120	122.584	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	118.834	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11SP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	120	118.834	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	120	114.5	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	114.5	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	122.186	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16SP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.9	122.186	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	118.015	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	16SP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.9	118.015	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.9	113.178	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	113.178	'EMMET - ONEILL 115KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	122.584	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11SP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	120	122.584	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	118.834	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11SP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	120	118.834	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	120	114.5	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	120	114.5	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	122.186	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16SP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.9	122.186	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	118.015	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	16SP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.9	118.015	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.9	113.178	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16SP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.9	113.178	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74152	119.8	122.251	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74152	119.9	119.731	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74152	119.9	118.73	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	123.79	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.8	123.79	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	121.369	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.9	121.268	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	120.368	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.9	120.267	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74152	119.8	112.819	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74152	119.8	112.724	'LN-1091'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74152	119.8	111.149	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74152	119.9	110.306	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74152	119.9	110.212	'LN-1091'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74152	119.9	109.305	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74152	119.9	109.211	'LN-1091'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74152	119.9	108.638	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74038	119.8	108.312	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74152	119.9	107.637	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74038	119.9	105.803	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74038	119.9	104.802	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45453	79.8	104.446	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65596	119.8	103.241	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.6554	119.8	102.623	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	11WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45453	79.8	102.692	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65593	119.8	102.328	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65815	119.8	102.005	'LN-CALLAWAY'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.65815	119.8	102.005	'CALLAWAY - MAXWELL 115KV CKT 1'
G10_039	10	11WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.45453	79.8	102.065	'EMMET - ONEILL 115KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.65596	119.9	100.737	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.5578	119.8	100.179	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.6554	119.9	100.119	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74186	119.3	122.324	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74186	119.4	119.374	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74186	119.4	118.201	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	123.742	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.3	123.638	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	120.89	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.4	120.687	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	119.715	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.4	119.515	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74186	119.3	112.516	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74186	119.3	112.429	'LN-1091'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74186	119.3	110.672	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74186	119.4	109.575	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74186	119.4	109.487	'LN-1091'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74186	119.4	108.402	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74186	119.4	108.315	'LN-1091'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54725	119.3	106.071	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74186	119.4	107.732	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.74074	119.3	107.407	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74186	119.4	106.56	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.6458	119.3	104.934	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.48979	79.8	104.878	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64524	119.3	104.336	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64572	119.3	104.024	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54725	119.3	103.389	'NEB001NPPB2'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54725	119.3	103.389	'LN-WAPA6'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54725	119.3	103.389	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.6458	119.3	103.928	'AINSWORTH 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.74074	119.4	104.47	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54725	119.4	103.135	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.74074	119.4	103.297	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.48979	79.8	102.748	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.54725	119.4	101.962	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.6458	119.4	101.999	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.48979	79.8	101.871	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64524	119.4	101.401	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.6458	119.3	101.33	'BASE CASE'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.64572	119.4	101.089	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.6458	119.4	100.994	'AINSWORTH 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.75235	119.3	101.18	'LN-1090'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.75235	119.3	101.18	'AINSWORTH - CALAMUS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.75235	119.3	101.012	'CALAMUS - THEDFORD 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.6458	119.4	100.826	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54725	119.4	100.455	'NEB001NPPB2'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54725	119.4	100.455	'LN-WAPA6'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54725	119.4	100.455	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.64524	119.4	100.228	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'HARMONY - ST FRANCIS 115KV CKT 1'	FROM->TO	0.48979	79.8	100.117	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73404	119.8	119.488	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73404	119.9	116.969	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	123.79	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.8	123.79	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73404	119.9	115.969	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	121.369	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.9	121.268	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.8	120.368	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.9	120.267	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73404	119.8	110.055	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73404	119.8	109.946	'LN-1091'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73404	119.8	108.386	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73404	119.9	107.545	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73404	119.9	107.436	'LN-1091'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73404	119.9	106.544	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73404	119.9	106.435	'LN-1091'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73404	119.9	105.877	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73404	119.9	104.876	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73085	119.8	104.788	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73085	119.9	102.282	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.4499	79.8	101.882	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	11WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73085	119.9	101.281	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64938	119.8	100.81	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	11WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.4499	79.8	100.127	'ATKINSON - EMMET 115KV CKT 1'
G10_039	10	11WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64856	119.8	100.096	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73421	119.3	119.486	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	123.742	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	1	119.3	123.638	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73421	119.4	116.538	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73421	119.4	115.365	'AINSWORTH - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	120.89	'ATKINSON - EMMET 115KV CKT 1'

Source	Group Dispatch	Season	Element	Direction	TDF	Rating	Loading	Contname
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	1	119.4	120.687	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'AINSWORTH - STUART 115KV CKT 1'	TO->FROM	1	119.2	119.715	'EMMET - ONEILL 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	1	119.4	119.515	'AINSWORTH - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73421	119.3	109.678	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73421	119.3	109.58	'LN-1091'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73421	119.3	107.834	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73421	119.4	106.739	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73421	119.4	106.64	'LN-1091'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54337	119.3	104.63	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73421	119.4	105.566	'HARMONY - VALENTINE 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73421	119.4	105.468	'LN-1091'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73421	119.4	104.896	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.73104	119.3	103.81	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.73421	119.4	103.724	'HARMONY - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.63988	119.3	102.737	'VALENTINE 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54337	119.3	101.948	'NEB001NPPB2'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54337	119.3	101.948	'LN-WAPA6'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.54337	119.3	101.948	'ONEILL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.54337	119.4	101.695	'FT RANDAL - SPENCER 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.63909	119.3	102.054	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.63988	119.3	101.731	'AINSWORTH 115/34.5KV TRANSFORMER CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64223	119.3	101.77	'LN-CALLAWAY'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.64223	119.3	101.77	'CALLAWAY - MAXWELL 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - STUART 115KV CKT 1'	TO->FROM	0.63928	119.3	101.634	'GERALD GENTLEMAN STATION - SWEETWATER 345KV CKT 1'
G10_039	10	16WP	'HARMONY - VALENTINE 115KV CKT 1'	TO->FROM	0.48385	79.8	101.583	'ATKINSON - STUART 115KV CKT 1'
G10_039	10	16WP	'ATKINSON - EMMET 115KV CKT 1'	FROM->TO	0.73104	119.4	100.875	'MISSION - ST FRANCIS 115KV CKT 1'
G10_039	10	16WP	'EMMET - ONEILL 115KV CKT 1'	FROM->TO	0.54337	119.4	100.522	'FT RANDAL - SPENCER 115KV CKT 1'
G10_044	13	11G	'CLATONIA - SHELDON 115KV CKT 1'	FROM->TO	0.22691	136.8	100.278	'BEATRICE POWER STATION - SHELDON 115KV CKT 1'
G10_044	13	11G	'BEATRICE POWER STATION - CLATONIA 115KV CKT 1'	FROM->TO	0.22691	136.8	103.86	'BEATRICE POWER STATION - SHELDON 115KV CKT 1'
G10_044*	13	11G	'BEATRICE POWER STATION - CLATONIA 115KV CKT 1'	FROM->TO	0.27162	136.9	102.212	'BEATRICE POWER STATION - SHELDON 115KV CKT 1'

* GEN-2010-044 POI @ GEN-2010-047 Tap