FEASIBILITY CLUSTER STUDY FOR GENERATOR INTERCONNECTION REQUESTS

FCS-2018-001

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1 INTRODUCTION

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), SPP has conducted this Feasibility Cluster Study (FCS) for generation interconnection requests received during the FCS Queue Cluster Window, which closed on February 28, 2018. The customers will be referred to in this study as the FCS Interconnection Customers. This FCS analyzes the impact of interconnecting new generation totaling 270.0 MW to the SPP Transmission System. The interconnecting SPP Transmission Owners include:

- Southwestern Public Service Company (SPS)

The generation interconnection requests included in this System Impact Study are listed in Appendix A by queue number, amount, requested interconnection service type, area, requested interconnection point, proposed interconnection point, and the requested in-service date.

Within the study scope of the Feasibility Cluster Studies, each request was analyzed based on the following number of POI assumptions.

Table 1-1: POI Assumptions

Interconnection Requests	Number of POIs
GEN-2018-001	1 primary & 1 secondary

Two (2) scenario assumption analyses were conducted for the current study to account for all combinations of Point of Interconnections and their appropriate cluster groupings.

Table 1-2 displays the Two (2) analyses that were performed. Interconnection Requests dispatching is explained in further detail in the Model Development Section.

Table 1-2: Scenario Analysis Assumptions

Scenario Number	Scenario Description	Interconnection Requests	Point of Interconnection (POI)
Scenario #1	Group 06 ERIS & Group 06 NRIS	GEN-2018-001	Tap Bushland – Deaf Smith 230 kV
Scenario #2	Group 06 ERIS & Group 06 NRIS	GEN-2018-001	Tap Potter County – Newhart 230 kV

Higher queued requests through DISIS-2016-002 were included in this analysis.

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.

If any Interconnection Requests are withdrawn from the higher queued studies including DISIS-2016-002, then potential upgrades tentatively assigned to those Interconnection Requests may be assigned to the Interconnection Requests in this FCS-2018-001 study once these Interconnection Requests execute a Definitive Interconnection System Impact Study Agreement.

2 MODEL DEVELOPMENT (STUDY ASSUMPTIONS)

2.1 INTERCONNECTION REQUESTS INCLUDED IN THE CLUSTER

This FCS includes all interconnection requests that were submitted during the FCS Queue Cluster Window that met all of the requirements of the Generator Interconnection Procedures (GIP) that were in effect at the time this study commenced. Appendix A lists the interconnection requests that are included in this study.

2.2 AFFECTED SYSTEM INTERCONNECTION REQUEST

Affected System Interconnection Requests included in this study are listed in Appendix A with the "ASGI" prefix. Affected System Interconnection Requests were only studied in "cluster" scenarios.

2.3 PREVIOUSLY QUEUED INTERCONNECTION REQUESTS

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

2.4 DEVELOPMENT OF BASE CASES

2.4.1 POWER FLOW

The power flow models used for this study are based on the 2015-series Integrated Transmission Planning models used for the 2016 ITP-Near Term analysis. These models include:

- Year 1 2017 winter peak (17WP)
- Year 2 2018 spring (18G)
- Year 2 2018 summer peak (18SP)
- Year 5 2021 summer (21SP)
- Year 5 2021 light (21L)
- Year 5 2021 winter peak (21WP)
- Year 10 2026 summer peak (26SP)

2.4.2 DYNAMIC STABILITY

Dynamic stability studies performed as part of the PISIS and DISIS Cluster Studies will provide additional guidance as to whether required reactive compensation can be static or a portion must be dynamic (such as a SVC).

2.4.3 SHORT CIRCUIT

The Year 2 and Year 10 dynamic stability summer peak models were used for short-circuit analysis.

2.4.4 BASE CASE UPGRADES

The facilities listed in the table below are part of the current SPP Transmission Expansion Plan, the Balanced Portfolio, or recently approved Priority Projects. These facilities have an approved Notification to Construct (NTC) or are in construction stages and were assumed to be in-service at the time of dispatch and added to the base case models. The DISIS Interconnection Customers have not been assigned advancement costs for the projects listed below.

The FCS Interconnection Customers' Generation Facilities in-service dates may need to be delayed until the completion of the following upgrades. In some cases, the in-service date is beyond the allowable time a customer can delay. If the requests proceed forward into the DISIS then in this case, the Interconnection Customer may move forward after the DISIS with Limited Operation or remain in the DISIS Queue for additional study cycles. If, for some reason, construction on these projects is discontinued, additional restudies will be needed to determine the interconnection needs of the Interconnection Customers during the DISIS.

SPP Notification to Construct (NTC) ID	Project Owner	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
200223	OGE	Tatonga - Woodward District EHV 345 kV Ckt 2	7/1/2018
200223	OGE	Matthewson - Tatonga 345 kV Ckt 2	7/1/2018
200240	OGE	Chisholm - Gracemont 345 kV Ckt 1 (OGE)	3/1/2018
200255	AEP	Chisholm - Gracemont 345kV Ckt 1 (AEP)	3/1/2018
200255	AEP	Chisholm 345/230 kV Substation	3/1/2018
200255	AEP	Chisholm 230 kV	3/1/2018
200360	SPS	IMC #1 Tap - Livingston Ridge 115 kV Ckt 1 Rebuild	11/16/2018
200360	SPS	Intrepid West - Potash Junction 115 kV Ckt 1 Rebuild	11/16/2018
200360	SPS	IMC #1 Tap - Intrepid West 115 kV Ckt 1 Rebuild	11/16/2018
200360	SPS	Cardinal - Targa 115 kV Ckt 1 Rebuild	5/31/2018
200360	SPS	National Enrichment Plant - Targa 115 kV Ckt 1	8/15/2017
200391	OGE	DeGrasse 345 kV Substation	6/1/2017 (RTO Determined Need Date)
200391	OGE	DeGrasse 345/138 kV Transformer	6/1/2017 (RTO Determined Need Date)
200391	OGE	DeGrasse - Knob Hill 138 kV New Line	6/1/2017 (RTO Determined Need Date)
200391	OGE	DeGrasse 138 kV Substation (OGE)	6/1/2017 (RTO Determined Need Date)
200220	NPPD	Cherry Co. (Thedford) - Gentleman 345 kV Ckt 1	10/1/2019
200220	NPPD	Cherry Co. (Thedford) Substation 345 kV	10/1/2019

SPP Notification to Construct (NTC) ID	Project Owner	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
200220	NPPD	Cherry Co. (Thedford) - Holt Co. 345 kV Ckt 1	10/1/2019
200220	NPPD	Holt Co. Substation 345 kV	10/1/2019
200253	NPPD	Neligh 345/115 kV Substation	6/1/2017
200309	SPS	Hobbs 345/230 kV Ckt 1 Transformer	6/1/2018
200309	SPS	Hobbs - Yoakum 345 kV Ckt 1	6/1/2020
200395	SPS	Tuco - Yoakum 345 kV Ckt 1	6/1/2020
200395	SPS	Yoakum 345/230 kV Ckt 1 Transformer	6/1/2020
200256	SPS	Chaves - Price 115 kV Ckt 1 Rebuild	12/30/2017
200256	SPS	CV Pines - Price 115 kV Ckt 1 Rebuild	12/30/2017
200256	SPS	Capitan - CV Pines 115 kV Ckt 1 Rebuild	12/30/2017
200282	SPS	China Draw - Yeso Hills 115 kV Ckt 1	6/1/2018
200282	SPS	Dollarhide - Toboso Flats 115 kV Ckt 1	6/1/2018
200309	SPS	Hobbs - Kiowa 345 kV Ckt 1	6/1/2018
200309	SPS	Kiowa 345 kV Substation	6/1/2018
200309	SPS	Kiowa - North Loving 345 kV Ckt 1	6/1/2018
200309	SPS	North Loving 345 kV Terminal Upgrades	6/1/2018
200309	SPS	China Draw - North Loving 345 kV Ckt 1	6/1/2018
200309	SPS	China Draw 345 kV Ckt 1 Terminal Upgrades	6/1/2018
200309	SPS	China Draw 345/115 kV Ckt 1 Transformer	6/1/2018
200309	SPS	North Loving 345/115 kV Ckt 1 Transformer	6/1/2018
200309	SPS	Kiowa 345/115 kV Ckt 1 Transformer	6/1/2018
200395	SPS	Livingston Ridge 115 kV Substation Conversion	8/31/2017
200411	SPS	Livingston Ridge - Sage Brush 115 kV Ckt 1	6/1/2018
200309	SPS	Sage Brush 115 kV Substation	12/16/2016
200309	SPS	Largarto - Sage Brush 115 kV Ckt 1	12/15/2016
200309	SPS	Lagarto 115 kV Substation	6/1/2018
200309	SPS	Cardinal - Lagarto 115 kV Ckt 1	12/15/2016
200309	SPS	Cardinal 115 kV Substation	12/15/2016
200411	SPS	Ponderosa - Ponderosa Tap 115 kV Ckt 1	6/1/2017
20097	TSMO	Sibley - Mullin Creek 345 kV	12/31/2016
200365	SPS	South Jal - Teague 115kV CKT 1 Rebuild/Re-conductor	6/1/2021
200365	SPS	Teague - National Enrichment Plant 115kV CKT 1	6/1/2018
20097	TSMO	Nebraska City - Mullin Creek 345 kV (GMO)	12/31/2016
20098	OPPD	Nebraska City - Mullin Creek 345 kV (OPPD)	12/31/2016
200395	SPS	Canyon West – Dawn – Panda – Deaf Smith 115kV Ckt 1	12/15/2018
200369	SPS	Canyon East Sub – Randall County Interchange 115kV Ckt 1	12/31/2020
200359	SPS	Carlisle 230/115kV transformer replacement	12/31/2017
200309	SPS	Hobbs – Yoakum – TUCO 345kV project	6/1/2018
200395	SPS	Terry County – Wolfforth 115kV Ckt 1 terminal equipment replacement	6/1/2018
200391	OGE	DeGrasse 345/138kV project	6/1/2017
200396	WFEC	DeGrasse 345/138kV project	6/1/2017
200395	SPS	Harrington East – Potter 230kV Ckt 1 terminal equipment replacement	6/1/2019
200228	WERE	Viola 345/138kV project	6/1/2018
200228	MKEC	Viola 345/138kV project	6/1/2018
200395	SPS	Seminole 230/115kV transformer Ckt 1 & 2 replacement	5/15/2018

SPP Notification to Construct (NTC) ID	Project Owner	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
200262	SPS	Yoakum County Interchange 230/115kV transformer Ckt 1 & 2 replacement	6/1/2019

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

Assigned Study	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
DISIS-2010-002	Twin Church - Dixon County 230kV Line Upgrade	11/1/2018
DISIS-2010-002	Buckner - Spearville 345 kV Ckt 1 Terminal Upgrades	Complete 7/20/2017
DISIS-2011-001	Hoskins - Dixon County 230kV Line Upgrade	11/1/2018
DISIS-2014-002	Plant X - Tolk 230kV rebuild circuit #1	5/31/2018
DISIS-2014-002	Plant X - Tolk 230kV rebuild circuit #2	5/31/2018
DISIS-2014-002	TUCO Interchange 345/230kV CKT 1 Replacement	6/1/2018
DISIS-2015-001	Kress Interchange – Swisher 115kV circuit #1 replace terminal equipment.	TBD
DISIS-2015-001	(NRIS Only) Potter County Interchange 345/230/13kV Transformer circuit #2, build.	TBD
DISIS-2015-001	(NRIS Only) Renfrow – Renfrow 138kV circuit #1 rebuild.	9/25/2017
DISIS-2015-001	(NRIS Only) Crawfish Draw Substation 345/230kV	TBD
DISIS-2015-001	Build new 345/230kV substation along TUCO – Border 345kV and TUCO – Swisher 230kV. Tie in and Terminate TUCO 345kV, Border 345kV, TUCO 230kV, and Swisher 230kV at Crawfish Draw (TUCO 2). Build 345/230/13kV transformer	TBD
DISIS-2015-002	Beaver County 345kV Reactive Power Support Install +100Mvar SVC at Beaver County Substation.	TBD
DISIS-2015-002	Border - Chisholm 345kV CKT 2	TBD
DISIS-2015-002	Border 345kV Reactive Power Support Install (6)Steps of 50Mvar Capacitor Bank(s) and +300Mvar SVC at Border Substation	TBD
DISIS-2015-002	Chisholm Substation Upgrade 345kV	TBD
DISIS-2015-002	Cleo Corner - Cleo Plant Tap 138kV CKT 1	TBD
DISIS-2015-002	Cleveland - Silver City 138kV CKT 1	TBD
DISIS-2015-002	Cornville Tap - Naples Tap 138kV CKT 1	TBD
DISIS-2015-002	Crawfish Draw - Border 345kV CKT 2	TBD
DISIS-2015-002	Daglum - Dickinson 230kV CKT 1	TBD
DISIS-2015-002	Dickinson 230/115/13.8kV CKT 2	TBD
DISIS-2015-002	Gavins Point - Yankton Junction 115kV CKT 1	TBD
DISIS-2015-002	GEN-2015-063 Tap - Mathewson 345kV CKT 1	TBD

Assigned Study	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
DISIS-2015-002	Grapevine - Nichols 230kV CKT 1	TBD
DISIS-2015-002	Grapevine - Wheeler 230kV CKT 1	TBD
DISIS-2015-002	Naples Tap - Payne 138kV CKT 1	TBD
DISIS-2015-002	Norge - Southwest Station 138kV CKT 1	TBD
DISIS-2015-002	Oklaunion 345kV Reactive Power Support Incremental Upgrade Install +/-100Mvar SVC at Oklaunion	TBD
DISIS-2015-002	Albion - Petersburg - North Petersburg 115kV CKT 1	TBD
DISIS-2015-002	Wheeler - Sweetwater 230kV CKT 1	TBD
DISIS-2015-002	Woodward 345/138/13kV Transformer CKT 3	TBD
DISIS-2016-001	Andrews 345/115/13kV Transformer CKT 1 Replace 230/115kV transformer CKT 1 with 345/115kV transformer	TBD
DISIS-2016-001	Andrews 345/115/13kV Transformer CKT 2 Replace 230/115kV transformer CKT 2 with 345/115kV transformer	TBD
DISIS-2016-001	Andrews Substation Voltage Conversion Convert Andrews 230kV to 345kV	TBD
DISIS-2016-001	Atwood Capacitive Reactive Power Support Install 10 Mvars of Capicator Bank(s)	TBD
DISIS-2016-001	Banner County - Keystone 345kV CKT 1 Build approximately 140 of new 345kV from Banner County to Keystone. Banner County and Keystone Substation Work.	TBD
DISIS-2016-001	Beaver County - Clark County 345kV CKT 1 Build approximately 125 miles of new 345kV from Grapevine - Chisholm	TBD
DISIS-2016-001	BEPC Laramie Stability Limit Potential mitigation for BEPC Laramie Stability Limit	TBD
DISIS-2016-001	Border 345kV Reactive Power Support Install (6)Steps of 50Mvar Capacitor Bank(s) and +300Mvar SVC at Border Substation	TBD
DISIS-2016-001	Cleveland - Cleveland 138kV CKT Z1 NRIS only rquired upgrade: Replace bus tie breaker with a three breaker ring	TBD
DISIS-2016-001	Cleveland 345/138/13kV Transformer CKT 2 NRIS only required upgrade: Install second 345/138kV Transformer	TBD
DISIS-2016-001	Crawfish Draw 230/115/13kV Transformer CKT 1 NRIS only required upgrade: Build 115kV yard, re-terminate Hale County - TUCO 115kV, build 230/115/13kV transformer 1	TBD
DISIS-2016-001	Drinkard - Drinkard Tap 115kV CKT 1 Rebuild approximately 2 miles from Drinkard to Drinkard Tap	TBD
DISIS-2016-001	Drinkard Tap - West Hobbs 115kV CKT 1 Rebuild approximately 12.5 miles from Drinkard Tap to West Hobbs	TBD
DISIS-2016-001	Fairfax Tap - Shidler 138kV CKT 1 NRIS only required upgrade: Rebuild approximately 2.4 miles of 138kV	TBD
DISIS-2016-001	Farber - Belle Plains 138kV CKT 1 Rebuild approximately 10.3 miles of 138kV from Farber to Belle Plains	TBD
DISIS-2016-001	Gerald Gentleman Station Flowgate Stability Limit Mitigation Potential Mitigation for GGS Flowgate Stability Limit. TBD in the Facilities Study with NPPD.	TBD
DISIS-2016-001	Glenham - Mound City 230kV CKT 1 Uprate CT	TBD
DISIS-2016-001	Hitchland 345/230/13kV Transformer CKT 3 NRIS only required upgrade: Build third 345/230/13kV Transformer	TBD
DISIS-2016-001	Jamestown - Center 345kV CKT 1 MPC mitigation for Jamestown - Center 345kV	TBD
DISIS-2016-001	Keystone - Gentleman 345kV CKT 2	TBD

Assigned Study	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
	Build approximately 30 miles of new 345kV. Gentleman and Keystone Substation Work.	
DISIS-2016-001	Kildare - White Eagle 138kV CKT 1 Rebuild approximately 11 miles of 138kV from Kildare to White Eagle	TBD
DISIS-2016-001	Kinsley - Pawnee 115kV CKT 1 Increase conductor clearance	TBD
DISIS-2016-001	Kinze - McElroy 138kV CKT 1 Rebuild approximately 2 miles of 138kV from Kinze to McElroy	TBD
DISIS-2016-001	Lubbock Holly 230/69/13kV CKT 2 NRIS only required upgrade: Install second Lubbock Holly 230/69/13kV Transformer	TBD
DISIS-2016-001	Middleton Tap - Chilocco 138kV CKT 1 Rebuild approximately 3.45 miles of 138kV from Middleton to Chilocco	TBD
DISIS-2016-001	National Enrichment Plant - Drinkard 115kV CKT 1 Rebuild approximately 7.5 miles from NEF Plant to Drinkard	TBD
DISIS-2016-001	Neosho - Riverton 161kV CKT 1 Rebuild approximately 28 miles of 161kV	TBD
DISIS-2016-001	Northwest - Spring Creek 345kV CKT 1 Replace terminal equipment	TBD
DISIS-2016-001	Oklaunion 345kV Reactive Power Support Incremental Upgrade Install 150Mvar capacitor banks and +/-100Mvar SVC at Oklaunion	TBD
DISIS-2016-001	Osage - Webb Tap 138kV CKT 1 Rebuild approximately 22 miles of 138kV from Osage to Webb City	TBD
DISIS-2016-001	Osage - White Eagle 138kV CKT 1 Rebuild approximately 3 miles of 138kV from Osage to White Eagle	TBD
DISIS-2016-001	Potter - Chisholm 345kV CKT 1 Build approximately 140 miles of new 345kV from Potter County – Chisholm	TBD
DISIS-2016-001	Shamrock 115kV Capacitor Bank Add 20Mvar of Capacitor Bank(s) at Shamrock 115kV	TBD
DISIS-2016-001	Tolk - Crawfish Draw 345kV CKT 1 Build approximately 64 miles of 345kV from Tolk - Crawfish Draw.	TBD
DISIS-2016-001	Tolk - Potter County 345kV CKT 1 Build approximately 115 miles of 345kV from Tolk - Potter County	TBD
DISIS-2016-001	Tolk 345/230/13kV Transformer CKT 2 Build second 345/230/13kV transformer at Tolk	TBD
DISIS-2016-001	Webb City Tap - Fairfax Tap 138kV CKT 1 NRIS only required upgrade: Rebuild approximately 0.3 miles of 138kV. Costs included in Fairfax Tap - Shilder Upgrade	TBD
DISIS-2016-002	Group 6 upgrades required for DISIS-2016-002 study may be required for the requests in this Feasibility Study.	TBD

2.4.6 POTENTIAL UPGRADES NOT IN THE BASE CASE

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

2.4.7 REGIONAL GROUPINGS

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

To determine interconnection impacts, two (2) different generation dispatch scenarios of the spring, summer, and winter base case models are developed to accommodate the regional groupings.

2.5 DEVELOPMENT OF ANALYSIS CASES

2.5.1 POWER FLOW

For Variable Energy Resources (VER) (solar/wind) in each power flow case, Energy Resource Interconnection Service (ERIS), is evaluated for the generating plants within a geographical area of the interconnection request(s) for the VERs dispatched at 100% nameplate of maximum generation. The VERs in the remote areas are dispatched at 20% nameplate of maximum generation. These projects are dispatched across the SPP footprint using load factor ratios.

Peaking units are not dispatched in the spring case, or in the "High VER" summer and winter peak cases. To study peaking units' impacts, the Year 1 winter peak and Year 2 summer peak, Year 5 summer and winter peaks, and Year 10 summer peak models are developed with peaking units dispatched at 100% of the nameplate rating and VERs dispatched at 20% of the nameplate rating. Each interconnection request is also modeled separately at 100% nameplate for certain analyses.

All generators (VER and peaking) that requested Network Resource Interconnection Service (NRIS) are dispatched in an additional analysis into the interconnecting Transmission Owner's (T.O.) area at 100% nameplate with Energy Resource Interconnection Service (ERIS) only requests at 80% nameplate. This method allows for identification of network constraints that are common between regional groupings to have affecting requests share the mitigating upgrade costs throughout the cluster.

2.5.2 DYNAMIC STABILITY

Dynamic stability studies performed as part of the PISIS and DISIS Cluster Studies will provide additional guidance as to whether required reactive compensation can be static or a portion must be dynamic (such as a SVC).

2.5.3 SHORT CIRCUIT

The dynamic stability models are used for this analysis.

3 IDENTIFICATION OF NETWORK CONSTRAINTS (SYSTEM PERFORMANCE)

3.1 THERMAL OVERLOADS

Network constraints are found by using PSS/E MUST First Contingency Incremental Transfer Capability (FCITC) analysis on the entire cluster grouping dispatched at the various levels previously described.

For Energy Resource Interconnection Service (ERIS), thermal overloads are determined for system intact (n-0) greater than 100% of Rate A - normal and for contingency (n-1) greater than 100% of Rate B – emergency conditions.

The overloads are then screened to determine which interconnection requests have at least

- 3% Distribution Factor (DF) for system intact conditions (n-0),
- 20% DF upon outage-based conditions (n-1),
- or 3% DF on contingent elements that resulted in a non-converged solution.

Appropriate transmission reinforcements are identified to mitigate the constraints.

Interconnection Requests that requested Network Resource Interconnection Service (NRIS) are also studied in a separate NRIS analysis to determine if any constraint measured greater than or equal to a 3% DF. If so, these constraints are also assigned transmission reinforcements to mitigate the impacts.

3.2 VOLTAGE

Steady State Voltage analysis is performed as part of the PISIS and DISIS Cluster Studies will provide additional guidance as to whether required reactive compensation. Monitored facilities and transmission reinforcement criteria for this analysis will be provided during the PISIS and/or DISIS report

3.3 DYNAMIC STABILITY

Dynamic stability studies performed as part of the PISIS and DISIS Cluster Studies will provide additional guidance as to whether required reactive compensation can be static or a portion must be dynamic (such as a SVC). During the PISIS and/or DISIS Stability issues are considered for transmission reinforcement under ERIS. Generators that fail to meet low voltage ride-through requirements (FERC Order #661-A) or SPP's stability criteria for damping or dynamic voltage recovery are assigned upgrades such that these requirements can be met.

3.4 UPGRADES ASSIGNED

Thermal overloads that require transmission support to mitigate are discussed in Section 8 and listed in Appendix G. All of these upgrades are cost assigned in Appendix E and Appendix F.

Other network constraints not requiring transmission reinforcements are shown in Appendix H. With a defined source and sink in a Transmission Service Request, this list of network constraints can be refined and expanded to account for all Network Upgrade requirements for firm transmission service.

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

4 DETERMINATION OF COST ALLOCATED NETWORK UPGRADES

Cost Allocated Network Upgrades of Variable Energy Resources (VER) (solar/wind) generation interconnection requests are determined using the Year 2 spring model. Cost Allocated Network Upgrades of peaking units are determined using the Year 5 summer peak model. A PSS/E and MUST sensitivity analysis is performed to determine the Distribution Factors (DF), a distribution factor with no contingency that each generation interconnection request has on each new upgrade. The impact each generation interconnection request has on each upgrade project is weighted by the size of each request. Finally, the costs due by each request for a particular project are 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 for a given project for all responsible GI requests:

$$Request\ X\ Impact\ Factor\ on\ Upgrade\ Project\ 1 = PTDF(\%)(X) \times MW(X) = X1$$

$$Request\ Y\ Impact\ Factor\ on\ Upgrade\ Project\ 1 = PTDF(\%)(Y) \times MW(Y) = Y1$$

$$Request\ Z\ Impact\ Factor\ on\ Upgrade\ Project\ 1 = PTDF(\%)(Z) \times MW(Z) = Z1$$

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

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

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.

4.1 CREDITS/COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADES

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

5 REQUIRED INTERCONNECTION FACILITIES

The requirement to interconnect the requested generation into the existing and proposed transmission systems in the affected areas of the SPP transmission footprint consist of the necessary cost allocated shared facilities listed in Appendix F by upgrade. The interconnection requirements for the cluster total are listed in **Table 5-1**, not including the following costs.

- **Costs Not Included** – Costs on Affected Systems for Associated Electric Cooperative Inc. (AECI), Mid-Continent Independent System Operator (MISO), and Minnkota Power Cooperative, Inc (MPC). Impacts to affected systems will be coordinated with the Affected System operators if the Interconnection Request(s) enter into the Definitive Interconnection System Impact Study (DISIS) Queue. Constraints identified to affected system during this analysis are in Appendix H-AS.
- **Costs Not Included** –Potential upgrades required for AC voltage mitigation or transient stability analysis upgrade mitigations. Impacts to AC voltage and transient stability analysis will be performing during the Preliminary Interconnection System Impact Study (PISIS) or DISIS Queue.

Table 5-1: Total Cluster Costs per POI Scenario

Scenario Number	Request ID	Total Estimated Minimum Cost
Scenario 1	GEN-2018-001	$63,737,557
Scenario 2		$41,737,557

Interconnection Facilities specific to each interconnection request are listed in Appendix E. A preliminary one-line diagram for each request is listed in Appendix D.

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

5.1 FACILITIES ANALYSIS

If requests proceed to the DISIS queue, the interconnecting Transmission Owner for each Interconnection Request will provide its preliminary analysis of required Transmission Owner Interconnection Facilities and the associated Network Upgrades, shown in Appendix D. This analysis will be limited only to the expected facilities to be constructed by the Transmission Owner at the Point of Interconnection.

5.2 ENVIRONMENTAL REVIEW

For Interconnection Requests that result in an interconnection to, or modification to, the transmission facilities of the Western-UGP, a National Environmental Policy Act (NEPA)

Environmental Review will be required. The Interconnection Customer will be required to execute an Environmental Review Agreement per Section 8.6.1 of the GIP.

6 AFFECTED SYSTEMS COORDINATION

Impacts to affected systems will be coordinated with the Affected System operators if the Interconnection Request(s) enter into the DISIS Queue.

The following procedures are in place to coordinate with Affected Systems.

- Impacts on Associated Electric Cooperative Inc. (AECI) – For any observed violations of thermal overloads on AECI facilities, AECI has been notified by SPP to evaluate the violations for impacts on its transmission system. AECI has instructed SPP to notify the affected Interconnection Customers after posting of this study to contact AECI for an Affected System Study Agreement to study further impacts on the AECI system.
- Impacts on Mid Continent Independent System Operation (MISO) – Per SPP's agreement with MISO, MISO will be contacted and provided a list of interconnection requests that proceed to move forward into the Interconnection Facilities Study Queue. MISO will then evaluate the Interconnection Requests for impacts and will be in contact with affected Interconnection Customers. For potential impacts see Appendix H – Affected System.
- Impacts on Minnkota Power Cooperative, Inc (MPC) – MPC will be contacted and provided a list of interconnection requests that proceed to move forward into the Interconnection Facilities Study Queue. MP will then evaluate the Interconnection Requests for impacts. For potential impacts, see Appendix H – Affected System.
- Impacts to other affected systems – For any observed violations of thermal overloads or voltage constraints, SPP will contact the owner of the facility for further information.

7 POWER FLOW ANALYSIS

7.1 POWER FLOW ANALYSIS METHODOLOGY

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

7.2 POWER FLOW ANALYSIS

A power flow analysis is conducted for each Interconnection Customer's facility using modified versions of the Year 1 winter peak season, the Year 2 spring, Year 2 summer peak season, Year 5 summer and winter peak seasons, and Year 10 summer peak seasonal models. The output of the Interconnection Customer's facility is offset in each model by a reduction in output of existing online SPP generation. This method allows the request to be studied as an Energy Resource Interconnection Service request (ERIS). Certain requests that are also pursuing Network Resource Interconnection Service (NRIS) have an additional analysis conducted for displacing resources in the interconnecting Transmission Owner's balancing area.

8 POWER FLOW RESULTS

8.1 CLUSTER SCENARIO

The Cluster Scenario considers the Base Case as well as all Interconnection Requests in the DISIS Study Queue and all generating facilities (and with respect to (3) below, any identified Network Upgrades associated with such higher-queued interconnection) that, on the date the DISIS is commenced:

1. are directly connected to the Transmission System;
2. are interconnection to Affected Systems and may have an impact on the Interconnection Request;
3. have a pending higher-queued Interconnection Request to interconnect to the Transmission System; and
4. have no Interconnection Queue Position but have executed a GIA or requested that an unexecuted GIA be filed with FERC.

Constraints and associated mitigations for each Interconnection Request are summarized below. Details are contained in Appendix G. Cost allocation for the Cluster Scenario is found in Appendix E.

8.1.1 CLUSTER GROUP 1 (WOODWARD AREA)

In addition to the 6,112.80 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.2 CLUSTER GROUP 2 (HITCHLAND AREA)

In addition to the 4,094.50 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.3 CLUSTER GROUP 3 (SPEARVILLE AREA)

In addition to the 3,560.33 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.4 CLUSTER GROUP 4 (NORTHWEST KANSAS AREA)

In addition to the 3,047.20 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.5 CLUSTER GROUP 6 (SOUTH TEXAS PANHANDLE/NEW MEXICO AREA)

In addition to the 8,304.45 MW of previously queued generation in the area, 270.0 MW of new interconnection service was studied. The following constraints were found in this area:

POI Scenario 1 Results

Table 8-1: Scenario 1 Group 06 Cluster Primary POI ERIS Constraints

Monitored Element	Limiting Rate A/B (MVA)	TC %Loading (%MVA)	Contingency	Mitigation
'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	287	101.15	System Intact	Higher Queued Need: Could be resolved by DIS1602 upgrades if XFMR is rebuilt to at least 300 MVA.
'PITTSBURG - SEMINOLE 345KV CKT 1'	717	101.41	System Intact	Updated rating sufficient for need. No mitigation needed.
'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	579	102.57	System Intact	Higher Queued Need: Could be resolved by DIS1602 upgrades if breaker is rebuilt to 700 MVA.
'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	164.5	127.03	NONSINGLE	FCS1801 upgrade. Upgrade terminal equipment.
'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	167	125.91	NONSINGLE	FCS1801 upgrade. Rebuild XFMR to at least 215 MVA.

Monitored Element	Limiting Rate A/B (MVA)	TC %Loading (%MVA)	Contingency	Mitigation
'COULTER INTERCHANGE - HILLSIDE 115KV CKT 1'	159.3	113.78	NONSINGLE	FCS1801 upgrade. Upgrade terminal equipment.
TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	610	107.41	'BUSHLAND INTERCHANGE - G1801_TAP1 230.00 230KV CKT 1'	Higher Queued Need: Could be resolved by DIS1602 upgrades if breaker is rebuilt to 700 MVA.

Table 8-2: Scenario 1 Group 06 Cluster Primary POI NRIS Constraints

Monitored Element	Limiting Rate A/B (MVA)	TC %Loading (%MVA)	Contingency	Mitigation
'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	549	101.4267	NONSINGLE	FCS1801 upgrade. Reconductor or rebuild depending on structures.
'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	546.6	101.2697	NONSINGLE	Higher Queued Need: Could be resolved by DIS1602 upgrades if line was rebuilt or reconductored, depending on structures.
'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	82.3	105.4426	NONSINGLE	Terminal equipment currently rated sufficiently. No mitigation needed.
'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'	318.7	101.4655	NONSINGLE	Facility rated sufficiently for need. No mitigation necessary.
'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	318.7	106.6928	'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'	Rated sufficiently for need. No mitigation necessary.

POI Scenario 2 Results

Table 8-3: Scenario 2 Group 06 Cluster Secondary POI ERIS Constraints

Monitored Element	Limiting Rate A/B (MVA)	TC %Loading (%MVA)	Contingency	Mitigation
'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	287	101.18	System Intact	Higher Queued Need: Could be resolved by DIS1602 upgrades if XFMR is rebuilt to at least 300 MVA.

'PITTSBURG - SEMINOLE 345KV CKT 1'	712.1	101.39	System Intact	Sufficiently rated for need. No mitigation needed.
TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	578.4	100.72	System Intact	Higher Queued Need: Could be resolved by DIS1602 upgrades if breaker is rebuilt to 700 MVA.

Table 8-4: Scenario 2 Group 06 Cluster Secondary POI NRIS Constraints

Monitored Element	Limiting Rate A/B (MVA)	TC % Loading (%MVA)	Contingency	Mitigation
'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	549	101.96	NONSINGLE	FCS1801 upgrade. Reconductor or rebuild depending on structures.
'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	175	109.56	'HART INDUSTRIAL - NEWHART 115KV CKT 1'	Higher Queued Need: Could be resolved by DIS1602 upgrades if terminal equipment is upgraded.
'HALE CO INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	79.7	100.86	'G1801_TAP1 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1'	Higher Queued Need: Could be resolved by DIS1602 upgrades if terminal equipment is upgraded.
'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	546.6	101.41	NONSINGLE	Higher Queued Need: Could be resolved by DIS1602 upgrades if line is reconductored or rebuilt, depending on structures.
'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	82.3	104.77	NONSINGLE	Terminal equipment currently rated sufficiently. No mitigation needed.
'LUBBOCK EAST INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	119.5	117.39	NONSINGLE	Facility rated sufficiently for need. No mitigation necessary.
'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'	318.7	101.11	NONSINGLE	Facility rated sufficiently for need. No mitigation necessary.
'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	318.7	105.01	'NEEDMORE 230.00 - TOLK STATION WEST 230KV CKT 1'	Facility rated sufficiently for need. No mitigation necessary.
'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	610	114.13	'CROSSROADS 7345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'	Higher Queued Need: Could be resolved if breaker was rebuilt to 700 MVA

8.1.6 CLUSTER GROUP 7 (SOUTHWESTERN OKLAHOMA AREA)

In addition to the 3,257.10 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.7 CLUSTER GROUP 8 (NORTH OKLAHOMA/SOUTH CENTRAL KANSAS AREA)

In addition to the 13,868.06 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.8 CLUSTER GROUP 9 (NEBRASKA AREA)

In addition to the 10,554.90 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.9 CLUSTER GROUP 10 (SOUTHEAST OKLAHOMA/NORTHEAST TEXAS AREA)

In addition to the 73.50 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.10 CLUSTER GROUP 12 (NORTHWEST ARKANSAS AREA)

In addition to the 85.50 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.11 CLUSTER GROUP 13 (NORTHEAST KANSAS/NORTHWEST MISSOURI AREA)

In addition to the 4,117.90 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. The following constraints were found in this area:

8.1.12 CLUSTER GROUP 14 (SOUTH CENTRAL OKLAHOMA AREA)

In addition to the 2,124.57 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.13 CLUSTER GROUP 15 (EASTERN SOUTH DAKOTA)

In addition to approximately 7,373.35 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.14 CLUSTER GROUP 16 (WESTERN NORTH DAKOTA)

In addition to approximately 5,174.70 MW of previously queued generation in the area, 320.0 MW of new interconnection service was studied. The following constraints were found in this area:

8.1.15 CLUSTER GROUP 17 (WESTERN SOUTH DAKOTA)

In addition to approximately 873.90 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.1.16 CLUSTER GROUP 18 (EASTERN NORTH DAKOTA)

In addition to approximately 1,559.70 MW of previously queued generation in the area, 0.0 MW of new interconnection service was studied. No new constraints were found in this area.

8.2 STAND-ALONE SCENARIO

Not applicable to the FCS queue, however if requests proceed to the DISIS Queue the following Stand-Alone Scenario will be evaluated.

The Stand-Alone Scenario considers the Base Case as well as all generating facilities (and with respect to (3) below, any identified Network Upgrades associated with such higher-queued interconnection) that, on the date the DISIS is commenced:

1. are directly connected to the Transmission System;
2. are interconnection to Affected Systems and may have an impact on the Interconnection Request;
3. have a pending higher-queued Interconnection Request to interconnect to the Transmission System; and
4. have no Interconnection Queue Position but have executed a GIA or requested that an unexecuted GIA be filed with FERC.

8.3 CURTAILMENT AND SYSTEM RELIABILITY

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

9 STABILITY & SHORT CIRCUIT ANALYSIS

Stability is not applicable to the FCS queue. Short Circuit Analysis was performed for each generators POI. The Short Circuit Analyses results are in I: Short Circuit Analysis.

10 CONCLUSION

The minimum cost of interconnecting all new generation interconnection requests included in this FCS is listed in Table 10-1, not including the exceptions noted in Section 5.

Table 10-1 Total Cluster Costs per POI Scenario

Scenario Number	Total Estimated Minimum Cost
Scenario #1	$63,737,557
Scenario #2	$41,737,557

Allocated costs for Network Upgrades and Transmission Owner Interconnection Facilities are listed in Appendix E and F. For Interconnection Requests that result in an interconnection to, or modification of, the transmission facilities of the Western-UGP (WAPA), a National Environmental Policy Act (NEPA) Environmental Review will be required. The Interconnection Customer will be required to execute an Environmental Review Agreement per Section 8.6.1 of the GIP.

These costs do not include the cost of upgrades of other transmission facilities listed in Appendix H which are Network Constraints. These interconnection costs do not include any cost of any Network Upgrades that are identified as required through the short circuit analysis. Potential over-duty circuit breakers capability will be identified by the Transmission Owner in the Interconnection Facilities Study.

Further refinement of total estimated interconnection costs will be provided, should the Interconnection Customer meet the requirements for acceptance and choose to move into the Interconnection Facilities Study following the posting of this FCS. The Interconnection Facilities Study may include additional study analysis, additional facility upgrades not yet identified by this FCS, such as circuit breaker replacements and affected system facilities, and further refinement of existing cost estimates.

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

11 APPENDICES

11.1 A: GENERATION INTERCONNECTION REQUESTS CONSIDERED FOR IMPACT STUDY

A: Generation Interconnection Requests Considered for Study

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date	In Service Date Delayed Until no earlier than*
GEN-2018-001	270.00	ER/NR	SPS	Tap Bushland-Deaf Smith 230 kV	Tap Bushland-Deaf Smith 230 kV	12/1/2021	TBD
Total:	**270.00**						

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

11.2 B: PRIOR-QUEUED INTERCONNECTION REQUESTS

B: Prior Queued Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
ASGI-2010-006	150.00	AECI	Remington 138kV	AECI queue Affected Study
ASGI-2010-010	42.20	SPS	Lovington 115kV	Lea County Affected Study
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV	Lea County Affected Study
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV	Lea County Affected Study
ASGI-2011-001	27.30	SPS	Lovington 115kV	On-Line
ASGI-2011-002	20.00	SPS	Herring 115kV	On-Line
ASGI-2011-003	10.00	SPS	Hendricks 69kV	On-Line
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV	Under Study (DISIS-2011-002)
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV	Under Study (DISIS-2012-002)
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV	Under Study (DISIS-2012-001)
ASGI-2013-001	11.50	SPS	PanTex South 115kV	Under Study (DISIS-2013-001)
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV	Under Study (DISIS-2013-001)
ASGI-2013-003	18.40	SPS	FE Clovis 115kV	Under Study (DISIS-2013-001)
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV	Under Study (DISIS-2013-002)
ASGI-2013-005	1.65	SPS	FE Clovis 115kV	Under Study (DISIS-2013-002)
ASGI-2014-014	56.40	GRDA	Ferguson 69kV	Under Study (DISIS-2014-002)
ASGI-2015-001	6.13	SUNCMKEC	Ninnescah 115kV	Under Study (DISIS-2015-001)
ASGI-2015-002	2.00	SPS	SP-Yuma 69kV	Under Study (DISIS-2015-001)
ASGI-2015-004	56.36	GRDA	Coffeyville City 69kV	Under Study (DISIS-2015-001)
ASGI-2015-006	9.00	SWPA	Tupelo 138kV	Under Study (DISIS-2015-002)
ASGI-2016-002	0.35	SPS	SP-Yuma 115kV	DISIS STAGE
ASGI-2016-003	6.00	KCPL	Paola 161kV	DISIS STAGE
ASGI-2016-004	9.60	SPS	Palo Duro 115kV	DISIS STAGE
ASGI-2016-005	20.00	WAPA	Tap White Lake - Stickeny 69kV	DISIS STAGE
ASGI-2016-006	20.00	WAPA	Mitchall	DISIS STAGE
ASGI-2016-007	20.00	WAPA	Kimball 69kV	DISIS STAGE
ASGI-2016-009	3.00	SPS	Wolfforth 115kV	DISIS STAGE
ASGI-2016-010	90.00	SPS	Powell Corner 115kV	DISIS STAGE
G176	100.00	XEL	Yankee 115kV	
G255	100.00	XEL	Yankee 115kV	MISO Queued Request
G380	150.00	OTP	Rugby 115kV	MISO Queued Request
G408	12.00	XEL	Tap McHenry - Souris 115kV	MISO Queued Request
G502	50.60	MP	Milton Young 230kV	MISO Queued Request
G586	30.00	XEL	Yankee 115kV	
G645	50.00	GRE	Ladish 115kV	MISO Queued Request
G723	10.00	MDU	Haskett 115kV	MISO Queued Request
G736	200.00	OTP	Big Stone South 230kV	
G752	150.00	MDU	Tap Bison - Hettinger 230kV	MISO Queued Request
G788	49.00	GRE	Ladish 115kV	MISO Queued Request
G830	99.00	GRE	GRE McHenry 115kV	MISO Queued Request
GEN-2001-014	96.00	WFEC	Ft Supply 138kV	On-Line
GEN-2001-026	74.30	WFEC	Washita 138kV	On-Line
GEN-2001-033	180.00	SPS	San Juan Tap 230kV	On-Line at 120MW
GEN-2001-036	80.00	SPS	Norton 115kV	On-Line
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV	On-Line
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV	On-Line

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV	On-Line
GEN-2002-004	200.00	WERE	Latham 345kV	On-Line at 150MW
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV	On-Line
GEN-2002-008	240.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2002-008IS	40.50	WAPA	Edgeley 115kV [Pomona 115kV]	Commercial Operation
GEN-2002-009	80.00	SPS	Hansford 115kV	On-Line
GEN-2002-009IS	40.00	WAPA	Ft Thompson 69kV [Hyde 69kV]	Commercial Operation
GEN-2002-022	240.00	SPS	Bushland 230kV	On-Line
GEN-2002-023N	0.80	NPPD	Harmony 115kV	On-Line
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV	On-Line
GEN-2003-004	100.00	WFEC	Washita 138kV	On-Line
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV	On-Line
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV	On-Line
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV	On-Line
GEN-2003-020	160.00	SPS	Martin 115kV	On-Line
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV	On-Line
GEN-2003-022	120.00	AEPW	Weatherford 138kV	On-Line
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV	On-Line at 100MW
GEN-2004-020	27.00	AEPW	Weatherford 138kV	On-Line
GEN-2004-023	20.60	WFEC	Washita 138kV	On-Line
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV	On-Line
GEN-2005-003	30.60	WFEC	Washita 138kV	On-Line
GEN-2005-003IS	100.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2005-008	120.00	OKGE	Woodward 138kV	On-Line
GEN-2005-008IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV	On-Line at 160MW
GEN-2005-013	201.00	WERE	Caney River 345kV	On-Line
GEN-2006-001IS	10.00	XEL	Marshall 115kV	Commercial Operation
GEN-2006-002	101.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-002IS	51.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2006-006IS	10.00	XEL	Marshall 115kV	Commercial Operation
GEN-2006-015IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV	On-Line
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV	On-Line
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV	On-Line
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV	On-Line
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV	On-Line
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV	On-Line
GEN-2006-031	75.00	MIDW	Knoll 115kV	On-Line
GEN-2006-035	225.00	AEPW	Sweetwater 230kV	On-Line at 132MW
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV	On-Line
GEN-2006-043	99.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-044	370.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV	On-Line
GEN-2006-046	131.00	OKGE	Dewey 138kV	On-Line
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV	On-Line
GEN-2007-013IS	50.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2007-014IS	100.00	WAPA	Wessington Springs 230kV	Commercial Operation

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2007-015IS	100.00	WAPA	Hilken 230kV [Ecklund 230kV]	Commercial Operation
GEN-2007-017IS	166.00	WAPA	Ft Thompson-Grand Island 345kV	On Schedule
GEN-2007-018IS	234.00	WAPA	Ft Thompson-Grand Island 345kV	On Schedule
GEN-2007-020IS	16.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2007-021	201.00	OKGE	Tatonga 345kV	On-Line
GEN-2007-023IS	50.00	WAPA	Formit-Summit 115kV	On Suspension
GEN-2007-025	300.00	WERE	Viola 345kV	On-Line
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV	On-Line at 132MW
GEN-2007-043	200.00	OKGE	Minco 345kV	On-Line
GEN-2007-044	300.00	OKGE	Tatonga 345kV	On-Line at 199MW
GEN-2007-046	200.00	SPS	Hitchland 115kV	On-Line
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV	On-Line at 150MW
GEN-2007-052	150.00	WFEC	Anadarko 138kV	On-Line
GEN-2007-062	425.00	OKGE	Woodward EHV 345kV	On Schedule for 2016 and 2017
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV	On-Line
GEN-2008-008IS	5.00	WAPA	Nelson 115kV	Commercial Operation
GEN-2008-013	300.00	OKGE	Hunter 345kV	On-Line at 235MW
GEN-2008-018	250.00	SPS	Finney 345kV	On-Line
GEN-2008-021	42.00	WERE	Wolf Creek 345kV	On-Line
GEN-2008-022	300.00	SPS	Crossroads 345kV	On-Line
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV	On-Line
GEN-2008-037	101.00	WFEC	Slick Hills 138kV	On-Line
GEN-2008-044	197.80	OKGE	Tatonga 345kV	On-Line
GEN-2008-047	300.00	OKGE	Beaver County 345kV	On-Line
GEN-2008-051	322.00	SPS	Potter County 345kV	On-Line at 161MW
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV	On-Line
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV	On-Line
GEN-2008-092	200.60	MIDW	Post Rock 230kV	On-Line
GEN-2008-098	100.80	WERE	Waverly 345kV	On-Line
GEN-2008-119O	60.00	OPPD	S1399 161kV	On-Line
GEN-2008-123N	89.70	NPPD	Tap Pauline - Guide Rock (Rosemont) 115kV	On Schedule for 2016
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV	On Schedule for 2016
GEN-2008-129	80.00	KCPL	Pleasant Hill 161kV	On-Line
GEN-2009-001IS	200.00	WAPA	Groton-Watertown 345kV	On Schedule
GEN-2009-006IS	90.00	WAPA	Mission 115kV	On Suspension
GEN-2009-007IS	100.00	WAPA	Mission 115kV	On Suspension
GEN-2009-008	199.50	MIDW	South Hays 230kV	On-Line
GEN-2009-018IS	99.50	WAPA	Groton 115kV	Commercial Operation
GEN-2009-020	48.30	MIDW	Walnut Creek 69kV	On-Line
GEN-2009-020AIS	130.50	WAPA	Tripp Junction 115kV	Commercial Operation
GEN-2009-025	59.80	OKGE	Nardins 69kV	On-Line
GEN-2009-026IS	110.00	WAPA	Dickenson-Heskett 230kV	On Schedule
GEN-2009-040	73.80	WERE	Marshall 115kV	On Schedule for 2016
GEN-2010-001	300.00	OKGE	Beaver County 345kV	On-Line
GEN-2010-001IS	99.00	WAPA	Bismarck-Glenham 230kV	On Schedule
GEN-2010-003	100.80	WERE	Waverly 345kV	On-Line
GEN-2010-003IS	34.00	WAPA	Wessington Springs 230kV	Commercial Operation
GEN-2010-005	299.20	WERE	Viola 345kV	On-Line at 170MW
GEN-2010-006	205.00	SPS	Jones 230kV	On-Line
GEN-2010-007IS	172.50	WAPA	Antelope Valley 345kV	On Suspension

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV	On-Line
GEN-2010-011	29.70	OKGE	Tatonga 345kV	On-Line
GEN-2010-014	358.80	SPS	Hitchland 345kV	On Schedule for 2018
GEN-2010-036	4.60	WERE	6th Street 115kV	On-Line
GEN-2010-040	300.00	OKGE	Cimarron 345kV	On-Line
GEN-2010-041	10.50	OPPD	S1399 161kV	On Schedule for 2015
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV	On Schedule for 2016
GEN-2010-051	200.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV	On Suspension
GEN-2010-055	4.50	AEPW	Wekiwa 138kV	On-Line
GEN-2010-057	201.00	MIDW	Rice County 230kV	On-Line
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV	On Schedule for 2016
GEN-2011-010	100.80	OKGE	Minco 345kV	On-Line
GEN-2011-011	50.00	KCPL	Iatan 345kV	On-Line
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	On Schedule for 2016
GEN-2011-016	200.10	SUNCMKEC	Ironwood 345kV	On Suspension
GEN-2011-018	73.60	NPPD	Steele City 115kV	On-Line
GEN-2011-019	175.00	OKGE	Woodward 345kV	On Schedule for 2017
GEN-2011-020	165.60	OKGE	Woodward 345kV	On Schedule for 2017
GEN-2011-022	299.00	SPS	Hitchland 345kV	On Schedule for 2016 (150MW) and 2017 (149MW)
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV	On Schedule for 2016
GEN-2011-027	120.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV	On Suspension
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV	On-Line
GEN-2011-040	111.00	OKGE	Carter County 138kV	On-Line
GEN-2011-045	205.00	SPS	Jones 230kV	On-Line
GEN-2011-046	27.00	SPS	Lopez 115kV	On-Line
GEN-2011-048	175.00	SPS	Mustang 230kV	On-Line
GEN-2011-049	250.70	OKGE	Border 345kV	On Schedule for 2016
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV	On Schedule for 2016
GEN-2011-054	300.00	OKGE	Cimarron 345kV	On-Line
GEN-2011-056	3.60	NPPD	Jeffrey 115kV	On-Line
GEN-2011-056A	3.60	NPPD	John 1 115kV	On-Line
GEN-2011-056B	4.50	NPPD	John 2 115kV	On-Line
GEN-2011-057	150.40	WERE	Creswell 138kV	On-Line
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV	On-Line
GEN-2012-004	41.40	OKGE	Carter County 138kV	On-Line
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV	On-Line
GEN-2012-009IS	99.00	WAPA	Fort Randall 115kV	On Suspension
GEN-2012-012IS	75.00	WAPA	Wolf Point-Circle 115kV	On Suspension
GEN-2012-014IS	99.50	WAPA	Groton 115kV	On Schedule
GEN-2012-020	478.00	SPS	TUCO 230kV	On Schedule for 2016
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV	On-Line
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV	On Schedule for 2016
GEN-2012-028	74.80	WFEC	Gotebo 69kV	On-Line
GEN-2012-032	300.00	OKGE	Open Sky 345kV	On-Line
GEN-2012-033	98.10	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV	On-Line
GEN-2012-034	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-035	7.00	SPS	Mustang 230kV	On-Line
GEN-2012-036	7.00	SPS	Mustang 230kV	On-Line

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GEN-2012-037	203.00	SPS	TUCO 345kV	On-Line
GEN-2012-041	121.50	OKGE	Ranch Road 345kV	On-Line
GEN-2013-001IS	90.00	WAPA	Summit-Watertown 115kV	On Suspension
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	On Schedule for 2016
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV	On-Line
GEN-2013-008	1.20	NPPD	Steele City 115kV	On-Line
GEN-2013-009IS	19.50	WAPA	Redfield NW 115kV	Commercial Operation
GEN-2013-010	99.00	SUNCMKEC	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV	On Schedule for 2018
GEN-2013-011	30.00	AEPW	Turk 138kV	On-Line
GEN-2013-012	147.00	OKGE	Redbud 345kV	On-Line
GEN-2013-016	203.00	SPS	TUCO 345kV	On Schedule for 2017
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2	On Schedule for 2016
GEN-2013-022	25.00	SPS	Norton 115kV	On Schedule for 2016
GEN-2013-027	150.00	SPS	Tap Tolk - Yoakum 230kV	IA Pending
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV	On Schedule for 2017
GEN-2013-029	300.00	OKGE	Renfrow 345kV	On-Line for 151.6MW
GEN-2013-030	300.00	OKGE	Beaver County 345kV	On Schedule for 2016 (200MW) and 2017 (100MW)
GEN-2013-032	204.00	NPPD	Antelope 115kV	On Schedule for 2017
GEN-2013-033	28.00	MIDW	Knoll 115kV	On Schedule for 2016
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center (GEN-2014-001 Tap) 345kV	On Suspension
GEN-2014-001IS	103.70	WAPA	Newell-Maurine 115kV	FACILITY STUDY STAGE
GEN-2014-002	10.50	OKGE	Tatonga 345kV (GEN-2007-021 POI)	On Schedule for 2015
GEN-2014-003	15.80	OKGE	Tatonga 345kV (GEN-2007-044 POI)	On Schedule for 2015
GEN-2014-003IS	91.00	WAPA	Culbertson 115kV	On Schedule
GEN-2014-004	4.00	NPPD	Steele City 115kV (GEN-2011-018 POI)	On-Line
GEN-2014-004IS	384.20	WAPA	Charlie Creek 345kV	FACILITY STUDY STAGE
GEN-2014-005	5.70	OKGE	Minco 345kV (GEN-2011-010 POI)	On-Line
GEN-2014-006IS	125.00	WAPA	Williston 115kV	On Schedule
GEN-2014-010IS	150.00	WAPA	Neset 115kV	On Schedule
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV	On Schedule for 2018
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV	On-Line
GEN-2014-014IS	151.50	WAPA	Belfield-Rhame 230kV	On Schedule
GEN-2014-020	100.00	AEPW	Tuttle 138kV	On Schedule for 2017
GEN-2014-021	300.00	KCPL	Tap Nebraska City - Mullin Creek (Holt) 345kV	On Schedule for 2016
GEN-2014-025	2.40	MIDW	Walnut Creek 69kV	On-Line
GEN-2014-028	35.00	EMDE	Riverton 161kV	On Schedule for 2016
GEN-2014-031	35.80	NPPD	Meadow Grove 230kV	On-Line
GEN-2014-032	10.20	NPPD	Meadow Grove 230kV	On Schedule for 2016
GEN-2014-033	70.00	SPS	Chaves County 115kV	On Schedule for 2016
GEN-2014-034	70.00	SPS	Chaves County 115kV	On Schedule for 2016
GEN-2014-035	30.00	SPS	Chaves County 115kV	On Schedule for 2018
GEN-2014-037	200.00	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV	FACILITY STUDY STAGE
GEN-2014-039	73.40	NPPD	Friend 115kV	On Schedule for 2017
GEN-2014-040	320.40	SPS	Castro 115kV	On Schedule for 2016
GEN-2014-047	40.00	SPS	Crossroads 345kV	IA Pending
GEN-2014-056	250.00	OKGE	Minco 345kV	On Schedule for 2016

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GEN-2014-057	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	On Schedule for 2016
GEN-2014-064	248.40	OKGE	Otter 138kV	On Suspension
GEN-2015-001	200.00	OKGE	Ranch Road 345kV	On Schedule for 2016
GEN-2015-004	52.90	OKGE	Border 345kV	IA Pending
GEN-2015-005	200.10	KCPL	Tap Nebraska City - Sibley (Ketchem) 345kV	FACILITY STUDY STAGE
GEN-2015-007	160.00	NPPD	Hoskins 345kV	FACILITY STUDY STAGE
GEN-2015-013	120.00	WFEC	Synder 138kV	FACILITY STUDY STAGE
GEN-2015-014	150.00	SPS	Tap Cochran - Lehman 115kV	FACILITY STUDY STAGE
GEN-2015-015	154.60	OKGE	Road Runner 138kV	FACILITY STUDY STAGE
GEN-2015-016	200.00	KCPL	Tap Marmaton - Centerville 161kV	FACILITY STUDY STAGE
GEN-2015-020	100.00	SPS	Oasis 115kV	FACILITY STUDY STAGE
GEN-2015-021	20.00	SUNCMKEC	Johnson Corner 115kV	FACILITY STUDY STAGE
GEN-2015-022	112.00	SPS	Swisher 115kV	FACILITY STUDY STAGE
GEN-2015-023	300.70	NPPD	Holt County 345kV	FACILITY STUDY STAGE
GEN-2015-024	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT	On Schedule for 2016
GEN-2015-025	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT	FACILITY STUDY STAGE
GEN-2015-029	161.00	OKGE	Tatonga 345kV	IA Pending
GEN-2015-030	200.10	OKGE	Sooner 345kV	IA Pending
GEN-2015-031	150.50	SPS	Tap Amarillo South - Swisher 230kV	DISIS STAGE
GEN-2015-034	200.00	OKGE	Ranch Road 345kV	DISIS STAGE
GEN-2015-036	303.60	OKGE	Johnston County 345kV	DISIS STAGE
GEN-2015-039	50.10	SPS	Tap Deaf Smith - Plant X 230kV	DISIS STAGE
GEN-2015-039	50.10	SPS	Tap Deaf Smith - Plant X 230kV	DISIS STAGE
GEN-2015-040	50.10	SPS	Mustang 230kV	DISIS STAGE
GEN-2015-040	50.10	SPS	Mustang 230kV	DISIS STAGE
GEN-2015-041	5.00	SPS	TUCO Interchange 345kV	DISIS STAGE
GEN-2015-045	20.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	DISIS STAGE
GEN-2015-046	300.00	WAPA	Tande 345kV	DISIS STAGE
GEN-2015-047	300.00	OKGE	Sooner 345kV	DISIS STAGE
GEN-2015-048	200.00	OKGE	Cleo Corner 138kV	DISIS STAGE
GEN-2015-052	300.00	WERE	Tap Open Sky - Rose Hill 345kV	DISIS STAGE
GEN-2015-053	50.00	NPPD	Antelope 115kV	DISIS STAGE
GEN-2015-055	40.00	WFEC	Erick 138kV	DISIS STAGE
GEN-2015-056	101.20	SPS	Crossroads 345kV	DISIS STAGE
GEN-2015-057	100.00	OKGE	Minco 345kV	DISIS STAGE
GEN-2015-058	50.00	SPS	Atoka 115kV	DISIS STAGE
GEN-2015-062	4.50	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV	DISIS STAGE
GEN-2015-063	300.00	OKGE	Tap Woodring - Mathewson 345kV	DISIS STAGE
GEN-2015-064	197.80	SUNCMKEC	Mingo 115kV	DISIS STAGE
GEN-2015-065	202.40	SUNCMKEC	Mingo 345kV	DISIS STAGE
GEN-2015-066	248.40	OKGE	Tap Cleveland - Sooner 345kV	DISIS STAGE
GEN-2015-068	300.00	SPS	TUCO Interchange 345kV	DISIS STAGE
GEN-2015-069	300.00	WERE	Union Ridge 230kV	DISIS STAGE
GEN-2015-071	200.00	AEPW	Chisholm 345kV	DISIS STAGE
GEN-2015-073	200.10	WERE	Emporia Energy Center 345kV	DISIS STAGE
GEN-2015-075	51.50	SPS	Carlisle 69kV	DISIS STAGE
GEN-2015-076	158.40	NPPD	Belden 115kV	DISIS STAGE
GEN-2015-078	50.10	SPS	Mustang 115kV	DISIS STAGE
GEN-2015-078	50.10	SPS	Mustang 115kV	DISIS STAGE

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GEN-2015-079	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV	DISIS STAGE
GEN-2015-080	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV	DISIS STAGE
GEN-2015-082	200.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV	DISIS STAGE
GEN-2015-083	125.00	WERE	Belle Plain 138kV	DISIS STAGE
GEN-2015-084	51.30	AEPW	Hollis 138kV	DISIS STAGE
GEN-2015-085	122.40	AEPW	Altus Junction 138kV	DISIS STAGE
GEN-2015-087	66.00	NPPD	Tap Fairbury - Hebron 115kV	DISIS STAGE
GEN-2015-088	300.00	NPPD	Tap Moore - Pauline 345kV	DISIS STAGE
GEN-2015-090	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT	DISIS STAGE
GEN-2015-092	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV	DISIS STAGE
GEN-2015-093	250.00	OKGE	Gracemont 345kV	DISIS STAGE
GEN-2015-095	176.00	WFEC	DeGrasse 138kV	DISIS STAGE
GEN-2015-096	150.00	WAPA	Tap Belfied - Rhame 230kV	DISIS STAGE
GEN-2015-098	100.00	WAPA	Mingusville 230kV	DISIS STAGE
GEN-2015-099	73.30	SPS		DISIS STAGE
GEN-2016-003	248.40	OKGE	Tap Badger - Woodward 345kV	DISIS STAGE
GEN-2016-004	202.00	WAPA	Leland Olds 230kV	DISIS STAGE
GEN-2016-005	150.00	SUNCMKEC	Tap Clark County - Thistle 345kV	DISIS STAGE
GEN-2016-007	100.00	WAPA	Valley City 115kV	DISIS STAGE
GEN-2016-009	29.00	OKGE	Osage 69kV	DISIS STAGE
GEN-2016-013	10.00	EMDE	La Russell 161kV	DISIS STAGE
GEN-2016-014	10.00	EMDE	La Russell 161kV	DISIS STAGE
GEN-2016-015	100.00	SPS	Andrews 230kV	DISIS STAGE
GEN-2016-016	78.20	MIDW	North Kinsley 115kV	DISIS STAGE
GEN-2016-017	250.70	WAPA	Tap Fort Thompson - Leland Olds 345kV	DISIS STAGE
GEN-2016-020	150.00	WFEC	Mooreland 138kV	DISIS STAGE
GEN-2016-021	300.00	NPPD	Hoskins 345kV	DISIS STAGE
GEN-2016-022	151.80	OKGE	Ranch Road 345kV	DISIS STAGE
GEN-2016-023	150.50	WAPA	Tap Laramie River – Sidney 345kV	DISIS STAGE
GEN-2016-024	55.90	WERE	Midian 138kV	DISIS STAGE
GEN-2016-024	55.90	WERE	Midian 138kV	DISIS STAGE
GEN-2016-028	100.00	AEPW	Clayton 138kV	DISIS STAGE
GEN-2016-029	150.00	WAPA	Tap Laramie River – Sidney 345kV	DISIS STAGE
GEN-2016-030	100.00	OKGE	Brown 138kV	DISIS STAGE
GEN-2016-031	1.50	OKGE	Ranch Road 345kV	DISIS STAGE
GEN-2016-032	200.00	OKGE	Tap Marshall - Cottonwood Creek 138kV	DISIS STAGE
GEN-2016-034	90.00	WAPA	Tap Laramie River – Sidney 345kV	DISIS STAGE
GEN-2016-034	90.00	WAPA	Tap Laramie River – Sidney 345kV	DISIS STAGE
GEN-2016-036	44.60	WAPA	Granite Falls 115kV Sub	DISIS STAGE
GEN-2016-037	300.00	AEPW	Tap Chisholm - Gracemont 345kV	DISIS STAGE
GEN-2016-039	112.00	SPS	Swisher 115kV	DISIS STAGE
GEN-2016-039	112.00	SPS	Swisher 115kV	DISIS STAGE
GEN-2016-043	230.00	NPPD	Hoskins 345kV	DISIS STAGE
GEN-2016-045	499.10	OKGE	Mathewson 345kV	DISIS STAGE
GEN-2016-046	299.00	SUNCMKEC	Tap Clark County - Ironwood 345kV	DISIS STAGE
GEN-2016-047	24.00	OKGE	Mustang 69kV	DISIS STAGE
GEN-2016-050	250.70	NPPD	Tap Axtell - Post Rock 345kV	DISIS STAGE
GEN-2016-051	9.80	AEPW	Tap Clinton Junction - Weatherford Southeast 138kV	DISIS STAGE
GEN-2016-052	3.30	WAPA	Hilken 230kV	DISIS STAGE

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GEN-2016-053	3.30	WAPA	Hilken 230kV	DISIS STAGE
GEN-2016-054	3.40	WAPA	Wessington Springs 230kV	DISIS STAGE
GEN-2016-056	200.00	SPS	Carlisle 230kV	DISIS STAGE
GEN-2016-057	499.10	OKGE	Mathewson 345kV	DISIS STAGE
GEN-2016-060	25.30	WERE	Belle Plain 138kV	DISIS STAGE
GEN-2016-061	250.70	OKGE	Tap Woodring - Sooner 345kV	DISIS STAGE
GEN-2016-062	250.70	SPS	Andrews 230kV	DISIS STAGE
GEN-2016-063	200.00	OKGE	Tap Sunnyside – Hugo 345kV	DISIS STAGE
GEN-2016-067	73.60	SUNCMKEC	Mingo 345kV	DISIS STAGE
GEN-2016-068	250.00	OKGE	Woodring 345kV	DISIS STAGE
GEN-2016-069	31.40	SPS	Chaves County 115kV	DISIS STAGE
GEN-2016-070	5.30	SPS	Martin 115kV	DISIS STAGE
GEN-2016-071	200.10	WFEC	Chilocco 138kV	DISIS STAGE
GEN-2016-072	300.00	OKGE	Renfrow 345kV	DISIS STAGE
GEN-2016-072	300.00	OKGE	Renfrow 345kV	DISIS STAGE
GEN-2016-073	220.00	WERE	Tap Thistle – Wichita 345kV Dbl CKT	DISIS STAGE
GEN-2016-074	200.00	NPPD	Sweetwater 345kV	DISIS STAGE
GEN-2016-077	54.00	SPS	Ozark Mahoning #1 69kV (526770)	DISIS STAGE
GEN-2016-078	108.00	SPS	Bailey County 115kV (525028)	DISIS STAGE
GEN-2016-087	98.90	WAPA	Bismarck-Glenham 230kV	DISIS STAGE
GEN-2016-088	151.20	KCPL	Transource Ketchem 345kV Station	DISIS STAGE
GEN-2016-091	303.60	AEPW	New tap on PSE&G (AEP) 345kV Gracemont-Lawton	DISIS STAGE
GEN-2016-092	250.70	WAPA	Tap Leland Olds-Ft Thompson 345kV	DISIS STAGE
GEN-2016-094	200.00	WAPA	Tap Ft Thompson-Oahe 230kV	DISIS STAGE
GEN-2016-095	200.00	AEPW	Tap Gracemont - Lawton 345kV	DISIS STAGE
GEN-2016-096	227.70	NPPD	Tap Pauline-Moore 345kV	DISIS STAGE
GEN-2016-096	227.70	NPPD	Tap Pauline-Moore 345kV	DISIS STAGE
GEN-2016-097	100.00	AEPW	Tap Southwestern-Fletcher Tap 138kV	DISIS STAGE
GEN-2016-100	100.00	OKGE	Tap Sooner-Spring Creek 345kV	DISIS STAGE
GEN-2016-101	195.00	OKGE	Tap Sooner-Spring Creek 345kV	DISIS STAGE
GEN-2016-102	150.90	OKGE	Blue River 138kV Substation	DISIS STAGE
GEN-2016-102	150.90	OKGE	Blue River 138kV Substation	DISIS STAGE
GEN-2016-103	250.70	WAPA	Tap Leland Olds- Ft Thompson 345kV	DISIS STAGE
GEN-2016-106	400.00	NPPD	Gentleman Substation 345kV	DISIS STAGE
GEN-2016-108	200.00	WAPA	Tap Antelope Valley Substation (AVS)-Charlie Creek 345kV	DISIS STAGE
GEN-2016-110	152.00	WAPA	Tap Laramie River-Stegall 345kV Line	DISIS STAGE
GEN-2016-111	302.00	WERE	Tap Summit – Reno 345kV Line	DISIS STAGE
GEN-2016-112	220.00	WERE	Tap Reno-Summit 345kV (proposed Cross-County Wind 1 345kV Substation GEN-2016-122)	DISIS STAGE
GEN-2016-113	155.00	WERE	Tap Reno-Summit 345kV (proposed Cross-County Wind 1 345kV Substation GEN-2016-122)	DISIS STAGE
GEN-2016-114	310.00	WERE	Tap Reno-Summit 345kV	DISIS STAGE
GEN-2016-115	300.00	KCPL	Holt County Switching Station 345kV	DISIS STAGE
GEN-2016-118	288.00	WFEC	Dover Switchyard 138kV	DISIS STAGE
GEN-2016-119	600.00	OKGE	Tap Spring Creek-Sooner 345 kV	DISIS STAGE
GEN-2016-119	600.00	OKGE	Tap Spring Creek-Sooner 345 kV	DISIS STAGE
GEN-2016-120	400.00	SPS	Tap Tuco-Border 345kV Line	DISIS STAGE
GEN-2016-120	400.00	SPS	Tap Tuco-Border 345kV Line	DISIS STAGE
GEN-2016-121	110.00	SPS	Roadrunner 115kV Sub (528028 "RDRUNNER")	DISIS STAGE
GEN-2016-122	225.00	WERE	Tap Reno-Summit 345kV	DISIS STAGE

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GEN-2016-123	298.00	SPS	Crossroads 345kV	DISIS STAGE
GEN-2016-123	298.00	SPS	Crossroads 345kV	DISIS STAGE
GEN-2016-124	150.00	SPS	Crossroads 345kV	DISIS STAGE
GEN-2016-125	74.00	SPS	Crossroads 345kV	DISIS STAGE
GEN-2016-126	172.50	OKGE	Tap Arbuckle - Blue River 138kV	DISIS STAGE
GEN-2016-127	200.10	AEPW	Shidler 138kV Substation	DISIS STAGE
GEN-2016-127	200.10	AEPW	Shidler 138kV Substation	DISIS STAGE
GEN-2016-128	176.00	OKGE	Woodring 345kV Substation	DISIS STAGE
GEN-2016-129	132.00	AEPW	Valliant 345kV substation	DISIS STAGE
GEN-2016-130	202.00	WAPA	Leland Olds 345kV	DISIS STAGE
GEN-2016-131	2.50	OKGE	Minco Substation 345kV	DISIS STAGE
GEN-2016-132	6.10	AEPW	Sweetwater 230kV	DISIS STAGE
GEN-2016-133	187.50	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-134	187.50	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-135	100.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-135	100.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-135	100.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-135	100.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-136	75.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-137	187.50	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-138	187.50	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-138	187.50	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-139	100.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-140	75.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-141	350.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-141	350.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-142	350.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-142	350.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-143	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-144	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-144	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-144	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-144	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-145	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-146	175.00	AEPW	Tulsa North 345kV Substation	DISIS STAGE
GEN-2016-147	40.00	NPPD	Sidney 115kV Sub	DISIS STAGE
GEN-2016-148	150.00	WFEC	Hardy 138kV Substation	DISIS STAGE
GEN-2016-149	302.00	WERE	Stranger Creek 345kV Sub	DISIS STAGE
GEN-2016-150	302.00	WERE	Stranger Creek 345kV Sub	DISIS STAGE
GEN-2016-151	202.00	WAPA	Tande 345kV Sub	DISIS STAGE
GEN-2016-152	102.00	WAPA	Tande 345kV Sub	DISIS STAGE
GEN-2016-153	134.00	WERE	Viola 345kV Substation	DISIS STAGE
GEN-2016-155	1.30	WAPA	Hilken 230kV switching station	DISIS STAGE
GEN-2016-157	252.00	KCPL	West Gardner 345kV Sub	DISIS STAGE
GEN-2016-158	252.00	KCPL	West Gardner 345kV Sub	DISIS STAGE
GEN-2016-159	427.80	NPPD	Hoskins 345kV Substation	DISIS STAGE
GEN-2016-159	427.80	NPPD	Hoskins 345kV Substation	DISIS STAGE
GEN-2016-160	20.00	MIDW	Post Rock 230kV Substation (530584)	DISIS STAGE
GEN-2016-161	3.00	SPS	Martin 115kV	DISIS STAGE
GEN-2016-162	252.00	WERE	Benton 345kV	DISIS STAGE

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2016-163	252.00	WERE	Benton 345kV	DISIS STAGE
GEN-2016-164	7.90	WAPA	Groton 115kV substation	DISIS STAGE
GEN-2016-165	202.00	WAPA	Tap Fort Thompson - Grand Island 345kV	DISIS STAGE
GEN-2016-166	35.00	AEPW	Prairie Grove 69kV Substation	DISIS STAGE
GEN-2016-167	73.50	AEPW	Tap Lieberman - North Benton 138kV	DISIS STAGE
GEN-2016-168	20.00	KCPL	Higginsville 69kV Sub	DISIS STAGE
GEN-2016-169	260.00	SPS	Hobbs Interchange 345kV	DISIS STAGE
GEN-2016-169	260.00	SPS	Hobbs Interchange 345kV	DISIS STAGE
GEN-2016-171	64.00	SPS	Tap Hobbs –Yoakum 230kV Line	DISIS STAGE
GEN-2016-172	231.00	SPS	Newhart 115kV	DISIS STAGE
GEN-2016-172	231.00	SPS	Newhart 115kV	DISIS STAGE
GEN-2016-173	42.00	WERE	Creswell 69kV Sub	DISIS STAGE
GEN-2016-174	302.00	WERE	Stranger Creek 345kV Sub	DISIS STAGE
GEN-2016-175	150.00	SPS	Tap Tuco-Border 345kV Line	DISIS STAGE
GEN-2016-176	302.00	WERE	Stranger Creek 345kV Sub	DISIS STAGE
GEN-2016-177	14.99	SPS	Allred 115kV	DISIS STAGE
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV	On-Line
J003	20.00	MDU	Baker 115kV	MISO Queued Request
J249	180.00	MDU	MDU Tatanka 230kV	MISO Queued Request
J262	100.00	OTP	Jamestown 345	MISO Queued Request
J263	100.00	OTP	Jamestown 345	MISO Queued Request
J290	150.00	XEL	Tap Glenboro South - Rugby 230kV	MISO Queued Request
J316	150.00	MDU	MDU 230 kV Tatanka-Ellendale line	MISO Queued Request
J436	150.00	OTP	Big Stone South 345kV	MISO Queued Request
J437	150.00	OTP	Big Stone South 345kV	MISO Queued Request
J442	200.00	OTP	Big Stone 230 kV	MISO Queued Request
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV	On-Line
MPC01200	98.90	OTP	Maple River 230 kV	
MPC02100	100.00	OTP	Center - Mandan 230 kV	
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV	On-Line
NPPD Distributed (Buffalo County Solar)	10.00	NPPD	Kearney Northeast	On-Line
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV	On-Line
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV	On-Line
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV	On-Line
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV	On-Line
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV	On-Line
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV	On-Line
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV	On-Line
SPS Distributed (Etter)	20.00	SPS	Etter 115kV	On-Line
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV	On-Line
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV	On-Line
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV	On-Line
SPS Distributed (Monument)	10.00	SPS	Monument 115kV	On-Line
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV	On-Line
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV	On-Line
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV	On-Line
Total:	**66,824.9**			

11.3 C: STUDY GROUPINGS

C. Study Groups

GROUP 1: WOODWARD AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
GEN-2001-014	96.00	WFEC	Ft Supply 138kV
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV
GEN-2005-008	120.00	OKGE	Woodward 138kV
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV
GEN-2006-046	131.00	OKGE	Dewey 138kV
GEN-2007-021	201.00	OKGE	Tatonga 345kV
GEN-2007-043	200.00	OKGE	Minco 345kV
GEN-2007-044	300.00	OKGE	Tatonga 345kV
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV
GEN-2007-062	425.00	OKGE	Woodward EHV 345kV
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV
GEN-2008-044	197.80	OKGE	Tatonga 345kV
GEN-2010-011	29.70	OKGE	Tatonga 345kV
GEN-2010-040	300.00	OKGE	Cimarron 345kV
GEN-2011-010	100.80	OKGE	Minco 345kV
GEN-2011-019	175.00	OKGE	Woodward 345kV
GEN-2011-020	165.60	OKGE	Woodward 345kV
GEN-2011-054	300.00	OKGE	Cimarron 345kV
GEN-2014-002	10.50	OKGE	Tatonga 345kV (GEN-2007-021 POI)
GEN-2014-003	15.80	OKGE	Tatonga 345kV (GEN-2007-044 POI)
GEN-2014-005	5.70	OKGE	Minco 345kV (GEN-2011-010 POI)
GEN-2014-020	100.00	AEPW	Tuttle 138kV
GEN-2014-056	250.00	OKGE	Minco 345kV
GEN-2015-029	161.00	OKGE	Tatonga 345kV
GEN-2015-048	200.00	OKGE	Cleo Corner 138kV
GEN-2015-057	100.00	OKGE	Minco 345kV
GEN-2015-093	250.00	OKGE	Gracemont 345kV
GEN-2015-095	176.00	WFEC	DeGrasse 138kV
GEN-2016-003	248.40	OKGE	Tap Badger - Woodward 345kV
GEN-2016-020	150.00	WFEC	Mooreland 138kV
GEN-2016-045	499.10	OKGE	Mathewson 345kV
GEN-2016-047	24.00	OKGE	Mustang 69kV
GEN-2016-057	499.10	OKGE	Mathewson 345kV
GEN-2016-118	288.00	WFEC	Dover Switchyard 138kV
GEN-2016-131	2.50	OKGE	Minco Substation 345kV
PRIOR QUEUED SUBTOTAL	**6,112.80**		
AREA TOTAL	**6,112.80**		

GROUP 2: HITCHLAND AREA			
Request	**Capacity**	**Area**	**Proposed Point of Interconnection**
ASGI-2011-002	20.00	SPS	Herring 115kV
ASGI-2013-001	11.50	SPS	PanTex South 115kV
ASGI-2016-010	90.00	SPS	Powell Corner 115kV
GEN-2002-008	240.00	SPS	Hitchland 345kV
GEN-2002-009	80.00	SPS	Hansford 115kV
GEN-2002-022	240.00	SPS	Bushland 230kV
GEN-2003-020	160.00	SPS	Martin 115kV
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV
GEN-2006-044	370.00	SPS	Hitchland 345kV
GEN-2007-046	200.00	SPS	Hitchland 115kV
GEN-2008-047	300.00	OKGE	Beaver County 345kV
GEN-2008-051	322.00	SPS	Potter County 345kV
GEN-2010-001	300.00	OKGE	Beaver County 345kV
GEN-2010-014	358.80	SPS	Hitchland 345kV
GEN-2011-014	201.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV
GEN-2011-022	299.00	SPS	Hitchland 345kV
GEN-2013-030	300.00	OKGE	Beaver County 345kV
GEN-2014-037	200.00	SPS	Tap Hitchland - Beaver County Dbl Ckt (Optima) 345kV
GEN-2015-082	200.00	OKGE	Tap Hitchland - Woodward Dbl Ckt (GEN-2011-014 Tap) 345kV
GEN-2016-070	5.30	SPS	Martin 115kV
GEN-2016-161	3.00	SPS	Martin 115kV
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV
SPS Distributed (Carson)	10.00	SPS	Martin 115kV
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV
SPS Distributed (Etter)	20.00	SPS	Etter 115kV
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV
PRIOR QUEUED SUBTOTAL	**4,094.50**		
AREA TOTAL	**4,094.50**		

GROUP 3: SPEARVILLE AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2012-006	22.50	SUNCMKEC	Tap Hugoton - Rolla 69kV
ASGI-2015-001	6.13	SUNCMKEC	Ninnescah 115kV
GEN-2001-039A	105.00	SUNCMKEC	Shooting Star Tap 115kV
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV
GEN-2005-012	250.00	SUNCMKEC	Ironwood 345kV
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV
GEN-2007-040	200.00	SUNCMKEC	Buckner 345kV
GEN-2008-018	250.00	SPS	Finney 345kV
GEN-2008-079	99.20	SUNCMKEC	Crooked Creek 115kV
GEN-2008-124	200.10	SUNCMKEC	Ironwood 345kV
GEN-2010-009	165.60	SUNCMKEC	Buckner 345kV
GEN-2011-008	600.00	SUNCMKEC	Clark County 345kV
GEN-2011-016	200.10	SUNCMKEC	Ironwood 345kV
GEN-2012-007	120.00	SUNCMKEC	Rubart 115kV
GEN-2012-024	180.00	SUNCMKEC	Clark County 345kV
GEN-2013-010	99.00	SUNCMKEC	Tap Spearville - Post Rock (North of GEN-2011-017 Tap) 345kV
GEN-2015-021	20.00	SUNCMKEC	Johnson Corner 115kV
GEN-2016-005	150.00	SUNCMKEC	Tap Clark County - Thistle 345kV
GEN-2016-016	78.20	MIDW	North Kinsley 115kV
GEN-2016-046	299.00	SUNCMKEC	Tap Clark County - Ironwood 345kV
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV
PRIOR QUEUED SUBTOTAL	**3,560.33**		
AREA TOTAL	**3,560.33**		

GROUP 4: NORTHWEST KANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2013-004	36.60	SUNCMKEC	Morris 115kV
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV
GEN-2006-031	75.00	MIDW	Knoll 115kV
GEN-2008-092	200.60	MIDW	Post Rock 230kV
GEN-2009-008	199.50	MIDW	South Hays 230kV
GEN-2009-020	48.30	MIDW	Walnut Creek 69kV
GEN-2010-057	201.00	MIDW	Rice County 230kV
GEN-2013-033	28.00	MIDW	Knoll 115kV
GEN-2014-025	2.40	MIDW	Walnut Creek 69kV
GEN-2015-064	197.80	SUNCMKEC	Mingo 115kV
GEN-2015-065	202.40	SUNCMKEC	Mingo 345kV
GEN-2016-067	73.60	SUNCMKEC	Mingo 345kV
GEN-2016-111	302.00	WERE	Tap Summit – Reno 345kV Line
GEN-2016-112	220.00	WERE	Tap Reno-Summit 345kV (proposed Cross-County Wind 1 345kV Substation GEN-2016-122)
GEN-2016-113	155.00	WERE	Tap Reno-Summit 345kV (proposed Cross-County Wind 1 345kV Substation GEN-2016-122)
GEN-2016-114	310.00	WERE	Tap Reno-Summit 345kV
GEN-2016-122	225.00	WERE	Tap Reno-Summit 345kV
GEN-2016-160	20.00	MIDW	Post Rock 230kV Substation (530584)
PRIOR QUEUED SUBTOTAL	**3,047.20**		
AREA TOTAL	**3,047.20**		

GROUP 6: SOUTH TEXAS PANHANDLE/NEW MEXICO AREA			
Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2010-010	42.20	SPS	Lovington 115kV
ASGI-2010-020	30.00	SPS	Tap LE-Tatum - LE-Crossroads 69kV
ASGI-2010-021	15.00	SPS	Tap LE-Saunders Tap - LE-Anderson 69kV
ASGI-2011-001	27.30	SPS	Lovington 115kV
ASGI-2011-003	10.00	SPS	Hendricks 69kV
ASGI-2011-004	20.00	SPS	Pleasant Hill 69kV
ASGI-2012-002	18.15	SPS	FE-Clovis Interchange 115kV
ASGI-2013-002	18.40	SPS	FE Tucumcari 115kV
ASGI-2013-003	18.40	SPS	FE Clovis 115kV
ASGI-2013-005	1.65	SPS	FE Clovis 115kV
ASGI-2015-002	2.00	SPS	SP-Yuma 69kV
ASGI-2016-002	0.35	SPS	SP-Yuma 115kV
ASGI-2016-004	9.60	SPS	Palo Duro 115kV
ASGI-2016-009	3.00	SPS	Wolfforth 115kV
GEN-2001-033	180.00	SPS	San Juan Tap 230kV
GEN-2001-036	80.00	SPS	Norton 115kV
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV
GEN-2006-026	502.00	SPS	Hobbs 230kV & Hobbs 115kV
GEN-2008-022	300.00	SPS	Crossroads 345kV
GEN-2010-006	205.00	SPS	Jones 230kV
GEN-2010-046	56.00	SPS	TUCO Interchange 230kV
GEN-2011-025	80.00	SPS	Tap Floyd County - Crosby County 115kV
GEN-2011-045	205.00	SPS	Jones 230kV
GEN-2011-046	27.00	SPS	Lopez 115kV
GEN-2011-048	175.00	SPS	Mustang 230kV
GEN-2012-001	61.20	SPS	Cirrus Tap 230kV
GEN-2012-020	478.00	SPS	TUCO 230kV
GEN-2012-034	7.00	SPS	Mustang 230kV
GEN-2012-035	7.00	SPS	Mustang 230kV
GEN-2012-036	7.00	SPS	Mustang 230kV
GEN-2012-037	203.00	SPS	TUCO 345kV
GEN-2013-016	203.00	SPS	TUCO 345kV
GEN-2013-022	25.00	SPS	Norton 115kV
GEN-2013-027	150.00	SPS	Tap Tolk - Yoakum 230kV
GEN-2014-012	225.00	SPS	Tap Hobbs Interchange - Andrews 230kV
GEN-2014-033	70.00	SPS	Chaves County 115kV
GEN-2014-034	70.00	SPS	Chaves County 115kV
GEN-2014-035	30.00	SPS	Chaves County 115kV
GEN-2014-040	320.40	SPS	Castro 115kV
GEN-2014-047	40.00	SPS	Crossroads 345kV
GEN-2015-014	150.00	SPS	Tap Cochran - Lehman 115kV
GEN-2015-020	100.00	SPS	Oasis 115kV
GEN-2015-022	112.00	SPS	Swisher 115kV
GEN-2015-031	150.50	SPS	Tap Amarillo South - Swisher 230kV
GEN-2015-039	50.10	SPS	Tap Deaf Smith - Plant X 230kV
GEN-2015-040	50.10	SPS	Mustang 230kV
GEN-2015-041	5.00	SPS	TUCO Interchange 345kV
GEN-2015-056	101.20	SPS	Crossroads 345kV
GEN-2015-058	50.00	SPS	Atoka 115kV

GEN-2015-068	300.00	SPS	TUCO Interchange 345kV
GEN-2015-075	51.50	SPS	Carlisle 69kV
GEN-2015-078	50.10	SPS	Mustang 115kV
GEN-2015-079	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV
GEN-2015-080	129.20	SPS	Tap Yoakum - Hobbs Interchange 230kV
GEN-2015-099	73.30	SPS	
GEN-2016-015	100.00	SPS	Andrews 230kV
GEN-2016-039	112.00	SPS	Swisher 115kV
GEN-2016-056	200.00	SPS	Carlisle 230kV
GEN-2016-062	250.70	SPS	Andrews 230kV
GEN-2016-069	31.40	SPS	Chaves County 115kV
GEN-2016-077	54.00	SPS	Ozark Mahoning #1 69kV (526770)
GEN-2016-078	108.00	SPS	Bailey County 115kV (525028)
GEN-2016-120	400.00	SPS	Tap Tuco-Border 345kV Line
GEN-2016-121	110.00	SPS	Roadrunner 115kV Sub (528028 "RDRUNNER")
GEN-2016-123	298.00	SPS	Crossroads 345kV
GEN-2016-124	150.00	SPS	Crossroads 345kV
GEN-2016-125	74.00	SPS	Crossroads 345kV
GEN-2016-169	260.00	SPS	Hobbs Interchange 345kV
GEN-2016-171	64.00	SPS	Tap Hobbs –Yoakum 230kV Line
GEN-2016-172	231.00	SPS	Newhart 115kV
GEN-2016-175	150.00	SPS	Tap Tuco-Border 345kV Line
GEN-2016-177	14.99	SPS	Allred 115kV
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV
SPS Distributed (Monument)	10.00	SPS	Monument 115kV
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV
Sunray	49.50	SPS	Valero 115kV
PRIOR QUEUED SUBTOTAL	**8,302.44**		
GEN-2018-001	270.00		
CURRENT CLUSTER SUBTOTAL	270.00		
AREA TOTAL	**8,572.44**		

GROUP 7: SOUTHWEST OKLAHOMA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-026	74.30	WFEC	Washita 138kV
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV
GEN-2003-004	100.00	WFEC	Washita 138kV
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV
GEN-2003-022	120.00	AEPW	Weatherford 138kV
GEN-2004-020	27.00	AEPW	Weatherford 138kV
GEN-2004-023	20.60	WFEC	Washita 138kV
GEN-2005-003	30.60	WFEC	Washita 138kV
GEN-2006-002	101.00	AEPW	Sweetwater 230kV
GEN-2006-035	225.00	AEPW	Sweetwater 230kV
GEN-2006-043	99.00	AEPW	Sweetwater 230kV
GEN-2007-052	150.00	WFEC	Anadarko 138kV
GEN-2008-023	150.00	AEPW	Hobart Junction 138kV
GEN-2008-037	101.00	WFEC	Slick Hills 138kV
GEN-2011-037	7.00	WFEC	Blue Canyon 5 138kV
GEN-2011-049	250.70	OKGE	Border 345kV
GEN-2012-028	74.80	WFEC	Gotebo 69kV
GEN-2015-004	52.90	OKGE	Border 345kV
GEN-2015-013	120.00	WFEC	Synder 138kV
GEN-2015-055	40.00	WFEC	Erick 138kV
GEN-2015-071	200.00	AEPW	Chisholm 345kV
GEN-2015-084	51.30	AEPW	Hollis 138kV
GEN-2015-085	122.40	AEPW	Altus Junction 138kV
GEN-2016-037	300.00	AEPW	Tap Chisholm - Gracemont 345kV
GEN-2016-051	9.80	AEPW	Tap Clinton Junction - Weatherford Southeast 138kV
GEN-2016-091	303.60	AEPW	New tap on PSE&G (AEP) 345kV Gracemont-Lawton
GEN-2016-095	200.00	AEPW	Tap Gracemont - Lawton 345kV
GEN-2016-097	100.00	AEPW	Tap Southwestern-Fletcher Tap 138kV
GEN-2016-132	6.10	AEPW	Sweetwater 230kV
PRIOR QUEUED SUBTOTAL	**3,257.10**		
AREA TOTAL	**3,257.10**		

GROUP 8: NORTH OKLAHOMA/SOUTH CENTRAL KANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2010-006	150.00	AECI	Remington 138kV
ASGI-2014-014	56.40	GRDA	Ferguson 69kV
ASGI-2015-004	56.36	GRDA	Coffeyville City 69kV
ASGI-2017-008	158.60	AECI	Remington to Shidler 138 kV
GEN-2002-004	200.00	WERE	Latham 345kV
GEN-2005-013	201.00	WERE	Caney River 345kV
GEN-2007-025	300.00	WERE	Viola 345kV
GEN-2008-013	300.00	OKGE	Hunter 345kV
GEN-2008-021	42.00	WERE	Wolf Creek 345kV
GEN-2008-098	100.80	WERE	Waverly 345kV
GEN-2009-025	59.80	OKGE	Nardins 69kV
GEN-2010-003	100.80	WERE	Waverly 345kV
GEN-2010-005	299.20	WERE	Viola 345kV
GEN-2010-055	4.50	AEPW	Wekiwa 138kV
GEN-2011-057	150.40	WERE	Creswell 138kV
GEN-2012-032	300.00	OKGE	Open Sky 345kV

GEN-2012-033	98.10	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV
GEN-2012-041	121.50	OKGE	Ranch Road 345kV
GEN-2013-012	147.00	OKGE	Redbud 345kV
GEN-2013-028	559.50	GRDA	Tap N Tulsa - GRDA 1 345kV
GEN-2013-029	300.00	OKGE	Renfrow 345kV
GEN-2014-001	200.60	WERE	Tap Wichita - Emporia Energy Center (GEN-2014-001 Tap) 345kV
GEN-2014-028	35.00	EMDE	Riverton 161kV
GEN-2014-064	248.40	OKGE	Otter 138kV
GEN-2015-001	200.00	OKGE	Ranch Road 345kV
GEN-2015-015	154.60	OKGE	Road Runner 138kV
GEN-2015-016	200.00	KCPL	Tap Marmaton - Centerville 161kV
GEN-2015-024	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT
GEN-2015-025	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT
GEN-2015-030	200.10	OKGE	Sooner 345kV
GEN-2015-034	200.00	OKGE	Ranch Road 345kV
GEN-2015-047	300.00	OKGE	Sooner 345kV
GEN-2015-052	300.00	WERE	Tap Open Sky - Rose Hill 345kV
GEN-2015-062	4.50	OKGE	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV
GEN-2015-063	300.00	OKGE	Tap Woodring - Mathewson 345kV
GEN-2015-066	248.40	OKGE	Tap Cleveland - Sooner 345kV
GEN-2015-069	300.00	WERE	Union Ridge 230kV
GEN-2015-073	200.10	WERE	Emporia Energy Center 345kV
GEN-2015-083	125.00	WERE	Belle Plain 138kV
GEN-2015-090	220.00	WERE	Tap Thistle - Wichita 345kV Dbl CKT
GEN-2016-009	29.00	OKGE	Osage 69kV
GEN-2016-022	151.80	OKGE	Ranch Road 345kV
GEN-2016-024	55.90	WERE	Midian 138kV
GEN-2016-031	1.50	OKGE	Ranch Road 345kV
GEN-2016-032	200.00	OKGE	Tap Marshall - Cottonwood Creek 138kV
GEN-2016-060	25.30	WERE	Belle Plain 138kV
GEN-2016-061	250.70	OKGE	Tap Woodring - Sooner 345kV
GEN-2016-068	250.00	OKGE	Woodring 345kV
GEN-2016-071	200.10	WFEC	Chilocco 138kV
GEN-2016-072	300.00	OKGE	Renfrow 345kV
GEN-2016-073	220.00	WERE	Tap Thistle – Wichita 345kV Dbl CKT
GEN-2016-100	100.00	OKGE	Tap Sooner-Spring Creek 345kV
GEN-2016-101	195.00	OKGE	Tap Sooner-Spring Creek 345kV
GEN-2016-119	600.00	OKGE	Tap Spring Creek-Sooner 345 kV
GEN-2016-127	200.10	AEPW	Shidler 138kV Substation
GEN-2016-128	176.00	OKGE	Woodring 345kV Substation
GEN-2016-133	187.50	AEPW	Tulsa North 345kV Substation
GEN-2016-134	187.50	AEPW	Tulsa North 345kV Substation
GEN-2016-135	100.00	AEPW	Tulsa North 345kV Substation
GEN-2016-136	75.00	AEPW	Tulsa North 345kV Substation
GEN-2016-137	187.50	AEPW	Tulsa North 345kV Substation
GEN-2016-138	187.50	AEPW	Tulsa North 345kV Substation
GEN-2016-139	100.00	AEPW	Tulsa North 345kV Substation
GEN-2016-140	75.00	AEPW	Tulsa North 345kV Substation
GEN-2016-141	350.00	AEPW	Tulsa North 345kV Substation
GEN-2016-142	350.00	AEPW	Tulsa North 345kV Substation
GEN-2016-143	175.00	AEPW	Tulsa North 345kV Substation
GEN-2016-144	175.00	AEPW	Tulsa North 345kV Substation

GEN-2016-145	175.00	AEPW	Tulsa North 345kV Substation
GEN-2016-146	175.00	AEPW	Tulsa North 345kV Substation
GEN-2016-148	150.00	WFEC	Hardy 138kV Substation
GEN-2016-153	134.00	WERE	Viola 345kV Substation
GEN-2016-162	252.00	WERE	Benton 345kV
GEN-2016-163	252.00	WERE	Benton 345kV
GEN-2016-173	42.00	WERE	Creswell 69kV Sub
PRIOR QUEUED SUBTOTAL	**13,868.06**		
AREA TOTAL	**13,868.06**		

GROUP 9: NEBRASKA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-023N	0.80	NPPD	Harmony 115kV
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV
GEN-2006-037N1	75.00	NPPD	Broken Bow 115kV
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV
GEN-2006-044N	40.50	NPPD	North Petersburg 115kV
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV
GEN-2007-017IS	166.00	WAPA	Ft Thompson-Grand Island 345kV
GEN-2007-018IS	234.00	WAPA	Ft Thompson-Grand Island 345kV
GEN-2008-086N02	201.00	NPPD	Meadow Grove 230kV
GEN-2008-119O	60.00	OPPD	S1399 161kV
GEN-2008-123N	89.70	NPPD	Tap Pauline - Guide Rock (Rosemont) 115kV
GEN-2009-040	73.80	WERE	Marshall 115kV
GEN-2010-041	10.50	OPPD	S1399 161kV
GEN-2010-051	200.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV
GEN-2011-018	73.60	NPPD	Steele City 115kV
GEN-2011-027	120.00	NPPD	Tap Hoskins - Twin Church (Dixon County) 230kV
GEN-2011-056	3.60	NPPD	Jeffrey 115kV
GEN-2011-056A	3.60	NPPD	John 1 115kV
GEN-2011-056B	4.50	NPPD	John 2 115kV
GEN-2012-021	4.80	LES	Terry Bundy Generating Station 115kV
GEN-2013-002	50.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-008	1.20	NPPD	Steele City 115kV
GEN-2013-019	73.60	LES	Tap Sheldon - Folsom & Pleasant Hill (GEN-2013-002 Tap) 115kV CKT 2
GEN-2013-032	204.00	NPPD	Antelope 115kV
GEN-2014-004	4.00	NPPD	Steele City 115kV (GEN-2011-018 POI)
GEN-2014-013	73.50	NPPD	Meadow Grove (GEN-2008-086N2 Sub) 230kV
GEN-2014-031	35.80	NPPD	Meadow Grove 230kV
GEN-2014-032	10.20	NPPD	Meadow Grove 230kV
GEN-2014-039	73.40	NPPD	Friend 115kV
GEN-2015-007	160.00	NPPD	Hoskins 345kV
GEN-2015-023	300.70	NPPD	Holt County 345kV
GEN-2015-053	50.00	NPPD	Antelope 115kV
GEN-2015-076	158.40	NPPD	Belden 115kV
GEN-2015-087	66.00	NPPD	Tap Fairbury - Hebron 115kV
GEN-2015-088	300.00	NPPD	Tap Moore - Pauline 345kV
GEN-2015-089	200.00	WAPA	Utica 230kV
GEN-2016-021	300.00	NPPD	Hoskins 345kV
GEN-2016-023	150.50	WAPA	Tap Laramie River – Sidney 345kV

GEN-2016-029	150.00	WAPA	Tap Laramie River – Sidney 345kV
GEN-2016-034	90.00	WAPA	Tap Laramie River – Sidney 345kV
GEN-2016-043	230.00	NPPD	Hoskins 345kV
GEN-2016-050	250.70	NPPD	Tap Axtell - Post Rock 345kV
GEN-2016-074	200.00	NPPD	Sweetwater 345kV
GEN-2016-075	50.00	WAPA	Grand Prairie 345kV
GEN-2016-096	227.70	NPPD	Tap Pauline-Moore 345kV
GEN-2016-106	400.00	NPPD	Gentleman Substation 345kV
GEN-2016-110	152.00	WAPA	Tap Laramie River-Stegall 345kV Line
GEN-2016-147	40.00	NPPD	Sidney 115kV Sub
GEN-2016-159	427.80	NPPD	Hoskins 345kV Substation
GEN-2016-165	202.00	WAPA	Tap Fort Thompson - Grand Island 345kV
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV
NPPD Distributed (Buffalo County Solar)	10.00	NPPD	Kearney Northeast
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV
NPPD Distributed (North Platte - Lexington)	54.00	NPPD	Multiple: Jeffrey 115kV, John_1 115kV, John_2 115kV
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV
PRIOR QUEUED SUBTOTAL	**6,572.80**		
AREA TOTAL	**6,572.80**		

GROUP 10: SOUTHEAST OKLAHOMA/NORTHEAST TEXAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2016-167	73.50	AEPW	Tap Lieberman - North Benton 138kV
PRIOR QUEUED SUBTOTAL	**73.50**		
AREA TOTAL	**73.50**		

GROUP 12: NORTHWEST ARKANSAS AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2013-011	30.00	AEPW	Turk 138kV
GEN-2016-013	10.00	EMDE	La Russell 161kV
GEN-2016-014	10.00	EMDE	La Russell 161kV
GEN-2016-166	35.00	AEPW	Prairie Grove 69kV Substation
PRIOR QUEUED SUBTOTAL	**85.00**		
AREA TOTAL	**85.00**		

GROUP 13: NORTHWEST MISSOURI AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2016-003	6.00	KCPL	Paola 161kV
ASGI-2017-006	238.00	AECI	Maryville 161 kV
GEN-2008-129	80.00	KCPL	Pleasant Hill 161kV
GEN-2010-036	4.60	WERE	6th Street 115kV
GEN-2011-011	50.00	KCPL	Iatan 345kV
GEN-2014-021	300.00	KCPL	Tap Nebraska City - Mullin Creek (Holt) 345kV
GEN-2015-005	200.10	KCPL	Tap Nebraska City - Sibley (Ketchem) 345kV
GEN-2016-088	151.20	KCPL	Transource Ketchem 345kV Station
GEN-2016-115	300.00	KCPL	Holt County Switching Station 345kV
GEN-2016-149	302.00	WERE	Stranger Creek 345kV Sub
GEN-2016-150	302.00	WERE	Stranger Creek 345kV Sub
GEN-2016-157	252.00	KCPL	West Gardner 345kV Sub
GEN-2016-158	252.00	KCPL	West Gardner 345kV Sub
GEN-2016-168	20.00	KCPL	Higginsville 69kV Sub
GEN-2016-174	302.00	WERE	Stranger Creek 345kV Sub
GEN-2016-176	302.00	WERE	Stranger Creek 345kV Sub
PRIOR QUEUED SUBTOTAL	**3,061.90**		
AREA TOTAL	**3,061.90**		

GROUP 14: SOUTH CENTRAL OKLAHOMA AREA

Request	Capacity	Area	Proposed Point of Interconnection

ASGI-2015-006	9.00	SWPA	Tupelo 138kV
ASGI-2016-011	7.41	SWPA	Allen 138 kV
ASGI-2016-012	61.73	SWPA	Tupelo 138 kV
ASGI-2016-013	4.94	WFEC	Ashland 138 kV
GEN-2011-040	111.00	OKGE	Carter County 138kV
GEN-2011-050	109.80	AEPW	Santa Fe Tap 138kV
GEN-2012-004	41.40	OKGE	Carter County 138kV
GEN-2013-007	100.30	OKGE	Tap Prices Falls - Carter 138kV
GEN-2014-057	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV
GEN-2015-036	303.60	OKGE	Johnston County 345kV
GEN-2015-045	20.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV
GEN-2015-092	250.00	AEPW	Tap Lawton - Sunnyside (Terry Road) 345kV
GEN-2016-028	100.00	AEPW	Clayton 138kV
GEN-2016-030	100.00	OKGE	Brown 138kV
GEN-2016-063	200.00	OKGE	Tap Sunnyside – Hugo 345kV
GEN-2016-102	150.90	OKGE	Blue River 138kV Substation
GEN-2016-126	172.50	OKGE	Tap Arbuckle - Blue River 138kV
GEN-2016-129	132.00	AEPW	Valliant 345kV substation
PRIOR QUEUED SUBTOTAL	**2,124.57**		
CURRENT CLUSTER SUBTOTAL			
AREA TOTAL	**2,124.57**		

GROUP 15: E-SOUTH DAKOTA AREA

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2016-005	20.00	WAPA	Tap White Lake - Stickeny 69kV
ASGI-2016-006	20.00	WAPA	Mitchall
ASGI-2016-007	20.00	WAPA	Kimball 69kV
G176	100.00	XEL	Yankee 115kV
G255	100.00	XEL	Yankee 115kV
G586	30.00	XEL	Yankee 115kV
G736	200.00	OTP	Big Stone South 230kV
GEN-2002-009IS	40.00	WAPA	Ft Thompson 69kV [Hyde 69kV]
GEN-2007-013IS	50.00	WAPA	Wessington Springs 230kV
GEN-2007-014IS	100.00	WAPA	Wessington Springs 230kV
GEN-2007-023IS	50.00	WAPA	Formit-Summit 115kV
GEN-2009-001IS	200.00	WAPA	Groton-Watertown 345kV
GEN-2009-018IS	99.50	WAPA	Groton 115kV
GEN-2010-001IS	99.00	WAPA	Bismarck-Glenham 230kV
GEN-2010-003IS	34.00	WAPA	Wessington Springs 230kV
GEN-2012-014IS	99.50	WAPA	Groton 115kV
GEN-2013-001IS	90.00	WAPA	Summit-Watertown 115kV
GEN-2013-009IS	19.50	WAPA	Redfield NW 115kV
GEN-2014-001IS	103.70	WAPA	Newell-Maurine 115kV
GEN-2016-017	250.70	WAPA	Tap Fort Thompson - Leland Olds 345kV
GEN-2016-036	44.60	WAPA	Granite Falls 115kV Sub
GEN-2016-087	98.90	WAPA	Bismarck-Glenham 230kV
GEN-2016-092	250.70	WAPA	Tap Leland Olds-Ft Thompson 345kV
GEN-2016-103	250.70	WAPA	Tap Leland Olds- Ft Thompson 345kV
GEN-2016-164	7.90	WAPA	Groton 115kV substation
H081	200.00	XEL	Tap Brookings - Lyons County 345kV
J432	98.00	XEL	Brookings 345kV
J436	150.00	OTP	Big Stone South 345kV
J437	150.00	OTP	Big Stone South 345kV
J442	200.00	OTP	Big Stone 230 kV
J460	200.00	XEL	Tap Brookings - Lyons County 345kV
J488	151.80	OTP	Tap Big Stone - Ellendale 345kV
J489	151.80	OTP	Tap Big Stone - Ellendale 345kV
J493	150.00	OTP	Burr 115kV
J510	326.90	OTP	Tap Brookings - Big Stone 345kV
J525	50.00	XEL	Lake Wilson 69kV
J526	300.00	OTP	Tap Brookings - Big Stone 345kV
PRIOR QUEUED SUBTOTAL	**4,507.20**		
AREA TOTAL	**4,507.20**		

GROUP 16: W-NORTH DAKOTA AREA

Request	Capacity	Area	Proposed Point of Interconnection

G380	150.00	OTP	Rugby 115kV
G408	12.00	XEL	Tap McHenry - Souris 115kV
G502	50.60	MP	Milton Young 230kV
G645	50.00	GRE	Ladish 115kV
G723	10.00	MDU	Haskett 115kV
G752	150.00	MDU	Tap Bison - Hettinger 230kV
G788	49.00	GRE	Ladish 115kV
G830	99.00	GRE	GRE McHenry 115kV
GEN-2005-008IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2006-015IS	50.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2007-015IS	100.00	WAPA	Hilken 230kV [Ecklund 230kV]
GEN-2009-026IS	110.00	WAPA	Dickenson-Heskett 230kV
GEN-2010-007IS	172.50	WAPA	Antelope Valley 345kV
GEN-2012-012IS	75.00	WAPA	Wolf Point-Circle 115kV
GEN-2014-003IS	91.00	WAPA	Culbertson 115kV
GEN-2014-004IS	384.20	WAPA	Charlie Creek 345kV
GEN-2014-006IS	125.00	WAPA	Williston 115kV
GEN-2014-010IS	150.00	WAPA	Neset 115kV
GEN-2014-014IS	151.50	WAPA	Belfield-Rhame 230kV
GEN-2015-046	300.00	WAPA	Tande 345kV
GEN-2015-096	150.00	WAPA	Tap Belfied - Rhame 230kV
GEN-2015-098	100.00	WAPA	Mingusville 230kV
GEN-2016-004	202.00	WAPA	Leland Olds 230kV
GEN-2016-052	3.30	WAPA	Hilken 230kV
GEN-2016-053	3.30	WAPA	Hilken 230kV
GEN-2016-108	200.00	WAPA	Tap Antelope Valley Substation (AVS)-Charlie Creek 345kV
GEN-2016-130	202.00	WAPA	Leland Olds 345kV
GEN-2016-151	202.00	WAPA	Tande 345kV Sub
GEN-2016-152	102.00	WAPA	Tande 345kV Sub
GEN-2016-155	1.30	WAPA	Hilken 230kV switching station
J003	20.00	MDU	Baker 115kV
J249	180.00	MDU	MDU Tatanka 230kV
J262	100.00	OTP	Jamestown 345
J263	100.00	OTP	Jamestown 345
J290	150.00	XEL	Tap Glenboro South - Rugby 230kV
J316	150.00	MDU	MDU 230 kV Tatanka-Ellendale line
MPC01300	455.00	GRE	Square Butte 230 kV
MPC02100	100.00	OTP	Center - Mandan 230 kV
PRIOR QUEUED SUBTOTAL	**4,750.70**		
AREA TOTAL	**0.00**		

GROUP 17: W-SOUTH DAKOTA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2006-002IS	51.00	WAPA	Wessington Springs 230kV
GEN-2009-006IS	90.00	WAPA	Mission 115kV
GEN-2009-007IS	100.00	WAPA	Mission 115kV
GEN-2009-020AIS	130.50	WAPA	Tripp Junction 115kV
GEN-2012-009IS	99.00	WAPA	Fort Randall 115kV
GEN-2016-054	3.40	WAPA	Wessington Springs 230kV
GEN-2016-094	200.00	WAPA	Tap Ft Thompson-Oahe 230kV
PRIOR QUEUED SUBTOTAL	**673.90**		
AREA TOTAL	**0.00**		

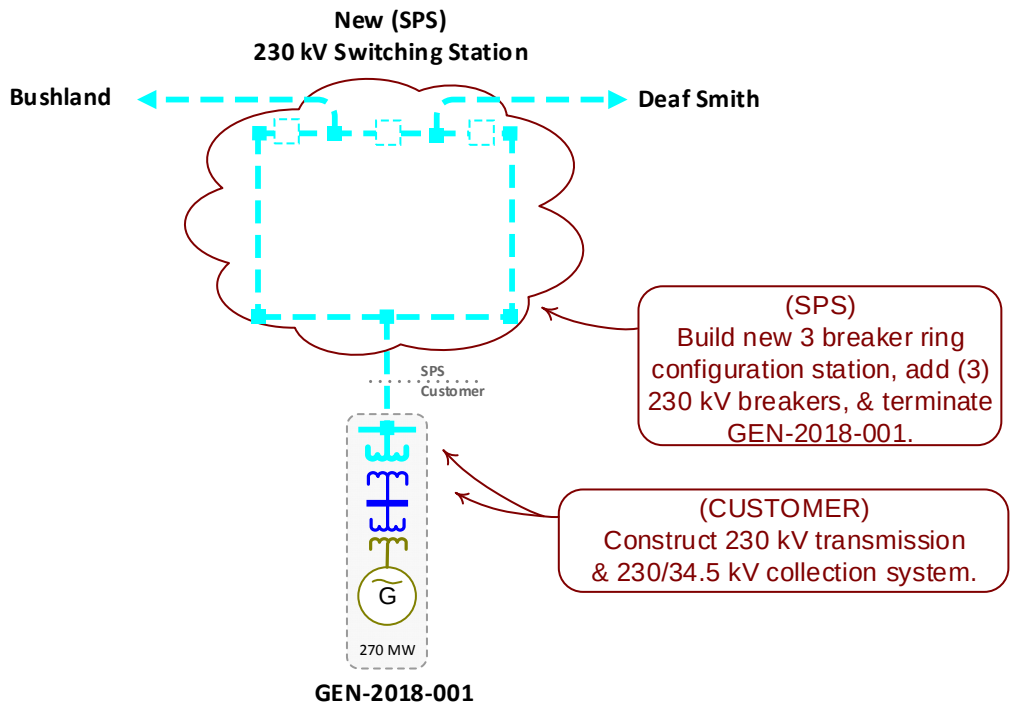
GROUP 18: E-NORTH DAKOTA AREA

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-008IS	40.50	WAPA	Edgeley 115kV [Pomona 115kV]
GEN-2005-003IS	100.00	WAPA	Nelson 115kV
GEN-2006-001IS	10.00	XEL	Marshall 115kV
GEN-2006-006IS	10.00	XEL	Marshall 115kV
GEN-2007-020IS	16.00	WAPA	Nelson 115kV
GEN-2008-008IS	5.00	WAPA	Nelson 115kV
GEN-2016-007	100.00	WAPA	Valley City 115kV
MPC00100	99.00	OTP	Langdon 115 kV
MPC00200	60.00	OTP	Langdon 115 kV
MPC00300	40.50	OTP	Langdon 115 kV
MPC00500	378.80	OTP	Maple River 230 kV
MPC01200	98.90	OTP	Maple River 230 kV
PRIOR QUEUED SUBTOTAL	**958.70**		
AREA TOTAL	**0.00**		

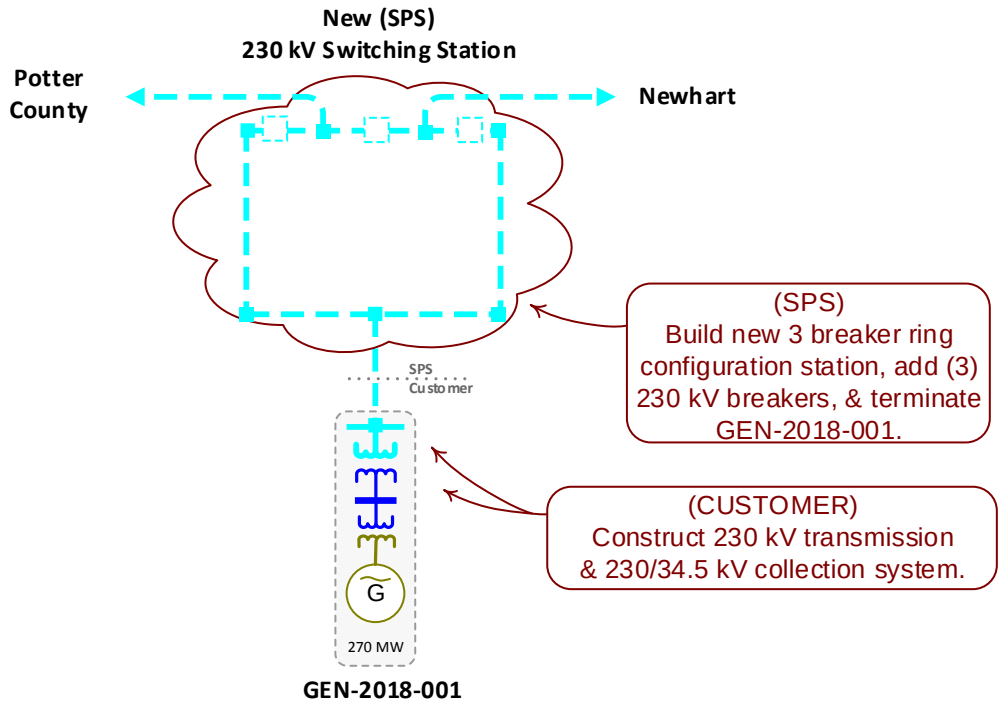
CLUSTER TOTAL (CURRENT STUDY)	**270.00**	**MW**
PQ TOTAL (PRIOR QUEUED)	**64,977.2**	**MW**
	65,247.2	**MW**

11.4 D: PROPOSED POINT OF INTERCONNECTION ONE-LINE DIAGRAMS

Interconnection Request: GEN-2018-001
(POI #1: Tap Bushland – Deaf Smith 230 kV)
Cluster Interconnection Costs: $11,737,557



Interconnection Request: GEN-2018-001
(POI #2: Tap Potter – Newhart 230 kV)
Cluster Interconnection Costs: $11,737,557



11.5 E: COST ALLOCATION PER INTERCONNECTION REQUEST (INCLUDING PRIOR QUEUED UPGRADES)

Important Note:

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

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

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

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

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

Appendix E. Cost Allocation Per Request Scenario #1

(Including Previously Allocated Network Upgrades*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2018-001			
Bushland 230/115 kV XFMR CKT 1 Replace transformer	Current Study	$15,000,000	$15,000,000
Bushland Interchange - Hillside 115 kV CKT 1 Upgrade terminal equipment	Current Study	$3,500,000	$3,500,000
Carlisle Interchange - Tuco Interchange 230 kV CKT 1 Rebuild or reconductor 26.89 miles of 230 kV	Current Study	$30,000,000	$30,000,000
Coulter Interchange - Hillside 115 kV CKT 1 Upgrade terminal equipment	Current Study	$3,500,000	$3,500,000
GEN-2018-001 Interconnection Costs See One-Line Diagram.	Current Study	$11,737,557	$11,737,557
Elk City 230/138 kV XFMR CKT 1 Rebuild Elk City 230/138 kV XFMR	Previously Allocated		$15,000,000
Jones Station - Tuco Interchange 230 kV CKT 1 Rebuild or reconductor 29.67 miles of 230 kV	Previously Allocated		$30,000,000
Tolk Station Tap - Tolk Station West Breaker 230 kV Replace 230 kV breaker	Previously Allocated		$1,000,000
	Current Study Total	$63,737,557	
	TOTAL CURRENT STUDY COSTS:	**$63,737,557**	

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

Appendix E. Cost Allocation Per Request Scenario #2

(Including Previously Allocated Network Upgrades*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2018-001			
Carlisle Interchange - Tuco Interchange 230 kV CKT 1 Rebuild or reconductor 26.89 miles of 230 kV	Current Study	$30,000,000	$30,000,000
GEN-2018-001 Interconnection Costs See One-Line Diagram.	Current Study	$11,737,557	$11,737,557
Elk City 230/138 kV XFMR CKT 1 Rebuild Elk City 230/138 kV XFMR	Previously Allocated		$15,000,000
Hale Co Interchange - Kress Interchange 115 kV CKT 1 Upgrade terminal equipment	Previously Allocated		$3,500,000
Hale Co Interchange - Tuco Interchange 115 kV CKT 1 Upgrade terminal equipment	Previously Allocated		$3,500,000
Jones Station - Tuco Interchange 230 kV CKT 1 Rebuild or reconductor 29.67 miles of 230 kV	Previously Allocated		$30,000,000
Tolk Station Tap - Tolk Station West Breaker 230 kV Replace 230 kV breaker	Previously Allocated		$1,000,000
	Current Study Total	$41,737,557	
	TOTAL CURRENT STUDY COSTS:	**$41,737,557**	

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

11.6 F: COST ALLOCATION PER PROPOSED STUDY NETWORK UPGRADE

Important Note:

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

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

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

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

Appendix F. Cost Allocation by Upgrade Scenario #1

Bushland 230/115 kV XFMR CKT 1			**$15,000,000**
Replace transformer			
	GEN-2018-001	$15,000,000	
	Total Allocated Costs	**$15,000,000**	
Bushland Interchange - Hillside 115 kV CKT 1			**$3,500,000**
Upgrade terminal equipment			
	GEN-2018-001	$3,500,000	
	Total Allocated Costs	**$3,500,000**	
Carlisle Interchange - Tuco Interchange 230 kV CKT 1			**$30,000,000**
Rebuild or reconductor 26.89 miles of 230 kV			
	GEN-2018-001	$30,000,000	
	Total Allocated Costs	**$30,000,000**	
Coulter Interchange - Hillside 115 kV CKT 1			**$3,500,000**
Upgrade terminal equipment			
	GEN-2018-001	$3,500,000	
	Total Allocated Costs	**$3,500,000**	
GEN-2018-001 Interconnection Costs			**$11,737,557**
See One-Line Diagram.			
	GEN-2018-001	$11,737,557	
	Total Allocated Costs	**$11,737,557**	

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

Appendix F. Cost Allocation by Upgrade Scenario #2

Carlisle Interchange - Tuco Interchange 230 kV CKT 1			**$30,000,000**
Rebuild or reconductor 26.89 miles of 230 kV			
	GEN-2018-001	$30,000,000	
	Total Allocated Costs	**$30,000,000**	
GEN-2018-001 Interconnection Costs			**$11,737,557**
See One-Line Diagram.			
	GEN-2018-001	$11,737,557	
	Total Allocated Costs	**$11,737,557**	

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

11.7 G: POWER FLOW ANALYSIS (CONSTRAINTS REQUIRING TRANSMISSION REINFORCEMENT)

Scenario Number	Scenario Description	Group Name
Scenario #1	Group 06 ERIS	00_P, 06ALL_P
	Group 06 NRIS	06NR_P, 00NR_P (G18_001)
Scenario #2	Group 06 ERIS	00_S, 06ALL_S
	Group 06 NRIS	06NR_S, 00NR_S (G18_001)

GROUP	SCENARIO	SEASON	SOURCE	MONITORED ELEMENT	RATEA (MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
06ALLP	0	17WP	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	163	0.23242	127.0266	'3252'
06ALLP	0	26SP	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	152.8	0.22929	121.995	'3252'
06ALLP	0	21SP	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	156.7	0.22901	119.6124	'3252'
06ALLP	0	21WP	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	162.4	0.22983	118.9988	'3252'
06ALLP	0	18SP	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	155.8	0.22954	114.0409	'3252'
06ALLP	0	18G	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	157.5	0.2299	110.6495	'3252'
06ALLP	0	21L	GEN_1801_P	'BUSHLAND INTERCHANGE - HILLSIDE 115KV CKT 1'	158.2	0.23065	109.403	'3252'
06ALLP	0	17WP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	164.6	0.23242	125.9134	'3252'
06ALLP	0	17WP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	165.5	0.23242	125.1078	'3252'
06ALLP	0	26SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	157.3	0.22929	118.6957	'3252'
06ALLP	0	21WP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	163.9	0.22983	118.0318	'3252'
06ALLP	0	21WP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	164.9	0.22983	117.1947	'3252'
06ALLP	0	26SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	160.8	0.22929	115.9256	'3252'
06ALLP	0	21SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	163.1	0.22901	115.0415	'3252'
06ALLP	0	21SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	164.5	0.22901	113.9408	'3252'
06ALLP	0	18SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	162.2	0.22954	109.7261	'3252'
06ALLP	0	18SP	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	163.7	0.22954	108.5374	'3252'
06ALLP	0	18G	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	164.6	0.2299	105.9982	'3252'
06ALLP	0	18G	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	165.2	0.2299	105.4921	'3252'
06ALLP	0	21L	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	165.7	0.23065	104.5115	'3252'
06ALLP	0	21L	GEN_1801_P	'BUSHLAND INTERCHANGE (WH 7001795) 230/115/13.2KV TRANSFORMER CKT 1'	165.9	0.23065	104.3252	'3252'
00NR_P	0	26SP	GEN_1801_P	'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	535.9	0.03017	101.4267	'3213'
00NR_P	0	26SP	GEN_1801_P	'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	535.9	0.03017	100.2107	'3213'
06ALLP	0	17WP	GEN_1801_P	'COULTER INTERCHANGE - HILLSIDE 115KV CKT 1'	158.6	0.23242	113.7789	'3252'
06ALLP	0	21WP	GEN_1801_P	'COULTER INTERCHANGE - HILLSIDE 115KV CKT 1'	158.3	0.22983	101.803	'3252'
06ALLP	0	21L	GEN_1801_P	'COULTER INTERCHANGE - HILLSIDE 115KV CKT 1'	158.5	0.23065	100.2369	'3252'
06ALLP	0	18SP	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.8	0.03912	105.7993	System Intact
06ALLP	0	18SP	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.9	0.03912	105.65	System Intact
06ALLP	0	21SP	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.5	0.03812	105.3011	System Intact
06ALLP	0	21SP	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	272	0.03812	105.034	System Intact
06ALLP	0	18G	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	286.5	0.037	101.1483	System Intact
06ALLP	0	18G	GEN_1801_P	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	287	0.037	101.0767	System Intact
00NR_P	0	26SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03252	119.7443	'3228'
00NR_P	0	26SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03252	118.383	'3228'
00NR_P	0	18SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	528.1	0.03769	104.559	'3228'
00NR_P	0	18SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	528.1	0.03769	103.0175	'3228'
00NR_P	0	26SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03635	102.9098	'3298'
00NR_P	0	26SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03635	101.3882	'3298'
00NR_P	0	26SP	GEN_1801_P	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03945	101.2697	'3244'
00NR_P	0	18SP	GEN_1801_P	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	78.5	0.03802	157.6629	'3585'
00NR_P	0	18SP	GEN_1801_P	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	78.5	0.03802	147.2014	'3585'
06NR_P	0	18G	GEN_1801_P	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	77	0.03308	121.08	'3585'
00NR_P	0	17WP	GEN_1801_P	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	80.8	0.03888	105.4426	'3585'
00NR_P	0	26SP	GEN_1801_P	'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'	318.5	0.09025	101.4655	'3298'
06ALLP	0	18G	GEN_1801_P	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.9	0.07567	111.5908	System Intact
06ALLP	0	21L	GEN_1801_P	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.3	0.05356	103.9676	System Intact
06ALLP	0	21WP	GEN_1801_P	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.1	0.08043	101.4066	System Intact
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.13211	106.6928	'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.13211	104.0182	'NEEDMORE 230.00 - TOLK STATION WEST 230KV CKT 1'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	103.0677	'CROSSROADS 7345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	102.816	'3296'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	102.816	'3565'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	102.816	'3580'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	102.7216	'3455'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.11796	102.7216	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.10701	102.3891	'3213'
00NR_P	0	18SP	GEN_1801_P	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.1091	101.3395	'3228'
06ALLP	0	18SP	GEN_1801_P	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	476.4	0.10307	126.6224	System Intact
06ALLP	0	21SP	GEN_1801_P	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	476.4	0.09169	122.8288	System Intact
06ALLP	0	18SP	GEN_1801_P	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.7	0.19674	107.4125	'BUSHLAND INTERCHANGE - G1801_TAP1 230.00 230KV CKT 1'
06ALLP	0	21WP	GEN_1801_P	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	578.4	0.08799	102.5687	System Intact

GROUP	SCENARIO	SEASON	SOURCE	MONITORED ELEMENT	RATEA (MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
00NR_S	0	26SP	GEN_1801_S	'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	535.9	0.04071	101.9578	'3213'
00NR_S	0	26SP	GEN_1801_S	'CARLISLE INTERCHANGE - TUCO INTERCHANGE 230KV CKT 1'	535.9	0.04071	100.3169	'3213'
06ALLS	0	18SP	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.8	0.03948	105.835	System Intact
06ALLS	0	18SP	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.9	0.03948	105.6858	System Intact
06ALLS	0	21SP	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	271.5	0.03857	105.3458	System Intact
06ALLS	0	21SP	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	272	0.03857	105.0786	System Intact
06ALLS	0	18G	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	286.5	0.03738	101.1841	System Intact
06ALLS	0	18G	GEN_1801_S	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'	287	0.03738	101.1124	System Intact
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	127.4034	'KRESS INTERCHANGE - KRESS_RURAL3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	125.519	'KRESS_RURAL3115.00 - N_PLAINVEW 3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	124.6396	'3164'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	121.4989	'KISER 3115.00 - N_PLAINVEW 3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	118.8475	'KRESS INTERCHANGE - KRESS_RURAL3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	116.9631	'KRESS_RURAL3115.00 - N_PLAINVEW 3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	116.0837	'3164'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	112.943	'KISER 3115.00 - N_PLAINVEW 3115.00 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	109.5642	'3165'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03261	108.9255	'HART INDUSTRIAL - NEWHART 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03261	107.1667	'3163'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03261	106.5386	'HART INDUSTRIAL - LAMTON INTERCHANGE 115KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03153	101.0083	'3165'
00NR_S	0	18SP	GEN_1801_S	'HALE CO INTERCHANGE - KRESS INTERCHANGE 115KV CKT 1'	79.6	0.03261	100.0766	'HART INDUSTRIAL - NEWHART 115KV CKT 1'
06NR_S	0	21L	GEN_1801_S	'HALE CO INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	72.3	0.03645	130.4862	'CRAWFISH_DR2230.00 - SWISHER COUNTY INTERCHANGE 230KV CKT 1'
06NR_S	0	21L	GEN_1801_S	'HALE CO INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	72.3	0.04155	100.8555	'G1801_TAP1 230.00 - POTTER COUNTY INTERCHANGE 230KV CKT 1'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.04172	120.2257	'3228'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.04172	118.4792	'3228'
00NR_S	0	18SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	528.1	0.04938	105.1567	'3228'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	462.9	0.03044	103.6118	System Intact
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.04394	103.3069	'3298'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.0365	103.2859	'CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	528.1	0.04938	103.137	'3228'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	462.9	0.03044	102.1914	System Intact
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03474	102.1666	'3068'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.0365	101.7579	'CARLISLE INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.04394	101.4676	'3298'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.04212	101.4094	'3244'
00NR_S	0	26SP	GEN_1801_S	'JONES STATION - TUCO INTERCHANGE 230KV CKT 1'	516	0.03474	100.7124	'3068'
00NR_S	0	18SP	GEN_1801_S	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	78.5	0.03607	156.9922	'3585'
00NR_S	0	18SP	GEN_1801_S	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	78.5	0.03607	147.0672	'3585'
06NR_S	0	18G	GEN_1801_S	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	77	0.03113	120.3962	'3585'
00NR_S	0	17WP	GEN_1801_S	'LAMB COUNTY INTERCHANGE - PLANT X STATION 115KV CKT 1'	80.8	0.03686	104.7676	'3585'
00NR_S	0	21SP	GEN_1801_S	'LUBBOCK EAST INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	118.5	0.0315	117.3882	'3213'
00NR_S	0	21SP	GEN_1801_S	'LUBBOCK EAST INTERCHANGE - TUCO INTERCHANGE 115KV CKT 1'	118.5	0.0315	111.6464	'3213'
00NR_S	0	26SP	GEN_1801_S	'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'	318.5	0.0861	101.1137	'3298'
06ALLS	0	18G	GEN_1801_S	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.9	0.07538	111.5798	System Intact
06ALLS	0	21L	GEN_1801_S	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.3	0.05312	103.9509	System Intact
06ALLS	0	21WP	GEN_1801_S	'PITTSBURG - SEMINOLE 345KV CKT 1'	712.1	0.07999	101.3899	System Intact
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.1123	105.0098	'NEEDMORE 230.00 - NEWTAP6 230.00 230KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.1123	102.3351	'NEEDMORE 230.00 - TOLK STATION WEST 230KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.5368	'CROSSROADS 7345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.285	'3296'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.285	'3565'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.285	'3580'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.1906	'3455'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.09994	101.1906	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
00NR_S	0	18SP	GEN_1801_S	'PLANT X STATION - SUNDOWN INTERCHANGE 230KV CKT 1'	317.8	0.08947	100.899	'3213'
06ALLS	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	476.4	0.06078	124.2256	System Intact
06ALLS	0	21SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	476.4	0.05218	120.5896	System Intact
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	114.1291	'CROSSROADS 7345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	113.7676	'3296'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	113.7676	'3565'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	113.7676	'3580'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	113.6197	'3455'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	113.6197	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	112.3953	'CROSSROADS 7345.00 - EDDY COUNTY INTERCHANGE 345KV CKT 1'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	112.0338	'3296'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	112.0338	'3565'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	112.0338	'3580'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	111.886	'3455'
00NR_S	0	18SP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	608.6	0.04885	111.886	'EDDY COUNTY INTERCHANGE (ABB AEM30711) 345/230/13.2KV TRANSFORMER CKT 1'
06ALLS	0	21WP	GEN_1801_S	'TOLK STATION TAP - TOLK STATION WEST 230KV CKT @1'	578.4	0.04848	100.7243	System Intact

11.8 H: POWER FLOW ANALYSIS (OTHER CONSTRAINTS NOT REQUIRING TRANSMISSION REINFORCEMENT)

Available upon request

11.9 H-AS: POWER FLOW ANALYSIS (OTHER CONSTRAINTS POTENTIALLY REQUIRING AFFECTED SYSTEM MITIGATION)

Available upon request

11.10 I: SHORT CIRCUIT ANALYSIS

POI 1:

18S:

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                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          TUE, MAY 29
2018  11:50
2017 ITPNT FINAL WITH 2015 SERIES MMWG FINAL
18SPDIS1602---TC GROUP00 SCENARIO0

OPTIONS USED:
    - FLAT CONDITIONS
         - BUS VOLTAGES SET TO 1 PU AT 0 PHASE ANGLE
         - GENERATOR P=0, Q=0
         - TRANSFOMRER TAP RATIOS=1.0 PU and PHASE ANGLES=0.0
         - LINE CHARGING=0.0 IN +/-/0 SEQUENCE
         - LOAD=0.0 IN +/- SEQUENCE, CONSIDERED IN ZERO SEQUENCE
         - LINE/FIXED/SWITCHED SHUNTS=0.0 AND MAGNETIZING ADMITTANCE=0.0 IN +/-/0 SEQUENCE
         - DC LINES AND FACTS DEVICES BLOCKED
         - TRANSFORMER ZERO SEQUENCE IMPEDANCE CORRECTIONS IGNORED

                                  THREE PHASE FAULT
X---------- BUS ----------X         /I+/    AN(I+)
918110 [G1801_TAP1  230.00] AMP     7443.0   -81.68
524267 [BUSHLAND   6230.00] AMP    10077.7   -83.03
524623 [DEAFSMITH  6230.00] AMP     7853.8   -81.40
523959 [POTTER_CO  6230.00] AMP    24259.9   -85.21
524266 [BUSHLAND   3115.00] AMP     9480.0   -83.85
524290 [WILDOR2_JUS6230.00] AMP     6823.1   -83.55
524622 [DEAFSMITH  3115.00] AMP    12046.3   -80.92
560051 [G15039_T    230.00] AMP     7599.1   -81.59
523309 [MOORE_CNTY 6230.00] AMP     7111.4   -82.99
523869 [CHAN+TASCOS6230.00] AMP     4370.2   -81.42
523961 [POTTER_CO  7345.00] AMP    13527.0   -86.06
523979 [HARRNG_EST 6230.00] AMP    28237.6   -86.44
524010 [ROLLHILLS  6230.00] AMP    21250.6   -84.92
524276 [WILDOR_WND 6230.00] AMP     5090.9   -83.00
524300 [HILLSIDE   3115.00] AMP    12721.0   -81.32
524567 [NE_HEREFORD3115.00] AMP     9621.6   -79.28
524597 [PANDAHFD   3115.00] AMP     8949.5   -79.61
524606 [HEREFORD   3115.00] AMP    10792.0   -79.76
524734 [DS-#21     3115.00] AMP     9119.0   -77.33
525481 [PLANT_X    6230.00] AMP    22583.8   -84.70
562800 [G15039_1    230.00] AMP     7599.1   -81.59
918120 [G1801_TAP1  230.00] AMP     7131.1   -82.03
523095 [HITCHLAND  6230.00] AMP    15123.9   -86.46
523097 [HITCHLAND  7345.00] AMP    16295.8   -86.16
523221 [XIT_INTG   6230.00] AMP     3259.4   -80.46
523267 [PRINGLE    6230.00] AMP     4303.0   -82.71
523308 [MOORE_E    3115.00] AMP    12473.2   -81.96
523977 [HARRNG_WST 6230.00] AMP    28237.6   -86.44
523978 [HARRNG_MID 6230.00] AMP    28237.6   -86.44
524007 [ROLLHILLS  3115.00] AMP    19820.4   -81.61
524296 [SPNSPUR_WND7345.00] AMP     6160.4   -85.21
524306 [COULTER    3115.00] AMP    15474.9   -80.71
524556 [LAPLATA    3115.00] AMP     6088.3   -78.19
524573 [NE_HEREFORD269.000] AMP     6741.7   -84.79
524590 [DAWN       3115.00] AMP     6262.1   -78.73
524604 [HEREFRD_SB 269.000] AMP     4429.0   -85.59
524605 [HEREFRD_NB 269.000] AMP     4429.0   -85.59
524629 [DS-#6      3115.00] AMP     6196.7   -70.36
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524746 [CASTRO_CNTY3115.00] AMP     9600.9   -77.63
525461 [NEWHART    6230.00] AMP    11129.8   -82.16
525480 [PLANT_X    3115.00] AMP    21055.3   -84.05
525524 [TOLK_EAST  6230.00] AMP    30337.1   -86.26
525531 [TOLK_WEST  6230.00] AMP    30337.1   -86.26
525549 [TOLK       7345.00] AMP    14871.2   -86.77
526435 [SUNDOWN    6230.00] AMP    11260.3   -82.52
560035 [GRAPEVINE   345.00] AMP     6638.6   -85.19
511553 [CHISHOLM7   345.00] AMP    12135.3   -85.61
523093 [HITCHLAND  3115.00] AMP    17525.0   -85.35
523103 [NOBLE_WND  3115.00] AMP    10825.4   -88.47
523112 [NOVUS1     7345.00] AMP    15944.5   -86.13
523155 [OCHILTREE  6230.00] AMP     4226.5   -82.30
523177 [RB-SPURLCK+3115.00] AMP     5965.4   -76.72
523215 [FREWHELCOL17345.00] AMP    15927.4   -86.12
523216 [RB-HOGUE   3115.00] AMP     4169.2   -71.52
523220 [XIT_INTG   3115.00] AMP     6146.8   -78.65
523256 [ETTER      3115.00] AMP     5751.0   -73.33
523266 [PRINGLE    3115.00] AMP    10764.4   -78.85
523277 [VALERO     3115.00] AMP    11318.0   -81.31
523304 [MOORE_W    3115.00] AMP    12473.2   -81.96
523823 [WALKEMEYER 7345.00] AMP     8313.8   -84.99
524009 [CHERRY     3115.00] AMP    18935.5   -81.38
524043 [NICHOLS    3115.00] AMP    31265.6   -84.83
524044 [NICHOLS    6230.00] AMP    27270.0   -86.34
524106 [NORTHWEST  3115.00] AMP    11383.8   -78.19
524136 [HASTINGS   3115.00] AMP    13948.2   -76.54
524163 [EAST_PLANT 6230.00] AMP    14223.4   -84.25
524256 [PUCKETT    3115.00] AMP    12694.4   -79.00
524282 [34TH_ST    3115.00] AMP    15238.8   -80.55
524305 [COULTER    269.000] AMP     4278.7   -86.82
524365 [RANDALL    6230.00] AMP    14920.6   -83.77
524425 [ESTACADO_TP3115.00] AMP    13425.1   -79.80
524516 [CANYON_WEST3115.00] AMP     5669.2   -79.54
524554 [CENTRE_ST  269.000] AMP     3811.3   -74.93
524561 [DS-MTR     269.000] AMP     6051.6   -82.39
524608 [HERFRD_STH 269.000] AMP     4429.0   -85.59
524655 [FRIONA     3115.00] AMP     3938.7   -66.33
524694 [DS-#22     3115.00] AMP     4546.8   -75.27
524745 [CASTRO_CNTY269.000] AMP     8692.6   -82.22
524757 [BETHEL_COL13115.00] AMP     7778.8   -78.93
524909 [ROSEVELT_N 6230.00] AMP     9298.0   -82.08
524911 [ROSEVELT_S 6230.00] AMP     9298.0   -82.08
525019 [EMU&VLY_TP 3115.00] AMP     5665.5   -77.10
525050 [BC-KELLEY +3115.00] AMP     7851.3   -76.19
525056 [BC-EARTH   3115.00] AMP     8412.2   -76.46
525213 [SWISHER    6230.00] AMP    10965.7   -82.59
525446 [RKYFORD_TP 3115.00] AMP    10547.8   -77.67
525454 [HALE_CNTY  3115.00] AMP    10320.0   -73.95
525460 [NEWHART    3115.00] AMP    15730.1   -82.09
525543 [TOLK_TAP   6230.00] AMP    30337.1   -86.26
525636 [LAMB_CNTY  3115.00] AMP     8609.5   -80.15
525637 [LAMB_CNTY  6230.00] AMP     5457.3   -81.78
525830 [TUCO_INT   6230.00] AMP    25744.6   -85.50
526434 [SUNDOWN    3115.00] AMP    12067.2   -80.79
526460 [AMOCO_SS   6230.00] AMP     9789.3   -82.44
526525 [WOLFFORTH  6230.00] AMP    14175.4   -83.40
527656 [CROSSROADS 7345.00] AMP     6673.2   -85.80
560010 [OPTIMA      345.00] AMP    16200.9   -86.23
560022 [CRAWFISH_DR 345.00] AMP    17175.9   -86.22
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560252 [G10-14      345.00] AMP    16295.8   -86.16
562480 [NEEDMORE    230.00] AMP    10425.5   -83.24
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26S:
                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          TUE, MAY 29
2018  11:50
2017 ITPNT FINAL WITH 2015 SERIES MMWG FINAL
18SPDIS1602---TC GROUP00 SCENARIO0

OPTIONS USED:
    - FLAT CONDITIONS
        - BUS VOLTAGES SET TO 1 PU AT 0 PHASE ANGLE
        - GENERATOR P=0, Q=0
        - TRANSFOMRER TAP RATIOS=1.0 PU and PHASE ANGLES=0.0
        - LINE CHARGING=0.0 IN +/-/0 SEQUENCE
        - LOAD=0.0 IN +/- SEQUENCE, CONSIDERED IN ZERO SEQUENCE
        - LINE/FIXED/SWITCHED SHUNTS=0.0 AND MAGNETIZING ADMITTANCE=0.0 IN +/-/0 SEQUENCE
        - DC LINES AND FACTS DEVICES BLOCKED
        - TRANSFORMER ZERO SEQUENCE IMPEDANCE CORRECTIONS IGNORED

                                    THREE PHASE FAULT
X---------- BUS ----------X          /I+/    AN(I+)
918110 [G1801_TAP1  230.00] AMP     7443.0   -81.68
524267 [BUSHLAND   6230.00] AMP    10077.7   -83.03
524623 [DEAFSMITH  6230.00] AMP     7853.8   -81.40
523959 [POTTER_CO  6230.00] AMP    24259.9   -85.21
524266 [BUSHLAND   3115.00] AMP     9480.0   -83.85
524290 [WILDOR2_JUS6230.00] AMP     6823.1   -83.55
524622 [DEAFSMITH  3115.00] AMP    12046.3   -80.92
560051 [G15039_T    230.00] AMP     7599.1   -81.59
523309 [MOORE_CNTY 6230.00] AMP     7111.4   -82.99
523869 [CHAN+TASCOS6230.00] AMP     4370.2   -81.42
523961 [POTTER_CO  7345.00] AMP    13527.0   -86.06
523979 [HARRNG_EST 6230.00] AMP    28237.6   -86.44
524010 [ROLLHILLS  6230.00] AMP    21250.6   -84.92
524276 [WILDOR_WND 6230.00] AMP     5090.9   -83.00
524300 [HILLSIDE   3115.00] AMP    12721.0   -81.32
524567 [NE_HEREFORD3115.00] AMP     9621.6   -79.28
524597 [PANDAHFD   3115.00] AMP     8949.5   -79.61
524606 [HEREFORD   3115.00] AMP    10792.0   -79.76
524734 [DS-#21     3115.00] AMP     9119.0   -77.33
525481 [PLANT_X    6230.00] AMP    22583.8   -84.70
562800 [G15039_1    230.00] AMP     7599.1   -81.59
918120 [G1801_TAP1  230.00] AMP     7131.1   -82.03
523095 [HITCHLAND  6230.00] AMP    15123.9   -86.46
523097 [HITCHLAND  7345.00] AMP    16295.8   -86.16
523221 [XIT_INTG   6230.00] AMP     3259.4   -80.46
523267 [PRINGLE    6230.00] AMP     4303.0   -82.71
523308 [MOORE_E    3115.00] AMP    12473.2   -81.96
523977 [HARRNG_WST 6230.00] AMP    28237.6   -86.44
523978 [HARRNG_MID 6230.00] AMP    28237.6   -86.44
524007 [ROLLHILLS  3115.00] AMP    19820.4   -81.61
524296 [SPNSPUR_WND7345.00] AMP     6160.4   -85.21
524306 [COULTER    3115.00] AMP    15474.9   -80.71
524556 [LAPLATA    3115.00] AMP     6088.3   -78.19
524573 [NE_HEREFORD269.000] AMP     6741.7   -84.79
524590 [DAWN       3115.00] AMP     6262.1   -78.73
524604 [HEREFRD_SB 269.000] AMP     4429.0   -85.59
524605 [HEREFRD_NB 269.000] AMP     4429.0   -85.59
524629 [DS-#6      3115.00] AMP     6196.7   -70.36
524746 [CASTRO_CNTY3115.00] AMP     9600.9   -77.63
525461 [NEWHART    6230.00] AMP    11129.8   -82.16
525480 [PLANT_X    3115.00] AMP    21055.3   -84.05
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525524 [TOLK_EAST  6230.00] AMP    30337.1   -86.26
525531 [TOLK_WEST  6230.00] AMP    30337.1   -86.26
525549 [TOLK       7345.00] AMP    14871.2   -86.77
526435 [SUNDOWN    6230.00] AMP    11260.3   -82.52
560035 [GRAPEVINE   345.00] AMP     6638.6   -85.19
511553 [CHISHOLM7   345.00] AMP    12135.3   -85.61
523093 [HITCHLAND  3115.00] AMP    17525.0   -85.35
523103 [NOBLE_WND  3115.00] AMP    10825.4   -88.47
523112 [NOVUS1     7345.00] AMP    15944.5   -86.13
523155 [OCHILTREE  6230.00] AMP     4226.5   -82.30
523177 [RB-SPURLCK+3115.00] AMP     5965.4   -76.72
523215 [FREWHELCOL17345.00] AMP    15927.4   -86.12
523216 [RB-HOGUE   3115.00] AMP     4169.2   -71.52
523220 [XIT_INTG   3115.00] AMP     6146.8   -78.65
523256 [ETTER      3115.00] AMP     5751.0   -73.33
523266 [PRINGLE    3115.00] AMP    10764.4   -78.85
523277 [VALERO     3115.00] AMP    11318.0   -81.31
523304 [MOORE_W    3115.00] AMP    12473.2   -81.96
523823 [WALKEMEYER 7345.00] AMP     8313.8   -84.99
524009 [CHERRY     3115.00] AMP    18935.5   -81.38
524043 [NICHOLS    3115.00] AMP    31265.6   -84.83
524044 [NICHOLS    6230.00] AMP    27270.0   -86.34
524106 [NORTHWEST  3115.00] AMP    11383.8   -78.19
524136 [HASTINGS   3115.00] AMP    13948.2   -76.54
524163 [EAST_PLANT 6230.00] AMP    14223.4   -84.25
524256 [PUCKETT    3115.00] AMP    12694.4   -79.00
524282 [34TH_ST    3115.00] AMP    15238.8   -80.55
524305 [COULTER    269.000] AMP     4278.7   -86.82
524365 [RANDALL    6230.00] AMP    14920.6   -83.77
524425 [ESTACADO_TP3115.00] AMP    13425.1   -79.80
524516 [CANYON_WEST3115.00] AMP     5669.2   -79.54
524554 [CENTRE_ST  269.000] AMP     3811.3   -74.93
524561 [DS-MTR     269.000] AMP     6051.6   -82.39
524608 [HERFRD_STH 269.000] AMP     4429.0   -85.59
524655 [FRIONA     3115.00] AMP     3938.7   -66.33
524694 [DS-#22     3115.00] AMP     4546.8   -75.27
524745 [CASTRO_CNTY269.000] AMP     8692.6   -82.22
524757 [BETHEL_COL13115.00] AMP     7778.8   -78.93
524909 [ROSEVELT_N 6230.00] AMP     9298.0   -82.08
524911 [ROSEVELT_S 6230.00] AMP     9298.0   -82.08
525019 [EMU&VLY_TP 3115.00] AMP     5665.5   -77.10
525050 [BC-KELLEY +3115.00] AMP     7851.3   -76.19
525056 [BC-EARTH   3115.00] AMP     8412.2   -76.46
525213 [SWISHER    6230.00] AMP    10965.7   -82.59
525446 [RKYFORD_TP 3115.00] AMP    10547.8   -77.67
525454 [HALE_CNTY  3115.00] AMP    10320.0   -73.95
525460 [NEWHART    3115.00] AMP    15730.1   -82.09
525543 [TOLK_TAP   6230.00] AMP    30337.1   -86.26
525636 [LAMB_CNTY  3115.00] AMP     8609.5   -80.15
525637 [LAMB_CNTY  6230.00] AMP     5457.3   -81.78
525830 [TUCO_INT   6230.00] AMP    25744.6   -85.50
526434 [SUNDOWN    3115.00] AMP    12067.2   -80.79
526460 [AMOCO_SS   6230.00] AMP     9789.3   -82.44
526525 [WOLFFORTH  6230.00] AMP    14175.4   -83.40
527656 [CROSSROADS 7345.00] AMP     6673.2   -85.80
560010 [OPTIMA      345.00] AMP    16200.9   -86.23
560022 [CRAWFISH_DR 345.00] AMP    17175.9   -86.22
560252 [G10-14      345.00] AMP    16295.8   -86.16
562480 [NEEDMORE    230.00] AMP    10425.5   -83.24
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POI 2:

18S:

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                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          TUE, MAY 29
2018  11:51
2017 ITPNT FINAL WITH 2015 SERIES MMWG FINAL
18SPDIS1602---TC GROUP00 SCENARIO0

OPTIONS USED:
    - FLAT CONDITIONS
        - BUS VOLTAGES SET TO 1 PU AT 0 PHASE ANGLE
        - GENERATOR P=0, Q=0
        - TRANSFOMRER TAP RATIOS=1.0 PU and PHASE ANGLES=0.0
        - LINE CHARGING=0.0 IN +/-/0 SEQUENCE
        - LOAD=0.0 IN +/- SEQUENCE, CONSIDERED IN ZERO SEQUENCE
        - LINE/FIXED/SWITCHED SHUNTS=0.0 AND MAGNETIZING ADMITTANCE=0.0 IN +/-/0 SEQUENCE
        - DC LINES AND FACTS DEVICES BLOCKED
        - TRANSFORMER ZERO SEQUENCE IMPEDANCE CORRECTIONS IGNORED

                                    THREE PHASE FAULT
X---------- BUS ----------X          /I+/    AN(I+)
918120 [G1801_TAP1  230.00] AMP     7131.1   -82.03
523959 [POTTER_CO  6230.00] AMP    24259.9   -85.21
525461 [NEWHART    6230.00] AMP    11129.8   -82.16
523309 [MOORE_CNTY 6230.00] AMP     7111.4   -82.99
523869 [CHAN+TASCOS6230.00] AMP     4370.2   -81.42
523961 [POTTER_CO  7345.00] AMP    13527.0   -86.06
523979 [HARRNG_EST 6230.00] AMP    28237.6   -86.44
524010 [ROLLHILLS  6230.00] AMP    21250.6   -84.92
524267 [BUSHLAND   6230.00] AMP    10077.7   -83.03
525213 [SWISHER    6230.00] AMP    10965.7   -82.59
525460 [NEWHART    3115.00] AMP    15730.1   -82.09
525481 [PLANT_X    6230.00] AMP    22583.8   -84.70
523095 [HITCHLAND  6230.00] AMP    15123.9   -86.46
523097 [HITCHLAND  7345.00] AMP    16295.8   -86.16
523221 [XIT_INTG   6230.00] AMP     3259.4   -80.46
523267 [PRINGLE    6230.00] AMP     4303.0   -82.71
523308 [MOORE_E    3115.00] AMP    12473.2   -81.96
523977 [HARRNG_WST 6230.00] AMP    28237.6   -86.44
523978 [HARRNG_MID 6230.00] AMP    28237.6   -86.44
524007 [ROLLHILLS  3115.00] AMP    19820.4   -81.61
524266 [BUSHLAND   3115.00] AMP     9480.0   -83.85
524290 [WILDOR2_JUS6230.00] AMP     6823.1   -83.55
524296 [SPNSPUR_WND7345.00] AMP     6160.4   -85.21
524746 [CASTRO_CNTY3115.00] AMP     9600.9   -77.63
525124 [HART_INDUST3115.00] AMP     7673.4   -76.52
525192 [KRESS_INT  3115.00] AMP    12489.8   -80.26
525212 [SWISHER    3115.00] AMP    12198.0   -82.36
525480 [PLANT_X    3115.00] AMP    21055.3   -84.05
525524 [TOLK_EAST  6230.00] AMP    30337.1   -86.26
525531 [TOLK_WEST  6230.00] AMP    30337.1   -86.26
525549 [TOLK       7345.00] AMP    14871.2   -86.77
526435 [SUNDOWN    6230.00] AMP    11260.3   -82.52
560021 [CRAWFISH_DR2230.00] AMP    21757.5   -85.08
560035 [GRAPEVINE   345.00] AMP     6638.6   -85.19
560050 [G15031_T    230.00] AMP     9325.5   -82.55
560051 [G15039_T    230.00] AMP     7599.1   -81.59
588440 [GEN-2016-172115.00] AMP    15730.1   -82.09
918110 [G1801_TAP1  230.00] AMP     7443.0   -81.68
511553 [CHISHOLM7   345.00] AMP    12135.3   -85.61
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523093 [HITCHLAND  3115.00] AMP    17525.0   -85.35
523103 [NOBLE_WND  3115.00] AMP    10825.4   -88.47
523112 [NOVUS1     7345.00] AMP    15944.5   -86.13
523155 [OCHILTREE  6230.00] AMP     4226.5   -82.30
523177 [RB-SPURLCK+3115.00] AMP     5965.4   -76.72
523215 [FREWHELCOL17345.00] AMP    15927.4   -86.12
523216 [RB-HOGUE   3115.00] AMP     4169.2   -71.52
523220 [XIT_INTG   3115.00] AMP     6146.8   -78.65
523256 [ETTER      3115.00] AMP     5751.0   -73.33
523266 [PRINGLE    3115.00] AMP    10764.4   -78.85
523277 [VALERO     3115.00] AMP    11318.0   -81.31
523304 [MOORE_W    3115.00] AMP    12473.2   -81.96
523823 [WALKEMEYER 7345.00] AMP     8313.8   -84.99
524009 [CHERRY     3115.00] AMP    18935.5   -81.38
524043 [NICHOLS    3115.00] AMP    31265.6   -84.83
524044 [NICHOLS    6230.00] AMP    27270.0   -86.34
524106 [NORTHWEST  3115.00] AMP    11383.8   -78.19
524136 [HASTINGS   3115.00] AMP    13948.2   -76.54
524163 [EAST_PLANT 6230.00] AMP    14223.4   -84.25
524276 [WILDOR_WND 6230.00] AMP     5090.9   -83.00
524300 [HILLSIDE   3115.00] AMP    12721.0   -81.32
524365 [RANDALL    6230.00] AMP    14920.6   -83.77
524415 [AMA_SOUTH  6230.00] AMP    13946.4   -83.57
524623 [DEAFSMITH  6230.00] AMP     7853.8   -81.40
524694 [DS-#22     3115.00] AMP     4546.8   -75.27
524734 [DS-#21     3115.00] AMP     9119.0   -77.33
524745 [CASTRO_CNTY269.000] AMP     8692.6   -82.22
524757 [BETHEL_COL13115.00] AMP     7778.8   -78.93
524909 [ROSEVELT_N 6230.00] AMP     9298.0   -82.08
524911 [ROSEVELT_S 6230.00] AMP     9298.0   -82.08
525019 [EMU&VLY_TP 3115.00] AMP     5665.5   -77.10
525050 [BC-KELLEY +3115.00] AMP     7851.3   -76.19
525056 [BC-EARTH   3115.00] AMP     8412.2   -76.46
525179 [TULIA_TP   3115.00] AMP     6568.3   -80.73
525191 [KRESS_INT  269.000] AMP     4544.2   -86.92
525225 [KRESS_RURAL3115.00] AMP     6536.5   -76.05
525414 [LAMTON     3115.00] AMP     7784.0   -75.31
525446 [RKYFORD_TP 3115.00] AMP    10547.8   -77.67
525454 [HALE_CNTY  3115.00] AMP    10320.0   -73.95
525543 [TOLK_TAP   6230.00] AMP    30337.1   -86.26
525636 [LAMB_CNTY  3115.00] AMP     8609.5   -80.15
525637 [LAMB_CNTY  6230.00] AMP     5457.3   -81.78
525830 [TUCO_INT   6230.00] AMP    25744.6   -85.50
526434 [SUNDOWN    3115.00] AMP    12067.2   -80.79
526460 [AMOCO_SS   6230.00] AMP     9789.3   -82.44
526525 [WOLFFORTH  6230.00] AMP    14175.4   -83.40
527656 [CROSSROADS 7345.00] AMP     6673.2   -85.80
560010 [OPTIMA      345.00] AMP    16200.9   -86.23
560022 [CRAWFISH_DR 345.00] AMP    17175.9   -86.22
560252 [G10-14      345.00] AMP    16295.8   -86.16
562480 [NEEDMORE    230.00] AMP    10425.5   -83.24
562708 [G15_022_1   115.00] AMP    12198.0   -82.36
562750 [G15031_1    230.00] AMP     9325.5   -82.55
562800 [G15039_1    230.00] AMP     7599.1   -81.59
510952 [NEWTAP6     230.00] AMP     8194.8   -82.83
511456 [O.K.U.-7    345.00] AMP     5402.7   -84.33
511557 [CHISHOLM6   230.00] AMP    12171.0   -85.48
515458 [BORDER     7345.00] AMP    11866.4   -85.90
515554 [BVRCNTY7    345.00] AMP    16314.1   -86.42
522800 [MU-TULIA   3115.00] AMP     5271.7   -77.42
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523090 [TEXAS_CNTY 3115.00] AMP     8287.7   -79.22
523111 [NOVUS1     3115.00] AMP     8456.1   -88.37
523130 [NBLWND-HV2 3115.00] AMP     5165.4   -82.31
523131 [NBLWND-HV3 3115.00] AMP     8103.3   -85.40
523154 [OCHILTREE  3115.00] AMP     6058.2   -81.25
523160 [FRISCO_WND 3115.00] AMP     7041.4   -77.56
523174 [GOODWELLWND3115.00] AMP     5933.7   -85.81
523176 [RB-ELKS    3115.00] AMP     5826.8   -76.55
523186 [SPEARMAN   3115.00] AMP     8744.0   -77.81
523195 [HANSFORD   3115.00] AMP    10214.5   -80.45
523228 [DALLAM     3115.00] AMP     6204.3   -78.13
523240 [RB-EXUM    3115.00] AMP     4497.0   -74.45
523246 [DALHART    3115.00] AMP     5818.6   -77.47
523315 [RB-S&S     3115.00] AMP     8597.4   -78.96
523339 [FAIN       3115.00] AMP     5287.1   -74.91
523366 [RB-SNEED   3115.00] AMP     7006.5   -78.34
523377 [RIVERVIEW  3115.00] AMP    13905.1   -79.67
523410 [CRMWA_#4   3115.00] AMP     9812.0   -76.51
523478 [Q_RYTON_TP 3115.00] AMP    11828.1   -83.75
523551 [HUTCHISON  6230.00] AMP     7396.0   -83.60
523771 [GRAPEVINE  6230.00] AMP     5907.5   -82.11
523817 [MIDSTRM_TP 3115.00] AMP     5406.2   -78.46
523821 [WALKEMEYER 3115.00] AMP    10124.8   -85.97
523853 [FINNEY     7345.00] AMP    10907.4   -86.08
524016 [ASARCO     3115.00] AMP    26971.4   -79.33
524018 [ASARCO_TP  3115.00] AMP    29211.3   -84.03
524058 [WHITAKER   3115.00] AMP    22353.3   -82.69
524079 [CONWAY     3115.00] AMP     5026.4   -77.31
524105 [NORTHWEST  269.000] AMP     6365.0   -83.79
524124 [BUSH       3115.00] AMP     7094.4   -76.35
524162 [EAST_PLANT 3115.00] AMP    23526.4   -82.38
524249 [SUNSET     3115.00] AMP    11596.2   -78.31
524306 [COULTER    3115.00] AMP    15474.9   -80.71
524364 [RANDALL    3115.00] AMP    21619.0   -83.09
524414 [AMA_SOUTH  3115.00] AMP    16949.1   -82.06
524622 [DEAFSMITH  3115.00] AMP    12046.3   -80.92
524714 [CASTRO_TP  269.000] AMP     3515.7   -70.56
524721 [DS-#15&#19+269.000] AMP     3535.5   -70.45
524728 [DS-CASTRO  269.000] AMP     4248.4   -72.01
524770 [PLSNT_HILL 6230.00] AMP     6405.2   -81.80
524908 [ROOSEVELT  3115.00] AMP    10726.5   -81.68
524915 [SW_4K33    6230.00] AMP     9298.0   -82.08
525018 [EMULESH&VLY3115.00] AMP     5291.7   -76.86
525028 [BAILEYCO   3115.00] AMP     5551.4   -77.18
525154 [HAPPY_INT  3115.00] AMP     5502.0   -80.87
525203 [SW-KRESS   269.000] AMP     4544.2   -86.92
525224 [KRESS_RURL 269.000] AMP     2542.9   -76.00
525257 [N_PLAINVEW 3115.00] AMP     5202.8   -74.01
525326 [COX        3115.00] AMP     5977.8   -71.93
525393 [ROCKYFORD  3115.00] AMP     9377.3   -77.52
525413 [LAMTON     269.000] AMP     5216.6   -82.67
525440 [LC-S_OLTON+3115.00] AMP     7368.8   -75.49
525453 [HALE_CNTY  269.000] AMP     6957.5   -82.83
525635 [LAMB_CNTY  269.000] AMP     5949.0   -85.14
525828 [TUCO_INT   3115.00] AMP    20614.4   -83.33
525832 [TUCO_INT   7345.00] AMP    17076.9   -86.25
525840 [ANTELOPE_1 6230.00] AMP    25498.7   -85.51
525957 [HALE_WNDCL16230.00] AMP    11322.8   -85.52
526020 [HOCKLEY    3115.00] AMP     5568.0   -76.06
526036 [LC-OPDYKE  3115.00] AMP     5898.3   -76.25
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526161 [CARLISLE   6230.00] AMP    12854.4   -83.75
526269 [LUBBCK_STH 6230.00] AMP    17892.9   -85.08
526337 [JONES      6230.00] AMP    19931.4   -86.01
526424 [PACIFIC    3115.00] AMP    10594.5   -79.54
526445 [AMOCO_TP   3115.00] AMP    11172.2   -79.90
526524 [WOLFFORTH  3115.00] AMP    11834.4   -81.85
526935 [YOAKUM     6230.00] AMP    15720.4   -84.18
527655 [RSVLT_CC_E 7345.00] AMP     6056.5   -85.72
527802 [EDDY_CNTY  7345.00] AMP     4478.3   -84.89
560078 [G16-037-TAP 345.00] AMP     8486.5   -85.81
560253 [G10-14-1    115.00] AMP    16264.6   -87.66
560577 [G06-44      115.00] AMP     7661.4   -88.75
562481 [G13_027_1   230.00] AMP    10425.5   -83.24
562557 [G14_047_1   345.00] AMP     6673.2   -85.80
562646 [G14_037_1   345.00] AMP    16200.9   -86.23
562940 [G15056_1    345.00] AMP     6673.2   -85.80
563060 [G15071_1    345.00] AMP    12135.3   -85.61
587250 [GEN-2016-039115.00] AMP    12198.0   -82.36
587964 [G16-120-TAP 345.00] AMP     6824.2   -85.58
588000 [GEN-2016-123345.00] AMP     6673.2   -85.80
599955 [PNM-DC6     230.00] AMP     9298.0   -82.08
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26S:
                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          TUE, MAY 29
2018  11:51
2017 ITPNT FINAL WITH 2015 SERIES MMWG FINAL
26SPDIS1602---TC GROUP00 SCENARIO0

OPTIONS USED:
    - FLAT CONDITIONS
        - BUS VOLTAGES SET TO 1 PU AT 0 PHASE ANGLE
        - GENERATOR P=0, Q=0
        - TRANSFOMRER TAP RATIOS=1.0 PU and PHASE ANGLES=0.0
        - LINE CHARGING=0.0 IN +/-/0 SEQUENCE
        - LOAD=0.0 IN +/- SEQUENCE, CONSIDERED IN ZERO SEQUENCE
        - LINE/FIXED/SWITCHED SHUNTS=0.0 AND MAGNETIZING ADMITTANCE=0.0 IN +/-/0 SEQUENCE
        - DC LINES AND FACTS DEVICES BLOCKED
        - TRANSFORMER ZERO SEQUENCE IMPEDANCE CORRECTIONS IGNORED

                                   THREE PHASE FAULT
X---------- BUS ----------X          /I+/    AN(I+)
918120 [G1801_TAP1  230.00] AMP     7055.1   -82.06
523959 [POTTER_CO  6230.00] AMP    23376.7   -85.21
525461 [NEWHART    6230.00] AMP    10894.4   -82.21
523309 [MOORE_CNTY 6230.00] AMP     7068.8   -83.07
523869 [CHAN+TASCOS6230.00] AMP     4348.3   -81.54
523961 [POTTER_CO  7345.00] AMP    13309.0   -86.02
523979 [HARRNG_EST 6230.00] AMP    26515.5   -86.25
524010 [ROLLHILLS  6230.00] AMP    20307.4   -84.86
524267 [BUSHLAND   6230.00] AMP     9918.3   -83.10
525213 [SWISHER    6230.00] AMP    10839.2   -82.63
525460 [NEWHART    3115.00] AMP    15350.6   -82.25
525481 [PLANT_X    6230.00] AMP    21499.1   -84.33
523095 [HITCHLAND  6230.00] AMP    15143.4   -86.49
523097 [HITCHLAND  7345.00] AMP    16351.5   -86.17
523221 [XIT_INTG   6230.00] AMP     3253.7   -80.69
523267 [PRINGLE    6230.00] AMP     4272.8   -82.74
523308 [MOORE_E    3115.00] AMP    12411.1   -82.23
523977 [HARRNG_WST 6230.00] AMP    26515.5   -86.25
523978 [HARRNG_MID 6230.00] AMP    26515.5   -86.25
524007 [ROLLHILLS  3115.00] AMP    18754.9   -82.25
524266 [BUSHLAND   3115.00] AMP     9392.4   -84.04
524290 [WILDOR2_JUS6230.00] AMP     6753.7   -83.59
524296 [SPNSPUR_WND7345.00] AMP     6119.7   -85.20
524746 [CASTRO_CNTY3115.00] AMP     9271.8   -77.89
525124 [HART_INDUST3115.00] AMP     7507.8   -76.67
525192 [KRESS_INT  3115.00] AMP    12307.6   -80.38
525212 [SWISHER    3115.00] AMP    12052.7   -82.44
525480 [PLANT_X    3115.00] AMP    14652.6   -81.86
525524 [TOLK_EAST  6230.00] AMP    29497.8   -86.21
525531 [TOLK_WEST  6230.00] AMP    29497.8   -86.21
525549 [TOLK       7345.00] AMP    14740.9   -86.73
526435 [SUNDOWN    6230.00] AMP    11400.5   -82.57
560021 [CRAWFISH_DR2230.00] AMP    22593.7   -85.22
560035 [GRAPEVINE   345.00] AMP     6618.5   -85.18
560050 [G15031_T    230.00] AMP     9230.8   -82.59
560051 [G15039_T    230.00] AMP     7484.2   -81.73
588440 [GEN-2016-172115.00] AMP    15350.6   -82.25
918110 [G1801_TAP1  230.00] AMP     7341.5   -81.81
511553 [CHISHOLM7   345.00] AMP    12163.6   -85.61
523093 [HITCHLAND  3115.00] AMP    17548.7   -85.38
523103 [NOBLE_WND  3115.00] AMP    10832.0   -88.48
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523112 [NOVUS1     7345.00] AMP    15997.7   -86.14
523155 [OCHILTREE  6230.00] AMP     4227.7   -82.31
523177 [RB-SPURLCK+3115.00] AMP     5952.6   -76.79
523215 [FREWHELCOL17345.00] AMP    15980.5   -86.14
523216 [RB-HOGUE   3115.00] AMP     4166.5   -71.64
523220 [XIT_INTG   3115.00] AMP     6158.4   -79.05
523256 [ETTER      3115.00] AMP     6214.6   -79.42
523266 [PRINGLE    3115.00] AMP    10698.4   -78.91
523277 [VALERO     3115.00] AMP    11268.8   -81.56
523304 [MOORE_W    3115.00] AMP    12411.1   -82.23
523823 [WALKEMEYER 7345.00] AMP     8387.4   -85.02
524009 [CHERRY     3115.00] AMP    17961.5   -82.00
524043 [NICHOLS    3115.00] AMP    25854.7   -84.07
524044 [NICHOLS    6230.00] AMP    25569.9   -86.13
524106 [NORTHWEST  3115.00] AMP    11750.7   -81.21
524136 [HASTINGS   3115.00] AMP    13372.1   -76.98
524163 [EAST_PLANT 6230.00] AMP    13680.8   -84.18
524276 [WILDOR_WND 6230.00] AMP     5053.9   -83.04
524300 [HILLSIDE   3115.00] AMP    12558.8   -81.87
524365 [RANDALL    6230.00] AMP    14346.0   -83.83
524415 [AMA_SOUTH  6230.00] AMP    13469.3   -83.63
524623 [DEAFSMITH  6230.00] AMP     7729.9   -81.58
524694 [DS-#22     3115.00] AMP     4472.1   -75.43
524734 [DS-#21     3115.00] AMP     8833.6   -77.59
524745 [CASTRO_CNTY269.000] AMP     8527.0   -82.28
524757 [BETHEL_COL13115.00] AMP     7577.2   -79.11
524909 [ROSEVELT_N 6230.00] AMP     9210.8   -82.13
524911 [ROSEVELT_S 6230.00] AMP     9210.8   -82.13
525019 [EMU&VLY_TP 3115.00] AMP     6487.8   -78.41
525050 [BC-KELLEY +3115.00] AMP     7326.2   -76.43
525056 [BC-EARTH   3115.00] AMP     7654.3   -76.67
525179 [TULIA_TP   3115.00] AMP     6520.3   -80.78
525191 [KRESS_INT  269.000] AMP     4529.4   -86.92
525225 [KRESS_RURAL3115.00] AMP     6486.0   -76.15
525414 [LAMTON     3115.00] AMP     7405.7   -75.49
525446 [RKYFORD_TP 3115.00] AMP     8974.6   -77.60
525454 [HALE_CNTY  3115.00] AMP    10009.0   -74.07
525543 [TOLK_TAP   6230.00] AMP    29497.8   -86.21
525614 [W_LITLFLDTP3115.00] AMP     7633.3   -78.06
525637 [LAMB_CNTY  6230.00] AMP     5529.0   -82.17
525830 [TUCO_INT   6230.00] AMP    26839.8   -85.67
526434 [SUNDOWN    3115.00] AMP    12179.2   -80.80
526460 [AMOCO_SS   6230.00] AMP     9971.4   -82.50
526525 [WOLFFORTH  6230.00] AMP    14338.4   -83.40
527656 [CROSSROADS 7345.00] AMP     6632.1   -85.81
560010 [OPTIMA      345.00] AMP    16258.3   -86.24
560022 [CRAWFISH_DR 345.00] AMP    18798.7   -86.23
560252 [G10-14      345.00] AMP    16351.5   -86.17
562480 [NEEDMORE    230.00] AMP    10398.6   -83.27
562708 [G15_022_1   115.00] AMP    12052.7   -82.44
562750 [G15031_1    230.00] AMP     9230.8   -82.59
562800 [G15039_1    230.00] AMP     7484.2   -81.73
510952 [NEWTAP6     230.00] AMP     8490.1   -82.93
511456 [O.K.U.-7    345.00] AMP     5430.6   -84.32
511557 [CHISHOLM6   230.00] AMP    12173.1   -85.49
515458 [BORDER     7345.00] AMP    11928.2   -85.89
515554 [BVRCNTY7    345.00] AMP    16391.3   -86.42
522800 [MU-TULIA   3115.00] AMP     5241.1   -77.48
523090 [TEXAS_CNTY 3115.00] AMP     8326.1   -79.25
523111 [NOVUS1     3115.00] AMP     8459.4   -88.37
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523130 [NBLWND-HV2 3115.00] AMP     5166.7   -82.31
523131 [NBLWND-HV3 3115.00] AMP     8106.9   -85.40
523154 [OCHILTREE  3115.00] AMP     6058.9   -81.26
523160 [FRISCO_WND 3115.00] AMP     7038.7   -77.58
523174 [GOODWELLWND3115.00] AMP     5935.8   -85.82
523176 [RB-ELKS    3115.00] AMP     5818.2   -76.57
523186 [SPEARMAN   3115.00] AMP     8722.3   -77.85
523195 [HANSFORD   3115.00] AMP    10212.2   -80.47
523228 [DALLAM     3115.00] AMP     6219.8   -78.57
523240 [RB-EXUM    3115.00] AMP     4651.6   -77.05
523246 [DALHART    3115.00] AMP     5830.0   -77.85
523315 [RB-S&S     3115.00] AMP     8553.5   -79.15
523339 [FAIN       3115.00] AMP     5186.7   -75.06
523366 [RB-SNEED   3115.00] AMP     6974.5   -78.44
523377 [RIVERVIEW  3115.00] AMP    13708.4   -79.82
523410 [CRMWA_#4   3115.00] AMP     9332.7   -76.72
523478 [Q_RYTON_TP 3115.00] AMP    11768.9   -83.81
523551 [HUTCHISON  6230.00] AMP     7277.7   -83.65
523771 [GRAPEVINE  6230.00] AMP     5859.4   -82.14
523817 [MIDSTRM_TP 3115.00] AMP     5341.1   -78.59
523821 [WALKEMEYER 3115.00] AMP    10359.0   -85.95
523853 [FINNEY     7345.00] AMP    10985.7   -86.07
524016 [ASARCO     3115.00] AMP    22838.8   -79.50
524018 [ASARCO_TP  3115.00] AMP    24465.5   -83.47
524058 [WHITAKER   3115.00] AMP    20157.4   -82.53
524079 [CONWAY     3115.00] AMP     4933.3   -77.38
524105 [NORTHWEST  269.000] AMP     6370.3   -84.38
524124 [BUSH       3115.00] AMP     7245.2   -78.18
524162 [EAST_PLANT 3115.00] AMP    21915.3   -82.51
524249 [SUNSET     3115.00] AMP    11700.9   -80.05
524306 [COULTER    3115.00] AMP    15237.2   -81.50
524364 [RANDALL    3115.00] AMP    20820.0   -83.42
524414 [AMA_SOUTH  3115.00] AMP    16485.2   -82.41
524622 [DEAFSMITH  3115.00] AMP    11864.3   -81.31
524714 [CASTRO_TP  269.000] AMP     3489.2   -70.67
524721 [DS-#15&#19+269.000] AMP     3508.6   -70.56
524728 [DS-CASTRO  269.000] AMP     4209.4   -72.13
524770 [PLSNT_HILL 6230.00] AMP     6368.0   -81.85
524908 [ROOSEVELT  3115.00] AMP    10684.6   -81.73
524915 [SW_4K33    6230.00] AMP     9210.8   -82.13
525018 [EMULESH&VLY3115.00] AMP     6003.1   -78.04
525028 [BAILEYCO   3115.00] AMP     6518.3   -78.64
525154 [HAPPY_INT  3115.00] AMP     5468.2   -80.92
525203 [SW-KRESS   269.000] AMP     4529.4   -86.92
525224 [KRESS_RURL 269.000] AMP     2538.3   -76.02
525257 [N_PLAINVEW 3115.00] AMP     5170.0   -74.10
525326 [COX        3115.00] AMP     5933.6   -72.04
525393 [ROCKYFORD  3115.00] AMP     8113.0   -77.48
525413 [LAMTON     269.000] AMP     5111.6   -82.59
525440 [LC-S_OLTON+3115.00] AMP     6868.8   -75.67
525453 [HALE_CNTY  269.000] AMP     6871.2   -82.77
525615 [W_LITTLFLD 3115.00] AMP     7254.5   -78.22
525636 [LAMB_CNTY  3115.00] AMP     9280.6   -80.69
525828 [TUCO_INT   3115.00] AMP    20758.6   -83.47
525832 [TUCO_INT   7345.00] AMP    18790.6   -86.27
525840 [ANTELOPE_1 6230.00] AMP    26570.7   -85.67
525957 [HALE_WNDCL16230.00] AMP    11507.1   -85.58
526036 [LC-OPDYKE  3115.00] AMP     5959.2   -76.25
526161 [CARLISLE   6230.00] AMP    12974.0   -83.75
526269 [LUBBCK_STH 6230.00] AMP    18442.9   -85.10
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526337 [JONES      6230.00] AMP    20604.0   -86.05
526424 [PACIFIC    3115.00] AMP    10687.3   -79.54
526445 [AMOCO_TP   3115.00] AMP    11268.6   -79.90
526524 [WOLFFORTH  3115.00] AMP    11879.6   -81.87
526935 [YOAKUM     6230.00] AMP    19528.4   -85.21
527655 [RSVLT_CC_E 7345.00] AMP     6023.0   -85.73
527802 [EDDY_CNTY  7345.00] AMP     4442.7   -84.89
560078 [G16-037-TAP 345.00] AMP     8505.8   -85.81
560253 [G10-14-1    115.00] AMP    16280.4   -87.66
560577 [G06-44      115.00] AMP     7664.5   -88.75
562481 [G13_027_1   230.00] AMP    10398.6   -83.27
562557 [G14_047_1   345.00] AMP     6632.1   -85.81
562646 [G14_037_1   345.00] AMP    16258.3   -86.24
562940 [G15056_1    345.00] AMP     6632.1   -85.81
563060 [G15071_1    345.00] AMP    12163.6   -85.61
587250 [GEN-2016-039115.00] AMP    12052.7   -82.44
587964 [G16-120-TAP 345.00] AMP     6952.3   -85.56
588000 [GEN-2016-123345.00] AMP     6632.1   -85.81
599955 [PNM-DC6     230.00] AMP     9210.8   -82.13
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