Southwest Power Pool

Facility Study
For
Generator Interconnection Request
GEN-2014-012
(IFS-2014-001-06)

SPP Generator Interconnection Studies

(#GEN-2014-012)
(#IFS-2014-001-06)

March 2015

Revision History

Date	Author	Change Description
02/13/2014	SPP	Draft Facility Study Report Issued
03/20/2015	SPP	Final Facility Study Report Issued

Summary

Southwestern Public Service Company (SPS), an operating company subsidiary of Xcel Energy Inc., performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for Generation Interconnection request GEN-2014-012/IFS-2013-002-6 (186.0MW/Summer Peak and 225.0MW/Winter Peak) located in Gaines County, Texas. Interconnection Customer, GEN-2014-012/IFS-2013-002-6 is an Energy Resource Interconnection Service (ERIS) only SPP GI Interconnection Request. GEN-2014-012/IFS-2013-002-6 originally requested an in-service commercial operation date of June 1, 2018. SPP has proposed the in-service date will be after the assigned Interconnection Facilities and Non-Shared Network Upgrades are completed. Full Interconnection Service will require the Network Upgrades listed in the "Other Network Upgrades" section. The request for interconnection was placed with SPP in accordance with SPP's Open Access Transmission Tariff, which covers new generation interconnections on SPP's transmission system.

Phases of Interconnection Service

It is not expected that interconnection service will require phases however, interconnection service will not be available until all interconnection facilities and network upgrades can be placed in service.

Interconnection Customer Interconnection Facilities

The Interconnection Customer's generation facility consists of one (1) Gas Combustion Turbine for a total generation capacity of 186.0MW Summer Peak and 225.0MW Winter Peak. The 18kV generation voltage is planned to be connect to one (1) 345/18kV Interconnection Customer owned and maintained step-up transformer at the Interconnection Customer owned substation. A 345kV transmission circuit approximately six (6) miles long will connect the Interconnection Customer owned substation to the new SPS owned Sidewinder 345kV Switching Station. This new Switching Station will tap the existing Hobbs – Andrews 345kV transmission line (currently operated at 230kV)[1]. The new Sidewinder 345kV Switching Station will be approximately 18 miles from the Hobbs Substation on the Hobbs – Andrews transmission circuit. The Interconnection Customer will be responsible for all of the transmission facilities connecting the customer owned substation to the Point of Interconnection (POI), at SPS owned 345kV bus at the new Sidewinder 345kV Switching Station. The Interconnection Customer will also be responsible for any equipment located at the Customer substation necessary to maintain a power factor of 0.95 lagging to 0.95 leading at the POI.

Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades

To allow interconnection the Transmission Owner will need to construct a new three (3) breaker ring bus 345kV substation and associated terminal equipment to allow for acceptance of the Interconnection Customer's Interconnection Facilities. SPS has estimated a lead time of thirty-six (36) months after a fully executed Generation Interconnection Agreement (GIA) to complete the Sidewinder Switching Station Facilities and Upgrades.

GEN-2014-012/IFS-2014-001-06 was originally studied in the SPP Generation Interconnection Impact Study DISIS-2014-001. Due to higher queued Interconnection Customers and the need for

[1] The SPS Facilities Study states that the Hobbs-Andrews 230kV line will be converted to 345kV operation prior to the in-service date of the GEN-2014-012 Interconnection Request. This work, which is described on pages 2-3 of the SPS study, does not have a Notification to Construct (NTC) at the time of the posting of this study report. The Transmission Owner will be required to enter into a Sponsorship Agreement with SPP to construct this upgrade.

their assigned Network Upgrades withdrawing from the SPP GI Queue along with a SPP Generation Interconnection queue amount reduction; a restudy of DISIS-2014-001 (DISIS-2014-001-1) was performed. As a result of the restudy, a Non-Shared Network Upgrade of rebuilding National Enrichment Plant – Targa – Cardinal 115kV was identified as an injection constraint for GEN-2014-012/IFS-2014-001-06. This constraint was included in the 2015 ITP Near Term that was approved by the SPP Board of Directors in January, 2015. As such, this upgrade will receive a Notification to Construct (NTC) and the Interconnection Customer will not be responsible for this upgrade[2]. At this time GEN-2014-012/IFS-2013-002-6 is responsible for $12,058,042 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades. Table 1 displays the estimated costs descriptions for Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades.

Table 1: GEN-2014-012/IFS-2014-001-06 TOIF and Non-Shared Network Upgrades

Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades Description	Allocated Cost ($)	Allocated Percent (%)	Total Cost ($)
Interconnection Substation - Transmission Owner Interconnection Facilities 345kV Substation work	$337,375	100%	$337,375
Interconnection Substation - Network Upgrades 345kV Sidewinder Switching Station and Hobbs – Andrews transmission circuit work	$11,720,667	100%	$11,720,667
Total	$12,058,042	100%	$12,058,042

Shared Network Upgrades

At this time, the Interconnection Customer is allocated $0 for Shared Network Upgrades. If higher queued interconnection customers withdraw from the queue, suspend or terminate their GIA, restudies will have to be conducted to determine the Interconnection Customers' allocation of Shared Network Upgrades. All studies have been conducted on the basis of higher queued interconnection requests and the upgrades associated with those higher queued interconnection requests being placed in service. At this time, the Interconnection Customer is allocated the following cost for Shared Network Upgrades.

Table 2: GEN-2014-012/IFS-2014-001-06 Shared Network Upgrades

Shared Network Upgrades Description	Allocated Cost ($)	Allocated Percent (%)	Total Cost ($)
Currently GEN-2014-012/IFS-2014-001-06 is not allocated Shared Network Upgrades	$0	n/a	$0
Total	$0	n/a	$0

Other Network Upgrades

Certain Other Network Upgrades are currently not the cost responsibility of the Customer but will be required for full Interconnection Service. Currently, the following Other Network Upgrades are required:

[2] The SPS Facility Study indicated this upgrade would be an Interconnection Request allocation, but as stated in this report, the upgrade will now receive an NTC.

- Hobbs-Andrews 230/345kV conversion[3] – The SPS Facility Study states that this transmission line will be converted to 345kV operation prior to the in-service date of the GEN-2014-012 Interconnection Request. This project does not have a Notification to Construct. This work is not cost assigned to the Interconnection Customer and is not subject to higher queued Interconnection Request withdrawals. SPP has performed a modification impact study to determine the impacts of performing this conversion. SPP's study shows the conversion does not cause any reliability impacts to the Transmission System. The study is found in Attachment B. The work consists of the following projects
    - Hobbs Plant - 345kV substation work including a new bay position and transmission line re-termination
    - Andrews Substation – Replacement of the 230/115kV autotransformers with a new 345/115kV 448MVA transformer.
- Hobbs Interchange – Kiowa 345kV circuit #1 build, assigned in SPP High Priority Incremental Loads (HPILs) Study, SPP-NTC-200283[4]. Estimated In-Service date on schedule for 6/1/2018.
- Kiowa – Road Runner 345/230/115kV Project, assigned in SPP High Priority Incremental Loads (HPILs) Study, SPP-NTC-200283. Estimated In-Service date on schedule for 6/1/2018.
- Livingston Ridge – Sage Brush – Lagarto – Cardinal 115kV circuit #1 build, assigned in SPP High Priority Incremental Loads (HPILs) Study, SPP-NTC-200283. Estimated In-Service date on schedule for 6/1/2018.
- TUCO Interchange – Yoakum – Hobbs Interchange 345/230kV Project, assigned in SPP High Priority Incremental Loads (HPILs) Study, SPP-NTC-200283. Estimated In-Service date on schedule for 6/1/2020.
- National Enrichment Plant – Targa – Cardinal 115kV circuit #1 rebuild, assigned in SPP 2015 ITPNT Study, SPP-NTC-200324. Estimated In-Service Date on 6/1/2015.

Depending upon the status of higher or equally queued customers, the Interconnection Customer's in-service date is at risk of being delayed or their Interconnection Service is at risk of being reduced until the in-service date of these Other Network Upgrades.

Conclusion

Interconnection Service for GEN-2014-012/IFS-2014-001-06 will be delayed until the Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades are constructed. Additionally, prior to the Interconnection Request in-service date, the Hobbs-Andrews 230kV line must be converted to 345kV operation. The Interconnection Customer is responsible for $12,058,042 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades. At this time, the Interconnection Customer is allocated $0 for Shared Network Upgrades. After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 186.0MW Summer Peak and 225.0MW Winter Peak, as requested by GEN-2014-012/IFS-2014-001-06, can be allowed. At this time the total allocation of costs assigned to GEN-2014-012/IFS-2014-001-06 for Interconnection Service are estimated at $12,058,042.

[3] See SPS Facility Study – pages 2-3.
[4] SPP-NTC-200283 Link: http://www.spp.org/publications/NTC-C%20200283%20SPS.pdf

Attachment A

SPS Facility Study

Facilities Study For
Southwest Power Pool (SPP)

186/225 MW Generation Facilities
[omitted text] Generator Plant, Texas
SPP #GEN-2014-012

December 10, 2014

Transmission Planning South
Xcel Energy Services

Executive Summary

("Interconnection Customer") in 2014 requested the interconnection of a new generation facility located in Gaines County, Texas to the Southwestern Public Service Company (SPS) transmission network. SPS is a New Mexico Corporation and wholly owned subsidiary of Xcel Energy Inc. This facility has a net capacity of 186 MW in the summer and 225 MW in the winter. The Interconnection Customer's expected commercial operation date is June 1, 2018 and back-feed date is January 2018.

The Southwest Power Pool (SPP) evaluated the request to interconnect the generator facility to the SPS transmission system in a Definitive Interconnect System Impact Study (DISIS-2014-001-1) GEN-2014-012 completed in October 2014.The interconnection request was studied using one (1) Siemens Gas Combustion Generator for a total output of 186 MW. The Interconnection Customer will be required to maintain a Power Factor of 0.95 lagging and 0.95 leading at the Point of Interconnection (POI).

SPP requires that each generator shall implement Automatic Under Frequency Load Shedding (UFLS) according to the SPP UFLS Plan at the following link: http://www.spp.org/publications/SPP%20UFLS%20Plan_Final.pdf. To fulfill this requirement, coordination with Xcel Energy is required during the under-frequency relay-setting phase for the generation. The Interconnection Customer is required to report their generation off-nominal frequency tripping relay settings to SPP and SPS. SPS specifies that generators shall not trip at frequencies above 58.5 Hz unless exceptions in the Transmission Provider Criteria are met. The Interconnection Customer agrees that the energy generating units installed at this interconnection will not be tripped for under-frequency conditions above 58.5 Hz in compliance with Transmission Provider criteria. This means that the generation subject to this Interconnection Agreement may not trip for under-frequency conditions on the transmission system until all under-frequency load shedding relays have operated. SPS will also require that the Interconnection Customer be in compliance with all applicable criteria, guidelines, standards, requirements, regulations, and procedures issued by the North American Electric Reliability Corporation (NERC), SPP, and the Federal Energy Regulatory Commission (FERC) or their successor organizations.

The Interconnection Customer is responsible for the cost of the Interconnection Facilities, installation of the Direct Assigned Interconnection Facilities; inclusive of all construction required for the 345 kV to interconnect at SPS's Sidewinder Switching Station.

There are no shared network upgrades allocated for the new Combustion Turbine Generator project (GEN-2014-012). The following SPP 2015 ITPNT assigned upgrades will be required for full interconnection: (1) Rebuild approximately 4 miles of 115 kV from National Enrichment Plant to Targa and (2) Rebuild approximately 3 miles of 115 kV from Targa to Cardinal. The allocation cost of these network upgrades may change as the content of the GI Cluster group changes. The network upgrades for Sidewinder Switching Station at 345 kV is $ 11,720,667.

As for this request (GEN-2014-012), a new 345 kV Sidewinder Switching Station will require approximately 36 months to complete after an Interconnection Agreement is signed and an authorization to proceed is received. A Certificate of Convenience and Necessity (CCN) will be required for the generation facility and the new 345 kV transmission line. The cost of these upgrades, inclusive of the Interconnection Customer's cost for the interconnection of this Gas Combustion Generator facility, is shown below in Table 1, with the detailed description of the cost shown in Table 3.

The existing 230 kV line from Hobbs Plant – Andrews Substation will be converted to 345 kV operations prior to the addition of the new Sidewinder Switching Station. This conversion will require the re-termination of the existing 230 kV line (constructed and insulated for 345 kV) between Hobbs Plant to

Andrews Substation to a new 345 kV bay position in the Hobbs Plant 345 kV bus, the addition of the 345 kV line terminal breakers and equipment at Hobbs Plant, and the replacement of the 230/115 kV autotransformers at Andrews Substation with a new 345/115 kV 448 MVA autotransformer. This work will be done prior to the completion of the interconnection of the generator. This work is not part of the interconnection facilities or network upgrades for interconnection for the generator request.

Table 1, Cost Summary[a]

Transmission Owner Network Upgrades:	**$ 11,720,667**
Transmission Owner Interconnection Facilities:	**$ 337,375**
Total:	**$12,058,042**

[a] The cost estimates are 2014 dollars with an accuracy level of ±20%.

General Description of SPS Facilities [2]

1. **Construction of New Gas Combustion Generator and construction of New 345 kV Sidewinder Switching Station:** See Appendix A, Figure A-1, for general vicinity location map.

   1.1. **Location:** SPS will build a new 345 kV 3-ring bus with 3-breakers and 3-terminals at Sidewinder Switching Station; expandable to a breaker and half scheme. Appendix A, Figure A-2 shows the one-line diagram of the 345 kV 345 kV Sidewinder Switching Station.

   1.2. **Bus Design:** A new 345 kV, 3-ring bus design will be built for future breaker and half configuration for the new Sidewinder Switching Station. It will accommodate the output from Interconnection Customer's Generation Plant. The one-line diagram is shown in Appendix A, Figure A-2.

   1.3. **Line Terminals:** The 345 kV lines and static wire terminals will be designed to accommodate 18,000 pounds per conductor (36,000 per bundle) per phase at maximum tension, with a maximum 15° pull-off angle from normal.

   1.4. **Control House:** The new control house will be utilized to accommodate the new metering, protective relaying and control devices, terminal cabinets, and any fiber-optic cable terminations, etc. for the 345 kV line breaker terminals.

   1.5. **Security Fence:** The new security fence will have a 7-foot chain-link fence with steel posts set in concrete with 1-foot of barbed wire on the top in a "V" configuration. The enclosed area will be approximately 660' by 660' for Sidewinder Switching Station with a rock yard surface.

   1.6. **Ground Grid**: A complete ground grid shall be installed per ANSI/IEEE STD 80-1986, with our standard 4/0 copper ground mesh on 40-foot centers with ground rods and 20-foot centers in corners and loop outside of fence.

   1.7. **Site Grading:** Company contractor, per company specifications, will perform any site grading and erosion control of the new switching station. Soil compaction shall be not less than 95% of laboratory density as determined by ASTM-D-698.

   1.8. **Station Power:** A 199 kV/120-240 volt transformer tapped off of the 345 kV bus will provide station power. A backup station power source will be taken from local distribution if it is available or a generator will be installed if none is available. A flip-flop to automatically transfer the station power will be installed.

[2] All modifications to SPS facilities will be owned, maintained and operated by SPS.

1.9. **Relay and Protection Scheme:** The new Sidewinder Switching Station will be a 345 kV 3-ring bus with 3-breakers and three (3) line terminals. The primary and secondary lead bus protection for generator relays to the 345 kV bus will be SEL 487B and GE B90, respectively. The line terminal protection will be a SEL-411L and SEL-311C-1. No automatic re-closing scheme will be used on the Sidewinder Switching Station, but the SEL 411L will be wired for future re-closing. Fiber is available on the Interconnection Customer's Generation Plant to Sidewinder Switching Station lines. A SEL 351S will be used for breaker failure. Modifications at SPS' Hobbs & Andrews substations may be required.

An SEL 411L will display the bus voltage, GCB amps, MW, MVAr, and fault location. An SEL 2032 will be installed for relay communications and other functions as required.

1.10. **Revenue Metering:** An individual billing meter will be installed on the 345 kV at Sidewinder Switching Station along with a meter per ANSI C12.1 accuracy class 0.2 (3-PT's IEEE C57.13 accuracy class 0.3 and 3 CT's IEEE C57.13 accuracy class 0.15) for full 3-phase 4-wire metering. Pulses out of the billing meter will be sent via SCADA to the SPS' Control Center in Amarillo, Texas.

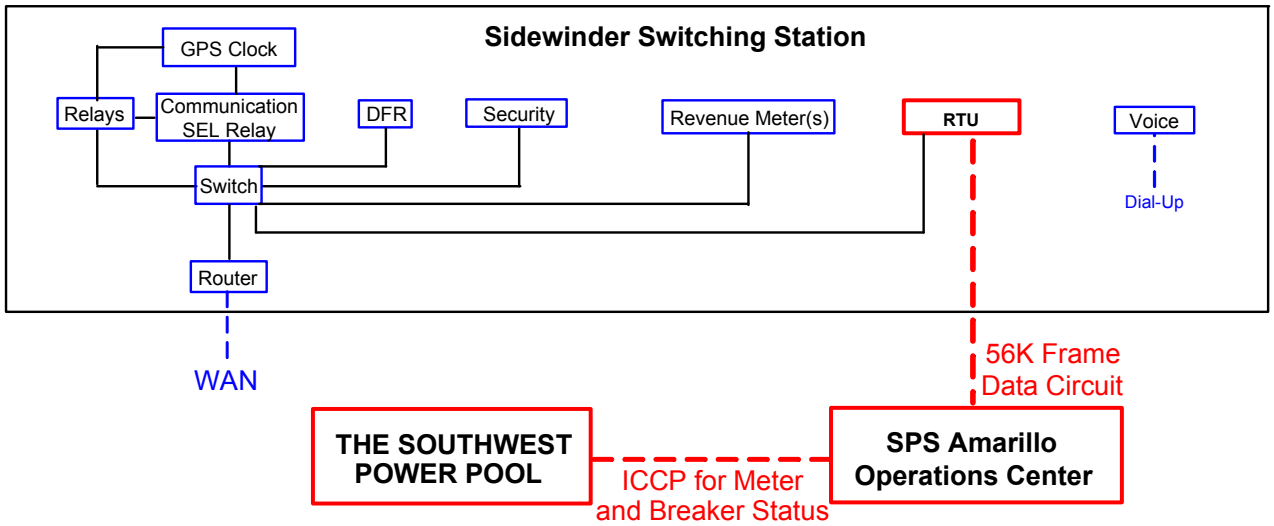
1.11. **Disturbance Monitoring Device:** A Disturbance-Fault Recorder ("DFR"), capable of recording faults, swings, and long term trending, will be installed to monitor and record conditions in the substation and on the transmission lines. The disturbance equipment shall also be equipped with a GPS time synch clock. This equipment will have communication capability with a dedicated communication circuit. The disturbance equipment will have its own dedicated dial-up communications telephone circuit.

1.12. **Remote Terminal Unit ("RTU"):** A RTU will be installed to accommodate the new 345 kV line terminals at the Sidewinder Switching Station. SPS will install RTU cards for metering and telemetry as required by the latest Xcel Energy Interconnection Guidelines. The direct cost will be charged to the Interconnection Customer.

1.13. **Communications:** To meet its Communications obligations, the Interconnection Customer shall be responsible for making arrangements with the local phone company to provide telephone circuits as required by the Transmission Owner. Transmission Owner equipment may include, but is not limited to, the following: relay communication equipment, RTU, and disturbance monitoring equipment at the new Sidewinder Switching Station. Prior to any construction, the Interconnection Customer is required to contact the Transmission Owner substation-engineering department for all communication details.

The following communications schematic diagram, which includes communication equipment information for the Interconnection Customer, Transmission Provider (Southwest Power Pool) and Transmission Owner (Southwestern Public Service), is provided to assist the Parties.

A schematic outlining the proposed communications is provided below:



The Interconnection Customer shall be responsible for providing fiber optic communication circuit installed in their overhead transmission line static wire for protective relaying from the Interconnection Customer's Generation Plant to Sidewinder Switching Station indicated in Section 1.9.

2. **Transmission Work:**

2.1. The Interconnection Customer will construct, own, operate, and maintain any customer owned 345 kV transmission line from the Interconnection Customer's substation to the Point of Interconnection at SPS Sidewinder Switching Station. **The SPS transmission design group prior to any construction by the Interconnection Customer or its contractor on any customer 345 kV transmission lines, or doing work in close proximity to any SPS transmission line, will require an engineering review of the customer's design. It is the Interconnection Customer's responsibility to initiate the design review in a timely manner before construction of any transmission line begins. If the review has not been made or the design at any of the aforementioned locations is deemed inadequate, the crossing(s) and or termination into the interchange will be delayed until the matters are resolved. SPS will not be held responsible for these delays.**

3. **Right-Of-Way:**

3.1. **Permitting**: The interconnection customer will be responsible for any permitting for the construction of a new 345 kV substation at Interconnection Customer's Generation Plant is required from the Public Utility Commission in the State of Texas and the State of New Mexico. A Certificate of Convenience and Necessity (CCN) will be required for the generation facility.

3.2. **Permitting**: The interconnection customer will be responsible for any permitting and right of way for the construction of a new 345 kV line from Interconnection Customer's Generation Plant Substation to new Sidewinder Switching Station is required from the Public Utility Commission in the State of New Mexico. A Certificate of Convenience and Necessity (CCN) will be required for the new 345 kV transmission line.

4. **Construction Power and Distribution Service:** It is the sole responsibility of the Interconnection Customer to make arrangements for both construction and station power, which may be required for the Interconnection Customer's generation facility. **Additionally, if the Interconnection Customer's substation(s) and/or construction site(s) are located outside of the SPS service area, SPS cannot provide station power (retail distribution service) and the Interconnection Customer needs to make arrangements for distribution service from the local retail provider.**

5. **Project and Operating Concerns:**

5.1. Close work between the Transmission group, the Interconnection Customer's personnel and local operating groups will be imperative in order to meet any in-service date that has been established

5.2. The Interconnection customer will be required to maintain a Power Factor of 0.95 lagging and a 0.95 leading at the Point of Interconnection (POI). This is required to maintain acceptable dynamic voltage rise as per latest revision of the Xcel Energy Interconnection Guidelines for Transmission Interconnection Producer-Owned Generation Greater than 20 MW, is available at:
(http://www.xcelenergy.com/Texas/Company/Transmission/Pages/Transmission_Services_Interconnection_Guidelines.aspx).

6. **Fault Current Study:** The available fault current at Sidewinder Switching Station, which is the Point of Interconnection, without and with any contribution from the new generator facilities, is shown in Table 2.

Table 2, - Available fault current at interconnection location

Short Circuit Information without contribution from new Generator Facilities (GEN 2014-012)				
Fault Location	Fault Current (Amps)		Impedance (Ω)	
	Line-to-Ground	3–Phase	Z^+	Z^0
345 kV Bus	5,222	5,812	6.925 +j32.41	8.15 +j43.93

Short Circuit Information with contribution from new Generator Facilities (GEN 2012-012)				
Fault Location	Fault Current (Amps)		Impedance (Ω)	
	Line-to-Ground	3–Phase	Z^+	Z^0
345 kV Bus	7,804	7,166	4.82 +j27.18	2.55 +j20.924

Estimated Construction Costs

The projects required for the interconnection of 186 MW Gas Combustion Generator facilities consist of the projects summarized in the table below.

Table 3, Required Interconnection Projects[c]

Project	Description	Estimated Cost
	Shared Network Upgrades	
	Currently, None.	
	Transmission Owner Network Upgrades	
2	Disturbance Monitoring Device (DFR) and Remote Terminal Unit (RTU) and Communication Equipment.	$ 346,745
3	Transmission Line Work (In and Out)	$ 757,506
4	Right-Of-Way	$ 73,653
5	New 3-ring 345 kV Breaker Switching Station	$10,542,763
	Subtotal:	**$ 11,720,667**
	Transmission Owner Interconnection Facilities (at the Interconnection Customer's expense)	
6	Communications [d]	*$ See footnote*
7	Revenue metering	$ 280,000
8	345 kV Line arrestors	$ 57,375
	Subtotal:	**$ 337,375**
	Total Cost	**$12,058,042**

Engineering and Construction:

An engineering and construction schedule for this project is estimated at approximately 36 months. Other factors associated with clearances, equipment delays and work schedules could cause additional delays. The schedule is applicable after all required agreements are signed and internal approvals are granted.

All additional cost for work not identified in this study is the sole responsibility of the Interconnection Customer unless other arrangements are made.

[c] The cost estimates are 2014 dollars with an accuracy level of ±20%.

[d] It is the Requester's responsibility to provide both the data circuit and both dial-up telephone circuits, see Section 1.13.

Appendix A

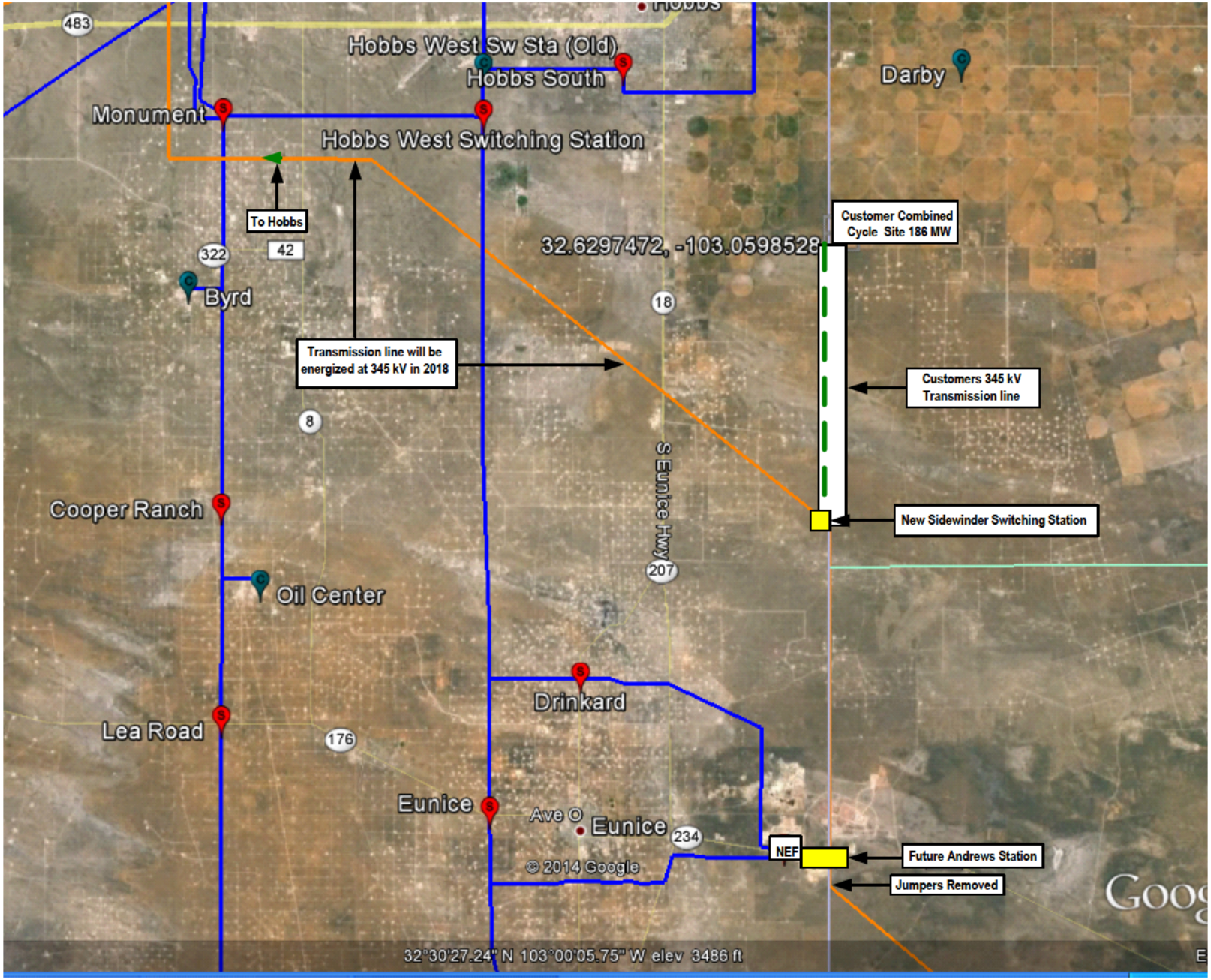


Figure A-1 Area Map

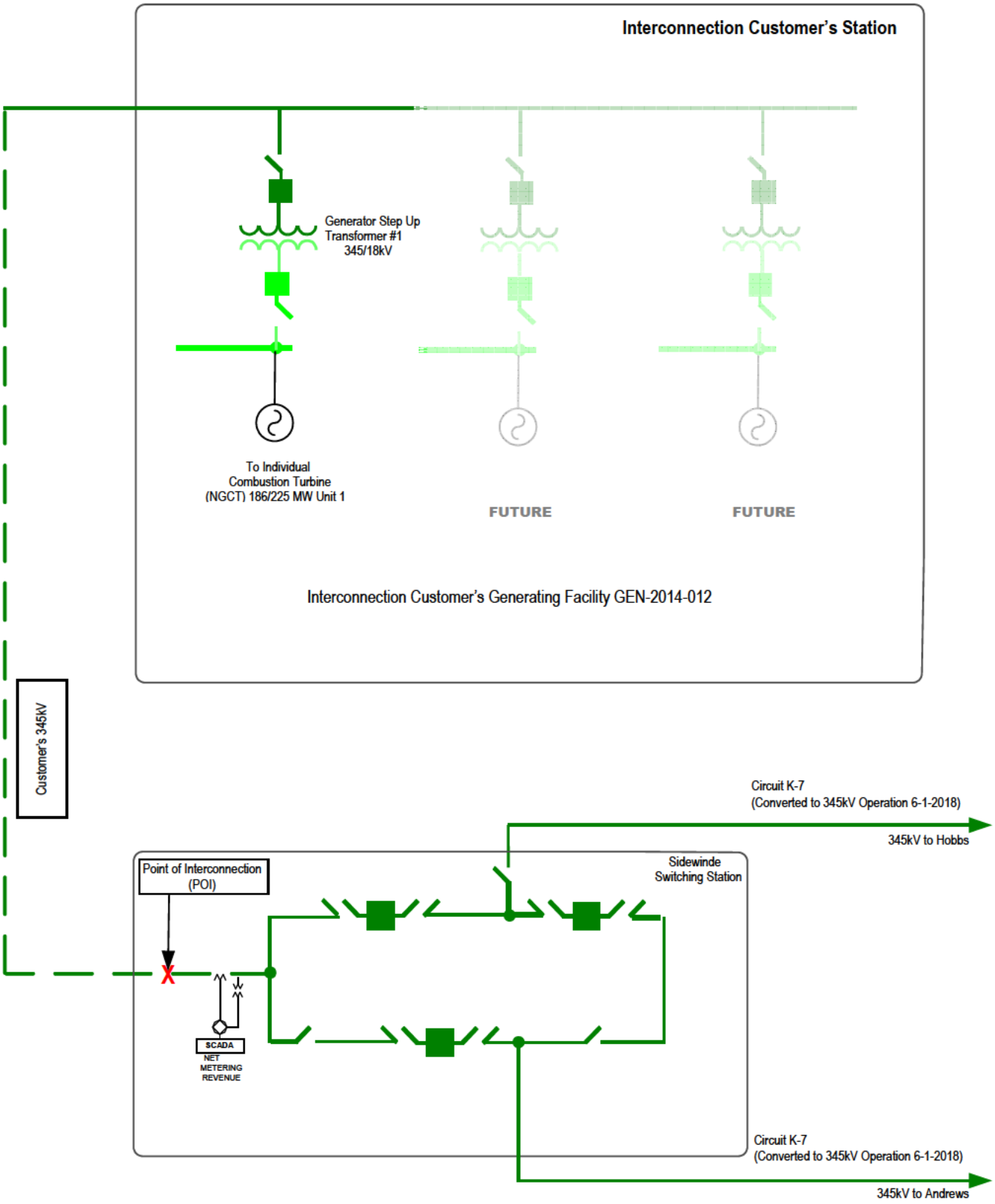


Figure A-2 One-line Diagram of Customers New Substation to Sidewinder Switching Station

– END OF REPORT –

Attachment B

SPP Modification Impact Study

Interconnection Facilities Study Addendum

Impact of Modification to Generator Interconnection

GEN-2014-012

March 2015
Generator Interconnection Studies

SPP Southwest Power Pool

Revision History

Date	Author	Change Description
3/20/2015	SPP	Impact of Transmission System modification to Generator Interconnection Request GEN-2014-012. Report Issued.

Executive Summary

This Impact Study is performed to evaluate the impact of the Transmission Owner's request to advance construction of an unapproved upgrade upon the Transmission System and Interconnection Request GEN-2014-012 (Interconnection Queue Position IFS-2014-001-06) as described in the Interconnection Facilities Study for the request.

GEN-2014-012 was studied within the DISIS-2014-001 completed July 31, 2014, and subsequently re-studied in DISIS-2014-001-1 that posted on October 31, 2014. For the DISIS-2014-001-1 re-study, GEN-2014-012, studied as a 225 MW combustion turbine connecting to the Hobbs-Andrews 230kV line, was found to require interconnection facilities and Network Upgrades consisting of a 230kV interconnection substation. During the performance of the Facility Study for the request, the Transmission Owner indicated that it would be converting the Hobbs-Andrews transmission line to 345kV operation prior to the in-service date of GEN-2014-012. The Facility Study requires the Interconnection Customer to construct and operate its Interconnection Customer Interconnection Facilities at 345kV instead of the initially requested 230kV.

This study addresses the impacts of interconnecting GEN-2014-012 at 345kV instead of 230kV within the study parameters of the Definitive Interconnection System Impact Study (DISIS-2014-001-1). It is assumed that this voltage conversion will be the responsibility of the Transmission Owner, Southwestern Public Service Company (SPS) and not the responsibility of the Interconnection Customer. Subsequent changes to the assumptions for this request will require review for modification and may require additional restudies to ensure that interconnection service remains for the customer's request. No other changes to the assumptions for the DISIS-2014-001-1 re-study were made.

Both power flow and stability analysis were conducted for this study. The conversion of the Hobbs-Andrews 230kV line to 345kV operation was not found to cause new issues that would be required for Interconnection Service that were not previously identified for 230kV operation.

It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list that can account for every operational situation. Additionally, the generator may not be able to inject any power onto the Transmission System due to constraints that fall below the threshold of mitigation for a Generator Interconnection request. Because of this, it is likely that the Customers may be required to reduce their generation output to **0 MW** under certain system conditions to allow system operators to maintain the reliability of the transmission network. 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.

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Purpose

This Impact Study is performed to evaluate the impact of the Transmission Owner's request to advance construction of an unapproved upgrade upon Interconnection Request GEN-2014-012 (Interconnection Queue Position IFS-2014-001-06) as described in the Interconnection Facilities Study for the request.

GEN-2014-012 was studied within the DISIS-2014-001 originally completed July 31, 2014, and subsequently re-studied in DISIS-2014-001-1 that posted on October 31, 2014. For the DISIS-2014-001-1 re-study, GEN-2014-012, being studied as a 225 MW combustion turbine connecting to the Hobbs-Andrews 230kV line, was found to require interconnection facilities and Network Upgrades consisting of a 230kV interconnection substation. SPP then requested for the Transmission Owner (SPS) to perform the Interconnection Facilities Study for GEN-2014-012. The SPS Facility Study indicated that the Transmission Owner would be converting the Hobbs-Andrews transmission line to 345kV operation prior to the in-service date of GEN-2014-012. The Facility Study requires the Interconnection Customer to construct and operate its Interconnection Customer Interconnection Facilities at 345kV instead of the initially requested 230kV.

Background

GEN-2014-012 was studied within the DISIS-2014-001 completed July 31, 2014, and subsequently re-studied as DISIS-2014-001-1 and reposted October 31, 2014. For the DISIS-2014-001, GEN-2014-012 requested to be studied for 850.0 MW as a 2 x 1 combustion turbine/steam turbine combined cycle Generating Facility. In order to accommodate the interconnection of the new Generating Facility, the Hobbs – Andrew 230kV line (which is insulated for 345kV operation) was found to be required to be converted to 345kV operation. This conversion, which was tentatively scheduled for a 2023 in-service date, does not have a Notification to Construct through the SPP Planning Process. The advancement of the conversion would have been an Interconnection Customer expense.

In the DISIS-2014-001-1 re-study, the GEN-2014-012 Interconnection Request was reduced in size to 225 MW. For DISIS-2014-001-1, the 230/345kV conversion was no longer found to be required.

During the performance of the Facility Study, SPS, the Transmission Owner, determined that the Hobbs-Andrews 230kV line should be converted prior to the in service date of the GEN-2014-012 request. The Facility Study assumed that this conversion would occur prior to the in service date of GEN-2014-012 at the expense of the Transmission Owner.

This study addresses the impacts of advancing the conversion of the Hobbs-Andrews 230kV line 2023 to 2018, date of the in-service date of the GEN-2014-012 request.

Scope

Both power flow and dynamic stability analysis was conducted for this re- study.

This study performed a re-study of Group 6 only. All assumptions made within the DISIS-2014-001-1 are to remain applicable with the exception that the Point of Interconnection for GEN-2014-012

will be at 345 kV and assume the operating voltage conversion from 230 kV to 345 kV for the Transmission Owner's Hobbs – Andrews transmission line has been placed into service. This conversion work also includes 345kV substation construction at Hobbs Station as well as the addition of a 345kV substation and 345/115kV autotransformer at Andrews substation. The previous planned 230/115kV transformers at Andrews were removed from the models.

No other changes to the assumptions made within the DISIS-2014-001-1 were included. The DISIS-2014-001-1 study was posted on October 31, 2014, and can be located at the following link: http://sppoasis.spp.org/documents/swpp/transmission/studies/files/2014_Generation_Studies/DISIS-2014-001-1_10-31-14_posted.pdf. Any changes to the assumptions in this re-study or to the other assumptions included within the DISIS-2014-001-1 may require a re-study at the expense of the Customer.

Nothing within this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service rights. Should the Customer require transmission service, those rights should be requested through SPP's Open Access Same-Time Information System (OASIS).

Facilities

Generating Facility

GEN-2014-012 Interconnection Customer's request to interconnect a total of 186 (Summer)/225 (Winter) MW is comprised of one (1) natural gas combustion turbine generator and associated facilities.

Interconnection Facilities

The POI for GEN-2014-012 Interconnection Customer is a proposed 345 kV substation, Sidewinder Switching Station, tapping the SPS Hobbs – Andrews 345 kV transmission line to be located in Lea County, New Mexico. *Figure 1* depicts the one-line diagram of the local transmission system including the POI.

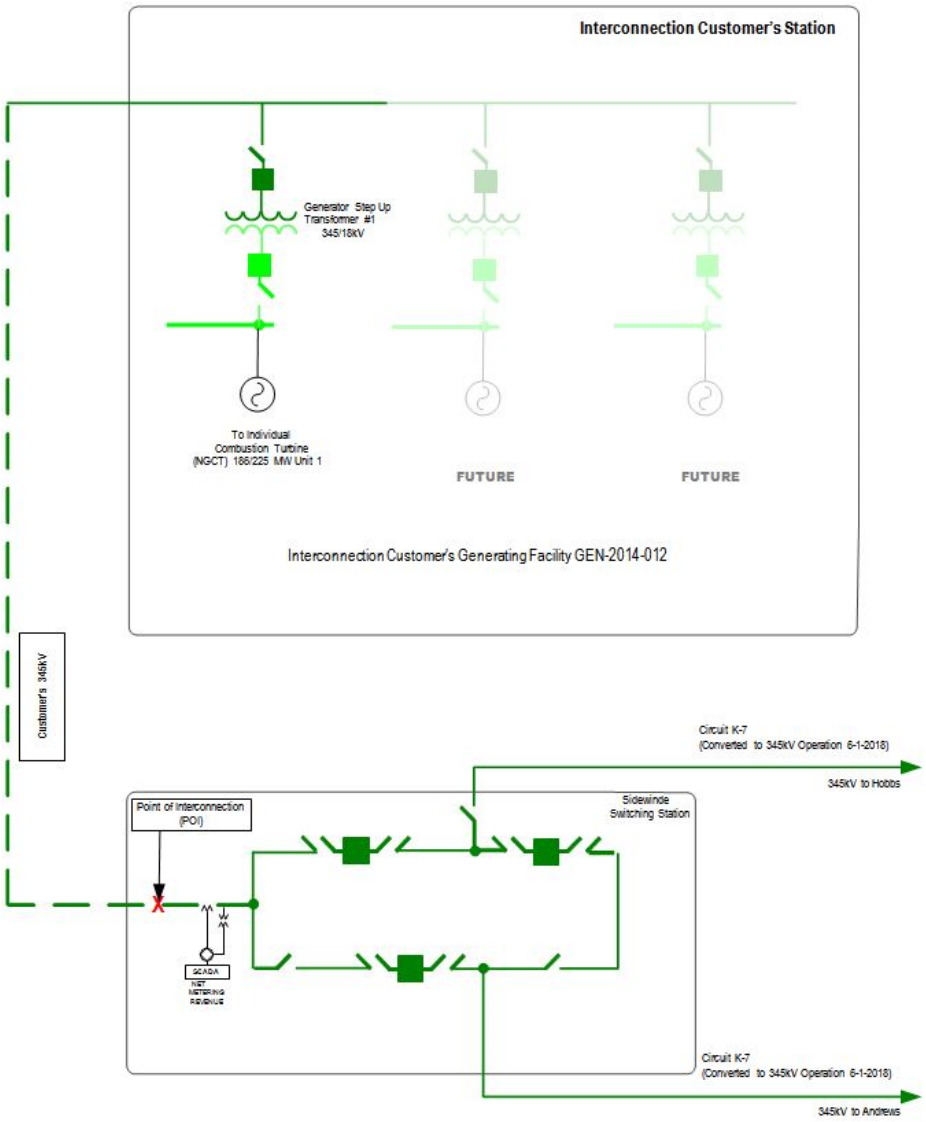

Figure 1: Proposed Generating Facility and POI Configuration

Base Case Network Upgrades

The Network Upgrades included within the cases used for this re-study are those facilities that were included as Base Case and Contingent Network Upgrades included within the DISIS-2014-001-1, which may be found at the following link: http://sppoasis.spp.org/documents/swpp/transmission/studies/files/2014_Generation_Studies/DISIS-2014-001-1_10-31-14_posted.pdf. If for some reason, construction on these projects is delayed or discontinued, a re-study may be needed.

Power Flow Analysis

Power flow analysis is used to determine if the transmission system can accommodate the injection from the request without violating thermal or voltage transmission planning criteria.

Model Preparation

Power flow analysis was performed using modified versions of models used in the analysis of the DISIS-2014-001-1 study.

Study Methodology and Criteria

The ACCC function of PSS/E is used to simulate contingencies, including single and multiple facility (i.e. breaker-to-breaker, etc.) outages, within all of the control areas of SPP and other control areas external to SPP and the resulting data analyzed. This satisfies the "more probable" contingency testing criteria mandated by NERC and the SPP criteria.

The contingency set includes all SPP control area branches and ties 69kV and above, first tier Non-SPP control area branches and ties 115 kV and above, any defined contingencies for these control areas, and generation unit outages for the SPP control areas with SPP reserve share program redispatch.

The monitor elements include all SPP control area branches, ties, and buses 69 kV and above, and all first tier Non-SPP control area branches and ties 69 kV and above. NERC Power Transfer Distribution Flowgates for SPP and first tier Non-SPP control area are monitored. Additional NERC Flowgates are monitored in second tier or greater Non-SPP control areas. Voltage monitoring was performed for SPP control area buses 69 kV and above.

Results

Under the assumptions previously stated in this report, ACCC analysis indicates that the GEN-2014-012 Interconnection Customer can interconnect into the proposed Sidewinder Switching Station after the Hobbs – Andrews transmission line is converted to 345 kV operation with no new or additional constraints, beyond those previously identified within the DISIS-2014-001-1 re-study.

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 may be required to reduce their generation output to **0 MW** under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Power Flow Analysis

*Table 1: Interconnection Constraints Requiring Mitigation of GEN-2014-012**

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20SP	'FROM->TO'	'Na ional Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.47226	125.2507	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20SP	'TO->FROM'	'Na ional Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.47226	109.738	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20WP	'FROM->TO'	'Na ional Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.47231	118.0923	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20WP	'TO->FROM'	'Na ional Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.47231	106.5521	'G14_012T 345.00 - HOBBS 345KV CKT 1'
25SP	n/a	NonConverged	n/a	n/a	n/a	n/a	'HOBBS - KIOWA 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'Na ional Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.47228	140.2338	'G14_012T 345.00 - HOBBS 345KV CKT 1'
25SP	'TO->FROM'	'Na ional Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.47228	125.481	'G14_012T 345.00 - HOBBS 345KV CKT 1'

*While these overloads/nonconverged do occur in this re-study, they also occur in the DISIS-2014-001-1 and are mitigated and allocated costs within that study. No new constraints or allocations occur as a result of changing the assumptions with regard to interconnecting GEN-2014-012 at 345kV.

Table 2: Additional Constraints of GEN-2014-012

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05811	202.4292	'HOBBS - KIOWA 7345.00 345KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05811	186.6825	'HOBBS - KIOWA 7345.00 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	149.1051	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	148.7648	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	147.1862	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	147.1806	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	142.8985	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	141.2844	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	140.2234	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	139.7577	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	136.6794	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	136.2312	'LEA ROAD SUB - WARD SUB 115KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	135.632	'SPP-SWPS-T39'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	135.2711	'WARD SUB - WHITTEN SUB 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	133.4902	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	133.1646	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	132.4858	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	131.5859	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	131.583	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	127.0327	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	125.7412	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.47226	125.2507	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	124.7002	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	124.2468	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	120.8964	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	120.821	'LEA ROAD SUB - WARD SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03801	120.7361	'AGAVE_RHILL3115.00 - RDRUNNER 3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	120.2369	'SPP-SWPS-T39'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03149	119.8773	'WARD SUB - WHITTEN SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04051	117.2285	'KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04017	117.0165	'CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	116.7638	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	115.2274	'CHINA_DRAW 3115.00 - WOOD_DRAW 3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	114.9618	'KIOWA 7345.00 (UPDATE DATA) 345/115/13 2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03789	114.8799	'POTASH JUNCTION INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	114.4747	'CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	114.4746	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03707	114.4735	'SPP-SWPS-06'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	114.3699	'CHINA_DRAW 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	114.2301	'CHINA_DRAW 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	114.0909	'GEN528560 1-DOLLARHIDE 112.470'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	113.9716	'GEN528546 1-S_JAL 112.470'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	113.9573	'CROSSROADS 345.00 - TOLK STATION 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	113.9572	'TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03914	113.0671	'PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03948	112.889	'MADDOX STATION - PEARL SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	110.3601	'BASE CASE'
20SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.47226	109.738	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	107.7793	'LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	107.7039	'SAND DUNES SUB - WIPP SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04715	107.6534	'HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04759	106.7999	'HOBBS - YOAKUM_345 345.00 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	105.0389	'PNDEROSATP 3115.00 - PONDEROSA 3115 00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03801	104.955	'AGAVE_RHILL3115.00 - OCHOA SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	104.9118	'GEN562495 1-G14_012_2 18.000'
20SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03801	104.8292	'AGAVE_RHILL3115.00 - RDRUNNER 3115.00 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05996	104.8232	'DRINKARD SUB - National Enrichment Plant Sub 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05996	104.4292	'SPP-SWPS-T84'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	103.6658	'MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	103.6506	'SPP-SWPS-T42'
20SP	'FROM->TO'	'CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1'	319	351	0.04477	103.3255	'HOBBS - KIOWA 7345.00 345KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	103.2716	'MADDOX STATION - MONUMENT SUB 115KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03962	102.849	'DOLLARHIDE SUB - TOBOSOFLATS3115.00 115KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04051	101.6595	'KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
20SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04017	101.4077	'CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1'
20SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05996	101.1419	'DRINKARD SUB - DRINKARD TAP 115KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	99.6	'CHINA_DRAW 3115.00 - WOOD_DRAW 3115.00 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.05823	162.9979	'HOBBS - KIOWA 7345.00 345KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.05823	151.3236	'HOBBS - KIOWA 7345.00 345KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03948	126.1601	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03948	125.8734	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	122.7432	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	122.7248	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	120.4959	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.47231	118.0923	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	117.8016	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	117.0518	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	116.7565	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	115.766	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03948	114.4993	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03948	114.2239	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	113.0559	'LEA ROAD SUB - WARD SUB 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	112.6852	'SPP-SWPS-T39'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	112.3815	'WARD SUB - WHITTEN SUB 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	111.9988	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	111.0601	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	111.0527	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	108.651	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.47231	106.5521	'G14_012T 345.00 - HOBBS 345KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	106.1586	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	105.4198	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	105.1302	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	103.9876	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	101.5107	'LEA ROAD SUB - WARD SUB 115KV CKT 1'
20WP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	139	139	0.03803	101.4632	'AGAVE_RHILL3115.00 - RDRUNNER 3115.00 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	101.1486	'SPP-SWPS-T39'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03155	100.8444	'WARD SUB - WHITTEN SUB 115KV CKT 1'
20WP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	139	139	0.03504	100.2609	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	182.4962	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	182.0423	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	179.1517	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	179.1419	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	172.7946	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	172.3399	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	171.2017	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	170.74	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	167.5735	'KIOWA 7345.00 - RDRUNNER 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	167.3071	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03944	167.1379	'RDRUNNER 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	164.3877	'LEA ROAD SUB - WARD SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	164.2155	'BYRD SUB - MONUMENT TAP 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	164.2078	'CUNNINGHAM STATION - MONUMENT TAP 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	163.7169	'SPP-SWPS-T39'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	163.3021	'WARD SUB - WHITTEN SUB 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	162.9708	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	157.6939	'INTREPDW_TP3115.00 - POTASH JUNCTION INTERCHANGE 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	157.4889	'BYRD SUB - COOPER RANCH SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	156.3717	'COOPER RANCH SUB - OIL_CENTER 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	155.9198	'LEA ROAD SUB - OIL_CENTER 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.038	154.5114	'AGAVE_RHILL3115.00 - RDRUNNER 3115.00 115KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	152.298	'IMC_#1_TP 3115.00 - INTREPDW_TP3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	149.6939	'LEA ROAD SUB - WARD SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	149.0424	'SPP-SWPS-T39'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0315	148.6264	'WARD SUB - WHITTEN SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03501	148.0104	'IMC_#1_TP 3115.00 - LIVSTNRIDGE3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04051	145.3553	'KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04017	142.9714	'CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	142.188	'CHINA_DRAW 3115.00 - WOOD_DRAW 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	141.7075	'CHINA_DRAW 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	141.5192	'CHINA_DRAW 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	141.4745	'KIOWA 7345.00 (UPDATE DATA) 345/115/13 2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03789	141.4298	'POTASH JUNCTION INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03707	141.1315	'SPP-SWPS-06'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	141.1289	'CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	141.1261	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	140.5848	'CROSSROADS 345.00 - TOLK STATION 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	140.5366	'TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.47228	140.2338	'G14_012T 345.00 - HOBBS 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	139.4338	'GEN528560 1-DOLLARHIDE 112.470'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	139.2737	'GEN528546 1-S_JAL 112.470'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.038	139.2377	'AGAVE_RHILL3115.00 - RDRUNNER 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03949	138.703	'MADDOX STATION - PEARL SUB 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03915	138.622	'PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	135.7793	'BASE CASE'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03937	133.3394	'OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03937	133.3393	'MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04291	133.2783	'TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04189	133.2063	'EAST SANGER SUB - TAYLOR SWITCHING STATION 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	132.8485	'LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	132.8029	'SAND DUNES SUB - WIPP SUB 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	132.7944	'BOPCO_PKRLK3115.00 - RED_BLUFF 3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04715	132.7815	'HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.0476	130.6053	'HOBBS - YOAKUM_345 345.00 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04051	130.5624	'KIOWA 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	129.7542	'GEN562495 1-G14_012_2 18.000'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	129.5381	'DRINKARD SUB - National Enrichment Plant Sub 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	129.2341	'SPP-SWPS-T84'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	128.5897	'MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	128.5741	'SPP-SWPS-T42'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	128.5274	'PNDEROSATP 3115.00 - PONDEROSA 3115 00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04017	128.1508	'CUNNINGHAM STATION - POTASH JUNCTION INTERCHANGE 230KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	127.69	'MADDOX STATION - MONUMENT SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	127.3604	'CHINA_DRAW 3115.00 - WOOD_DRAW 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	126.8997	'CHINA_DRAW 7345.00 - NLOV_PLT 7345.00 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03974	126.7198	'CHINA_DRAW 7345.00 (UPDATE LATER) 345/115/13.2KV TRANSFORMER CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	126.698	'DRINKARD SUB - DRINKARD TAP 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	126.6413	'KIOWA 7345.00 (UPDATE DATA) 345/115/13 2KV TRANSFORMER CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03789	126.5609	'POTASH JUNCTION INTERCHANGE (UPDATE LATER) 230/115/13.2KV TRANSFORMER CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03707	126.3089	'SPP-SWPS-06'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	126.3068	'CROSSROADS 345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	126.3041	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	125.7643	'CROSSROADS 345.00 - TOLK STATION 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03706	125.7183	'TOLK STATION (ABBXNL844501) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.47228	125.481	'G14_012T 345.00 - HOBBS 345KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	124.7144	'DOLLARHIDE SUB - TOBOSOFLATS3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	124.5759	'GEN528560 1-DOLLARHIDE 112.470'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	124.4437	'GEN528546 1-S_JAL 112.470'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03949	123.8792	'MADDOX STATION - PEARL SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03915	123.8252	'PCA INTERCHANGE - QUAHADA 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	120.9792	'BASE CASE'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	120.6991	'DRINKARD TAP - WEST HOBBS SWITCHING STATION 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.038	119.6425	'OCHOA SUB - PNDEROSATP 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03937	118.4967	'MADDOX STATION - SANGER SWITCHING STATION 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03937	118.4967	'OXY PERMIAN SUB - SANGER SWITCHING STATION 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04291	118.4467	'TUCO INTERCHANGE - YOAKUM_345 345.00 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04189	118.3963	'EAST SANGER SUB - TAYLOR SWITCHING STATION 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03945	118.0034	'BOPCO_PKRLK3115.00 - RED_BLUFF 3115.00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	117.9739	'SAND DUNES SUB - WIPP SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03979	117.9445	'LIVSTNRIDGE3115.00 - WIPP SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04715	117.8292	'HOBBS (UPDATE DATA) 345/230/13.2KV TRANSFORMER CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.0476	115.6935	'HOBBS - YOAKUM_345 345.00 345KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	114.8374	'GEN562495 1-G14_012_2 18.000'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	114.7313	'DRINKARD SUB - National Enrichment Plant Sub 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	114.4214	'SPP-SWPS-T84'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	113.8008	'PNDEROSATP 3115.00 - PONDEROSA 3115 00 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	113.7336	'MONUMENT SUB - WEST HOBBS SWITCHING STATION 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	113.7176	'SPP-SWPS-T42'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.04273	112.815	'MADDOX STATION - MONUMENT SUB 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.05994	111.9092	'DRINKARD SUB - DRINKARD TAP 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 3115.00 115KV CKT 1'	120	120	0.03963	110.0283	'DOLLARHIDE SUB - TOBOSOFLATS3115.00 115KV CKT 1'
25SP	'FROM->TO'	'National Enrichment Plant Sub - TARGA 3115.00 115KV CKT 1'	120	120	0.038	108.3932	'PNDEROSATP 3115.00 - WHITTEN SUB 115KV CKT 1'

Power Flow Analysis

Season	Flow	Monitored Element		RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 115KV CKT 1'	3115.00	120	120	0.05994	105.7906	'DRINKARD TAP - WEST HOBBS SWITCHING STATION 115KV CKT 1'
25SP	'TO->FROM'	'National Enrichment Plant Tap - TARGA 115KV CKT 1'	3115.00	120	120	0.038	104.5897	'OCHOA SUB - PNDEROSATP 3115.00 115KV CKT 1'

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 and 2020 winter models and the 2015, 2020, and 2025 summer seasonal models. The cases are then adapted to resemble the power flow study cases with regards to prior queued generation requests and topology. Finally the prior queued and study generation 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

Thirty-five contingencies were identified for this study. These contingencies included three-phase faults and single-phase line-to-ground 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 calculated 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.

With exception to transformers, the general sequence of events for a three-phase and 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 only performed for three-phase faults, unless otherwise noted. Additionally the sequence of events for a transformer is to 1) apply a three-phase fault for five (5) cycles and 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: Transient Stability Fault list for GEN-2014-012

Fault	Name	Description
1	FLT_07_Tuco_Border_345kV_3PH	3 phase fault on the TUCO (525832) to Border (515458) 345kV line, 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.

Fault	Name	Description
2	FLT_08_Tuco_OKU_345kV_3PH	3 phase fault on the TUCO (525832) to OKU (511456) 345kV line, 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.
3	FLT_13_Tuco_Tuco_230_345kV_3PH	3 phase fault on the TUCO 230kV (525830) / 345kV (525832) / 13.2kV (525824) transformer circuit #1, near TUCO 2305kV. a. Apply fault at the TUCO Interchange 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
4	FLT_26_Yoakum_To kWest_230kV_3PH	3 phase fault on the Yoakum (526935) to To k West (525531) 230kV 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.
5	FLT_27_Yoakum_AmocoSS_230kV_3PH	3 phase fault on the Yoakum (526935) to Amoco SS (526460) 230kV 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.
6	FLT_28_Yoakum_OxyBruTap_230kV_3PH	3 phase fault on the Yoakum (526935) to OxyBruTap (527010) 230kV 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.
7	FLT_29_Yoakum_Mustang_230kV_3PH	3 phase fault on the Yoakum (526935) to Mustang (527149) 230kV 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.
8	FLT_30_Yoakum_Hobbs_230kV_3PH	3 phase fault on the Yoakum (526935) to Hobbs (527894) 230kV 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.
9	FLT_31_Yoakum_Yoakum_230_115kV_3PH	3 phase fault on the Yoakum 230kV (526935) / 115kV (526934) / 13.2kV (526931) transformer circuit #1, near Yoakum 230kV. a. Apply fault at the Yoakum 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
10	FLT_32_GainesPlant_Hobbs_345kV_3PH	3 phase fault on the Gaines Plant (528611) to Hobbs (527896) 345kV line, near Gaines Plant. a. Apply fault at the Gaines Plant 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	FLT_33_GainesPlant_Andrews_345kV_3PH	3 phase fault on the Gaines Plant (528611) to Andrews (528604) 345kV line, near Gaines Plant. a. Apply fault at the Gaines Plant 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	FLT_34_NationalEnrich_Andrews_115kV_3PH	3 phase fault on the National Enrich (528603) to Andrews (528602) 115kV line, near National Enrich. a. Apply fault at the National Enrich 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.
13	FLT_35_NationalEnrich_Drinkard_115kV_3PH	3 phase fault on the National Enrich (528603) to Drinkard (528589) 115kV line, near National Enrich. a. Apply fault at the National Enrich 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.
14	FLT_36_NationalEnrich_Targa_115kV_3PH	3 phase fault on the National Enrich (528603) to Targa (528605) 115kV line, near National Enrich. a. Apply fault at the National Enrich 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.

Fault	Name	Description
15	FLT_37_DrinkardTap_HobbsWest_115kV_3PH	3 phase fault on the Drinkard Tap (528533) to Hobbs West (528498) 115kV line, near Drinkard Tap. a. Apply fault at the Drinkard 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.
16	FLT_38_DrinkardTap_Eunice_115kV_3PH	3 phase fault on the Drinkard Tap (528533) to Eunice (528512) 115kV line, near Drinkard Tap. a. Apply fault at the Drinkard 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.
17	FLT_40_NatEnrichTap_Teague_115kV_3PH	3 phase fault on the National Enrich Tap (528596) to Teague (528526) 115kV line, near National Enrich Tap. a. Apply fault at the National Enrich 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.
18	FLT_41_NatEnrichTap_Targa_115kV_3PH	3 phase fault on the National Enrich Tap (528596) to Targa (528605) 115kV line, near National Enrich Tap. a. Apply fault at the National Enrich 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.
19	FLT_42_Hobbs_Kiowa_345kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Hobbs (527896) to Kiowa (527965) 345kV line, near Hobbs. a. Apply fault at the Hobbs 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	FLT_43_Hobbs_Yoakum_230kV_3PH	3 phase fault on the Hobbs (527894) to Yoakum (526935) 230kV 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.
21	FLT_44_Hobbs_Cunningham_230kV_3PH	3 phase fault on the Hobbs (527894) to Cunningham (527865) 230kV 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.
22	FLT_50_Cunningham_EddySouth_230kV_3PH	3 phase fault on the Cunningham (527865) to Eddy South (527800) 230kV line, near Cunningham. a. Apply fault at the Cunningham 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	FLT_51_Cunningham_PotashJct_230kV_3PH	3 phase fault on the Cunningham (527865) to Potash Jct (527963) 230kV line, near Cunningham. a. Apply fault at the Cunningham 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	FLT_52_Kiowa_Roadrunner_345kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Kiowa (527965) to Roadrunner (528027) 345kV line, near Kiowa. a. Apply fault at the Kiowa 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	FLT_53_Kiowa_NLovPlt_345kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Kiowa (527965) to N Lovington (528185) 345kV line, near Kiowa. a. Apply fault at the Kiowa 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.
26	FLT_54_Andrews_Andrews_345_115kV_3PH	3 phase fault on the Andrews 345kV (528604) / 115kV (528602) / 13.2kV (528601) transformer circuit #1, near Andrews 345kV. a. Apply fault at the Andrews 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
27	FLT_55_Hobbs_Hobbs_345_230kV_3PH	3 phase fault on the Hobbs 345kV (527896) / 230kV (527894) / 13.2kV (527895) transformer circuit #1, near Hobbs 345kV. a. Apply fault at the Hobbs 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Fault	Name	Description
28	FLT_56_Hobbs_Hobbs_230_115kV_3PH	3 phase fault on the Hobbs 230kV (527894) / 115kV (527891) / 13.2kV (527890) transformer circuit #1, near Hobbs 230kV. a. Apply fault at the Hobbs 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
29	FLT_57_Cunningham_Cunningham_230_115kV_3PH	3 phase fault on the Cunningham 230kV (527865) / 115kV (527864) / 13.2kV (527863) transformer circuit #1, near Cunningham 230kV. a. Apply fault at the Cunningham 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
30	FLT_58_Kiowa_PotashJct_345_115kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Kiowa 345kV (527965) / 115kV (527962) / 13.2kV (527964) transformer circuit #1, near Kiowa 345kV. a. Apply fault at the Kiowa 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
31	FLT_59_Roadrunner_Roadrunner_345_115kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Roadrunner 345kV (528027) / 115kV (528025) / 13.2kV (528023) transformer circuit #1, near Roadrunner 345kV. a. Apply fault at the Roadrunner 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
32	FLT_61_EddyNorth_EddyCounty_230_345kV_3PH	3 phase fault on the Eddy North 230kV (527799) / 345kV (527802) / 13.2kV (527796) transformer circuit #1, near Eddy North 230kV. a. Apply fault at the Eddy North 230kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.
33	FLT_66_Yoakum_Hobbs24SP_345kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Yoakum (526936) to Hobbs (527896) 345kV line, near Yoakum. a. Apply fault at the Yoakum 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.
34	FLT_67_Yoakum_Tuco24SP_345kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Yoakum (526936) to Tuco (525832) 345kV line, near Yoakum. a. Apply fault at the Yoakum 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	FLT_68_Yoakum_Yoakum24SP_345_230kV_3PH (2020SP, 2020WP, & 2025SP only)	3 phase fault on the Yoakum 345kV (526936) / 230kV (526935) / 13.2kV (526937) transformer circuit 1, near Yoakum 345kV. a. Apply fault at the Yoakum 345kV bus. b. Clear fault after 5 cycles by tripping the faulted transformer.

Results

Results of the stability analysis are summarized in the following table. These results are valid for the given study assumptions. The results indicate that the transmission system remains stable for all contingencies analyzed. The plots will be available upon request.

Table 4: Transient Stability Fault Results for GEN-2014-012 (S = Stable, U = Unstable)

Fault	Name	20SP	20WP	25SP	25WP
1	FLT_07_Tuco_Border_345kV_3PH	S	S	S	S
2	FLT_08_Tuco_OKU_345kV_3PH	S	S	S	S
3	FLT_13_Tuco_Tuco_230_345kV_3PH	S	S	S	S
4	FLT_26_Yoakum_TolkWest_230kV_3PH	S	S	S	S
5	FLT_27_Yoakum_AmocoSS_230kV_3PH	S	S	S	S
6	FLT_28_Yoakum_OxyBruTap_230kV_3PH	S	S	S	S
7	FLT_29_Yoakum_Mustang_230kV_3PH	S	S	S	S
8	FLT_30_Yoakum_Hobbs_230kV_3PH	S	S	S	S
9	FLT_31_Yoakum_Yoakum_230_115kV_3PH	S	S	S	S
10	FLT_32_GainesPlant_Hobbs_345kV_3PH	S	S	S	S
11	FLT_33_GainesPlant_Andrews_345kV_3PH	S	S	S	S
12	FLT_34_NationalEnrich_Andrews_115kV_3PH	S	S	S	S
13	FLT_35_NationalEnrich_Drinkard_115kV_3PH	S	S	S	S

Fault	Name	20SP	20WP	25SP	25WP
14	FLT_36_NationalEnrich_Targa_115kV_3PH	S	S	S	S
15	FLT_37_DrinkardTap_HobbsWest_115kV_3PH	S	S	S	S
16	FLT_38_DrinkardTap_Eunice_115kV_3PH	S	S	S	S
17	FLT_40_NatEnrichTap_Teague_115kV_3PH	S	S	S	S
18	FLT_41_NatEnrichTap_Targa_115kV_3PH	S	S	S	S
19	FLT_42_Hobbs_Kiowa_345kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
20	FLT_43_Hobbs_Yoakum_230kV_3PH	S	S	S	S
21	FLT_44_Hobbs_Cunningham_230kV_3PH	S	S	S	S
22	FLT_50_Cunningham_EddySouth_230kV_3PH	S	S	S	S
23	FLT_51_Cunningham_PotashJct_230kV_3PH	S	S	S	S
24	FLT_52_Kiowa_Roadrunner_345kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
25	FLT_53_Kiowa_NLovPlt_345kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
26	FLT_54_Andrews_Andrews_345_115kV_3PH	S	S	S	S
27	FLT_55_Hobbs_Hobbs_345_230kV_3PH	S	S	S	S
28	FLT_56_Hobbs_Hobbs_230_115kV_3PH	S	S	S	S
29	FLT_57_Cunningham_Cunningham_230_115kV_3PH	S	S	S	S
30	FLT_58_Kiowa_PotashJct_345_115kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
31	FLT_59_Roadrunner_Roadrunner_345_115kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
32	FLT_61_EddyNorth_EddyCounty_230_345kV_3PH	S	S	S	S
33	FLT_66_Yoakum_Hobbs24SP_345kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
34	FLT_67_Yoakum_Tuco24SP_345kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S
35	FLT_68_Yoakum_Yoakum24SP_345_230kV_3PH (2020SP, 2020WP, & 2025SP only)	S	S	S	S

FERC LVRT Compliance

Since this request is not a wind facility, the Interconnection Request does not require Low-Voltage Ride-Through compliance with FERC Order #661-A.

Conclusion

This study was performed to evaluate the impacts on the Transmission System of advancing the construction of the Hobbs-Andrews 230/345kV conversion project from 2023 to 2018, as requested by the Transmission Owner. This study was performed as a re-study of DISIS-2014-001-1, Group 6. All assumptions made within the DISIS-2014-001-1 are to remain applicable with the exception that the Point of Interconnection for GEN-2014-012 will be at 345 kV and assume the operating voltage conversion from 230 kV to 345 kV for the Transmission Owner's Hobbs – Andrews transmission line has been placed into service.

Both power flow and dynamic stability analysis was conducted for this re-study. Analysis has determined that proposed advancement of the Hobbs-Andrews 345kV conversion project does not cause additional Interconnection Service requirements to the GEN-2014-012 Interconnection Request.

Nothing in this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service.