Preliminary Interconnection System Impact Study for Generator Interconnection Requests

(PISIS-2017-002)

May 2018

Generator Interconnection

SPP Southwest Power Pool

Revision History

Date	Author	Change Description
05/11/2018	SPP	Report Issued (PISIS-2017-002)

Executive Summary

Generator Interconnection customers have requested a Preliminary Interconnection System Impact Study (PISIS) under the Generator Interconnection Procedures (GIP) in the Southwest Power Pool Open Access Transmission Tariff (OATT). The Interconnection Customers' requests have been clustered together for the following PISIS window, which closed November 30, 2017. The customers will be referred to in this study as the PISIS-2017-002 Interconnection Customers. This PISIS analyzes the interconnection of new generation totaling approximately 1,533 MW. This new generation would be interconnected with the transmission system of Oklahoma Gas and Electric Company (OKGE). The generator interconnection requests have requested in service dates as listed in **Appendix A, Section 11.1**[1]. The generator interconnection requests included in this PISIS are listed in **Appendix A, Section 11.1** by their queue number, amount, requested interconnection service, area, requested interconnection point, proposed interconnection point, and the requested in-service date.

Power flow analysis has indicated that for the power flow cases studied, 1,533 MW of nameplate generation may be interconnected with transmission system reinforcements within the SPP transmission system. Dynamic stability analysis has determined that the transmission system will remain stable with the assigned Network Upgrades and necessary reactive compensation requirements. In the event of an n-2 scenario where Gen-2017-043 is reduced to a single 345 kV outlet, the project will need to be curtailed to 1100 MW to avoid losing synchronism. A short circuit analysis has been performed with available short circuit values given in the stability study for each group in the appendices of this report.

This study does not guarantee operation for all periods of time. This interconnection study identifies and assigns transmission reinforcements for Energy Resource Interconnection Service (ERIS) interconnection injection constraints (defined as a 20% distribution factor impact for outage based constraints and 3% distribution factor for system intact constraints) and Network Resource Interconnection Service (NRIS) constraints (defined as 3% distribution factor impact), if requested by the Customer. Thermal and voltage constraints are listed in **Appendix G-T and Appendix G-V,** located in **Sections 11.7 and 11.8**, respectively. This interconnection study does not assign transmission reinforcements for all potential transmission constraints. It should be noted that although this study analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer(s) may be required to reduce their generation output to 0 MW, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

The total minimum cost for interconnecting the PISIS-2017-002 Interconnection Customers is estimated at $369,837,557. **Appendix E and F** outline these costs in **Sections 11.5 and 11.6**,

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

respectively. This total cost estimate is contingent upon higher queued customers paying for certain required network upgrades. **The in-service date for the PISIS customers will be deferred until the construction of these network upgrades can be completed.**

These costs do not include the Interconnection Customer Interconnection Facilities as defined by the SPP Open Access Transmission Tariff (OATT). This cost does not include additional network constraints in the SPP transmission system identified and shown in **Appendix H-T, Section 11.10**.

Constraints listed in **Appendix H-T, Section 11.10** do not require transmission reinforcement for Interconnection Service, but could require Interconnection Customer to reduce generation in operational conditions. These transmission constraints occur when this study's generation is dispatched into the SPP footprint for ERIS or when this study's generation is dispatched into the interconnecting Transmission Owner's (T.O.) area for NRIS.

It should be noted that the network constraints identified in **Appendix H-T, Section 11.10** may also be identified by a Transmission Service Request (TSR) and may need to be verified by associated studies. With a defined source and sink in a TSR, the list of network constraints will be refined and expanded to account for all Network Upgrade requirements. The required interconnection costs listed in **Appendix E and F** (**sections 11.5 and 11.6)** do not include costs associated with the deliverability of the energy to load or other customers. These costs are determined by separate studies should the Customer decide to submit a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT. Furthermore, this PISIS guarantees neither transmission service nor deliverability of the requested resource.

When applicable, affected system thermal and voltage constraints are listed in **Appendix H-T-AS , Section 11.10** and **Appendix H-V-AS, Section 11.11**. Affected System constraints could require an affected system impact study by the affected party or affected system parties. The affected system impact study could result in identifying additional affected transmission system reinforcement network upgrades required for interconnection.

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1 Introduction

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT), SPP has conducted this PISIS for certain generator interconnection requests in the SPP Generator Interconnection Queue. These interconnection requests have been clustered together for the following PISIS window, which closed November 30, 2017. The customers will be referred to in this study as the PISIS-2017-002 Interconnection Customers. This PISIS analyzes generator interconnection requests and their associated new generation, totaling 1,533 MW. This new generation would be interconnected with the transmission system of Oklahoma Gas and Electric Company (OKGE). The interconnection requests have requested in service date as listed in **Appendix A**[2]**, section 11.1**. The generator interconnection requests included in this PISIS are listed in **Appendix A**[3]**, section 11.1** by their queue number, amount, requested interconnection service, area, requested interconnection point, proposed interconnection point, and the requested in-service date.

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

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

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

2 Model Development (Study Assumptions)

2.1.1 Interconnection Requests Included in the Cluster

SPP included all interconnection requests that submitted a PISIS Agreement no later than November 30, 2017. Those that were successfully validated were subsequently accepted by Southwest Power Pool under the terms of the Generator Interconnection Procedures (GIP). The interconnection requests that are included in this study are listed in Appendix A.

2.1.2 Affected System Interconnection Request

There were no Affected Systems to include in this PISIS. Affected System Interconnection Requests are given an "ASGI" prefix. Affected System Interconnection Requests are only studied in "cluster" scenarios.

2.1.3 Previously Queued Interconnection Requests

The previously queued requests included in this study are listed in **Appendix B**, **section 11.2**. In addition to the Base Case Upgrades, previously queued requests and associated upgrades were assumed to be in-service and added to the Base Case models. These projects were dispatched as Energy Resources with equal distribution across the SPP footprint. Prior queued projects that requested NRIS were dispatched in an additional analysis into the balancing authority of the interconnecting transmission owner.

2.2 Development of Base Cases

2.2.1 Power Flow

The 2016 series Integrated Transmission Planning models (used in the 2017 ITPNT) including the 2017 winter peak (17WP) season, the 2018 spring (18G) and 2018 summer peak (18SP) seasons, the 2021 light load (21L), 2021 summer peak (21SP), and 2021 winter peak (21WP) and the 2026 summer peak (26SP) scenario 0 cases are used for this study.

2.2.2 Dynamic Stability

The 2016 series SPP Model Development Working Group (MDWG) Models 2017 winter peak (17WP) season, 2018 summer peak (18SP) season and the 2026 summer peak (26SP) season cases were used as starting points for this study.

2.2.3 Short Circuit

The 2018 and 2026 summer peak stability case were used for this analysis.

2.2.4 Base Case Upgrades

The following facilities are part of the SPP Transmission Expansion Plan, the Balanced Portfolio or recently approved Priority Projects. These facilities either have an approved Notification to Construct (NTC) or are in construction stages. This PISIS assumed these facilities to be in-service at the time of dispatch were added to the base case models. The PISIS-2017-002 Interconnection Customers have not been assigned acceleration costs for the below listed projects. <u>The PISIS-2017-002 Interconnection Customers' Generation Facilities in service dates may need to be delayed until the completion of the following upgrades. If the Interconnection Request proceeds into the DISIS Queue,</u>

it may be determined that the Interconnection Request may only go into service with Limited Operation. If for some reason, construction on these projects is discontinued, additional restudies will be needed to determine the interconnection needs of the DISIS Interconnection Customers.

SPP Notification to Construct (NTC) ID	UID	Project Owner	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
200223		OGE	Tatonga - Woodward District EHV 345 kV Ckt 2	3/1/2018
200223		OGE	Matthewson - Tatonga 345 kV Ckt 2	3/1/2018
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	51250	SPS	National Enrichment Plant - Targa 115 kV Ckt 1	12/15/2018
200391	51528	OGE	DeGrasse 345 kV Substation	6/1/2019
200391	51529	OGE	DeGrasse 345/138 kV Transformer	6/1/2019
200391	51530	OGE	DeGrasse - Knob Hill 138 kV New Line	6/1/2019
200391	51569	OGE	DeGrasse 138 kV Substation (OGE)	6/1/2019
200220		NPPD	Cherry Co. (Thedford) - Gentleman 345 kV Ckt 1	10/1/2019
200220		NPPD	Cherry Co. (Thedford) Substation 345 kV	10/1/2019
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	50441	NPPD	Neligh 345/115 kV Substation	4/1/2018
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	50722	SPS	Chaves - Price 115 kV Ckt 1 Rebuild	1/30/2018
200256	50723	SPS	CV Pines - Price 115 kV Ckt 1 Rebuild	1/30/2018
200256	50724	SPS	Capitan - CV Pines 115 kV Ckt 1 Rebuild	1/30/2018
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	50924	SPS	Livingston Ridge 115 kV Substation Conversion	11/30/2017

SPP Notification to Construct (NTC) ID	UID	Project Owner	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
200411		SPS	Livingston Ridge - Sage Brush 115 kV Ckt 1	6/1/2018
200309	50925	SPS	Sage Brush 115 kV Substation	12/16/2016
200309	50928	SPS	Largarto - Sage Brush 115 kV Ckt 1	12/15/2016
200309	50927	SPS	Lagarto 115 kV Substation	6/1/2018
200309	50951	SPS	Cardinal - Lagarto 115 kV Ckt 1	12/15/2016
200309	50967	SPS	Cardinal 115 kV Substation	12/15/2016
200411	50923	SPS	Ponderosa - Ponderosa Tap 115 kV Ckt 1	6/1/2017
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	11509	SPS	Carlisle 230/115kV transformer replacement	3/27/2018
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	6/1/2019
200396		WFEC	DeGrasse 345/138kV project	12/31/2019
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
200262		SPS	Yoakum County Interchange 230/115kV transformer Ckt 1 & 2 replacement	6/1/2019

2.2.5 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 the PISIS-2017-002 study and are assumed to be in service. This list may not be all-inclusive. While the PISIS-2017-002 Interconnection Customer does not have cost responsibility for these facilities at this time, costs may be assigned later if higher queued customers terminate their Generator Interconnection Agreement or withdraw from the interconnection queue. The PISIS-2017-002 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
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	TBD

Assigned Study	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
	Replace 230/115kV transformer CKT 2 with 345/115kV transformer	
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 Build approximately 30 miles of new 345kV. Gentleman and Keystone Substation Work.	TBD
DISIS-2016-001	Kildare - White Eagle 138kV CKT 1	TBD

Assigned Study	Upgrade Name	Estimated Date of Upgrade Completion (EOC)
	Rebuild approximately 11 miles of 138kV from Kildare to White Eagle	
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

2.2.6 Potential Upgrades Not in the Base Case

Potential upgrades without a Notification to Construct (NTC) or not explicitly listed within this report were not included in the base case. Excluded upgrades would include any identified upgrades 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.

2.2.7 Regional Groupings

The interconnection requests listed in **Appendix A, section 11.1** are grouped together into active regional groups based on geographical and electrical impacts. Groupings are shown in **Appendix C, 11.3**.

To determine interconnection impacts, two (2) different generation dispatches were developed for spring, summer, and winter scenarios of the base case models.

2.3 Development of Analysis Cases

2.3.1 Power Flow

For Variable Energy Resources (VER) (solar/wind) in each power flow case, 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 2018 spring, or in the "High VER" summer and winter peaks. To study peaking units' impacts, the 2017 winter peak and 2018 summer peak, 2021 summer and winter peaks, and 2026 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 NRIS are dispatched in an additional analysis into the interconnecting Transmission Owner's (T.O.) area at 100% nameplate with 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.

2.3.2 Dynamic Stability

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

2.3.3 Short Circuit

The dynamic stability models (2018 SP and 2026 SP) are used for this analysis.

3 Identification of Network Constraints (System Performance)

3.1.1 Thermal Overloads

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

For 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 of generator 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 support is then determined to mitigate the constraints.

Interconnection Requests that requested 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 considered for transmission reinforcement under NRIS.

3.1.2 Voltage

For non-converged power flow solutions that are determined to be caused by lack of voltage support, appropriate transmission support will be determined to mitigate the constraint.

After all thermal overload and voltage support mitigations are determined; a full ACCC analysis is then performed to determine voltage constraints. The following voltage performance guidelines are used in accordance with the Transmission Owner local planning criteria.

SPP voltage criteria is applicable to all SPP facilities 69 kV and greater in the absence of more stringent criteria:

System Intact	Contingency
0.95 – 1.05 per unit	0.90 – 1.05 per unit

Areas and specific buses having more-stringent voltage criteria:

Areas/Facilities	System Intact	Contingency
AEPW – all buses EMDE High Voltage	0.95 – 1.05 per unit	0.92 – 1.05 per unit
WERE Low Voltage	0.95 – 1.05 per unit	0.93 – 1.05 per unit
WERE High Voltage	0.95 – 1.05 per unit	0.95 – 1.05 per unit
TUCO 230 kV Bus #525830	0.925 – 1.05 per unit	0.925 – 1.05 per unit
Wolf Creek 345 kV Bus #532797	0.985 – 1.03 per unit	0.985 – 1.03 per unit
FCS Bus #646251	1.001 – 1.047 per unit	1.001 – 1.047 per unit

First-Tier External Areas facilities 115 kV and greater.

Area	System Intact	Contingency
EES-EAI LAGN EES AMMO CLEC LAFA LEPA XEL MP SMMPA GRE OTP ALTW MEC MDU DPC ALTE	0.95 – 1.05 per unit	0.90 – 1.05 per unit
OTP-H (115kV+)	0.97 – 1.05 per unit	0.92 – 1.10 per unit
SPC	0.95 – 1.05 per unit	0.95 – 1.05 per unit

The constraints identified through the voltage scan are then screened for the following for each interconnection request. 1) 3% DF on the contingent element and 2) 2% change in pu voltage. In certain conditions, engineering judgement was used to determine if a generator had impacts to voltage constraints.

3.1.3 Dynamic Stability

Stability issues 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.

3.1.4 Upgrades Assigned

Thermal overloads that require transmission support to mitigate are discussed in Section 8 and listed in Appendix G-T. Voltage constraints that may require transmission support are discussed in Section 8 and listed in Appendix G-V. Constraints that are identified solely through the stability analysis are discussed in Section 8 and the appropriate appendix for the detailed stability study of that Interconnection Request. 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-T. With a defined source and sink in a Transmission Service Request, this list of network constraints can be refined and expanded to account for all Network Upgrade requirements for firm transmission service. Additional constraints identified by multi-element contingencies are listed in Appendix I.

In no way does the list of constraints in Appendix G-T 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 is 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 Generator 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 Generator Interconnection request 'X' for Upgrade Project 1 is found by the following set of steps and formulas:

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

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

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

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

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

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

- 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.

4.1.1 Credits/Compensation for Amounts Advanced for Network Upgrades

Interconnection Customer shall be entitled to either credits or potentially Long Term Congestion Rights (LTCR), 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, section 11.6** by upgrade. The interconnection requirements for the cluster total an estimated $369,837,557. Interconnection Facilities specific to each generator interconnection request are listed in **Appendix E, section 11.5**. A preliminary one-line drawing for each generator interconnection request are listed in **Appendix D, section 11.4**.

For an explanation of how required Network Upgrades and Interconnection Facilities were determined, please refer to the section on "Identification of Network Constraints" in **section 0**.

5.1.1 Facilities Analysis

Not applicable to the PISIS.

5.1.2 Environmental Review

For Interconnection Requests that result in an interconnection to, or modification of, 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 and 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 Definitive Interconnection System Impact Study Queue.

7 Power Flow Analysis

7.1.1 Power Flow Analysis Methodology

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

7.1.2 Power Flow Analysis

A power flow analysis is conducted for each Interconnection Customer's facility using modified versions of the 2017 winter peak (17WP) season, the 2018 spring (18G) and 2018 summer peak (17SP) seasons, the 2021 light load (21L), summer (21SP) and winter peak (21WP) seasons, and the 2026 summer peak (26SP) 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 ERIS request. Certain requests that are also pursuing NRIS have an additional analysis conducted for displacing resources in the interconnecting Transmission Owner's balancing area.

8 Power Flow Results

8.1 Cluster Group 14 (South Central Oklahoma Area)

In addition to the 2,124.6 MW of previously queued generation in the area, 1,533.0 MW of new interconnection service was studied. ERIS and NRIS constraints that could be possibly mitigated by higher queued, DISIS-2016-001, generation are listed within Error! Reference source not found. **and** Error! Reference source not found., respectively. These constraints can be reviewed in detail in **Appendix G, section 11.7**. Higher queued constraints will require transmission reinforcements at the possible cost responsibility of higher queued projects. Should these study cost assignments change during the completion of the DISIS-2016-002, then the cost responsibilities could be assigned to PISIS-2017-002 request(s), should they proceed into the next subsequent DISIS. This list of higher queued transmission reinforcements required for contingency analysis is not an all-inclusive list as some potential DISIS-2016-002 Network Upgrades were required to dispatch the PISIS-2017-002 cases.

Table 1: ERIS Constraints Identified for Group 14 PISIS-2017-002 Current Study Customers

Monitored Element	Limiting Rate A/B (MVA)	TC % Loading (MVA)	Contingency	Mitigation
'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	133.9187	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	Build 34.15 miles of 345 kV from Johnston County - GEN-2017-043
'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'	1195	137.4886	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	
'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	1195	142.1294	'P42:345:OKGE:SB_SUSD7382-G1663TAP''	
'HUGO (HUGO 1) 345/138/13.8KV TRANSFORMER CKT 1'	500	114.2556	'HUGO - VALLIANT 345KV CKT 1'	

Table 2: NRIS Constraints Identified for Group 14 PISIS-2017-002 Current Study Customers

Monitored Element	Limiting Rate A/B (MVA)	TC % Loading (MVA)	Contingency	Mitigation
'BLUERIVER - PARK LANE 138KV CKT 1'	191	127.3117	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'	Upgrade terminal equipment.
'BROWN - RUSSETT 138KV CKT 1'	143	113.8195	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	Rebuild 18.4 miles of 138 kV from Russet - S. Brown
'BROWN - TUPELO 138KV CKT 1'	96	112.435	''P42:345:OKGE:SB_JOCO7313''	Upgrade Tupelo 138 kV terminal equipment
'CARTER - CHICKASAW 138KV CKT 1'	191	101.2933	'ROCKY POINT - SUNNYSIDE 138KV CKT 1'	Resolved by ERIS upgrade
'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	137.9971	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	

Monitored Element	Limiting Rate A/B (MVA)	TC % Loading (MVA)	Contingency	Mitigation
'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'	1195	155.3361	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	
'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'			NCONV	
'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	1195	167.4553	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'	Upgrade terminal equipment at Hugo
GEN509394 1-FLINT CREEK'			NCONV	250 MVAR SVC at GEN-2016-133 POI
GEN511840 1-NORTHEASTERN STATION #3'			NCONV	
GEN525561 1-TOLK GEN #1 24 KV'			NCONV	45 MVAR SVC at Carlisle 69kV
'HUGO (HUGO 1) 345/138/13.8KV TRANSFORMER CKT 1'	500	156.3145	'HUGO - VALLIANT 345KV CKT 1'	Build Valliant - Hugo 2nd CKT 345 kV
'HUGO POWER PLANT - VALLIANT 138KV CKT 1'	287	168.3723	'HUGO - VALLIANT 345KV CKT 1'	
'LYDIA - VALLIANT 345KV CKT 1'	1324	106.2728	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''	Rebuild 43.290 miles of 345 kV from Lydia - Valliant
'PITTSBURG - VALLIANT 345KV CKT 1'	1143	106.3798	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	Rebuild 70.2 miles of 345 kV from Pittsburg - Valliant
'RUSSETT - RUSSETT 138KV CKT 1'	161	106.4322	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'	OKGE updated ratings sufficient for mitigation. No cost allocation necessary.
'RUSSETT - SPRINGDALE 138KV CKT 1'	153	113.0371	''P42:345:OKGE:SB_JOCO7303''	Reconductor 15.590 miles of 138kV from Springdale - Russett
'SUNNYSIDE - UNIROYAL 138KV CKT 1'	222	105.9571	''P42:345:OKGE:SB_JOCO7303''	Rebuild 5.58 miles of 138 kV from Sunnyside - Uniroyal

8.2 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

A stability and short circuit analysis was conducted for each Interconnection Customer using modified versions of the 2016 series SPP Model Development Working Group (MDWG) Models 2017 winter (17WP), 2018 summer (18SP), and 2026 summer peak (26SP) dynamic cases. The stability analysis was conducted with all upgrades in service that were identified in the power flow analysis unless otherwise noted in the individual group stability study.

For each group, the interconnection requests were studied at 100% nameplate output while the other groups were dispatched at 20% output for Variable Energy Resource (VER) requests and 100% output for other requests. The output of the Interconnection Customer's facility was offset in each model by a reduction in output of existing online SPP generation.

A synopsis is included for each group. The entire stability study for each group can be found in the Appendices.

Short-circuit analysis was performed for this study and will be refined in the Interconnection Facilities Study. Results of that analysis may require additional costs to replace circuit breakers and associated equipment

9.1 Cluster Group 14 (South Central Oklahoma Area)

9.1.1 DISTURBANCES

The one-hundred eight (108) contingencies were identified for use in this study. These faults are listed within Table 9.1. These contingencies included three-phase faults and single-phase line faults at locations defined by SPP. Single-phase line faults were simulated by applying fault impedance to the positive sequence network at the fault location to represent the effect of the negative and zero sequence networks on the positive sequence network. The fault impedance was computed to give a positive sequence voltage at the specified fault location of approximately 60% of pre-fault voltage. This method is in agreement with SPP current practice.

With exception to transformers, the typical sequence of events for a three-phase and single-phase fault is as follows:

1. apply fault at particular location
2. continue fault for five (5) cycles, clear the fault by tripping the faulted facility
3. after an additional twenty (20) cycles, re-close the previous facility back into the fault
4. continue fault for five (5) additional cycles
5. trip the faulted facility and remove the fault

Transformer faults are typically only performed for three-phase faults, unless otherwise noted. Additionally the sequence of events for a transformer is to 1) apply a three-phase fault for five (5) cycles and 2) clear the fault by tripping the affected transformer facility. Unless otherwise noted there will be no re-closing into a transformer fault.

Table 9.1: Contingencies Evaluated for Limited Operation

Contingency Number and Name		Description
1	FLT_1_G17_43TP_Hugo	3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
2	FLT_2_G17_43TP_G16-063TP	3 phase fault on G17_43TP (587844) to G16-063TP (560088) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
3	FLT_3_Hugo_Valiant	3 phase fault on Hugo (521157) to Valiant (510911) 345kV Ckt 1, near Hugo. a. Apply fault at the near Hugo 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
4	FLT_4_G16-63T_Snny	3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the near G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
5	FLT_5_Sunny_Terry	3 phase fault on to Sunnyside (515136) to Terry Rd (511568) 345kV Ckt 1, near Sunnyside. a. Apply fault at the near Sunnyside 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
6	FLT_6_Terry_LES	3 phase fault on to Terry Rd (511568) to LES (511468) 345kV Ckt 1, near Terry Rd. a. Apply fault at the near Terry Rd 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
7	FLT_7_Sunny_JohnCo	3 phase fault on to Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1, near Sunnyside. a. Apply fault at the near Sunnyside 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
8	FLT_8_LES_G16-91TP	3 phase fault on to LES (511468) to G16_091TP (587744) 345kV Ckt 1, near LES. a. Apply fault at the near LES 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
9	FLT_9_G16-91TP_Gracemt	3 phase fault on to G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1, near G16_091TP. a. Apply fault at the near G16_091TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
10	FLT_10_LES_OKU	3 phase fault on to LES (511468) to OKU (511456) 345kV Ckt 1, near LES. a. Apply fault at the near LES 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
11	FLT_11_OKU_Tuco	3 phase fault on to OKU (511456) to Tuco (525832) 345kV Ckt 1, near OKU. a. Apply fault at the near OKU 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
12	FLT_12_JohnCo_Pitt	3 phase fault on to Johnston Co. (514809) to Pittsburg (510907) 345kV Ckt 1, near Johnston Co. a. Apply fault at the near Johnston Co. 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
13	FLT_13_Pitt_CRiver	3 phase fault on to Pittsburg (510907) to Canadian River (515422) 345kV Ckt 1, near Pittsburg. a. Apply fault at the near Pittsburg 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
14	FLT_14_Pitt_Seminole	3 phase fault on to Pittsburg (510907) to Seminole (515045) 345kV Ckt 1, near Pittsburg. a. Apply fault at the near Pittsburg 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
15	FLT_15_CRiver_Muskogee	3 phase fault on to Canadian River (515422) to Muskogee (515224) 345kV Ckt 1, near Canadian River. a. Apply fault at the near Canadian River 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
16	FLT_16_Seminole_Draper	3 phase fault on to Seminole (515045) to Draper (514934) 345kV Ckt 1, near Seminole. a. Apply fault at the near Seminole 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
17	FLT_17_Seminole_Arcadia	3 phase fault on to Seminole (515045) to Arcadia (514908) 345kV Ckt 1, near Seminole. a. Apply fault at the near Seminole 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
18	FLT_18_Valiant_Pitt	3 phase fault on to Valiant (510911) to Pittsburg (510907) 345kV Ckt 1, near Valiant. a. Apply fault at the near Valiant 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
19	FLT_19_Valiant_NWTXARK	3 phase fault on to Valiant (510911) to NWTXARK (508072) 345kV Ckt 1, near Valiant. a. Apply fault at the near Valiant 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
20	FLT_20_Valiant_Lydia	3 phase fault on to Valiant (510911) to Lydia (508298) 345kV Ckt 1, near Valiant. a. Apply fault at the near Valiant 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
21	FLT_21_Sunnyside_XFMR1	3 phase fault on Sunnyside 138 kV (515135) to (515316) 345 kV to 13.8 kV (515762) Ckt 1, near Sunnyside. a. Apply fault at the Sunnyside 138 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
22	FLT_22_Hugo_XFMR	3 phase fault on Hugo 345 kV (521157) to (520948) 138 kV to 13.8 kV (521189) Ckt 1, near Hugo. a. Apply fault at the Hugo 138 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
23	FLT_23_Valiant_ XFMR1	3 phase fault on Valiant 138 kV (510918) to (510911) 345 kV to 13.8 kV (510939) Ckt 1, near Valiant. a. Apply fault at the Valiant 138 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
24	FLT_24_JohnCo_XFMR	3 phase fault on Johnston Co. 138 kV (514808) to (514809) 345 kV to 13.8 kV (514810) Ckt 1, near Johnston Co. a. Apply fault at the Johnston Co. 138 kV bus. b. Clear fault after 5 cycles and trip the faulted transformer.
25	FLT_25_Valiant_Pitt_PO	**Prior Outage:** Valiant (510911) to Lydia (508298) 345kV Ckt 1 out of service 3 phase fault on to Valiant (510911) to Pittsburg (510907) 345kV Ckt 1, near Valiant. a. Apply fault at the near Valiant 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
26	FLT_26_G16-63TP_Sunny_PO	**Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
27	FLT_27_JohnCo_Pitt_PO	**Prior Outage:** Valiant (510911) to Pittsburg (510907) 345kV Ckt 1 out of service 3 phase fault on to Johnston Co. (514809) to Pittsburg (510907) 345kV Ckt 1, near Johnston Co. a. Apply fault at the near Johnston Co. 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
28	FLT_28_G16-63TP_Sunny_L_PO	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
29	FLT_29_G17_43TP_Hugo_L_PO	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
30	FLT_30_G16-63TP_Sunny_S_PO	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
31	FLT_31_G17_43TP_Hugo_S_PO	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
32	FLT_32_G16-63TP_Sunny_H_PO	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
33	FLT_33_G17_43TP_Hugo_H_PO	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
34	FLT_34_G16-63TP_Sunny_G_PO	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
35	FLT_35_G17_43TP_Hugo_G_PO	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
36	FLT_36_Pitt_Criver_PO	**Prior Outage:** Pittsburg (510907) to Seminole (515045) 345kV Ckt 1 out of service 3 phase fault on to Pittsburg (510907) to Canadian River (515422) 345kV Ckt 1, near Pittsburg. a. Apply fault at the near Pittsburg 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
37	FLT_37_JohnCo_SunnySB	**Single phase fault with stuck breaker** on the Johnston Co. (514809) to Sunnyside (515136) 345kV Ckt 1, near Johnston Co. a. Apply fault at Johnston Co. 345kV bus. b. At 16 cycles, clear the fault and trip: 1. Johnston Co. (514809) to Sunnyside (515136) 345kV Ckt 1 2. Johnston Co. (514809) to Pittsburg (510907) 345kV Ckt 1
38	FLT_38_JohnCo_Pitt_SB	**Single phase fault with stuck breaker** on the Johnston Co. (514809) to Pittsburg (510907) 345kV Ckt 1, near Johnston Co. a. Apply fault at Johnston Co. 345kV bus. b. At 16 cycles, clear the fault and trip: 1. Johnston Co. (514809) to Pittsburg (510907) 345kV Ckt 1 2. Johnston Co. (514809) to Valiant (510911) 345kV Ckt 1
39	FLT_39_Sunny_G16-63_TP_SB	**Single phase fault with stuck breaker** on the Sunnyside (515136) to G16-063TP (560088) 345kV Ckt 1, near Sunnyside. a. Apply fault at Sunnyside 345kV bus. b. At 16 cycles, clear the fault and trip: 1. Sunnyside (515136) to G16-063TP (560088) 345kV Ckt 1 2. Sunnyside 138 kV (515135) to (515316) 345 kV to 13.8 kV (515405) XFMR 2
40	FLT_40_G17_43TP_JohnCo	3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
41	FLT_41_G16-63TP_Sunny_JC_PO	**Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
42	FLT_42_G17_43TP_Hugo_JC_PO	**Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
43	FLT_43_G17_43TP_JohnCo_N_PO	**Prior Outage:** G16_63TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
44	FLT_44_G17_43TP_Hugo_N_PO	**Prior Outage:** G16_63TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
45	FLT_45_ G17_43TP _JC_H_PO	**Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
46	FLT_46_G16-63TP_Sunny_H_PO	**Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
47	FLT_47_G17_43TP_JohnCo_HV_PO	**Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.
48	FLT_48_G16-63TP_Sunny_HV_PO	**Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles by tripping the faulted line. c. Wait 20 cycles, and then re-close the line in (b) back into the fault. d. Leave fault on for 5 cycles, then trip the line in (b) and remove fault.

Contingency Number and Name		Description
49	FLT_49_G17_43TP_Hugo_NR5	3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
50	FLT_50_G17_43TP_G16-063TP_NR5	3 phase fault on G17_43TP (587844) to G16-063TP (560088) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
51	FLT_51_Hugo_Valiant_NR5	3 phase fault on Hugo (521157) to Valiant (510911) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
52	FLT_52_G17_43TP_JohnCo_NR5	3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
53	FLT_53_G16-63TP_Sunny_PO_NR5	**Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
54	FLT_54_G16-63TP_Sunny_L_PO_NR5	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
55	FLT_55_G17_43TP_Hugo_L_PO_NR5	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
56	FLT_56_G16-63TP_Sunny_S_PO_NR5	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
57	FLT_57_G17_43TP_Hugo_S_PO_NR5	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
58	FLT_58_G16-63TP_Sunny_H_PO_NR5	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
59	FLT_59_G17_43TP_Hugo_H_PO_NR5	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.

Contingency Number and Name		Description
60	FLT_60_G16-63TP_Sunny_G_PO_NR5	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
61	FLT_61_G17_43TP_Hugo_G_PO_NR5	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
62	FLT_62_G17_43TP_Hugo_NR3	3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
63	FLT_63_G17_43TP_G16-063TP_NR3	3 phase fault on G17_43TP (587844) to G16-063TP (560088) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after3 cycles and trip the faulted line.
64	FLT_64_Hugo_Valiant_NR3	3 phase fault on Hugo (521157) to Valiant (510911) 345kV Ckt 1, near Hugo. a. Apply fault at the near Hugo 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
65	FLT_65_G17_43TP_JohnCo_NR3	3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
66	FLT_66_G16-63TP_Sunny_PO_NR3	**Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
67	FLT_67_G16-63TP_Sunny_L_PO_NR3	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
68	FLT_68_G17_43TP_Hugo_L_PO_NR3	**Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
69	FLT_69_G16-63TP_Sunny_S_PO_NR3	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
70	FLT_70_G17_43TP_Hugo_S_PO_NR3	**Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.

Contingency Number and Name		Description
71	FLT_71_G16-63TP_Sunny_H_PO_NR3	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
72	FLT_72_G17_43TP_Hugo_H_PO_NR3	**Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
73	FLT_73_G16-63TP_Sunny_G_PO_NR3	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
74	FLT_74_G17_43TP_Hugo_G_PO_NR3	**Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
75	FLT_75_G16-63TP_Sunny_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
76	FLT_76_G16-63TP_Sunny_L_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
77	FLT_77_G17_43TP_Hugo_L_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
78	FLT_78_G16-63TP_Sunny_S_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
79	FLT_79_G17_43TP_Hugo_S_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.

Contingency Number and Name		Description
80	FLT_80_G16-63TP_Sunny_H_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
81	FLT_81_G17_43TP_Hugo_H_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
82	FLT_82_G16-63TP_Sunny_G_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
83	FLT_83_G17_43TP_Hugo_G_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
84	FLT_84_G16-63TP_Sunny_JC_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
85	FLT_85_G17_43TP_Hugo_JC_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
86	FLT_86_G17_43TP_JohnCo_N_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.

Contingency Number and Name		Description
87	FLT_87_G17_43TP_Hugo_N_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
88	FLT_88_ G17_43TP _JC_H_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
89	FLT_89_G16-63TP_Sunny_H_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the near G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
90	FLT_90_G17_43TP_JohnCo_HV_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
91	FLT_91_G16-63TP_Sunny_HV_PO_300	**Scale Gen2017_043 down by 300MW** **Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the near G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
92	FLT_92_G16-63TP_Sunny_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.
93	FLT_93_G16-63TP_Sunny_L_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Sunnyside (515136) to Johnston Co. (514809) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
94	FLT_94_G17_43TP_Hugo_L_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Terry Rd (511568) to LES (511468) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 3 cycles and trip the faulted line.

Contingency Number and Name		Description
95	FLT_95_G16-63TP_Sunny_S_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
96	FLT_96_G17_43TP_Hugo_S_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Sunnyside (515135) to Uniroy (515137) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
97	FLT_97_G16-63TP_Sunny_H_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
98	FLT_98_G17_43TP_Hugo_H_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Hugo (520948) to Valiant (510918) 138kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
99	FLT_99_G16-63TP_Sunny_G_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
100	FLT_100_G17_43TP_Hugo_G_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G16_091TP (587744) to Gracemont (515800) 345kV Ckt 1 out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
101	FLT_101_G16-63TP_Sunny_JC_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1out of service 3 phase fault on to G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
102	FLT_102_G17_43TP_Hugo_JC_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.

Contingency Number and Name		Description
103	FLT_103_G17_43TP_JohnCo_N_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
104	FLT_104_G17_43TP_Hugo_N_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
105	FLT_105_ G17_43TP _JC_H_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
106	FLT_106_G16-63TP_Sunny_H_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** G17_43TP (587844) to Hugo (521157) 345kV Ckt 1, out of service 3 phase fault on G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the near G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
107	FLT_107_G17_43TP_JohnCo_HV_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on G17_43TP (587844) to Johnston Co. (514809) 345kV Ckt 1, near G17_43TP. a. Apply fault at the near G17_43TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.
108	FLT_108_G16-63TP_Sunny_HV_PO_400	**Scale Gen2017_043 down by 500MW** **Prior Outage:** Hugo (521157) to Valiant (510911) 345kV Ckt 1, out of service 3 phase fault on G16-063TP (560088) to Sunnyside (515136) 345kV Ckt 1, near G16-063TP. a. Apply fault at the near G16-063TP 345kV bus. b. Clear fault after 5 cycles and trip the faulted line.

9.1.2 RESULTS

Table 9.2: Initial Fault Analysis Results

Contingency Number and Name		2017WP	2018SP	2026SP
1	FLT_1_G17_43TP_Hugo	Unstable	Unstable	Unstable
2	FLT_2_G17_43TP_G16-063TP	Unstable	Unstable	Unstable
3	FLT_3_Hugo_Valiant	Stable	Stable	Stable
4	FLT_4_G16-63T_Snny	Unstable	Unstable	Unstable
5	FLT_5_Sunny_Terry	Stable	Stable	Stable
6	FLT_6_Terry_LES	Stable	Stable	Stable
7	FLT_7_Sunny_JohnCo	Stable	Stable	Stable
8	FLT_8_LES_G16-91TP	Stable	Stable	Stable
9	FLT_9_G16-91TP_Gracemt	Stable	Stable	Stable
10	FLT_10_LES_OKU	Stable	Stable	Stable
11	FLT_11_OKU_Tuco	Stable	Stable	Stable
12	FLT_12_JohnCo_Pitt	Stable	Stable	Stable

Contingency Number and Name		2017WP	2018SP	2026SP
13	FLT_13_Pitt_CRiver	Stable	Stable	Stable
14	FLT_14_Pitt_Seminole	Stable	Stable	Stable
15	FLT_15_CRiver_Muskogee	Stable	Stable	Stable
16	FLT_16_Seminole_Draper	Stable	Stable	Stable
17	FLT_17_Seminole_Arcadia	Stable	Stable	Stable
18	FLT_18_Valiant_Pitt	Stable	Stable	Stable
19	FLT_19_Valiant_NWTXARK	Stable	Stable	Stable
20	FLT_20_Valiant_Lydia	Stable	Stable	Stable
21	FLT_21_Sunnyside_XFMR1	Stable	Stable	Stable
22	FLT_22_Hugo_XFMR	Stable	Stable	Stable
23	FLT_23_Valiant_ XFMR1	Stable	Stable	Stable
24	FLT_24_JohnCo_XFMR	Stable	Stable	Stable
25	FLT_25_Valiant_Pitt_PO	Stable	Stable	Stable
26	FLT_26_G16-63TP_Sunny_PO	Unstable	Unstable	Unstable
27	FLT_27_JohnCo_Pitt_PO	Stable	Stable	Stable
28	FLT_28_G16-63TP_Sunny_L_PO	Unstable	Unstable	Unstable
29	FLT_29_G17_43TP_Hugo_L_PO	Unstable	Unstable	Unstable
30	FLT_30_G16-63TP_Sunny_S_PO	Unstable	Unstable	Unstable
31	FLT_31_G17_43TP_Hugo_S_PO	Unstable	Unstable	Unstable
32	FLT_32_G16-63TP_Sunny_H_PO	Unstable	Unstable	Unstable
33	FLT_33_G17_43TP_Hugo_H_PO	Unstable	Unstable	Unstable
34	FLT_34_G16-63TP_Sunny_G_PO	Unstable	Unstable	Unstable
35	FLT_35_G17_43TP_Hugo_G_PO	Unstable	Unstable	Unstable
36	FLT_36_Pitt_Criver_PO	Stable	Stable	Stable
37	FLT_37_JohnCo_SunnySB	Stable	Stable	Stable
38	FLT_38_JohnCo_Pitt_SB	Stable	Stable	Stable
39	FLT_39_Sunny_G16-63_TP_SB	Unstable	Unstable	Unstable
40	FLT_40_G17_43TP_JohnCo	N/A	N/A	N/A
41	FLT_41_G16-63TP_Sunny_JC_PO	N/A	N/A	N/A
42	FLT_42_G17_43TP_Hugo_JC_PO	N/A	N/A	N/A
43	FLT_43_G17_43TP_JohnCo_N_PO	N/A	N/A	N/A
44	FLT_44_G17_43TP_Hugo_N_PO	N/A	N/A	N/A
45	FLT_45_ G17_43TP _JC_H_PO	N/A	N/A	N/A
46	FLT_46_G16-63TP_Sunny_H_PO	N/A	N/A	N/A
47	FLT_47_G17_43TP_JohnCo_HV_PO	N/A	N/A	N/A
48	FLT_48_G16-63TP_Sunny_HV_PO	Unstable	Unstable	Unstable
49	FLT_49_G17_43TP_Hugo_NR5	Unstable	Unstable	Unstable
50	FLT_50_G17_43TP_G16-063TP_NR5	Unstable	Unstable	Unstable
51	FLT_51_Hugo_Valiant_NR5	Stable	Stable	Stable
52	FLT_52_G17_43TP_JohnCo_NR5	N/A	N/A	N/A
53	FLT_53_G16-63TP_Sunny_PO_NR5	Unstable	Unstable	Unstable
54	FLT_54_G16-63TP_Sunny_L_PO_NR5	Unstable	Unstable	Unstable
55	FLT_55_G17_43TP_Hugo_L_PO_NR5	Unstable	Unstable	Unstable
56	FLT_56_G16-63TP_Sunny_S_PO_NR5	Unstable	Unstable	Unstable
57	FLT_57_G17_43TP_Hugo_S_PO_NR5	Unstable	Unstable	Unstable
58	FLT_58_G16-63TP_Sunny_H_PO_NR5	Unstable	Unstable	Unstable
59	FLT_59_G17_43TP_Hugo_H_PO_NR5	Unstable	Unstable	Unstable
60	FLT_60_G16-63TP_Sunny_G_PO_NR5	Unstable	Unstable	Unstable
61	FLT_61_G17_43TP_Hugo_G_PO_NR5	Unstable	Unstable	Unstable
62	FLT_62_G17_43TP_Hugo_NR3	Unstable	Unstable	Unstable
63	FLT_63_G17_43TP_G16-063TP_NR3	Unstable	Unstable	Unstable
64	FLT_64_Hugo_Valiant_NR3	Stable	Stable	Stable
65	FLT_65_G17_43TP_JohnCo_NR3	N/A	N/A	N/A
66	FLT_66_G16-63TP_Sunny_PO_NR3	Unstable	Unstable	Unstable
67	FLT_67_G16-63TP_Sunny_L_PO_NR3	Unstable	Unstable	Unstable
68	FLT_68_G17_43TP_Hugo_L_PO_NR3	Unstable	Unstable	Unstable
69	FLT_69_G16-63TP_Sunny_S_PO_NR3	Unstable	Unstable	Unstable

Contingency Number and Name		2017WP	2018SP	2026SP
70	FLT_70_G17_43TP_Hugo_S_PO_NR3	Unstable	Unstable	Unstable
71	FLT_71_G16-63TP_Sunny_H_PO_NR3	Unstable	Unstable	Unstable
72	FLT_72_G17_43TP_Hugo_H_PO_NR3	Unstable	Unstable	Unstable
73	FLT_73_G16-63TP_Sunny_G_PO_NR3	Unstable	Unstable	Unstable
74	FLT_74_G17_43TP_Hugo_G_PO_NR3	Unstable	Unstable	Unstable
75	FLT_75_G16-63TP_Sunny_PO_300	Stable	Stable	Stable
76	FLT_76_G16-63TP_Sunny_L_PO_300	Stable	Stable	Stable
77	FLT_77_G17_43TP_Hugo_L_PO_300	Unstable	Unstable	Unstable
78	FLT_78_G16-63TP_Sunny_S_PO_300	Stable	Unstable	Unstable
79	FLT_79_G17_43TP_Hugo_S_PO_300	Unstable	Unstable	Unstable
80	FLT_80_G16-63TP_Sunny_H_PO_300	Unstable	Unstable	Unstable
81	FLT_81_G17_43TP_Hugo_H_PO_300	Unstable	Unstable	Unstable
82	FLT_82_G16-63TP_Sunny_G_PO_300	Stable	Stable	Unstable
83	FLT_83_G17_43TP_Hugo_G_PO_300	Stable	Stable	Stable
84	FLT_84_G16-63TP_Sunny_JC_PO_300	N/A	N/A	N/A
85	FLT_85_G17_43TP_Hugo_JC_PO_300	N/A	N/A	N/A
86	FLT_86_G17_43TP_JohnCo_N_PO_300	N/A	N/A	N/A
87	FLT_87_G17_43TP_Hugo_N_PO_300	N/A	N/A	N/A
88	FLT_88_ G17_43TP _JC_H_PO_300	N/A	N/A	N/A
89	FLT_89_G16-63TP_Sunny_H_PO_300	N/A	N/A	N/A
90	FLT_90_G17_43TP_JohnCo_HV_PO_300	N/A	N/A	N/A
91	FLT_91_G16-63TP_Sunny_HV_PO_300	Unstable	Unstable	Unstable
92	FLT_92_G16-63TP_Sunny_PO_400	Stable	Stable	Stable
93	FLT_93_G16-63TP_Sunny_L_PO_400	Stable	Stable	Stable
94	FLT_94_G17_43TP_Hugo_L_PO_400	Unstable	Unstable	Unstable
95	FLT_95_G16-63TP_Sunny_S_PO_400	Stable	Stable	Stable
96	FLT_96_G17_43TP_Hugo_S_PO_400	Stable	Stable	Stable
97	FLT_97_G16-63TP_Sunny_H_PO_400	Stable	Stable	Stable
98	FLT_98_G17_43TP_Hugo_H_PO_400	Stable	Stable	Stable
99	FLT_99_G16-63TP_Sunny_G_PO_400	Stable	Stable	Stable
100	FLT_100_G17_43TP_Hugo_G_PO_400	Stable	Stable	Stable
101	FLT_101_G16-63TP_Sunny_JC_PO_400	N/A	N/A	N/A
102	FLT_102_G17_43TP_Hugo_JC_PO_400	N/A	N/A	N/A
103	FLT_103_G17_43TP_JohnCo_N_PO_400	N/A	N/A	N/A
104	FLT_104_G17_43TP_Hugo_N_PO_400	N/A	N/A	N/A
105	FLT_105_ G17_43TP _JC_H_PO_400	N/A	N/A	N/A
106	FLT_106_G16-63TP_Sunny_H_PO_400	N/A	N/A	N/A
107	FLT_107_G17_43TP_JohnCo_HV_PO_400	N/A	N/A	N/A
108	FLT_108_G16-63TP_Sunny_HV_PO_400	Unstable	Unstable	Unstable

Stability analysis identified system instability, loss of synchronism for all units within the GEN-2017-043 request, for faults near the POI (TPL-001-4 P1 events) that result in a radial connection to either Sunnyside or Hugo 345kV stations. To mitigate this instability issue, a new 345kV line from the GEN-2017-043 POI substation to Johnston County is required. During the outage of any line from the GEN-2017-043 POI substation that could result in a radial connection to Sunnyside, Hugo, or Johnston Co. 345kV stations with a subsequent line outage (TPL-001-4 P6 events), a system adjustment of the GEN-2017-043 request curtailed to 1100 MW is required to maintain system stability.

The table below shows the results of the same contingencies with the new 345 kV line from the POI to Johnston County.

Table 9.3: Fault Analysis Results with upgrade

Contingency Number and Name		2017WP	2018SP	2026SP
1	FLT_1_G17_43TP_Hugo	Stable	Stable	Stable
2	FLT_2_G17_43TP_G16-063TP	Stable	Stable	Stable
3	FLT_3_Hugo_Valiant	Stable	Stable	Stable
4	FLT_4_G16-63T_Snny	Stable	Stable	Stable
5	FLT_5_Sunny_Terry	Stable	Stable	Stable
6	FLT_6_Terry_LES	Stable	Stable	Stable
7	FLT_7_Sunny_JohnCo	Stable	Stable	Stable
8	FLT_8_LES_G16-91TP	Stable	Stable	Stable
9	FLT_9_G16-91TP_Gracemt	Stable	Stable	Stable
10	FLT_10_LES_OKU	Stable	Stable	Stable
11	FLT_11_OKU_Tuco	Stable	Stable	Stable
12	FLT_12_JohnCo_Pitt	Stable	Stable	Stable
13	FLT_13_Pitt_CRiver	Stable	Stable	Stable
14	FLT_14_Pitt_Seminole	Stable	Stable	Stable
15	FLT_15_CRiver_Muskogee	Stable	Stable	Stable
16	FLT_16_Seminole_Draper	Stable	Stable	Stable
17	FLT_17_Seminole_Arcadia	Stable	Stable	Stable
18	FLT_18_Valiant_Pitt	Stable	Stable	Stable
19	FLT_19_Valiant_NWTXARK	Stable	Stable	Stable
20	FLT_20_Valiant_Lydia	Stable	Stable	Stable
21	FLT_21_Sunnyside_XFMR1	Stable	Stable	Stable
22	FLT_22_Hugo_XFMR	Stable	Stable	Stable
23	FLT_23_Valiant_ XFMR1	Stable	Stable	Stable
24	FLT_24_JohnCo_XFMR	Stable	Stable	Stable
25	FLT_25_Valiant_Pitt_PO	Stable	Stable	Stable
26	FLT_26_G16-63TP_Sunny_PO	Stable	Stable	Stable
27	FLT_27_JohnCo_Pitt_PO	Stable	Stable	Stable
28	FLT_28_G16-63TP_Sunny_L_PO	Stable	Stable	Stable
29	FLT_29_G17_43TP_Hugo_L_PO	Unstable*	Unstable*	Unstable*
30	FLT_30_G16-63TP_Sunny_S_PO	Stable	Stable	Stable
31	FLT_31_G17_43TP_Hugo_S_PO	Stable	Stable	Stable
32	FLT_32_G16-63TP_Sunny_H_PO	Stable	Stable	Stable
33	FLT_33_G17_43TP_Hugo_H_PO	Stable	Stable	Stable
34	FLT_34_G16-63TP_Sunny_G_PO	Stable	Stable	Stable
35	FLT_35_G17_43TP_Hugo_G_PO	Stable	Stable	Stable
36	FLT_36_Pitt_Criver_PO	Stable	Stable	Stable
37	FLT_37_JohnCo_SunnySB	Stable	Stable	Stable
38	FLT_38_JohnCo_Pitt_SB	Stable	Stable	Stable
39	FLT_39_Sunny_G16-63_TP_SB	Stable	Stable	Stable
40	FLT_40_G17_43TP_JohnCo	Stable	Stable	Stable
41	FLT_41_G16-63TP_Sunny_JC_PO	Unstable*	Unstable*	Unstable*
42	FLT_42_G17_43TP_Hugo_JC_PO	Unstable*	Unstable*	Unstable*
43	FLT_43_G17_43TP_JohnCo_N_PO	Unstable*	Unstable*	Unstable*
44	FLT_44_G17_43TP_Hugo_N_PO	Unstable*	Unstable*	Unstable*
45	FLT_45_ G17_43TP _JC_H_PO	Unstable*	Unstable*	Unstable*
46	FLT_46_G16-63TP_Sunny_H_PO	Unstable*	Unstable*	Unstable*
47	FLT_47_G17_43TP_JohnCo_HV_PO	Unstable*	Unstable*	Unstable*
48	FLT_48_G16-63TP_Sunny_HV_PO	Stable	Stable	Stable
49	FLT_49_G17_43TP_Hugo_NR5	Stable	Stable	Stable
50	FLT_50_G17_43TP_G16-063TP_NR5	Stable	Stable	Stable
51	FLT_51_Hugo_Valiant_NR5	Stable	Stable	Stable
52	FLT_52_G17_43TP_JohnCo_NR5	Stable	Stable	Stable
53	FLT_53_G16-63TP_Sunny_PO_NR5	Stable	Stable	Stable
54	FLT_54_G16-63TP_Sunny_L_PO_NR5	Stable	Stable	Stable
55	FLT_55_G17_43TP_Hugo_L_PO_NR5	Unstable*	Unstable*	Unstable*
56	FLT_56_G16-63TP_Sunny_S_PO_NR5	Stable	Stable	Stable

Contingency Number and Name		2017WP	2018SP	2026SP
57	FLT_57_G17_43TP_Hugo_S_PO_NR5	Stable	Stable	Stable
58	FLT_58_G16-63TP_Sunny_H_PO_NR5	Stable	Stable	Stable
59	FLT_59_G17_43TP_Hugo_H_PO_NR5	Stable	Stable	Stable
60	FLT_60_G16-63TP_Sunny_G_PO_NR5	Stable	Stable	Stable
61	FLT_61_G17_43TP_Hugo_G_PO_NR5	Stable	Stable	Stable
62	FLT_62_G17_43TP_Hugo_NR3	Stable	Stable	Stable
63	FLT_63_G17_43TP_G16-063TP_NR3	Stable	Stable	Stable
64	FLT_64_Hugo_Valiant_NR3	Stable	Stable	Stable
65	FLT_65_G17_43TP_JohnCo_NR3	Stable	Stable	Stable
66	FLT_66_G16-63TP_Sunny_PO_NR3	Stable	Stable	Stable
67	FLT_67_G16-63TP_Sunny_L_PO_NR3	Stable	Stable	Stable
68	FLT_68_G17_43TP_Hugo_L_PO_NR3	Unstable*	Unstable*	Unstable*
69	FLT_69_G16-63TP_Sunny_S_PO_NR3	Stable	Stable	Stable
70	FLT_70_G17_43TP_Hugo_S_PO_NR3	Stable	Stable	Stable
71	FLT_71_G16-63TP_Sunny_H_PO_NR3	Stable	Stable	Stable
72	FLT_72_G17_43TP_Hugo_H_PO_NR3	Stable	Stable	Stable
73	FLT_73_G16-63TP_Sunny_G_PO_NR3	Stable	Stable	Stable
74	FLT_74_G17_43TP_Hugo_G_PO_NR3	Stable	Stable	Stable
75	FLT_75_G16-63TP_Sunny_PO_300	Stable	Stable	Stable
76	FLT_76_G16-63TP_Sunny_L_PO_300	Stable	Stable	Stable
77	FLT_77_G17_43TP_Hugo_L_PO_300	Stable	Stable	Stable
78	FLT_78_G16-63TP_Sunny_S_PO_300	Stable	Stable	Stable
79	FLT_79_G17_43TP_Hugo_S_PO_300	Stable	Stable	Stable
80	FLT_80_G16-63TP_Sunny_H_PO_300	Stable	Stable	Stable
81	FLT_81_G17_43TP_Hugo_H_PO_300	Stable	Stable	Stable
82	FLT_82_G16-63TP_Sunny_G_PO_300	Stable	Stable	Stable
83	FLT_83_G17_43TP_Hugo_G_PO_300	Stable	Stable	Stable
84	FLT_84_G16-63TP_Sunny_JC_PO_300	Stable	Unstable*	Unstable*
85	FLT_85_G17_43TP_Hugo_JC_PO_300	Stable	Unstable*	Unstable*
86	FLT_86_G17_43TP_JohnCo_N_PO_300	Stable	Stable	Stable
87	FLT_87_G17_43TP_Hugo_N_PO_300	Stable	Stable	Stable
88	FLT_88_ G17_43TP _JC_H_PO_300	Stable	Stable	Stable
89	FLT_89_G16-63TP_Sunny_H_PO_300	Stable	Stable	Stable
90	FLT_90_G17_43TP_JohnCo_HV_PO_300	Stable	Stable	Stable
91	FLT_91_G16-63TP_Sunny_HV_PO_300	Stable	Stable	Stable
92	FLT_92_G16-63TP_Sunny_PO_400	Stable	Stable	Stable
93	FLT_93_G16-63TP_Sunny_L_PO_400	Stable	Stable	Stable
94	FLT_94_G17_43TP_Hugo_L_PO_400	Stable	Stable	Stable
95	FLT_95_G16-63TP_Sunny_S_PO_400	Stable	Stable	Stable
96	FLT_96_G17_43TP_Hugo_S_PO_400	Stable	Stable	Stable
97	FLT_97_G16-63TP_Sunny_H_PO_400	Stable	Stable	Stable
98	FLT_98_G17_43TP_Hugo_H_PO_400	Stable	Stable	Stable
99	FLT_99_G16-63TP_Sunny_G_PO_400	Stable	Stable	Stable
100	FLT_100_G17_43TP_Hugo_G_PO_400	Stable	Stable	Stable
101	FLT_101_G16-63TP_Sunny_JC_PO_400	Stable	Stable	Stable
102	FLT_102_G17_43TP_Hugo_JC_PO_400	Stable	Stable	Stable
103	FLT_103_G17_43TP_JohnCo_N_PO_400	Stable	Stable	Stable
104	FLT_104_G17_43TP_Hugo_N_PO_400	Stable	Stable	Stable
105	FLT_105_ G17_43TP _JC_H_PO_400	Stable	Stable	Stable
106	FLT_106_G16-63TP_Sunny_H_PO_400	Stable	Stable	Stable
107	FLT_107_G17_43TP_JohnCo_HV_PO_400	Stable	Stable	Stable
108	FLT_108_G16-63TP_Sunny_HV_PO_400	Stable	Stable	Stable

*Instability is resolved by system adjustment of curtailment to 1,100 MW subsequent to the prior outage.

9.1.3 Short Circuit analysis

The results of the Short Circuit Analysis can be found in Appendix L

10 Conclusion

The minimum cost of interconnecting 1,533 MW of new interconnection requests included in this PISIS is estimated at $369,837,557 for the Allocated Network Upgrades and Transmission Owner Interconnection Facilities are listed in **Appendix E and F** (**sections 11.5 and 11.6**, respectively). These costs do not include the cost of upgrades of other transmission facilities listed in **Appendix H-T, section 11.9** which are Network Constraints or when applicable the affected system network constraints listed in **Appendix H-T-AS and Appendix H-V-AS** (**sections 11.10 and 11.11**, respectively).

Interconnection Requests allocated Network Upgrades and Transmission Owner Interconnection Facilities listed in **Appendix E and F** (**sections 11.5 and 11.6**, respectively). 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 and Environmental Review Agreement per Section 8.6.1 of the GIP.

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

The required interconnection costs listed in **Appendix E and F** (**sections 11.5 and 11.6**, respectively), 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: Generator Interconnection Requests Considered for Impact Study

See next page.

A: Generation Interconnection Requests Considered for Study

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date	In Service Date Delayed Until no earlier than*
GEN-2017-043	1,534.00	ER/NR	OKGE	Tap Sunnyside-Hugo 345kV	Tap Sunnyside-Hugo 345kV	12/31/2021	TBD
Total:	1,534.00						

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

11.2 B: Prior Queued Generator Interconnection Requests

See next page.

B: Prior Queued Interconnection Requests

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
ASGI-2010-006	150.00	AECI	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

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
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

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
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

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
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

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
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

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
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

See next page

C. Study Groups

GROUP 1: WOODWARD AREA			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-014	96.00	WFEC	Ft Supply 138kV
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV
GEN-2005-008	120.00	OKGE	Woodward 138kV
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV
GEN-2006-046	131.00	OKGE	Dewey 138kV
GEN-2007-021	201.00	OKGE	Tatonga 345kV
GEN-2007-043	200.00	OKGE	Minco 345kV
GEN-2007-044	300.00	OKGE	Tatonga 345kV
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV
GEN-2007-062	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**		
AREA TOTAL	**8,302.44**		

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**		
GEN-2017-043	1,534.00	OKGE	Tap Sunnyside-Hugo 345kV
CURRENT CLUSTER SUBTOTAL	**1,534.00**		
AREA TOTAL	**3,658.57**		

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

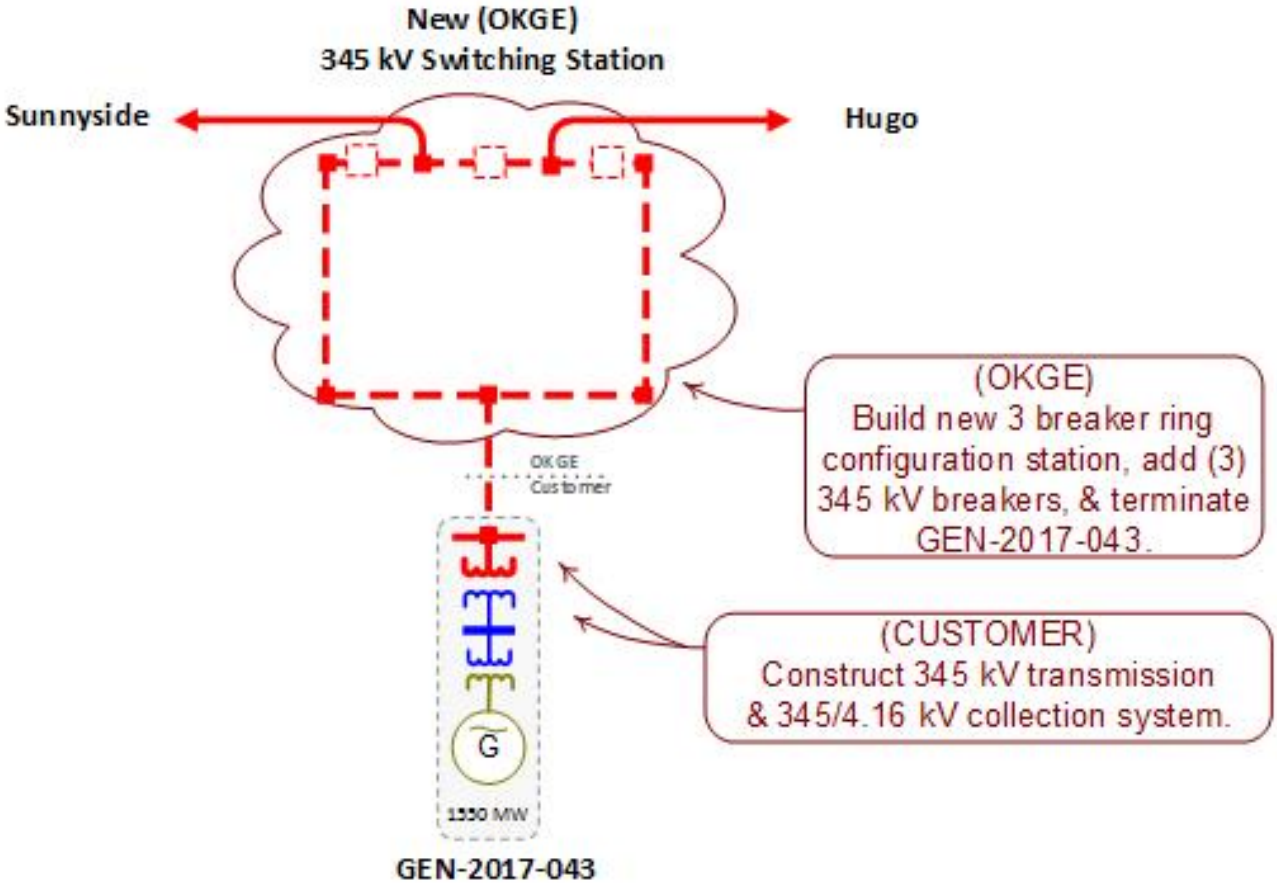
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-008IS	40.50	WAPA	Edgeley 115kV [Pomona 115kV]
GEN-2005-003IS	100.00	WAPA	Nelson 115kV
GEN-2006-001IS	10.00	XEL	Marshall 115kV
GEN-2006-006IS	10.00	XEL	Marshall 115kV
GEN-2007-020IS	16.00	WAPA	Nelson 115kV
GEN-2008-008IS	5.00	WAPA	Nelson 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)	**1,534.0**	**MW**
PQ TOTAL (PRIOR QUEUED)	**64,977.2**	**MW**
CLUSTER TOTAL (INCLUDING PRIOR QUEUED)	**66,511.2**	**MW**

11.4 D: Proposed Point of Interconnection One Line Diagrams

See next page

GEN-2017-043
Estimated Interconnection Cost: $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 Facility Study Agreement.

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

Appendix E. Cost Allocation Per Request

(Including Previously Allocated Network Upgrades*)

Interconnection Request and Upgrades	Upgrade Type	Allocated Cost	Upgrade Cost
GEN-2017-043			
Blue River - Park Lane 138 kV Upgrade terminal equipment	Current Study	$100,000	$100,000
Brown - Russett 138 kV Rebuild 18.4 miles of 138 kV from Russet - S. Brown	Current Study	$19,000,000	$19,000,000
Brown - Tupelo 138 kV Upgrade Tupelo 138 kV terminal equipment	Current Study	$250,000	$250,000
Carlisle 69 kV Reactive Support 45 MVAR SVC at Carlisle 69kV	Current Study	$3,000,000	$3,000,000
GEN-2016-113 Reactive Support 250 MVAR SVC at GEN-2016-133 POI	Current Study	$15,000,000	$15,000,000
GEN-2017-043 Interconnection Costs See One-Line Diagram.	Current Study	$11,737,557	$11,737,557
GEN-2017-043 TAP - Hugo 345 kV Upgrade terminal equipment at Hugo	Current Study	$250,000	$250,000
Hugo - Valliant CKT 2 345 kV Build Valliant - Hugo 2nd CKT 345 kV	Current Study	$35,000,000	$35,000,000
Johnston County - GEN-2017-043 345 kV Build 34.15 miles of 345 kV from Johnston County - GEN-2017-043	Current Study	$22,000,000	$22,000,000
Lydia - Valliant 345 kV Rebuild 43.290 miles of 345 kV from Lydia - Valliant	Current Study	$95,000,000	$95,000,000
Pittsburg - Valliant 345 kV Rebuild 70.2 miles of 345 kV from Pittsburg - Valliant	Current Study	$155,000,000	$155,000,000
Russett - Springdale 138 kV Reconductor 15.590 miles of 138kV from Springdale - Russett	Current Study	$10,000,000	$10,000,000
Sunnyside - Uniroyal 138 kV Rebuild 5.58 miles of 138 kV from Sunnyside - Uniroyal	Current Study	$3,500,000	$3,500,000
	Current Study Total	$369,837,557	
	TOTAL CURRENT STUDY COSTS:	**$369,837,557**	

* 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

Blue River - Park Lane 138 kV			**$100,000**
Upgrade terminal equipment			
	GEN-2017-043	$100,000	
	Total Allocated Costs	**$100,000**	
Brown - Russett 138 kV			**$19,000,000**
Rebuild 18.4 miles of 138 kV from Russet - S. Brown			
	GEN-2017-043	$19,000,000	
	Total Allocated Costs	**$19,000,000**	
Brown - Tupelo 138 kV			**$250,000**
Upgrade Tupelo 138 kV terminal equipment			
	GEN-2017-043	$250,000	
	Total Allocated Costs	**$250,000**	
Carlisle 69 kV Reactive Support			**$3,000,000**
45 MVAR SVC at Carlisle 69kV			
	GEN-2017-043	$3,000,000	
	Total Allocated Costs	**$3,000,000**	
GEN-2016-113 Reactive Support			**$15,000,000**
250 MVAR SVC at GEN-2016-133 POI			
	GEN-2017-043	$15,000,000	
	Total Allocated Costs	**$15,000,000**	
GEN-2017-043 Interconnection Costs			**$11,737,557**
See One-Line Diagram.			
	GEN-2017-043	$11,737,557	
	Total Allocated Costs	**$11,737,557**	
GEN-2017-043 TAP - Hugo 345 kV			**$250,000**
Upgrade terminal equipment at Hugo			
	GEN-2017-043	$250,000	
	Total Allocated Costs	**$250,000**	

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

Hugo - Valliant CKT 2 345 kV			**$35,000,000**
Build Valliant - Hugo 2nd CKT 345 kV			
	GEN-2017-043	$35,000,000	
	Total Allocated Costs	**$35,000,000**	
Johnston County - GEN-2017-043 345 kV			**$22,000,000**
Build 34.15 miles of 345 kV from Johnston County - GEN-2017-043			
	GEN-2017-043	$22,000,000	
	Total Allocated Costs	**$22,000,000**	
Lydia - Valliant 345 kV			**$95,000,000**
Rebuild 43.290 miles of 345 kV from Lydia - Valliant			
	GEN-2017-043	$95,000,000	
	Total Allocated Costs	**$95,000,000**	
Pittsburg - Valliant 345 kV			**$155,000,000**
Rebuild 70.2 miles of 345 kV from Pittsburg - Valliant			
	GEN-2017-043	$155,000,000	
	Total Allocated Costs	**$155,000,000**	
Russett - Springdale 138 kV			**$10,000,000**
Reconductor 15.590 miles of 138kV from Springdale - Russett			
	GEN-2017-043	$10,000,000	
	Total Allocated Costs	**$10,000,000**	
Sunnyside - Uniroyal 138 kV			**$3,500,000**
Rebuild 5.58 miles of 138 kV from Sunnyside - Uniroyal			
	GEN-2017-043	$3,500,000	
	Total Allocated Costs	**$3,500,000**	

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

11.7 G-T: Thermal Power Flow Analysis (Constraints Requiring Transmission Reinforcement)

See next page.

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05677	123.1111	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05358	120.6975	''P12:138:OKGE:3TERM33''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05725	120.5024	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0538	120.1015	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04744	118.962	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04744	118.962	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04744	118.962	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04032	117.7817	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05065	115.9707	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05328	114.216	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05835	111.829	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0559	110.8005	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05328	109.7808	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05275	109.6691	''P12:138:OKGE:3TERM33''
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04986	108.0977	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04032	108.0716	''P42:345:OKGE:SB_JOCO7303''
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	107.1827	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	107.1825	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	107.1825	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	106.9439	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	106.9439	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03868	106.7543	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03868	106.3579	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05734	105.9947	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04015	104.9683	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	0	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05244	104.7927	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04022	104.4739	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03819	104.3607	'VANOSS - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03819	104.2091	'PARK LANE - VANOSS 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03982	103.7593	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0384	103.4242	'CHIGLEY - PAOLI 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03945	103.1592	'G16-091-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03856	103.0689	'BROWN - TUPELO 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05065	102.7659	'SUNNYSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05244	102.7349	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03903	102.6447	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03879	102.6422	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03879	102.6422	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03817	102.5966	'CIMARRON - MINCO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03847	102.5833	''P42:345:OKGE:SB_CRER7389''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03847	102.5831	''P42:345:OKGE:SB_CRER7309''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03847	102.5275	''P42:345:OKGE:SB_CRER7381''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	102.1965	''P12:138:OKGE:3TERM27''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	102.1565	'PAOLI - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	102.0864	'PURCELL4 138.00 - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03813	101.8969	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03813	101.8969	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03945	101.8807	'G16-091-TAP 345.00 - LAWTON EASTSIDE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6815	''P23:345:AEPW:NW TEXARKANA CB 11820 NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6815	''P43:345:AEPW:NW TEXARKANA CB 11820 NBTB+FAULT''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6798	''P23:345:AEPW:NW TEXARKANA CB 11810 NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6798	''P43:345:AEPW:NW TEXARKANA CB 11810 NBTB+FAULT''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	101.672	'NOBLE - PURCELL4 138.00 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04032	101.6404	''P42:345:OKGE:SB_JOCO7383''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6272	''P23:345:AEPW:WELSH CB 11680 NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03621	101.6272	''P41:345:AEPW:WELSH CB 11680 NBTB+FAULT''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	101.5882	'CANADIAN - NOBLE 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03817	101.5314	''P42:345:OKGE:SB_MICO7301''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03817	101.2261	'GRACEMONT - MINCO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03609	101.1987	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03609	101.1987	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03756	101.1824	'SEMINOLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04484	101.0622	''P23:345:AEPW:PITTSBURG CB 3445A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04484	101.0608	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04484	101.0608	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03644	100.8932	'CANEY CREEK - TEXOMA JCT 138KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03761	100.8409	'CANADIAN RIVER - MUSKOGEE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03863	100.6841	'PAOLI - SEMINOLE 138KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03811	100.5448	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	0	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03811	100	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	99.6	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	99.6	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04726	99.6	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	0	17WP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	143	143	0.03551	105.8137	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	117	136	0.03515	100.4283	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	117	136	0.03508	99.8	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04318	102.5832	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.03496	100	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.03496	100	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.03496	100	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	0	21SP	G17_043	'FROM->TO'	'CARTER - CHICKASAW 138KV CKT 1'	191	191	0.03437	101.2933	'ROCKY POINT - SUNNYSIDE 138KV CKT 1'
FDNS	00NR	0	18SP	G17_043	'FROM->TO'	'CARTER - CHICKASAW 138KV CKT 1'	191	191	0.03434	101.2352	'ROCKY POINT - SUNNYSIDE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	137.9971	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	136.7949	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	136.4062	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	135.8205	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	135.7934	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	18G	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	135.66	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	17WP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	133.9187	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	21WP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	133.8682	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	21SP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	133.4602	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	18SP	G17_043	'TO->FROM'	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'	1195	1195	1	133.2113	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			287	287	0.14488	168.3723	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			287	287	0.14488	168.3723	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	1	167.4553	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	1	167.4077	'P42:345:OKGE:SB_SUSD7382-G1663TAP''

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	14NR	0	18G	G17_043			1195	1195	1	162.7461	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			1195	1195	1	162.7385	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	00NR	0	18SP	G17_043			1195	1195	1	161.8786	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			1195	1195	1	161.8671	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	00NR	0	21SP	G17_043			1195	1195	1	160.9706	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			1195	1195	1	160.9597	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	00NR	0	26SP	G17_043			1195	1195	1	160.8138	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			1195	1195	1	160.8069	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	00NR	0	17WP	G17_043			287	287	0.14492	158.8186	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			287	287	0.14492	158.8186	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			500	500	0.28618	156.3145	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			500	500	0.28618	156.3145	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	1	155.3361	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			1195	1195	1	154.0738	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			1195	1195	1	153.6726	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			500	500	0.28618	153.5838	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			500	500	0.28618	153.5838	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			1195	1195	1	153.0726	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	1	153.0501	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			1195	1195	1	152.9079	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			287	287	0.14412	144.9763	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			287	287	0.14412	144.9763	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			500	500	0.28608	144.4988	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			500	500	0.28608	144.4988	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			287	287	0.1449	144.084	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			287	287	0.1449	144.084	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			500	500	0.28608	143.9288	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			500	500	0.28608	143.9288	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	26SP	G17_043			1195	1195	1	142.1294	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	0	0	26SP	G17_043			1195	1195	1	142.1151	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	0	0	17WP	G17_043			1195	1195	1	142.0463	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	0	0	17WP	G17_043			1195	1195	1	142.0412	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	0	0	18SP	G17_043			1195	1195	1	141.9549	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	0	0	18SP	G17_043			1195	1195	1	141.9371	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	1	141.9148	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	21SP	G17_043			1195	1195	1	141.7783	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	0	0	21SP	G17_043			1195	1195	1	141.7605	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	0	0	21WP	G17_043			1195	1195	1	140.9823	''P42:345:OKGE:SB_SUSD7382-G1663TAP''
FDNS	0	0	21WP	G17_043			1195	1195	1	140.9795	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	1	139.2312	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	1	138.6732	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			500	500	0.28442	137.5694	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			500	500	0.28442	137.5694	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	17WP	G17_043			1195	1195	1	137.4886	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	21WP	G17_043			1195	1195	1	137.4381	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			500	500	0.28462	137.424	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			500	500	0.28462	137.424	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	17WP	G17_043			1195	1195	1	137.2792	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	26SP	G17_043			1195	1195	1	137.2577	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	18SP	G17_043			1195	1195	1	137.081	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	21SP	G17_043			1195	1195	1	137.0214	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	0	0	21SP	G17_043			1195	1195	1	136.9718	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	18SP	G17_043			1195	1195	1	136.7699	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			1195	1195	1	136.6627	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	0	0	21WP	G17_043			1195	1195	1	136.3739	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			1195	1195	1	136.3377	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			1195	1195	1	135.968	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			1195	1195	1	135.8698	'G16-063-TAP 345.00 - G17-043-TAP 345.00 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			500	500	0.28606	135.5158	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			500	500	0.28606	135.5158	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			500	500	0.28442	134.8787	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			500	500	0.28442	134.8787	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			500	500	0.28462	134.1734	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			500	500	0.28462	134.1734	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			500	500	0.28606	133.01	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	18G	G17_043			500	500	0.28606	133.01	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			500	500	0.28465	131.6492	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			500	500	0.28465	131.6492	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			287	287	0.14337	130.8376	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21SP	G17_043			287	287	0.14337	130.8376	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			500	500	0.28573	130.5645	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			500	500	0.28573	130.5645	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			287	287	0.14337	130.0637	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	18SP	G17_043			287	287	0.14337	130.0637	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			500	500	0.28573	129.9546	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			500	500	0.28573	129.9546	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.39091	129.2921	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.35671	128.6003	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	0	26SP	G17_043			500	500	0.28465	128.4365	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			500	500	0.28465	128.4365	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.3474	125.3203	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.3474	125.3203	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.34712	125.2671	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	0	26SP	G17_043			287	287	0.14339	123.3264	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			287	287	0.14339	123.3264	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.39041	120.9712	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.49913	120.8973	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.49913	119.8182	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.50085	119.7334	''P42:345:OKGE:SB_SUSD7383''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.35624	119.5957	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.49913	118.9291	''P42:345:OKGE:SB_JOCO7383''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.49319	118.392	'JOHNSON COUNTY - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.34686	116.3983	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.34686	116.3983	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.34659	116.3321	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4991	116.0457	''P42:345:OKGE:SB_JOCO7303''

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.47863	115.6912	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.47863	115.6904	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.47863	115.6904	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.5008	115.002	''P42:345:OKGE:SB_SUSD7383''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4991	114.9885	''P42:345:OKGE:SB_JOCO7313''
FDNS	0	0	17WP	G17_043			500	500	0.29842	114.2556	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	17WP	G17_043			500	500	0.29842	114.2556	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	21WP	G17_043			500	500	0.29792	114.2468	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	21WP	G17_043			500	500	0.29792	114.2468	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4991	114.0942	''P42:345:OKGE:SB_JOCO7383''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.49314	113.6076	'JOHNSON COUNTY - SUNNYSIDE 345KV CKT 1'
FDNS	0	0	17WP	G17_043			500	500	0.29842	112.6903	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	17WP	G17_043			500	500	0.29842	112.6903	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	21WP	G17_043			500	500	0.29792	112.1697	'HUGO - VALLIANT 345KV CKT 1'
FDNS	0	0	21WP	G17_043			500	500	0.29792	112.1697	'HUGO - VALLIANT 345KV CKT 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.32296	111.9512	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.32296	111.9512	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.47859	110.7703	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.47859	110.7695	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.47859	110.7695	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	110.1144	'GEN501801 1-DOLET HILLS UNIT1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	110.1082	'GEN509416 1-TURK GENERATION'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42259	110.1024	''P23:345:AEPW:LONGWOOD CB 10280 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42314	109.8645	'7SAREPTA% 345.00 - LONGWOOD 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42314	109.8645	'7SAREPTA% 345.00 - LONGWOOD 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42314	109.8046	''P23:345:AEPW:LONGWOOD CB 1N20 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42538	108.6029	'7SAREPTA% 345.00 - ELDORADO EHV 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42538	108.5826	'ELDORADO EHV 500/345KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42598	108.5454	'DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42598	108.5454	'DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42598	108.5145	''P23:345:AEPW:SW SHREVEPORT CB 11610 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42598	108.5087	''P23:345:AEPW:SW SHREVEPORT CB 11600 NBTB''
FDNS	00NR	0	21SP	G17_043			133	153	0.04155	108.3721	''P42:345:OKGE:SB_JOCO7303''
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42719	108.1797	'ELDORADO EHV - MOUNT OLIVE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	108.168	'GEN336821 1-GRAND GULF UNIT'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	108.0821	'GEN336153 1-WATERFORD UNIT#3'
FDNS	14NR	0	21L	G17_043			1195	1195	0.49656	108.0059	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.8757	'GEN335831 1-RIVERBEND UNIT#1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.4569	'GEN501813 1-RODEMACHER UNIT 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.4138	'GRAND GULF 500/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.3608	'GEN509404 1-WELSH #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.3523	'GEN509406 1-WELSH #3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.3374	'GEN588203 1-G16-129-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42735	107.3335	'LAYFLD8 500.00 - MOUNT OLIVE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42735	107.3335	'LAYFLD8 500.00 - MOUNT OLIVE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	107.2424	'GEN335206 1-NELSON UNIT 6'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	107.207	''P42:345:OKGE:SB_CION7384''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	107.1441	'CIMARRON - MINCO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42725	107.0848	'WEBRE - WELLS 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.40503	107.0382	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P23:500:AEPW:LAYFIELD CB 20120 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P23:500:AEPW:LAYFIELD CB 20190 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P23:500:AEPW:LAYFIELD CB 20230 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P42:500:AEPW:LAYFIELD CB 20120 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P42:500:AEPW:LAYFIELD CB 20190 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42708	107.0377	''P42:500:AEPW:LAYFIELD CB 20230 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.9967	'GEN501812 1-RODEMACHER UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	106.9538	'KIERSEY JUNCTION NORTH - SCOLEMN4 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	106.9531	'BROWN - KIERSEY JUNCTION NORTH 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.44607	106.9218	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	106.8914	''P42:345:OKGE:SB_MICO7301''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.8622	'GEN334440 1-SABINE UNIT 4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.41483	106.6918	''P23:345:AEPW:PITTSBURG CB 3445A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.41483	106.6895	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.41483	106.6895	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	106.661	'DURANT - SCOLEMN4 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.41531	106.6191	''P42:345:OKGE:SB_SEOL7386''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	106.5972	''P42:345:OKGE:SB_MICO7312''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5895	'GEN303006 1-1BC2 U1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5757	'GEN303008 1-1BC2 U3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5619	''P12:161:AEPW:DYESS5:ELMSPRNG:TONTITN5''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5447	'GEN303007 1-1BC2 U2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.44456	106.5272	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5167	'FRONTIER - GRIMES 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.5018	'GEN506754 1-LEBROCK STEAM 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.4621	'GEN335204 1-NELSON UNIT 4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.4297	'GEN300006 1-NEW MADRID UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.4131	'GEN336252 1-NINEMILE POINT UNIT#5'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.4117	'GEN300007 1-NEW MADRID UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.3902	'GEN334441 1-SABINE UNIT 5'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.3739	'GEN334070 1-LEWIS CREEK 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.3739	'GEN334071 1-LEWIS CREEK 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.428	106.3517	'CYPRESS - HARTBURG 500KV CKT 1'
FDNS	00NR	0	18SP	G17_043			133	153	0.04148	106.3326	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4266	106.3303	'6LAYFLD 230.00 - CARROLL 230KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	106.3288	'BENNINGTON - DURANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	106.325	''P42:345:OKGE:SB_MICO7311''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.3184	'GEN503909 1-FULTONU1 1 16.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.3023	''P12:138:AEPW:CATOOSA4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	106.294	'GEN509403 1-PIRKEY GENERATION'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	106.292	''P42:345:OKGE:SB_MICO7381''
FDNS	00NR	0	21WP	G17_043			1187	1324	0.13417	106.2728	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2686	'GEN509391 G1-ARSENAL HILL GENS #2 (STALL)'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2658	'GEN334433 1-SABINE UNIT 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43778	106.2591	'GRACEMONT - MINCO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2515	'GEN590011 2-ERCOT EQUIVALENCE'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2395	'GEN509392 G2-ARSENAL HILL GENS #3 (STALL)'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2282	''P12:161:AEPW:EROGERS5:ECNTRTN5''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.2221	'GEN336251 1-NINEMILE POINT UNIT#4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1962	'GEN590010 1-ERCOT EQUIVALENCE'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42751	106.1956	'MC NIEL 500/115KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1894	'GEN334030 1-FRONTIER UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1876	'GEN334031 1-FRONTIER UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.44316	106.1778	'G16-091-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.148	'GEN336831 1-BAXTER WILSON SES'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42768	106.1397	''P23:345:GRDA:CLEVLND_BRK13280-G15066TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1339	''P12:161:AEPW:CHAMSPR5:FARMING5''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	106.1164	'CLEVELAND - G15066_T 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1115	'DELL 500 - ESSEX UNIT 2 500KV CKT Z1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42768	106.1099	''P23:345:GRDA:CLEVLND_BRK10180''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.1094	'GEN501811 1-RODEMACHER UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42665	106.071	''P41:345:OKGE:SB_MUGE7385''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	106.0639	'CLAYTON - NASHOBA 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.0555	'GEN335614 1-WILLOW GLENN UNIT#4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	106.047	'BETHEL - NASHOBA 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.0416	'GEN506752 1-LEBROCK GAS 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.0413	'GEN506753 1-LEBROCK GAS 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	106.0327	'FULTON 115 - HOPE 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	106.0327	'FULTON 115 - HOPE 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	106.0228	'G15066_T 345.00 - SOONER 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.0167	'GEN336464 1-MICHOUD UNIT #3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	106.0166	'GEN336191 1-LITTLE GYPSY UNIT#3'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42793	105.9983	'7JASPER 345.00 - BLACKBERRY 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42803	105.9759	'8DANIEL8 500.00 - MCKNIGHT 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43172	105.9693	'JOHNSON COUNTY (JOHNCO) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9514	'GEN337652 1-WHITE BLUFF UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	105.949	'BETHEL - BROKEN BOW 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9368	''P12:138:AEPW:R.S.S.-4:S.HUD.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9332	'NEW MADRID 161/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9162	'NEW MADRID 345/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9078	'NELSON 230/20.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.906	''P12:69:AEPW:NROGERS2:ECNTRTN2''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9032	'GEN337653 1-WHITE BLUFF UNIT #2'
FDNS	00NR	0	21WP	G17_043			1187	1324	0.13536	105.9031	''P23:345:AEPW:VALLIANT CB 3405A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.9014	'GEN588403 1-G16-167-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	105.8821	'BENNINGTON - UNGER 4 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42555	105.8747	'TUPELO - TUPELO TAP 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42717	105.8694	'ETNA - PARK LANE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.8637	'SABINE 230/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.8535	''P12:138:AEPW:BA_71ST4:T.S.E.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.8531	'GEN335370 1-1ACADIA_S26!16.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42769	105.8526	''P41:345:OKGE:SB_REUD7385''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.8461	''P12:138:AEPW:YARCH-S4:T.S.E.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42555	105.8427	''P12:138:OKGE:3TERM52''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	105.8417	'UNGER 4 - WEST BANK 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43006	105.8365	''P12:138:OKGE:3TERM40''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42817	105.8265	''P12:138:AEPW:SHERID4:112GORE4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	105.8203	'ENOWILT - LONE OAK 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4265	105.8142	'ELDORADO EHV - SHERIDAN EHV 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42769	105.8139	''P42:345:OKGE:SB_REUD7386''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42769	105.8138	'REDBUD - RIVERSIDE STATION 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42769	105.8138	'REDBUD - RIVERSIDE STATION 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	105.8104	'ENOWILT - SARDIS 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	105.8052	''P41:345:OKGE:SB_SOER7382_G16100TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43008	105.8029	'BLUERIVER - PARK LANE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	105.8029	''P23:345:AEPW:RIVERSIDE CB 3401A NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7975	'GEN336170 1-GULF OXY U4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42717	105.7969	'ETNA - HARDEN 4 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7921	'GEN509393 S1-ARSENAL HILL GENS #4 (STALL)'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	105.7852	'RUSSETT - RUSSETT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7814	'GEN336801 1-BAXTER WILSON UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42573	105.7744	''P23:345:AEPW:LONGWOOD CB 1N70 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43108	105.7677	'CARTRCO4 138.00 - RATLIFF 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7634	'GEN501910 1-ACADIA UNIT ST1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7586	'FRONTIER 345/18.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7542	'FRONTIER 345/18.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	105.7505	'CLAYTON - SARDIS 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7499	'GEN335178 5-RS Cogen R5'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7361	'GEN303031 1-1G1INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7354	'GEN303024 1-1G3INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7354	'GEN303026 1-1G4INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42665	105.7349	'FT SMITH - MUSKOGEE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7305	'LEWIS CREEK SWITCHYARD 138/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7305	'LEWIS CREEK SWITCHYARD 138/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42932	105.7262	'RUSSETT - SPRINGDALE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42544	105.7224	''P23:345:AEPW:LONGWOOD CB 1N60 NBTB''
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42798	105.7186	'7JASPER 345.00 - MORGAN 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7129	''P12:69:AEPW:L.E.S.-2:LAW WC2''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7114	''P12:138:AEPW:R.S.S-4:T.P.S.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	105.7101	'BROWN - RUSSETT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7093	''P12:138:AEPW:R.S.S.-4:R:96YALE-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7088	'GEN334393 1-EXXON MOBIL IPP 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7088	'GEN334394 1-EXXON MOBIL IPP 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.7037	'GEN501823 1-TECHE UNIT 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43254	105.6998	'PRAIRIE POINT - RATLIFF 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43197	105.6992	'SUNNYSIDE - UNIROYAL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6909	'GEN336222 1-LITTLE GYPSY UNIT#2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42661	105.6902	''P42:345:OKGE:SB_FTTH7386''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42736	105.6896	'LAYFLD8 500.00 (LAYFLD AUTO) 500/230/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42736	105.6896	'LAYFLD8 500.00 (LAYFLD AUTO) 500/230/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42661	105.6892	''P42:345:OKGE:SB_FTTH7385''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42778	105.6876	'NELSON - RICHARD 500KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42661	105.6844	''P43:345-500:OKGE:SB_FTTH7306''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42672	105.682	'LULA - TUPELO TAP 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6811	'GEN501970 1-EVANGELINE UNIT 7'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6786	''P12:138:AEPW:CATOOSA4:ONETA--4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6773	'GEN334432 1-SABINE UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43199	105.677	'SUNNYSIDE (SUNNYSD2) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6769	'GEN334431 1-SABINE UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42416	105.6761	''P12:138:AEPW-SWPA:LONEOAK4:BRKNBW4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42754	105.676	'ALPINE AECC - AMITY SS 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6731	'GEN300015 1-1SGPDEL 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4281	105.6729	''P12:161:AEPW-SWPA:BEAVER5:EROGERS5''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.428	105.6642	''P42:345:OKGE:SB_CION7382''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6637	'GEN336152 1-WATERFORD UNIT#2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	105.6628	'FROGVILLE - WEST BANK 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6626	'GEN336151 1-WATERFORD UNIT#1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6624	'GEN334392 1-EXXON MOBIL IPP 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42806	105.6599	''P55:345:KCPL:STILWELL_BUS_22''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42728	105.6498	'COUCH SES - MC NIEL 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6493	'8OUACHITA% 500.00 - 8STERLING2% 500.00 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6399	'SABINE 230/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42817	105.6357	''P12:138:AEPW:112GORE4:L.E.S.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42784	105.6344	'ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.428	105.6318	'CIMARRON - DRAPER LAKE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42747	105.6207	'ETTA (DUKE HOTSPRINGS) - MC NIEL 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6184	'GEN303025 1-1S3INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6184	'GEN303027 1-1S4INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6177	'GEN303032 1-1S1INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.6173	''P23:345:WERE:SUMM_345_BKRSP::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.6107	'GEN505432 1-SIKESTON'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42801	105.6089	''P42:345:OKGE:SB_DRER7384''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42783	105.6072	'CLEVELAND - TULSA NORTH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42783	105.6072	'CLEVELAND - TULSA NORTH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42762	105.6071	'HOT SPRINGS EHV - MAGNET COVE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5988	'NELSON 230/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43197	105.5936	'ARDMORE WEST - UNIROYAL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42717	105.5911	'FRISCCO4 138.00 - HARDEN 4 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5859	'ACADIA POWER STATION 138/18.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5854	'GEN501911 1-ACADIA UNIT CT1A'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5835	''P12:138:AEPW:N.E.S.-4:CATOOSA4_1OF2''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.583	'GEN501912 1-ACADIA UNIT CT1B'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5819	''P12:138:AEPW:MOHAWK4:T.NO--4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.573	'SABINE 138/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5724	'GEN300010 1-ST FRANCIS UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5677	'GEN336242 1-1NMIL6 ST1 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5627	'GEN335371 1-1ACADIA_C25!18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5627	'GEN335372 1-1ACADIA_C24!18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5622	'GEN501972 1-EVANGELINE UNIT 7-2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.559	''P12:138:AEPW:81GARN-4:ONETA--4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5584	'GEN501971 1-EVANGELINE UNIT 7-1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5553	'WHITE BLUFF 500/26.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42224	105.551	'FROGVILLE - HUGO POWER PLANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43197	105.5491	'ARDMORE WEST - CARTER 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	105.5445	'HOPE - MCNAB REC 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42141	105.5441	''P12:138:AEPW-WFEC:ATOKA--4: LANE 4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42141	105.5433	'ATOKA - ATOKA EAST 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42141	105.543	'ATOKA EAST - LANE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42787	105.5349	'LAKEOVER - MCADAMS 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42785	105.5347	'MAGNOLIA EAST - MC NIEL 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5342	'GEN338443 1-PANDA S1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	105.532	''P12:115:AEPW:TURK3:HOPE3''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	105.5305	'G16-100-TAP 345.00 - SOONER 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5281	'GEN300011 1-ST FRANCIS UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.5198	'G16-122-TAP 345.00 - SUMMIT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42808	105.5175	''P23:345:WERE:N345_345-110::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42717	105.5168	'FRISCCO4 138.00 - LULA 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5163	'HUGO POWER PLANT 138/23.4KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5163	'HUGO POWER PLANT 138/23.4KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5152	'FANCY POINT - RIVER BEND 230KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5152	'RIVER BEND 230/21.5KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.514	'GEN335545 1-DOW AEP UNIT5'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42808	105.513	'8CAJUN2 - WEBRE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.5101	'CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42688	105.5099	'CARROLL - DOLET HILLS 230KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42905	105.5067	'MUSKOGEE - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5042	'ANADARKO 138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.5042	'ANADARKO 138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	105.502	'TURK (TURK 1) 138/115/13.2KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	105.502	'TURK (TURK 1) 138/115/13.2KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42807	105.4985	'EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42639	105.4957	'MCNAB REC - Turk 115 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43005	105.4946	'ROCKY POINT - SUNNYSIDE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4945	''P12:138:AEPW:T.P.S.-4:DENVR-C4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.493	''P12:138:AEPW:MOUNDRD4:SHIDLER4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4832	'GEN336240 1-1NMIL6 CT1 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4832	'GEN336241 1-1NMIL6 CT2 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42815	105.4821	'G15088_T 345.00 - MOORE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4817	'GEN300016 1-1G1GPDEL 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4763	'ESSEX UNIT 2 500/18.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4281	105.4762	''P12:138:AEPW-OGE:SHIDLER4:OSAGE 4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42778	105.4759	''P12:138:AEPW:MCALEST4:LONEOAK4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4706	'GEN300017 1-1G2GPDEL 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4699	'GEN335571 1-CARVILLE UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4691	''P12:138:AEPW:SAPLPRD4:R.S.S.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4684	'GEN335570 1-CARVILLE CTG'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4599	'GEN334232 1-1PELCNRD U1!13.800'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4599	'GEN334233 1-1PELCNRD U2!13.800'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42785	105.4594	'MAGNOLIA EAST - MAGNOLIA STEEL 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4579	''P12:138:AEPW:81GARN-4:T.S.E.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4562	'GEN335541 1-DOW AEP UNIT1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4562	'GEN335542 1-DOW AEP UNIT2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4562	'GEN335543 1-DOW AEP UNIT3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4562	'GEN335544 1-DOW AEP UNIT4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42807	105.4495	'P23:345:WERE:EMPR_345-300::G1401TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4471	'GEN337430 1-PERYVILLE UNIT #3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4462	'GEN337428 1-PERYVILLE UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42807	105.445	'G14_001T 345.00 - WICHITA 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4445	''P23:345:WERE:LATH_BKRS::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4391	''P12:138:AEPW:T.NO.-4:W.ED.-E4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4374	''P12:161:AEPW:OSBURN:DYESS5''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42785	105.4367	'KERLIN SS - MAGNOLIA STEEL 115KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4354	'GEN335201 1-NELSON UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4353	'GEN335202 1-NELSON UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43254	105.4347	'MAYSVLT4 138.00 - PRAIRIE POINT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4347	'GEN337432 1-PERYVILLE UNIT #5'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42809	105.4346	'BLACKBERRY - NEOSHO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42809	105.4346	'BLACKBERRY - NEOSHO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	105.434	'MCADAMS - WOLF CREEK 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4328	'GEN338146 1-INDEPENDENCE UNIT #2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43254	105.432	'MAYSVILLE - MAYSVLT4 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1187	1324	0.13519	105.4314	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1187	1324	0.13519	105.4314	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4313	''P12:138:AEPW:36LEWIS4:T.S.E.-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4295	'LATHAMS7 345.00 - ROSE HILL 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4267	''P23:345:WERE:ROSE_345-20::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42813	105.4247	''P23:345:WERE:SUMM_345-218F2::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43307	105.4212	''P12:138:OKGE:3TERM39''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4205	'GEN336167 1-GULF OXY U1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4205	'GEN336168 1-GULF OXY U2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4205	'GEN336169 1-GULF OXY U3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42776	105.42	'MAYFLOWER 500 - PLEASANT HILL 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4162	'GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4131	'SHIDLER - WEST PAWHUSKA 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4113	'PAWHUSKA TAP - WEST PAWHUSKA 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4075	'GEN335612 1-WILLOW GLENN UNIT#2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.4057	'DOMES - PAWHUSKA TAP 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43254	105.4053	'MAYSVILLE - PAOLI 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42774	105.4053	'ARKANSAS NUCLEAR ONE - MABELVALE 500 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42806	105.4037	'7LUTESVIL 345.00 - 7ST FRANC 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.4003	'8COTNWOOD1! 500.00 - HARTBURG 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42812	105.3978	'DOMES - MOUND ROAD 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3947	'CAIN CHEMICAL - CONOCO 1 138KV CKT Z1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	105.3939	'GEN509416 1-TURK GENERATION'
FDNS	00NR	0	21SP	G17_043			133	153	0.04155	105.3927	''P42:345:OKGE:SB_JOCO7383''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42845	105.3887	''P12:138:AEPW:CORNVIL4:DUNCAN-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3819	'ST FRANCIS - ST FRANCIS 1 161KV CKT Z1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3819	'ST FRANCIS 161/16.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3783	'GEN338449 1-PANDA S3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3781	'GEN338452 1-PANDA S4'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43064	105.3778	'HONEYCK4 138.00 - KERR MCGEE CIMARRON 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3772	'GEN338442 1-PANDA G1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3772	'GEN338444 1-PANDA G2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4267	105.3745	''P12:138:AEPW:TUPELO4:ATOKA--4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3667	'GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42931	105.357	'ARCADIA - NORTHWEST 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43064	105.3557	'JOLLYVILLE - KERR MCGEE CIMARRON 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42936	105.3523	''P42:345:OKGE:SB_ARIA7382''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42866	105.3498	'CARTER - CHICKASAW 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42957	105.3435	'ROCKY POINT - SPRINGDALE 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42841	105.3357	'CANEY CREEK - JOHNSON COUNTY 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.3262	'GEN338143 1-INDEPENDENCE UNIT #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43064	105.3218	'JOLLYVILLE - SULPHR 4 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4267	105.3218	'ALLEN NATURAL GAS TAP - TUPELO 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43028	105.3145	'CHICKASAW - TOTAL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4304	105.3121	'SUNNYSIDE (SUNNYSD3) 345/138/13.8KV TRANSFORMER CKT 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42812	105.266	''P23:345:AEPW:WILKES CB 1W20 NBTB''
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42812	105.266	''P43:345:AEPW:WILKES CB 1W20 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1187	1324	0.13483	105.1838	''P23:345:AEPW:NW TEXARKANA CB 16780 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	105.1224	'GEN501801 1-DOLET HILLS UNIT1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0194	'WELSH 345KV SWITCHED SHUNT'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	'2217-NEBRASKA CITY 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	'2564-NEBRASKA CITY 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	'2604-NEBRASKA CITY 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	'911-WELSH'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	'NF'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	105.0126	System Intact
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42246	104.8506	''P23:345:AEPW:LONGWOOD CB 10280 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.8199	'GEN542962 2-IATAN UNIT #2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42593	104.8169	''P23:345:AEPW:WILKES CB 1W10 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.7809	'GEN587203 1-G16-030-GEN10.4800'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42763	104.7646	'HUGO POWER PLANT - VALLIANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42763	104.7646	'HUGO POWER PLANT - VALLIANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42593	104.7436	''P23:345:AEPW:WILKES CB 1R30 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.727	'GEN562783 1-G15036_4 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.727	'GEN562784 1-G15036_5 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.7151	'GEN587044 1-G16-005-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.7014	'GEN588023 1-G16-125-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42759	104.6996	'BROKEN BOW TAP - CRAIG JUNCTION 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.676	'GEN563262 1-G15092_3 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6757	'GEN515040 1-SEMINOLE 1G'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6748	'GEN514805 1-SOONER UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6726	'GEN523461 1-BLACKHAWK GEN #1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6726	'GEN523462 1-BLACKHAWK GEN #2'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42799	104.6722	'IPC DOMINO - RED SPRINGS REC 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42799	104.6667	''P12:138:AEPW:IPC-DOM4:WATLANT4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.664	'GEN514806 1-SOONER UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42759	104.6618	'BROKEN BOW TAP - IDABEL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6575	'GEN588333 1-G16-163-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6569	'GEN588323 1-G16-162-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42873	104.6558	'CHISHOLM7 345.00 - G16-037-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42759	104.6467	''P12:138:AEPW:CRAIGJT4:IDABEL-4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6393	'GEN524285 1-WILDORADO WIND GEN'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6385	'GEN587883 1-G16-111-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42807	104.6318	'BATESVILLE - MOOREFIELD 161KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42798	104.6272	'8HOLND BTM% 500.00 - KEO EHV 500KV CKT 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42668	104.6265	''P23:345:AEPW:CROCKETT CB 12630 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42804	104.6256	'ST FRANCIS - WHITEWATER EAST 345KV CKT 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42668	104.6242	''P23:345:AEPW:CROCKETT CB 12620 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42809	104.6233	'BAXTER WILSON SES - RAY BRASWELL SES 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6232	'GEN587913 1-G16-114-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42759	104.6232	'IDABEL - VALLIANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42759	104.6232	'IDABEL - VALLIANT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6215	'BURLINGTON NO1 + NO 2 + NO 3 161/20.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6197	'7CALAWY 1 345.00 345/25.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4276	104.6159	''P23:345:AEPW:PIRKEY CB 12360 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42683	104.6137	''P23:345:AEPW:DIANA CB 12000 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42814	104.6079	'GRANDPRAIRIE-HOLT-TLINE-REACTOR-CKT1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6078	'GEN588193 1-G16-128-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6074	'DRY CREEK 4230.00 - RCDC EAST 4230.00 230KV CKT Z'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42814	104.6071	'GRPRAR1-LNX3345.00 - YANKTON 345KV CKT Z'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42814	104.6066	'GRPRAR1-LNX3345.00 - HOLT.CO3 345.00 345KV CKT 1'
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42816	104.6059	''P12:230:UMZB:# 111 #: ST IN SD. WESSINGTION SPRINGS-STORLA-VT HANLON''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42799	104.6048	'BANN - RED SPRINGS REC 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42762	104.5969	''P23:345:AEPW:PIRKEY CB 13430 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5951	'GEN562512 1-G14_020_3 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42763	104.593	'DIANA - PIRKEY 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42763	104.593	'DIANA - PIRKEY 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42799	104.5927	''P12:138:AEPW:IPC-DOM4:BANN4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5868	'GEN657749 1-YOUNG 1 GENERATOR'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.5856	''P23:345:AEPW:WELSH CB 10630 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.5856	''P41:345:AEPW:WELSH CB 10630 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5827	'GEN587703 1-G16-078-GEN10.6000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42873	104.5787	'G15063_T 345.00 - MATHWSN7 345.00 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5784	'GEN562023 1-G11-020-GEN 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5761	'GEN587813 1-G16-101-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5653	'GEN587743 1-G16-091-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5557	'GEN629072 4-LANSING GENERATOR FOR UNITS NO4 EIA CODE 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5494	'GEN562026 1-G11-019-GEN 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5484	'GEN588446 1-G16-172-GEN20.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.5393	'GEN587213 1-G16-032-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.536	'GEN588443 1-G16-172-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42794	104.5342	'KEO EHV - WHITE BLUFF 500KV CKT 1'
FDNSLock	00NR	0	17WP	G17_043			1195	1195	0.42301	104.5264	'7SAREPTA% 345.00 - LONGWOOD 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.5234	'BBDAMTP4 - DOMINJCT4 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42873	104.5082	'G16-037-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42761	104.4986	''P23:345:AEPW:DIANA CB 11900 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4982	'EASTDC - ERCOT EQUIVALENCE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42808	104.4848	'KEO EHV - WEST MEMPHIS 500 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4707	'INDEPENDENCE 500/26.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42601	104.4601	''P23:345:AEPW:DIANA CB 11910 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4598	'GEN588436 1-G16-169-GEN20.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4281	104.4538	'8JB-EHV% 500.00 - INDEPENDENCE 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4487	''P22:345:OPPD:S3458 NEBCTY2G''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4487	''P23:345:OPPD:S3458 NEBCTY2G''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4453	'GEN587993 1-G16-121-GEN10.5500'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42771	104.4277	'DIANA - WELSH 345KV CKT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42771	104.4277	'DIANA - WELSH 345KV CKT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4268	'PLUM POINT 500/23.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4258	'GEN672310 1-POPLAR RIVER GENERATOR 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4257	'GEN672311 2-POPLAR RIVER GENERATOR 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4238	'GEN527903 1-HOBBS PLANT #3 (ST)'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4129	'GEN672321 1-SHAND GENERATOR 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.4119	'DIANA - WELSH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.4119	'DIANA - WELSH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.4117	'BROKEN BOW - GRANDFIELD 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.4114	'DOMINJCT4 138.00 - GRANDFIELD 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4084	'GEN562590 1-G14_057_3 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4051	'GEN587793 1-G16-097-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.4043	'GEN527901 1-HOBBS PLANT #1 (CT)'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42771	104.3982	''P23:345:AEPW:DIANA CB 10590 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3968	'GEN681522 3-GENOA 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.3942	''P23:345:AEPW:DIANA CB 12060 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3941	''P12:069:WERE:2MAD-TEC_69_1::''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3928	'GEN672306 6-BOUNDARY DAM GENERATOR 6'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4277	104.383	''P23:345:AEPW:DIANA CB 11890 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3817	'GEN588003 1-G16-123-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3809	'GEN587953 1-G16-119-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3736	'THOMAS HILL 161/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.3734	'BROKEN BOW - HOLY CREEK 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3732	'GEN588006 1-G16-123-GEN20.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3732	'GEN588013 1-G16-124-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3653	'GEN587973 1-G16-175-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3585	'GEN523973 1-HARRINGTON GEN #3 24 KV'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3462	'ARKANSAS NUCLEAR ONE 500/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.3349	'HOLY CREEK - IDABEL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3238	'GEN587943 1-G16-118-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3126	'GEN515564 1-ORIGIN11 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3126	'GEN515565 1-ORIGIN21 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.3004	'GEN587958 1-G16-119-GEN20.6900'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.2912	'GARVIN4 138.00 - IDABEL 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2812	'4SIOUX 1 138.00 138/18.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2766	'GEN588433 1-G16-169-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.32253	104.2745	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.32253	104.2745	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.2738	'GARVIN4 138.00 - VALLENT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2653	'GEN661015 1-COYOTE'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	104.2629	''P23:345:AEPW:WELSH CB 10620 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	104.2629	''P42:345:AEPW:WELSH CB 10620 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2516	'GEN587824 1-G16-102-GEN20.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.249	'ARKANSAS NUCLEAR ONE 500/22.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2485	'GEN562685 1-G15_013_3 0.3550'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43008	104.2463	'ARBUCKLE - G16-126-TAP 138.00 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.2461	'GEN525845 1-ELK_2 1 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.246	'GEN525844 1-ELK_1 118.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42696	104.241	'HUGO POWER PLANT - VALLENT 138KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.212	'GEN657748 1-YOUNG 2 GENERATOR'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4272	104.1986	'NORTHWEST TEXARKANA - WELSH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4272	104.1986	'NORTHWEST TEXARKANA - WELSH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.1716	'GEN587967 1-G16-120-GEN20.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.1635	'GEN681542 6-JP MADGETT'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1581	'CROCKETT - TENASKA RUSK COUNTY 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1581	''P23:345:AEPW:TENASKA CB 12850 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1559	''P23:345:AEPW:TENASKA CB 12840 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1559	''P42:345:AEPW:TENASKA CB 12840 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1541	'LEBROCK - TENASKA RUSK COUNTY 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1541	''P23:345:AEPW:TENASKA CB 12860 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1517	''P23:345:AEPW:LEBROCK CB 13210 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1517	''P41:345:AEPW:LEBROCK CB 13210 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1513	''P23:345:AEPW:LEBROCK CB 13260 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42718	104.1513	''P41:345:AEPW:LEBROCK CB 13260 NBTB+FAULT''
FDNS	00NR	0	21SP	G17_043			117	136	0.03515	104.1418	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.137	'GEN587963 1-G16-120-GEN10.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.1358	'GEN527166 1-MUSTANG_6 118.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	104.1313	''P42:345:OKGE:SB_NOST7382''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	104.1241	'NORTHWEST - SPRING CREEK 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42877	104.1237	'G16-100-TAP 345.00 - SPRING CREEK 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.1124	'GEN523972 1-HARRINGTON GEN #2 24 KV'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.1031	'GEN620315 1-BIG STONE GEN'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42685	104.0883	''P12:138:WFEC-AEPW:GOLDENSW4:CRAIGJT4''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.0752	'GEN515577 1-ARBWND11 0.6900'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	104.065	'ALMA 161 161/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42711	104.0554	''P23:345:AEPW:NW TEXARKANA CB 11830 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42586	104.0322	'DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42586	104.0322	'DOLET HILLS - SOUTHWEST SHREVEPORT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42585	104.0161	''P23:345:AEPW:SW SHREVEPORT CB 11610 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42585	104.0079	''P23:345:AEPW:SW SHREVEPORT CB 11600 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.9911	'GEN600004 2-PRAIRIE ISLAND G2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.9893	'GEN600003 1-PRAIRIE ISLAND G1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.98	'GEN523971 1-HARRINGTON GEN #1 24 KV'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.9665	'GEN600006 1-AS KING'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.9648	'GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	103.9408	''P23:345:AEPW:WILKES CB 1U70 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	103.9408	''P41:345:AEPW:WILKES CB 1U70 NBTB+FAULT''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	103.9354	'WELSH - WILKES 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42679	103.9354	'WELSH - WILKES 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.44316	103.9337	'G16-091-TAP 345.00 - LAWTON EASTSIDE 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.9209	'BIG STONE 230/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43078	103.8999	''P23:345:AEPW:LAWTON EASTSIDE CB 3429B NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.8922	'GEN635213 3-NEAL UNIT 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.8884	'GEN588183 1-G16-126-GEN10.6500'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.8818	'GEN615001 1-COAL CREEK'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.8683	'GEN615002 2-COAL CREEK'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43008	103.6668	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.43008	103.6668	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	0.49656	103.6461	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.5724	'GEN587773 1-G16-095-GEN10.6900'
FDNS	00NR	0	18SP	G17_043			117	136	0.03508	103.5167	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.5033	'SHERBURNE CO 345/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42525	103.4058	'7SAREPTA% 345.00 - ELDORADO EHV 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42525	103.3833	'ELDORADO EHV 500/345KV TRANSFORMER CKT 1'
FDNS	00NR	0	18SP	G17_043			133	153	0.04148	103.3677	''P42:345:OKGE:SB_JOCO7383''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4261	103.3622	''P23:345:AEPW:WELSH CB 10610 NBTB''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42816	103.2682	'GEN525561 1-TOLK GEN #1 24 KV'
FDNS	14NR	0	18G	G17_043			1195	1195	0.49906	103.2433	''P42:345:OKGE:SB_JOCO7303''
FDNSLock	00NR	0	21WP	G17_043			1195	1195	0.42816	103.1343	'GEN344225 1-1CAL G1 25.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	103.1253	'GEN336821 1-GRAND GULF UNIT'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	103.0374	'GEN336153 1-WATERFORD UNIT#3'
FDNS	14NR	0	21L	G17_043			1195	1195	0.47605	102.9379	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	0	21L	G17_043			1195	1195	0.47605	102.9375	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	0.47605	102.9375	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42467	102.8838	''P42:500:OKGE:SB_FTTH8581''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.48683	102.8571	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.8413	'GEN335831 1-RIVERBEND UNIT#1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42468	102.7904	''P42:500:OKGE:SB_FTTH8583''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42468	102.7714	'ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42468	102.7714	'ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1'
FDNS	00NR	0	21SP	G17_043			133	153	0.05087	102.6895	'JOHNSON COUNTY - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.6315	'GEN509406 1-WELSH #3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	102.6285	''P42:345:OKGE:SB_CION7384''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.6174	'GEN509404 1-WELSH #1'
FDNS	00NR	0	21SP	G17_043			194	222	0.08772	102.577	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.44599	102.5734	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.41482	102.5714	'HUGO (HUGO 1) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	102.56	'CIMARRON - MINCO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.55	'GEN588203 1-G16-129-GEN10.6900'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.4887	'GEN501813 1-RODEMACHER UNIT 3'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42491	102.4078	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.3247	'GEN335206 1-NELSON UNIT 6'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	102.3037	''P42:345:OKGE:SB_MICO7301''
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42503	102.2859	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42503	102.2859	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42502	102.2675	''P23:345:AEPW:VALLIANT CB 3405A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	102.2555	'ELDORADO EHV - MOUNT OLIVE 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.44447	102.1493	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	00NR	0	18SP	G17_043			194	222	0.08772	102.14	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	102.0566	'GEN501812 1-RODEMACHER UNIT 2'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42466	101.992	''P23:345:AEPW:NW TEXARKANA CB 16780 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	101.9918	''P42:345:OKGE:SB_MICO7312''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42713	101.9179	'WEBRE - WELLS 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.8521	'GEN334440 1-SABINE UNIT 4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	101.772	'KIERSEY JUNCTION NORTH - SCOLEMN4 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	101.7711	'BROWN - KIERSEY JUNCTION NORTH 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.44307	101.7473	'G16-091-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.7336	'FRONTIER - GRIMES 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	101.7163	''P42:345:OKGE:SB_MICO7311''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.7026	'GEN300006 1-NEW MADRID UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.6929	'GEN506754 1-LEBROCK STEAM 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.6866	'GEN300007 1-NEW MADRID UNIT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	101.685	''P42:345:OKGE:SB_MICO7381''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42785	101.6672	'CYPRESS - HARTBURG 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43797	101.662	'GRACEMONT - MINCO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4047	101.662	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.6512	'GEN303006 1-1BC2 U1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42647	101.6463	'6LAYFLD 230.00 - CARROLL 230KV CKT 1'
FDNS	00NR	0	21SP	G17_043			194	222	0.08268	101.6392	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.6384	'GEN303008 1-1BC2 U3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.6262	'GEN303007 1-1BC2 U2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.5904	''P12:161:AEPW:DYESS5:ELMSPRNG:TONTITN5''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42722	101.5202	'LAYFLD8 500.00 - MOUNT OLIVE 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P23:500:AEPW:LAYFIELD CB 20120 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P23:500:AEPW:LAYFIELD CB 20190 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P23:500:AEPW:LAYFIELD CB 20230 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P42:500:AEPW:LAYFIELD CB 20120 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P42:500:AEPW:LAYFIELD CB 20190 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42694	101.52	''P42:500:AEPW:LAYFIELD CB 20230 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	101.5094	'DURANT - SCOLEMN4 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.5071	'GEN590011 2-ERCOT EQUIVALENCE'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.5061	'GEN335204 1-NELSON UNIT 4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.5038	'GEN503909 1-FULTONU1 1 16.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4911	'GEN334070 1-LEWIS CREEK 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4911	'GEN334071 1-LEWIS CREEK 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.41452	101.4797	''P23:345:AEPW:PITTSBURG CB 3445A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.41452	101.4775	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.41452	101.4775	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42789	101.4557	''P23:345:WERE:WOLF_345-120::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.448	'GEN590010 1-ERCOT EQUIVALENCE'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4447	''P12:138:AEPW:CATOOSA4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4431	'GEN509391 G1-ARSENAL HILL GENS #2 (STALL)'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.415	101.4219	''P42:345:OKGE:SB_SEOL7386''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42789	101.4213	'LACYGNE - WAVERLY7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4139	'GEN509392 G2-ARSENAL HILL GENS #3 (STALL)'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4138	'GEN334441 1-SABINE UNIT 5'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.4122	'GEN336252 1-NINEMILE POINT UNIT#5'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42789	101.3661	''P23:345:WERE:WAVS_BKR5::''
FDNS	14NR	0	21L	G17_043			1195	1195	0.39006	101.3536	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42789	101.3394	'WAVERLY7 345.00 - WOLF CREEK 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.3374	'GEN334030 1-FRONTIER UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.334	'GEN334031 1-FRONTIER UNIT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.3027	'GEN334433 1-SABINE UNIT 3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42737	101.28	'MC NIEL 500/115KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2582	''P12:161:AEPW:EROGERS5:ECNTRTN5''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42752	101.2432	''P23:345:GRDA:CLEVLND_BRK13280-G15066TAP''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2301	'GEN506753 1-LEBROCK GAS 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2298	'GEN506752 1-LEBROCK GAS 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42754	101.2257	'CLEVELAND - G15066_T 345.00 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	0.48667	101.2248	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2192	'GEN501811 1-RODEMACHER UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2175	'DELL 500 - ESSEX UNIT 2 500KV CKT Z1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2143	'GEN336251 1-NINEMILE POINT UNIT#4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42752	101.2141	''P23:345:GRDA:CLEVLND_BRK10180''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	101.2102	'BENNINGTON - DURANT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.2098	''P12:161:AEPW:CHAMSPR5:FARMING5''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	101.2038	'FULTON 115 - HOPE 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	101.2038	'FULTON 115 - HOPE 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.1971	'GEN336831 1-BAXTER WILSON SES'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43158	101.1857	'JOHNSON COUNTY (JOHNCO) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42778	101.178	'7JASPER 345.00 - BLACKBERRY 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4256	101.1634	''P23:345:AEPW:LONGWOOD CB 1N70 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42788	101.1384	''P23:345:WERE:N345_345-20::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42754	101.1304	'G15066_T 345.00 - SOONER 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0986	'GEN335614 1-WILLOW GLENN UNIT#4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0897	''P12:138:AEPW:R.S.S.-4:S.HUD.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42531	101.0783	''P23:345:AEPW:LONGWOOD CB 1N60 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0762	'GEN588403 1-G16-167-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42751	101.072	''P23:345:AEPW:RIVERSIDE CB 3405A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0616	'GEN336464 1-MICHOUD UNIT #3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0611	'GEN336191 1-LITTLE GYPSY UNIT#3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0472	'GEN337652 1-WHITE BLUFF UNIT #1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42647	101.0411	''P41:345:OKGE:SB_MUGE7385''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0184	''P12:138:AEPW:BA_71ST4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	101.0132	'CLAYTON - NASHOBA 138KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0126	''P12:138:AEPW:YARCH-S4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42994	101.0054	'BLUERIVER - PARK LANE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	101.0008	'GEN337653 1-WHITE BLUFF UNIT #2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42992	100.9993	''P12:138:OKGE:3TERM40''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.9961	'BETHEL - NASHOBA 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43094	100.9883	'CARTRCO4 138.00 - RATLIFF 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.9849	''P41:345:OKGE:SB_REUD7385''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42804	100.9817	''P12:138:AEPW:SHERID4:112GORE4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42701	100.9725	'ETNA - PARK LANE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.9719	'GEN335370 1-1ACADIA_S26!16.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.9622	'GEN509393 S1-ARSENAL HILL GENS #4 (STALL)'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.956	''P12:69:AEPW:NROGERS2:ECNTRTN2''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.9512	'REDBUD - RIVERSIDE STATION 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.9512	'REDBUD - RIVERSIDE STATION 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.4251	100.951	''P23:345:AEPW:WELSH CB 11990 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.9507	''P42:345:OKGE:SB_REUD7386''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42865	100.9485	'P41:345:OKGE:SB_SOER7382_G16100TAP''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.9453	'GEN337041 1-GERALD ANDRUS'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.9452	''P23:345:AEPW:RIVERSIDE CB 3401A NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43241	100.9444	'PRAIRIE POINT - RATLIFF 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42535	100.9443	'TUPELO - TUPELO TAP 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43183	100.9194	'SUNNYSIDE - UNIROYAL 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.9182	'GEN336170 1-GULF OXY U4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42536	100.9118	''P12:138:OKGE:3TERM52''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42862	100.9096	'RUSSETT - RUSSETT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42701	100.908	'ETNA - HARDEN 4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8919	'GEN335178 5-RS Cogen R5'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8904	'GEN501910 1-ACADIA UNIT ST1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.8898	'BETHEL - BROKEN BOW 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8877	''P12:138:AEPW:R.S.S-4:T.P.S.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42793	100.8869	''P55:345:KCPL:STILWELL_BUS_22''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43186	100.886	'SUNNYSIDE (SUNNYSD2) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42918	100.881	'RUSSETT - SPRINGDALE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8767	''P12:138:AEPW:R.S.S.-4:R:96YALE-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.87	'GEN336801 1-BAXTER WILSON UNIT #1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42782	100.8592	'7JASPER 345.00 - MORGAN 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.858	''P12:69:AEPW:L.E.S.-2:LAW WC2''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42796	100.8567	''P12:161:AEPW-SWPA:BEAVER5:EROGERS5''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8525	'GEN303031 1-1G1INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8525	'GEN303033 1-1G2INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8524	'GEN303024 1-1G3INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8524	'GEN303026 1-1G4INTHB 18.000'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42341	100.8504	'LYDIA - WELSH 345KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.42341	100.8504	'LYDIA - WELSH 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8502	'GEN334393 1-EXXON MOBIL IPP 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8502	'GEN334394 1-EXXON MOBIL IPP 3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42721	100.8459	'LAYFLD8 500.00 (LAYFLD AUTO) 500/230/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42862	100.8376	'BROWN - RUSSETT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.833	'GEN300015 1-1SGPDEL 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.829	'GEN505432 1-SIKESTON'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8218	''P12:138:AEPW:CATOOSA4:ONETA--4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42655	100.8151	'LULA - TUPELO TAP 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8137	'GEN501970 1-EVANGELINE UNIT 7'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43183	100.813	'ARDMORE WEST - UNIROYAL 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4277	100.813	'ARKANSAS NUCLEAR ONE - PLEASANT HILL 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42803	100.8104	''P12:138:AEPW:112GORE4:L.E.S.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.8059	'GEN334392 1-EXXON MOBIL IPP 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.804	'GEN300003 1-THOMAS HILL UNIT 3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.8034	''P23:345:WERE:SUMM_345_BKRSP::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42674	100.8029	'CARROLL - DOLET HILLS 230KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42784	100.7997	''P42:345:OKGE:SB_CION7382''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4274	100.7846	'ALPINE AECC - AMITY SS 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7844	'GEN334432 1-SABINE UNIT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7833	'GEN334431 1-SABINE UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	100.779	'BENNINGTON - UNGER 4 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42785	100.7784	'CIMARRON - DRAPER LAKE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	100.7725	'HOPE - MCNAB REC 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42715	100.7685	'COUCH SES - MC NIEL 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7631	'GEN336222 1-LITTLE GYPSY UNIT#2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7631	'GEN501823 1-TECHE UNIT 3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.7625	'ENOWILT - LONE OAK 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43183	100.761	'ARDMORE WEST - CARTER 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7565	''P12:138:AEPW:MOHAWK4:T.NO--4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42647	100.7545	'FT SMITH - MUSKOGEE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.7543	'ENOWILT - SARDIS 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	100.7535	''P12:115:AEPW:TURK3:HOPE3''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42786	100.7514	''P42:345:OKGE:SB_DRER7384''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7482	'GEN303025 1-1S3INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7482	'GEN303027 1-1S4INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7482	'GEN303032 1-1S1INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7482	'GEN303034 1-1S2INTHB 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4221	100.7436	'UNGER 4 - WEST BANK 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7408	'GEN336152 1-WATERFORD UNIT#2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7396	'GEN336151 1-WATERFORD UNIT#1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7392	'GEN300011 1-ST FRANCIS UNIT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7376	'GEN300010 1-ST FRANCIS UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	100.7373	'MCNAB REC - Turk 115 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	100.7371	'TURK (TURK 1) 138/115/13.2KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42626	100.7371	'TURK (TURK 1) 138/115/13.2KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42701	100.7347	'FRISCCO4 138.00 - HARDEN 4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42794	100.7339	'EMPORIA ENERGY CENTER - G14_001T 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42768	100.726	'CLEVELAND - TULSA NORTH 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42768	100.726	'CLEVELAND - TULSA NORTH 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.7246	'CANEYRV7 345.00 - NEOSHO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7215	'GEN501911 1-ACADIA UNIT CT1A'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7192	'GEN501912 1-ACADIA UNIT CT1B'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7178	''P12:138:AEPW:N.E.S.-4:CATOOSA4_1OF2''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7177	''P12:138:AEPW:81GARN-4:ONETA--4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42865	100.7164	'G16-100-TAP 345.00 - SOONER 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42766	100.7138	'NELSON - RICHARD 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42643	100.7085	''P42:345:OKGE:SB_FTTH7386''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42643	100.7077	''P42:345:OKGE:SB_FTTH7385''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42643	100.7067	''P43:345-500:OKGE:SB_FTTH7306''
FDNS	14NR	0	21L	G17_043			1195	1195	0.49869	100.7027	''P42:345:OKGE:SB_SUSD7383''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7023	'GEN336242 1-1NMIL6 ST1 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7019	'GEN501972 1-EVANGELINE UNIT 7-2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7009	'GEN335371 1-1ACADIA_C25!18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.7009	'GEN335372 1-1ACADIA_C24!18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6984	'GEN501971 1-EVANGELINE UNIT 7-1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42794	100.6934	'G14_001T 345.00 - WICHITA 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6924	'8OUACHITA% 500.00 - 8STERLING2% 500.00 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.6912	'CLAYTON - SARDIS 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6907	'G15088_T 345.00 - MOORE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6906	'OAHE 115/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42794	100.6903	'P23:345:WERE:EMPR_345-300::G1401TAP''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6828	'GEN338443 1-PANDA S1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.6814	''P23:345:WERE:CANR_BKRS::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42992	100.6811	'ROCKY POINT - SUNNYSIDE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43241	100.6793	'MAYSVLT4 138.00 - PRAIRIE POINT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.6768	'G16-122-TAP 345.00 - SUMMIT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43241	100.6765	'MAYSVILLE - MAYSVLT4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.6752	''P12:138:AEPW:MOUNDRD4:SHIDLER4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6724	'GEN300016 1-1G1GPDEL 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.672	'CANEYRV7 345.00 - LATHAMS7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42894	100.6673	'MUSKOGEE - SEMINOLE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43294	100.664	''P12:138:OKGE:3TERM39''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42772	100.6627	'MAGNOLIA EAST - MC NIEL 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42701	100.6609	'FRISCCO4 138.00 - LULA 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6588	'FANCY POINT - RIVER BEND 230KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42794	100.6554	''P23:345:WERE:N345_345-110::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6516	'GEN335545 1-DOW AEP UNIT5'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43241	100.6482	'MAYSVILLE - PAOLI 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42796	100.647	''P12:138:AEPW-OGE:SHIDLER4:OSAGE 4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6427	''P12:138:AEPW:SAPLPRD4:R.S.S.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42762	100.6373	''P12:138:AEPW:MCALEST4:LONEOAK4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.6332	'8DRIVER% 500.00 - PLUM POINT 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42748	100.6322	'HOT SPRINGS EHV - MAGNET COVE 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.428	100.6273	''P23:345:WERE:SUMM_345-218F1::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6259	'GEN659125 1-COVEY'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6239	'GEN336240 1-1NMIL6 CT1 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6239	'GEN336241 1-1NMIL6 CT2 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42769	100.6235	''P42:345:OKGE:SB_RARD7311''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6158	'GEN334233 1-1PELCNRD U2!13.800'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42402	100.6137	''P12:138:AEPW-SWPA:LONEOAK4:BRKNBW4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.6127	''P23:345:WERE:LATH_BKRS::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6121	''P12:138:AEPW:81GARN-4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6113	'GEN335571 1-CARVILLE UNIT #1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.6108	'FRANKLIN - FRANKLIN SW 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.61	'GEN335570 1-CARVILLE CTG'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.6027	''P12:138:AEPW:36LEWIS4:T.S.E.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.6015	'LATHAMS7 345.00 - ROSE HILL 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5982	'GEN337430 1-PERYVILLE UNIT #3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.598	'GEN335541 1-DOW AEP UNIT1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.598	'GEN335542 1-DOW AEP UNIT2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.598	'GEN335543 1-DOW AEP UNIT3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.598	'GEN335544 1-DOW AEP UNIT4'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5974	'GEN337428 1-PERYVILLE UNIT #1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42799	100.5968	''P23:345:WERE:ROSE_345-20::''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.5959	'SHIDLER - WEST PAWHUSKA 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.5941	'PAWHUSKA TAP - WEST PAWHUSKA 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42787	100.594	'P23:345:WERE:WICH_345-116::-BUFFALOFLATS''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4305	100.5922	'HONEYCK4 138.00 - KERR MCGEE CIMARRON 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5922	'GEN335201 1-NELSON UNIT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.592	'GEN335202 1-NELSON UNIT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42772	100.5898	'MAGNOLIA EAST - MAGNOLIA STEEL 115KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.5885	'DOMES - PAWHUSKA TAP 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42762	100.5874	'MAYFLOWER 500 - PLEASANT HILL 500KV CKT 1'
FDNS	00NR	0	21WP	G17_043			1195	1195	0.48683	100.5869	'SUNNYSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5864	'GEN337432 1-PERYVILLE UNIT #5'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	100.5807	'DOMES - MOUND ROAD 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42832	100.5771	''P12:138:AEPW:CORNVIL4:DUNCAN-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5692	'GEN300017 1-1G2GPDEL 18.000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4305	100.5686	'JOLLYVILLE - KERR MCGEE CIMARRON 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42795	100.5671	'BLACKBERRY - NEOSHO 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5659	'GEN336167 1-GULF OXY U1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5659	'GEN336168 1-GULF OXY U2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5659	'GEN336169 1-GULF OXY U3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43128	100.5488	''P12:138:OKGE:3TERM33''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42944	100.5386	'ROCKY POINT - SPRINGDALE 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42852	100.5381	'CARTER - CHICKASAW 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4305	100.5373	'JOLLYVILLE - SULPHR 4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.5357	'GEN338146 1-INDEPENDENCE UNIT #2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4311	100.5337	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42916	100.5255	'ARCADIA - NORTHWEST 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43014	100.5254	'CHICKASAW - TOTAL 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42926	100.5157	''P42:345:OKGE:SB_ARIA7382''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.43026	100.5116	'SUNNYSIDE (SUNNYSD3) 345/138/13.8KV TRANSFORMER CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42836	100.5008	'COMANCHE TAP - OMPA-DUNCAN 840 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42836	100.5007	'DUNCAN - OMPA-DUNCAN 840 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42836	100.5007	'DUNCAN - OMPA-DUNCAN 840 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42836	100.4991	''P12:138:AEPW:DUNCAN-4:L.E.S.-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.487	'GEN337911 1-ARKANSAS NUCLEAR ONE UNIT #2'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.4506	'GEN337910 1-ARKANSAS NUCLEAR ONE UNIT #1'
FDNS	00NR	0	18SP	G17_043			194	222	0.08267	100.3958	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42589	100.3725	''P23:345:AEPW:DIANA CB 11910 NBTB''
FDNS	14NR	0	21L	G17_043			1195	1195	0.49656	100.3169	''P42:345:OKGE:SB_JOCO7383''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42768	100.2719	''P23:345:AEPW:NW TEXARKANA CB 10690 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.1864	'2217-NEBRASKA CITY 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.1864	'2564-NEBRASKA CITY 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.1864	'2604-NEBRASKA CITY 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.1864	'911-WELSH'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	100.1864	System Intact
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42747	100.0988	''P23:345:AEPW:PIRKEY CB 12360 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42666	100.0872	''P23:345:AEPW:WELSH CB 10620 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42666	100.0872	''P42:345:AEPW:WELSH CB 10620 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.0744	'DIANA - PIRKEY 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100.0744	'DIANA - PIRKEY 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42749	100.0668	''P23:345:AEPW:PIRKEY CB 13430 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	100	''P23:345:AEPW:WELSH CB 10630 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	100	''P41:345:AEPW:WELSH CB 10630 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100	'HUGO POWER PLANT - VALLIANT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4275	100	'HUGO POWER PLANT - VALLIANT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42748	100	''P23:345:AEPW:DIANA CB 11900 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4213	100	'RATTAN - SAWYER4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.9	'GEN563262 1-G15092_3 0.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.9	''P12:138:WFEC:MSL09''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42745	99.9	'BROKEN BOW TAP - CRAIG JUNCTION 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42745	99.9	'BROKEN BOW TAP - IDABEL 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42745	99.9	''P12:138:AEPW:CRAIGJT4:IDABEL-4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4213	99.9	'HUGO POWER PLANT - SAWYER4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4213	99.9	''P12:138:WFEC:MSL07''
FDNS	14NR	0	18G	G17_043			1195	1195	0.39031	99.9	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	0	18SP	G17_043			133	153	0.0508	99.9	'JOHNSON COUNTY - SUNNYSIDE 345KV CKT 1'
FDNS	14NR	0	21L	G17_043			1195	1195	0.49106	99.9	'JOHNSON COUNTY - SUNNYSIDE 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42861	99.8	'G15063_T 345.00 - WOODRING 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42857	99.8	'CHISHOLM7 345.00 - G16-037-TAP 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'DRY CREEK 4230.00 - RCDC EAST 4230.00 230KV CKT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN524285 1-WILDORADO WIND GEN'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN562023 1-G11-020-GEN 0.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN562512 1-G14_020_3 0.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN587703 1-G16-078-GEN10.6000'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN587743 1-G16-091-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN587813 1-G16-101-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN588193 1-G16-128-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'GEN657749 1-YOUNG 1 GENERATOR'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	''P12:230:UMZB:# 111 #: ST IN SD. WESSINGTION SPRINGS-STORLA-VT HANLON''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.8	'RCDC EAST 4230.00 - RED CEDAR DC 230KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42796	99.8	'BAXTER WILSON SES - RAY BRASWELL SES 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42793	99.8	'BATESVILLE - MOOREFIELD 161KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.4279	99.8	'ST FRANCIS - WHITEWATER EAST 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42786	99.8	'BANN - RED SPRINGS REC 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42786	99.8	''P12:138:AEPW:IPC-DOM4:BANN4''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42785	99.8	'8HOLND BTM% 500.00 - KEO EHV 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42778	99.8	'FRANKS - HUBEN 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42758	99.8	'DIANA - WELSH 345KV CKT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42758	99.8	'DIANA - WELSH 345KV CKT 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42758	99.8	''P23:345:AEPW:DIANA CB 10590 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	99.8	'DIANA - WELSH 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	99.8	'DIANA - WELSH 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	99.8	''P23:345:AEPW:DIANA CB 11890 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	99.8	''P23:345:AEPW:DIANA CB 12060 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42745	99.8	'IDABEL - VALLIANT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42745	99.8	'IDABEL - VALLIANT 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42683	99.8	'BBDAMTP4 - DOMINJCT4 138.00 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42861	99.7	'G15063_T 345.00 - MATHWSN7 345.00 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42857	99.7	'G16-037-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN562026 1-G11-019-GEN 0.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN587213 1-G16-032-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN588436 1-G16-169-GEN20.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN588443 1-G16-172-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN588446 1-G16-172-GEN20.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.7	'GEN629072 4-LANSING GENERATOR FOR UNITS NO4 EIA CODE 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42798	99.7	'DELL 500 - INDEPENDENCE 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42793	99.7	'INDEPENDENCE - MOOREFIELD 161KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42757	99.7	'MCADAMS - WOLF CREEK 500KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42683	99.7	'BROKEN BOW - GRANDFIELD 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42683	99.7	'DOMINJCT4 138.00 - GRANDFIELD 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42666	99.7	'WELSH - WILKES 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42666	99.7	'WELSH - WILKES 345KV CKT 1'
FDNS	00NR	0	26SP	G17_043			133	153	0.04157	99.7	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN527901 1-HOBBS PLANT #1 (CT)'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN527903 1-HOBBS PLANT #3 (ST)'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN562590 1-G14_057_3 0.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN587793 1-G16-097-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN587953 1-G16-119-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN587973 1-G16-175-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN587993 1-G16-121-GEN10.5500'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN588003 1-G16-123-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN588006 1-G16-123-GEN20.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN588013 1-G16-124-GEN10.6900'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN672306 6-BOUNDARY DAM GENERATOR 6'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN672310 1-POPLAR RIVER GENERATOR 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN672311 2-POPLAR RIVER GENERATOR 2'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN672321 1-SHAND GENERATOR 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	'GEN681522 3-GENOA 3'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	''P22:345:OPPD:S3458 NEBCTY2G''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42802	99.6	''P23:345:OPPD:S3458 NEBCTY2G''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42781	99.6	'KEO EHV - WHITE BLUFF 500KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	'CROCKETT - TENASKA RUSK COUNTY 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	'LEBROCK - TENASKA RUSK COUNTY 345KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P23:345:AEPW:LEBROCK CB 13210 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P23:345:AEPW:LEBROCK CB 13260 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P23:345:AEPW:TENASKA CB 12840 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P23:345:AEPW:TENASKA CB 12850 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P23:345:AEPW:TENASKA CB 12860 NBTB''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P41:345:AEPW:LEBROCK CB 13210 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P41:345:AEPW:LEBROCK CB 13260 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42706	99.6	''P42:345:AEPW:TENASKA CB 12840 NBTB+FAULT''
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42683	99.6	'BROKEN BOW - HOLY CREEK 138KV CKT 1'
FDNS	00NR	0	17WP	G17_043			1195	1195	0.42683	99.6	'HOLY CREEK - IDABEL 138KV CKT 1'
FDNSLock-Blown up	14NR	0	21L	G17_043			1195	1195	0.57296	57.38409	System Intact
FDNSLock-Blown up	00NR	0	21WP	G17_043			1793	1793	0.34703	55.26723	System Intact
FDNSLock-Blown up	00NR	0	21WP	G17_043			1793	1793	0.34703	55.26723	System Intact
FDNSLock-Blown up	00NR	0	17WP	G17_043			1195	1195	0.57198	48.64531	System Intact
FDNSLock-Blown up	00NR	0	26SP	G17_043			956	1042	0.0306	27.90662	System Intact
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06345	127.3117	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06013	124.8088	''P12:138:OKGE:3TERM33''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05823	124.2359	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06629	124.1864	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0896	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0895	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0895	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05167	120.4245	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05485	118.3965	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06401	115.4679	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06258	115.0757	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05931	113.8793	''P12:138:OKGE:3TERM33''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.058	112.9139	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	112.8009	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8839	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8837	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8837	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05406	110.8931	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04372	109.977	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06637	109.7714	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04372	109.5774	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04425	109.1849	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04425	109.1849	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04413	109.1178	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	108.4413	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	107.7825	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04336	107.618	'VANOSS - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04336	107.4648	'PARK LANE - VANOSS 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04461	107.2378	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04341	106.5794	'CHIGLEY - PAOLI 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04422	106.5238	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04359	106.2166	'BROWN - TUPELO 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04386	105.9233	'G16-091-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04345	105.519	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04345	105.519	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4667	''P42:345:OKGE:SB_CRER7389''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4659	''P42:345:OKGE:SB_CRER7309''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4116	''P42:345:OKGE:SB_CRER7381''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	105.3543	'CIMARRON - MINCO 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05485	105.321	'SUNNYSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04222	105.0771	''P12:138:OKGE:3TERM27''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	105.0374	'PAOLI - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.9881	'PURCELL4 138.00 - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04383	104.7997	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04386	104.6316	'G16-091-TAP 345.00 - LAWTON EASTSIDE 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.569	''P23:345:AEPW:NW TEXARKANA CB 11820 NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.569	''P43:345:AEPW:NW TEXARKANA CB 11820 NBTB+FAULT''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.567	''P23:345:AEPW:NW TEXARKANA CB 11810 NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.567	''P43:345:AEPW:NW TEXARKANA CB 11810 NBTB+FAULT''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.5578	'NOBLE - PURCELL4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04061	104.5103	''P23:345:AEPW:WELSH CB 11680 NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04061	104.5103	''P41:345:AEPW:WELSH CB 11680 NBTB+FAULT''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.4744	'CANADIAN - NOBLE 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	104.2948	''P42:345:OKGE:SB_MICO7301''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2707	''P23:345:AEPW:PITTSBURG CB 3445A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2694	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2694	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04208	104.1522	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04208	104.1522	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04217	104.0775	'SEMINOLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04051	104.0621	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04051	104.0621	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	103.9888	'GRACEMONT - MINCO 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8751	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	2	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8749	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8749	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	103.7987	'CANEY CREEK - TEXOMA JCT 138KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	103.7726	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03611	103.7481	'CARTER - HONEYCK4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04213	103.6683	'CANADIAN RIVER - MUSKOGEE 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	103.5703	'LEBANON - TEXOMA JCT 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04317	103.53	'PAOLI - SEMINOLE 138KV CKT 1'
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05031	103.4672	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	103.2474	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06428	102.2579	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	101.8996	System Intact
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05698	101.8524	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04371	101.7243	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04371	101.7243	'HUGO - VALLIANT 345KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	2	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06258	101.5968	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	2	18SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05031	101.5531	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04276	101.3574	'VANOSS - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05797	101.3547	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.3541	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.3539	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.3539	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04276	100.9793	'PARK LANE - VANOSS 138KV CKT 1'
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05821	100.8076	''P12:138:OKGE:3TERM33''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04403	100.6315	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03927	100.3589	'MUSKOGEE - SEMINOLE 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.3377	'GEN501801 1-DOLET HILLS UNIT1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.2292	'GEN509416 1-TURK GENERATION'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.2271	'GEN587203 1-G16-030-GEN10.4800'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04	100.2021	''P41:345:OKGE:SB_REUD7385''
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06139	100.1663	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04213	100.0492	''P41:345:OKGE:SB_MUGE7384''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	'P42:345:OKGE:SB_OPKY7308-G15052TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	'P42:345:OKGE:SB_OPKY7319-G15052TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	''P42:345:OKGE:SB_OPKY7388''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100	'GEN509403 1-PIRKEY GENERATION'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100	''P42:345:OKGE:SB_TAGA7301''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03645	100	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04365	99.9	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04002	99.9	''P42:345:OKGE:SB_TAGA7311''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04002	99.9	''P42:345:OKGE:SB_TAGA7319''
FDNS	00NR	2	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06516	99.9	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	2	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04286	99.7	'CHIGLEY - PAOLI 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03704	99.7	'ARDMORE WEST - CARTER 138KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	99.6	'GEN562783 1-G15036_4 0.6900'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	99.6	'GEN562784 1-G15036_5 0.6900'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03704	99.6	'ARDMORE WEST - UNIROYAL 138KV CKT 1'
FDNS	00NR	2	21WP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	143	143	0.03539	113.8195	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	143	143	0.03536	106.3773	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	117	136	0.03501	100	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.0471	112.435	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.05164	109.329	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4236	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4234	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4234	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	2	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.05023	99.8	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	00NR	2	21WP	G17_043			287	287	0.09254	141.1021	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			287	287	0.09254	141.1021	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			287	287	0.09256	129.9863	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			287	287	0.09256	129.9863	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			500	500	0.17571	129.4504	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			500	500	0.17571	129.4504	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			500	500	0.17571	127.2579	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			500	500	0.17571	127.2579	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1195	1195	0.44615	118.0629	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	17WP	G17_043			500	500	0.17561	117.318	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			500	500	0.17561	117.318	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			500	500	0.17561	116.9023	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			500	500	0.17561	116.9023	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.31381	115.8548	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	2	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			133	153	0.04943	113.0371	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	17WP	G17_043			1195	1195	0.25131	112.8987	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	2	18SP	G17_043			133	153	0.04937	111.089	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	21WP	G17_043			1195	1195	0.41376	109.7348	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	2	21WP	G17_043			1195	1195	0.39915	109.5626	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	2	21WP	G17_043			1195	1195	0.39915	109.5618	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1195	1195	0.39915	109.5618	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.23347	108.5555	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.23347	108.5555	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.23329	108.4868	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	2	21WP	G17_043			147	161	0.03539	106.4322	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			194	222	0.09305	105.9571	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	21WP	G17_043			1022	1143	0.05244	105.7372	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	26SP	G17_043			133	153	0.04945	105.1583	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	21WP	G17_043			1195	1195	0.42816	105.0595	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			194	222	0.09305	104.8062	''P42:345:OKGE:SB_JOCO7303''
FDNS	14NR	2	21L	G17_043			1195	1195	0.4433	104.7803	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	2	21SP	G17_043			500	500	0.17428	104.4715	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			500	500	0.17428	104.4715	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.39916	103.8352	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	2	17WP	G17_043			1195	1195	0.39916	103.8344	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.39916	103.8344	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			117	136	0.03501	103.7957	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1187	1324	0.1115	103.7149	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''
FDNSLock	00NR	2	21WP	G17_043			1195	1195	0.21329	103.5441	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNSLock	00NR	2	21WP	G17_043			1195	1195	0.21329	103.5441	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	2	18SP	G17_043			500	500	0.17409	103.447	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			500	500	0.17409	103.447	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1187	1324	0.1125	103.2533	''P23:345:AEPW:VALLIANT CB 3405A NBTB''
FDNS	00NR	2	18SP	G17_043			117	136	0.03493	103.1141	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1187	1324	0.11235	102.7915	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21WP	G17_043			1187	1324	0.11235	102.7915	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	2	21WP	G17_043			1187	1324	0.11204	102.5435	''P23:345:AEPW:NW TEXARKANA CB 16780 NBTB''
FDNS	00NR	2	21SP	G17_043			500	500	0.17428	102.4429	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			500	500	0.17428	102.4429	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			500	500	0.17409	102.1599	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			500	500	0.17409	102.1599	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			500	500	0.1756	101.5592	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			500	500	0.1756	101.5592	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			287	287	0.09107	101.4436	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	18SP	G17_043			287	287	0.09107	101.4436	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			287	287	0.09108	101.1766	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	21SP	G17_043			287	287	0.09108	101.1766	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			133	153	0.04962	100.9916	''P42:345:OKGE:SB_JOCO7303''
FDNS	14NR	2	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			1195	1195	0.42802	100.2416	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	14NR	2	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	2	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	2	17WP	G17_043			147	161	0.03536	99.7	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	2	18G	G17_043			1195	1195	0.44613	99.7	''P42:345:OKGE:SB_JOCO7303''
FDNSLock-Blown up	00NR	2	21WP	G17_043			1793	1793	0.23689	49.24832	System Intact
FDNSLock-Blown up	00NR	2	21WP	G17_043			1793	1793	0.23689	49.24832	System Intact
FDNSLock-Blown up	00NR	2	26SP	G17_043			956	1042	0.0305	27.88569	System Intact
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06345	127.3117	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06013	124.8088	''P12:138:OKGE:3TERM33''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05823	124.2359	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06629	124.1864	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0896	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0895	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0568	123.0895	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05167	120.4245	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05485	118.3965	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06401	115.4679	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06258	115.0757	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05931	113.8793	''P12:138:OKGE:3TERM33''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.058	112.9138	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	112.8009	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8839	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8837	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	111.8837	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05406	110.8931	'LAWTON EASTSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04372	109.977	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06637	109.7714	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04372	109.5774	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04425	109.1849	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04425	109.1849	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04413	109.1177	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	108.4413	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05115	107.7825	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04336	107.618	'VANOSS - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04336	107.4648	'PARK LANE - VANOSS 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04461	107.2378	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04341	106.5794	'CHIGLEY - PAOLI 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04422	106.5238	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04359	106.2166	'BROWN - TUPELO 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04386	105.9233	'G16-091-TAP 345.00 - GRACEMONT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04345	105.519	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04345	105.519	'CANADIAN RIVER - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4667	''P42:345:OKGE:SB_CRER7389''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4659	''P42:345:OKGE:SB_CRER7309''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	105.4116	''P42:345:OKGE:SB_CRER7381''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	105.3542	'CIMARRON - MINCO 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05485	105.321	'SUNNYSIDE - TERRYRD7 345.00 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04222	105.0771	''P12:138:OKGE:3TERM27''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	105.0374	'PAOLI - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.9881	'PURCELL4 138.00 - WALNUT CREEK 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04383	104.7997	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04386	104.6317	'G16-091-TAP 345.00 - LAWTON EASTSIDE 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.569	''P23:345:AEPW:NW TEXARKANA CB 11820 NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.569	''P43:345:AEPW:NW TEXARKANA CB 11820 NBTB+FAULT''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.567	''P23:345:AEPW:NW TEXARKANA CB 11810 NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04062	104.567	''P43:345:AEPW:NW TEXARKANA CB 11810 NBTB+FAULT''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.5578	'NOBLE - PURCELL4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04061	104.5103	''P23:345:AEPW:WELSH CB 11680 NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04061	104.5103	''P41:345:AEPW:WELSH CB 11680 NBTB+FAULT''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04221	104.4744	'CANADIAN - NOBLE 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	104.2948	''P42:345:OKGE:SB_MICO7301''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2708	''P23:345:AEPW:PITTSBURG CB 3445A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2694	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04979	104.2694	'PITTSBURG - SEMINOLE 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04208	104.1522	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04208	104.1522	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.058	104.12	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04217	104.0775	'SEMINOLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04051	104.0621	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04051	104.0621	'LYDIA - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.0426	103.9888	'GRACEMONT - MINCO 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8751	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8749	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05658	103.8749	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	103.7987	'CANEY CREEK - TEXOMA JCT 138KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	103.7726	'ARBUCKLE - OAKLAWN 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03611	103.7481	'CARTER - HONEYCK4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04213	103.6683	'CANADIAN RIVER - MUSKOGEE 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04109	103.5703	'LEBANON - TEXOMA JCT 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04317	103.53	'PAOLI - SEMINOLE 138KV CKT 1'
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05031	103.4672	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04315	103.2474	'CHIGLEY - OAKLAWN 138KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06428	102.2579	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	101.8996	System Intact
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05698	101.8525	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04371	101.7243	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04371	101.7243	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06258	101.5968	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	3	17WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05931	101.5727	''P12:138:OKGE:3TERM33''
FDNS	00NR	3	18SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05031	101.5531	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04276	101.3574	'VANOSS - VANOSTP4 138.00 138KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05797	101.3547	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.354	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.3539	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05554	101.3539	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05655	101.2549	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04276	100.9793	'PARK LANE - VANOSS 138KV CKT 1'
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.05821	100.8076	''P12:138:OKGE:3TERM33''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04403	100.6315	'P23:345:AEPW:LAWTON EASTSIDE CB 3425A NBTB-G16091TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03927	100.359	'MUSKOGEE - SEMINOLE 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.3377	'GEN501801 1-DOLET HILLS UNIT1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.2292	'GEN509416 1-TURK GENERATION'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100.2271	'GEN587203 1-G16-030-GEN10.4800'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04	100.2021	''P41:345:OKGE:SB_REUD7385''
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06139	100.1663	'ARBUCKLE - VANOSTP4 138.00 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04213	100.0492	''P41:345:OKGE:SB_MUGE7384''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	'P42:345:OKGE:SB_OPKY7308-G15052TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	'P42:345:OKGE:SB_OPKY7319-G15052TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04009	100	''P42:345:OKGE:SB_OPKY7388''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100	'GEN509403 1-PIRKEY GENERATION'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	100	''P42:345:OKGE:SB_TAGA7301''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03645	100	'G16-063-TAP 345.00 - SUNNYSIDE 345KV CKT 1'
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04365	99.9	'P23:345:AEPW:LAWTON EASTSIDE CB 3413A NBTB-G16091TAP''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04002	99.9	''P42:345:OKGE:SB_TAGA7311''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04002	99.9	''P42:345:OKGE:SB_TAGA7319''
FDNS	00NR	3	21SP	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.06516	99.9	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	3	18G	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04286	99.7	'CHIGLEY - PAOLI 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03704	99.7	'ARDMORE WEST - CARTER 138KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	99.6	'GEN562783 1-G15036_4 0.6900'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.04001	99.6	'GEN562784 1-G15036_5 0.6900'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BLUERIVER - PARK LANE 138KV CKT 1'	191	191	0.03704	99.6	'ARDMORE WEST - UNIROYAL 138KV CKT 1'
FDNS	00NR	3	21WP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	143	143	0.03539	113.8195	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	143	143	0.03536	106.3773	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043	'TO->FROM'	'BROWN - RUSSETT 138KV CKT 1'	117	136	0.03501	100	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.0471	112.435	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.05164	109.329	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4235	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4234	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.04357	107.4234	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	14NR	3	21L	G17_043	'FROM->TO'	'BROWN - TUPELO 138KV CKT 1'	96	96	0.05023	99.8	''P23:345:AEPW:PITTSBURG CB 3441A NBTB''
FDNS	00NR	3	21WP	G17_043			287	287	0.09254	141.102	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			287	287	0.09254	141.102	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			287	287	0.09256	129.9863	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			287	287	0.09256	129.9863	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			500	500	0.17571	129.4504	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			500	500	0.17571	129.4504	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			500	500	0.17571	127.2579	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			500	500	0.17571	127.2579	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1195	1195	0.44615	118.0629	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	17WP	G17_043			500	500	0.17561	117.318	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			500	500	0.17561	117.318	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			500	500	0.17561	116.9023	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			500	500	0.17561	116.9023	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.31381	115.8548	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	3	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			133	153	0.04943	113.0371	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	17WP	G17_043			1195	1195	0.25131	112.8987	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	3	17WP	G17_043			1195	1195	0.44616	112.6011	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	18SP	G17_043			133	153	0.04937	111.089	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	21WP	G17_043			1195	1195	0.41376	109.7348	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	3	21WP	G17_043			1195	1195	0.39915	109.5626	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	3	21WP	G17_043			1195	1195	0.39915	109.5618	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1195	1195	0.39915	109.5618	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.23347	108.5555	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.23347	108.5555	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.23329	108.4867	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	3	21WP	G17_043			147	161	0.03539	106.4322	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			194	222	0.09305	105.9571	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	21WP	G17_043			1022	1143	0.05244	105.7372	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	26SP	G17_043			133	153	0.04945	105.1583	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	21WP	G17_043			1195	1195	0.42816	105.0595	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			194	222	0.09305	104.8062	''P42:345:OKGE:SB_JOCO7303''
FDNS	14NR	3	21L	G17_043			1195	1195	0.4433	104.7803	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	3	21SP	G17_043			500	500	0.17428	104.4715	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			500	500	0.17428	104.4715	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.41374	104.2123	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	3	17WP	G17_043			1195	1195	0.39916	103.8352	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	3	17WP	G17_043			1195	1195	0.39916	103.8344	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.39916	103.8344	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			117	136	0.03501	103.7957	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1187	1324	0.1115	103.7149	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''
FDNSLock	00NR	3	21WP	G17_043			1195	1195	0.21329	103.5441	''P23:345:AEPW:VALLIANT CB 3421A NBTB''

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNSLock	00NR	3	21WP	G17_043			1195	1195	0.21329	103.5441	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	3	18SP	G17_043			500	500	0.17409	103.4477	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			500	500	0.17409	103.4477	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1187	1324	0.1125	103.2533	''P23:345:AEPW:VALLIANT CB 3405A NBTB''
FDNS	00NR	3	18SP	G17_043			117	136	0.03493	103.1141	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1187	1324	0.11235	102.7915	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1187	1324	0.11235	102.7915	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21WP	G17_043			1187	1324	0.11204	102.5435	''P23:345:AEPW:NW TEXARKANA CB 16780 NBTB''
FDNS	00NR	3	21SP	G17_043			500	500	0.17428	102.4429	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			500	500	0.17428	102.4429	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			500	500	0.17409	102.1605	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			500	500	0.17409	102.1605	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			500	500	0.1756	101.5592	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			500	500	0.1756	101.5592	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			287	287	0.09107	101.4448	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	18SP	G17_043			287	287	0.09107	101.4448	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			287	287	0.09108	101.1766	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	21SP	G17_043			287	287	0.09108	101.1766	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			133	153	0.04962	100.9916	''P42:345:OKGE:SB_JOCO7303''
FDNS	14NR	3	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			1195	1195	0.42802	100.2416	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	14NR	3	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	3	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	3	17WP	G17_043			147	161	0.03536	99.7	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	14NR	3	18G	G17_043			1195	1195	0.44613	99.7	''P42:345:OKGE:SB_JOCO7303''
FDNSLock-Blown up	00NR	3	26SP	G17_043			956	1042	0.0305	27.8857	System Intact
FDNS	00NR	4	21WP	G17_043			287	287	0.09254	141.2167	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			287	287	0.09254	141.2167	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			287	287	0.09257	130.0759	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			287	287	0.09257	130.0759	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			500	500	0.17567	129.3315	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			500	500	0.17567	129.3315	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			500	500	0.17567	127.1255	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			500	500	0.17567	127.1255	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1195	1195	0.4456	117.8046	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	4	17WP	G17_043			500	500	0.17556	117.1837	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			500	500	0.17556	117.1837	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			500	500	0.17556	116.7853	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			500	500	0.17556	116.7853	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			287	287	0.09255	116.563	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.31371	115.747	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	14NR	4	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			287	287	0.09187	114.391	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.25125	112.7729	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	4	21WP	G17_043			1195	1195	0.41367	109.6504	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	4	21WP	G17_043			1195	1195	0.39904	109.4648	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	4	21WP	G17_043			1195	1195	0.39904	109.464	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1195	1195	0.39904	109.464	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.23342	108.4384	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.23342	108.4384	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.23324	108.3701	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	4	21WP	G17_043			1022	1143	0.05233	105.6197	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1195	1195	0.42807	104.9629	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			1195	1195	0.4433	104.7803	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	4	21SP	G17_043			500	500	0.17425	104.3506	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21SP	G17_043			500	500	0.17425	104.3506	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.39905	103.7373	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	4	17WP	G17_043			1195	1195	0.39905	103.7366	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.39905	103.7366	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1187	1324	0.1115	103.7173	''P23:345:AEPW:NW TEXARKANA CB 15440 NBTB''
FDNSLock	00NR	4	21WP	G17_043			1195	1195	0.21325	103.418	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNSLock	00NR	4	21WP	G17_043			1195	1195	0.21325	103.418	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	4	18SP	G17_043			500	500	0.17406	103.3213	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	18SP	G17_043			500	500	0.17406	103.3213	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1187	1324	0.11249	103.2509	''P23:345:AEPW:VALLIANT CB 3405A NBTB''
FDNS	14NR	4	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			500	500	0.1756	102.8033	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1187	1324	0.11234	102.7947	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1187	1324	0.11234	102.7947	'NORTHWEST TEXARKANA - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21WP	G17_043			1187	1324	0.11203	102.5432	''P23:345:AEPW:NW TEXARKANA CB 16780 NBTB''
FDNS	00NR	4	21SP	G17_043			500	500	0.17425	102.3214	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21SP	G17_043			500	500	0.17425	102.3214	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	18SP	G17_043			500	500	0.17406	102.0331	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	18SP	G17_043			500	500	0.17406	102.0331	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			500	500	0.1756	101.5593	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			500	500	0.1756	101.5593	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	18SP	G17_043			287	287	0.09108	101.528	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	18SP	G17_043			287	287	0.09108	101.528	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21SP	G17_043			287	287	0.09109	101.2589	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	21SP	G17_043			287	287	0.09109	101.2589	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			500	500	0.17547	100.3743	'HUGO - VALLIANT 345KV CKT 1'
FDNS	00NR	4	17WP	G17_043			1195	1195	0.42793	100.15	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	21L	G17_043			500	500	0.17547	100	'HUGO - VALLIANT 345KV CKT 1'
FDNS	14NR	4	18G	G17_043			1195	1195	0.44613	99.7	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.31988	127.8861	'P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.2565	126.3002	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.45601	120.8741	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.31942	118.1433	''P23:345:AEPW:PITTSBURG CB 3429A NBTB''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.25617	115.4068	''P23:345:AEPW:PITTSBURG CB 3425A NBTB''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.45601	115.1397	''P42:345:OKGE:SB_JOCO7303''

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	RATEA (MVA)	RATEB(MVA)	TDF	TC%LOADING (% MVA)	CONTINGENCY
FDNS	00NR	5	21WP	G17_043			1195	1195	0.42419	112.7343	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.40945	112.6454	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.40945	112.6445	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.40945	112.6445	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	5	17WP	G17_043			1195	1195	0.23816	111.1187	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	5	17WP	G17_043			1195	1195	0.23816	111.1187	'PITTSBURG - VALLIANT 345KV CKT 1'
FDNS	00NR	5	17WP	G17_043			1195	1195	0.23784	110.9449	''P23:345:AEPW:VALLIANT CB 3409A NBTB''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.43915	108.0054	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	14NR	5	21L	G17_043			1195	1195	0.45323	107.1485	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.42416	106.9498	''P42:345:OKGE:SB_JOCO7313''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.40945	106.6398	''P23:345:AEPW:PITTSBURG CB 3433A NBTB''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.40945	106.639	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	5	17WP	G17_043			1195	1195	0.40945	106.639	'JOHNSON COUNTY - PITTSBURG 345KV CKT 1'
FDNS	00NR	5	21WP	G17_043			1022	1143	0.05261	106.3798	'G17-043-TAP 345.00 - HUGO 345KV CKT 1'
FDNS	00NR	5	21SP	G17_043			194	222	0.09178	105.0758	''P42:345:OKGE:SB_JOCO7303''
FDNSLock	00NR	5	21WP	G17_043			1195	1195	0.21597	105.0482	''P23:345:AEPW:VALLIANT CB 3421A NBTB''
FDNSLock	00NR	5	21WP	G17_043			1195	1195	0.21597	105.0482	''P42:345:AEPW:VALLIANT CB 3421A NBTB+FAULT''
FDNS	00NR	5	18SP	G17_043			194	222	0.09178	103.9046	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	5	17WP	G17_043			1195	1195	0.439	102.9434	'G17-043-TAP 345.00 - JOHNSON COUNTY 345KV CKT 1'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29817	102.1958	'GEN509403 1-PIRKEY GENERATION'
FDNS	14NR	5	18G	G17_043			1195	1195	0.45613	101.9985	''P42:345:OKGE:SB_JOCO7303''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29206	101.1775	''P23:345:AEPW:LONGWOOD CB 10280 NBTB''
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29817	101.1006	'GEN501801 1-DOLET HILLS UNIT1'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29817	101.0311	'GEN509416 1-TURK GENERATION'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29266	100.9108	'7SAREPTA% 345.00 - LONGWOOD 345KV CKT 1'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29266	100.9108	'7SAREPTA% 345.00 - LONGWOOD 345KV CKT 1'
FDNS	00NR	5	21WP	G17_043			1195	1195	0.29266	100.8694	''P23:345:AEPW:LONGWOOD CB 1N20 NBTB''
FDNS	14NR	5	21L	G17_043			1195	1195	0.42095	100.669	''P42:345:OKGE:SB_JOCO7313''
FDNS	14NR	5	18G	G17_043			133	153	0.04901	99.9	''P42:345:OKGE:SB_JOCO7303''

11.8 G-V: Voltage Power Flow Analysis (Constraints Requiring Transmission Reinforcement)

No voltage violations.

11.9 H-T: Thermal Power Flow Analysis (Other Constraints Not Requiring Transmission Reinforcement)

Available on request.

11.10 H-T-AS: Affected System Thermal Power Flow Analysis (Constraints for Potential Upgrades)

Currently no Affected System Voltage constraints identified.

11.11 H-V-AS: Affected System Voltage Power Flow Analysis (Constraints for Potential Upgrades)

Currently no Affected System Voltage constraints identified.

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

To be performed; results will be available upon request. Contact SPP Generator Interconnection Studies for details.

11.13 L: Short Circuit Analysis Results

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17W:
                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          WED, MAY 09 2018
9:22
2016 MDWG FINAL WITH 2015 SERIES MMWG FINAL
MDWG 2017W WITH MMWG 2017W

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+)
587844 [G17-043-TAP 345.00] AMP    18063.6   -87.21
514809 [JOHNCO 7    345.00] AMP    14371.9   -85.63
521157 [HUGO   7    345.00] AMP    12661.7   -86.17
560088 [G16-063-TAP 345.00] AMP    15278.9   -86.97
587840 [GEN-2017-043345.00] AMP    18063.6   -87.21
510907 [PITTSB-7    345.00] AMP    14415.6   -84.75
510911 [VALIANT7    345.00] AMP    14364.2   -85.38
514808 [JOHNCO 4    138.00] AMP    16623.7   -83.74
515136 [SUNNYSD7    345.00] AMP    13050.2   -85.29
520948 [HUGO PP4    138.00] AMP    23402.6   -87.09
584780 [GEN-2015-036345.00] AMP    10091.5   -85.18
587430 [GEN-2016-063345.00] AMP    14862.2   -86.68
508072 [NWTXARK7    345.00] AMP    13264.9   -84.95
508298 [LYDIA  7    345.00] AMP    12876.6   -85.28
510918 [VALIANT4    138.00] AMP    15240.3   -85.96
510925 [KIOWA  7    345.00] AMP    14147.5   -84.80
511568 [TERRYRD7    345.00] AMP    10250.2   -85.19
515045 [SEMINOL7    345.00] AMP    26143.8   -86.16
515120 [RUSSET-4    138.00] AMP    11719.8   -77.88
515122 [SXMLCKT4    138.00] AMP    11562.1   -80.08
515135 [SUNNYSD4    138.00] AMP    19414.6   -84.64
515150 [CANEYCK4    138.00] AMP     8752.6   -77.45
515422 [C-RIVER7    345.00] AMP     9779.7   -84.38
520411 [SAWYER4     138.00] AMP    10623.6   -85.41
520918 [FROGVIL4    138.00] AMP    11294.5   -85.54
521079 [VALLANT4    138.00] AMP     9570.4   -85.18
588200 [GEN-2016-129345.00] AMP     5406.1   -84.92
507455 [TURK   7    345.00] AMP     9030.3   -84.62
508071 [NWTXARK4    138.00] AMP    24568.6   -84.88
508359 [WELSH  7    345.00] AMP    20907.8   -86.70
510866 [V-WEYCO4    138.00] AMP     9861.9   -82.75
510886 [IDABEL-4    138.00] AMP     6829.4   -81.70
510901 [HUGO---4    138.00] AMP     3433.7   -79.54
510910 [VALIANT2    69.000] AMP     7202.2   -85.99
510946 [C-RIVER4    138.00] AMP    12809.5   -85.85
511468 [L.E.S.-7    345.00] AMP    12874.4   -84.77
511571 [RUSHSPR7    345.00] AMP     6473.7   -85.07
514908 [ARCADIA7    345.00] AMP    25069.4   -86.41
514934 [DRAPER 7    345.00] AMP    20212.3   -85.07
515044 [SEMINOL4    138.00] AMP    39556.8   -85.70
515121 [MILLCKT4    138.00] AMP    11382.5   -79.88
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515137 [UNIROY 4    138.00] AMP    12892.0   -80.21
515144 [LONEGRV4    138.00] AMP    13670.2   -82.17
515147 [GLASSES4    138.00] AMP     8293.7   -75.32
515149 [MADINDT4    138.00] AMP     8282.9   -75.37
515151 [LTLCITY4    138.00] AMP     7177.2   -77.11
515164 [ROCKYPT4    138.00] AMP    10670.3   -80.61
515172 [SPRNDAL4    138.00] AMP    11762.3   -77.95
515224 [MUSKOGE7    345.00] AMP    28349.0   -86.76
515561 [CARTRCO4    138.00] AMP     8334.7   -80.04
520419 [GARVIN4     138.00] AMP     6245.7   -83.97
521036 [RATTAN 4    138.00] AMP     6825.1   -84.70
521044 [RUSSETT4    138.00] AMP    11641.3   -77.86
521067 [TEXOMAJ4    138.00] AMP     8691.8   -77.36
521098 [WSTBANK4    138.00] AMP     7236.1   -84.84
521122 [HOWE 4      138.00] AMP    11447.6   -80.02
505602 [S BROWN4    138.00] AMP     8283.2   -77.30
507431 [PATTERS4    138.00] AMP    12639.2   -82.42
507454 [TURK   4    138.00] AMP    24316.4   -83.67
508049 [NASH   4    138.00] AMP    19114.8   -84.23
508070 [NWT-BNT4    138.00] AMP    23575.8   -84.77
508080 [SUGARHL4    138.00] AMP    12079.4   -83.97
508832 [DIANA  7    345.00] AMP    18594.1   -86.46
508841 [WILKES 7    345.00] AMP    15146.7   -86.48
509745 [CLARKSV7    345.00] AMP    19573.8   -85.85
510870 [WCITYTP2    69.000] AMP     6275.3   -84.54
510876 [KIPUMPT2    69.000] AMP     4307.7   -72.70
510888 [B.BOWTP4    138.00] AMP     7188.3   -81.42
510893 [HUGO---2    69.000] AMP     4492.8   -77.79
510951 [TALAWANDA  4138.00] AMP     9489.5   -83.28
511456 [O.K.U.-7    345.00] AMP     5133.1   -84.33
511467 [L.E.S.-4    138.00] AMP    23536.3   -84.55
514880 [NORTWST7    345.00] AMP    28971.7   -85.87
514901 [CIMARON7    345.00] AMP    30082.2   -85.80
514907 [ARCADIA4    138.00] AMP    39314.3   -85.60
514909 [REDBUD 7    345.00] AMP    24368.2   -86.78
514933 [DRAPER 4    138.00] AMP    37612.4   -85.14
515055 [MAUD   4    138.00] AMP    19301.3   -79.39
515100 [PAOLI- 4    138.00] AMP    10219.4   -79.29
515117 [ARBUCKL4    138.00] AMP    15954.9   -80.17
515129 [RATLIFF4    138.00] AMP     6446.3   -76.25
515130 [POOLVIL4    138.00] AMP     8154.7   -80.00
515152 [BROWNTP4    138.00] AMP     8169.8   -77.18
515158 [MADLIND4    138.00] AMP     7709.4   -75.69
515162 [FNDTION4    138.00] AMP    11924.7   -78.22
515163 [ROCKYPT2    69.000] AMP     7778.7   -78.48
515178 [PARKLN 4    138.00] AMP    16358.1   -81.54
515196 [MILLCRK4    138.00] AMP     9292.1   -78.98
515235 [PECANCK7    345.00] AMP    21141.1   -85.53
515302 [FTSMITH7    345.00] AMP     9896.4   -85.98
515372 [ARDWEST4    138.00] AMP    12716.9   -80.01
515415 [CHEEKTP4    138.00] AMP    12296.4   -81.35
515531 [VANOSTP4    138.00] AMP    13367.8   -78.59
515563 [ORIGINW4    138.00] AMP     5093.3   -83.23
520874 [DARWIN 4    138.00] AMP     4701.5   -83.63
520953 [IDABEL 4    138.00] AMP     6297.3   -83.23
520972 [LEBANON4    138.00] AMP     5915.0   -78.18
521066 [TEXOMA 4    138.00] AMP     6362.2   -75.16
521077 [UNGER  4    138.00] AMP     5307.7   -84.14
585280 [GEN-2015-092345.00] AMP     6271.9   -85.06
587744 [G16-091-TAP 345.00] AMP    14219.5   -85.11
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26S:
                              PSS®E-32.2.0 ASCC SHORT CIRCUIT CURRENTS          FRI, MAY 11 2018
8:04
2016 MDWG FINAL WITH 2015 SERIES MMWG FINAL
MDWG 2026S WITH MMWG 2026S

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+)
587844 [G17-043-TAP 345.00] AMP    18108.5   -87.20
514809 [JOHNCO 7    345.00] AMP    14434.0   -85.60
521157 [HUGO   7    345.00] AMP    12685.1   -86.16
560088 [G16-063-TAP 345.00] AMP    15315.7   -86.96
587840 [GEN-2017-043345.00] AMP    18108.5   -87.20
510907 [PITTSB-7    345.00] AMP    14501.8   -84.73
510911 [VALIANT7    345.00] AMP    14397.5   -85.36
514808 [JOHNCO 4    138.00] AMP    16674.2   -83.71
515136 [SUNNYSD7    345.00] AMP    13126.8   -85.26
520948 [HUGO PP4    138.00] AMP    23434.7   -87.10
584780 [GEN-2015-036345.00] AMP    10120.7   -85.15
587430 [GEN-2016-063345.00] AMP    14896.9   -86.67
508072 [NWTXARK7    345.00] AMP    13296.9   -84.93
508298 [LYDIA  7    345.00] AMP    12913.8   -85.26
510918 [VALIANT4    138.00] AMP    15258.4   -85.96
510925 [KIOWA  7    345.00] AMP    14230.5   -84.78
511568 [TERRYRD7    345.00] AMP    10396.6   -85.18
515045 [SEMINOL7    345.00] AMP    26792.9   -86.09
515120 [RUSSET-4    138.00] AMP    11749.7   -77.85
515122 [SXMLCKT4    138.00] AMP    11589.2   -80.05
515135 [SUNNYSD4    138.00] AMP    19482.4   -84.61
515150 [CANEYCK4    138.00] AMP     8774.1   -77.43
515422 [C-RIVER7    345.00] AMP     9834.0   -84.40
520411 [SAWYER4     138.00] AMP    10635.0   -85.44
520918 [FROGVIL4    138.00] AMP    11303.3   -85.55
521079 [VALLANT4    138.00] AMP     9575.7   -85.18
588200 [GEN-2016-129345.00] AMP     5410.6   -84.92
507455 [TURK   7    345.00] AMP     9041.6   -84.61
508071 [NWTXARK4    138.00] AMP    24608.7   -84.86
508359 [WELSH  7    345.00] AMP    21083.7   -86.65
510866 [V-WEYCO4    138.00] AMP     9869.5   -82.74
510886 [IDABEL-4    138.00] AMP     6832.4   -81.70
510901 [HUGO---4    138.00] AMP     3437.5   -79.55
510910 [VALIANT2    69.000] AMP     7205.3   -85.99
510946 [C-RIVER4    138.00] AMP    12896.2   -85.96
511468 [L.E.S.-7    345.00] AMP    13298.9   -84.78
511571 [RUSHSPR7    345.00] AMP     6524.9   -85.05
514908 [ARCADIA7    345.00] AMP    26489.5   -86.54
514934 [DRAPER 7    345.00] AMP    20923.8   -85.05
515044 [SEMINOL4    138.00] AMP    40282.3   -85.60
515121 [MILLCKT4    138.00] AMP    11409.0   -79.85
515137 [UNIROY 4    138.00] AMP    12922.5   -80.18
515144 [LONEGRV4    138.00] AMP    13703.4   -82.14
515147 [GLASSES4    138.00] AMP     8311.1   -75.29
515149 [MADINDT4    138.00] AMP     8300.2   -75.34
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515151 [LTLCITY4    138.00] AMP     7191.3   -77.09
515164 [ROCKYPT4    138.00] AMP    10691.5   -80.58
515172 [SPRNDAL4    138.00] AMP    11789.0   -77.92
515224 [MUSKOGE7    345.00] AMP    28709.5   -86.67
515561 [CARTRCO4    138.00] AMP     8346.4   -80.02
520419 [GARVIN4     138.00] AMP     6247.9   -83.97
521036 [RATTAN 4    138.00] AMP     6833.4   -84.76
521044 [RUSSETT4    138.00] AMP    11670.8   -77.82
521067 [TEXOMAJ4    138.00] AMP     8713.0   -77.33
521098 [WSTBANK4    138.00] AMP     7240.6   -84.84
521122 [HOWE 4      138.00] AMP    11474.1   -79.99
505602 [S BROWN4    138.00] AMP     8302.0   -77.28
507431 [PATTERS4    138.00] AMP    12647.9   -82.41
507454 [TURK   4    138.00] AMP    24339.5   -83.66
508049 [NASH   4    138.00] AMP    19139.1   -84.22
508070 [NWT-BNT4    138.00] AMP    23612.5   -84.75
508080 [SUGARHL4    138.00] AMP    12088.3   -83.96
508832 [DIANA  7    345.00] AMP    18822.6   -86.41
508841 [WILKES 7    345.00] AMP    15311.0   -86.43
509745 [CLARKSV7    345.00] AMP    19799.0   -85.62
510870 [WCITYTP2    69.000] AMP     6277.7   -84.54
510876 [KIPUMPT2    69.000] AMP     4309.6   -72.70
510888 [B.BOWTP4    138.00] AMP     7191.4   -81.41
510893 [HUGO---2    69.000] AMP     4502.5   -77.82
510951 [TALAWANDA  4138.00] AMP     9617.4   -83.60
511456 [O.K.U.-7    345.00] AMP     5249.1   -84.32
511467 [L.E.S.-4    138.00] AMP    24513.1   -84.47
514880 [NORTWST7    345.00] AMP    32184.4   -86.06
514901 [CIMARON7    345.00] AMP    32665.6   -85.89
514907 [ARCADIA4    138.00] AMP    41960.4   -85.72
514909 [REDBUD 7    345.00] AMP    25724.6   -86.81
514933 [DRAPER 4    138.00] AMP    39110.9   -85.10
515055 [MAUD   4    138.00] AMP    19837.0   -79.20
515100 [PAOLI- 4    138.00] AMP    10276.2   -79.24
515117 [ARBUCKL4    138.00] AMP    16024.4   -80.11
515129 [RATLIFF4    138.00] AMP     6454.8   -76.22
515130 [POOLVIL4    138.00] AMP     8165.9   -79.98
515152 [BROWNTP4    138.00] AMP     8188.1   -77.16
515158 [MADLIND4    138.00] AMP     7724.4   -75.66
515162 [FNDTION4    138.00] AMP    11952.1   -78.19
515163 [ROCKYPT2    69.000] AMP     7784.4   -78.47
515178 [PARKLN 4    138.00] AMP    16466.7   -81.48
515196 [MILLCRK4    138.00] AMP     9309.7   -78.95
515235 [PECANCK7    345.00] AMP    21538.0   -85.48
515302 [FTSMITH7    345.00] AMP     9581.2   -85.74
515372 [ARDWEST4    138.00] AMP    12746.6   -79.98
515415 [CHEEKTP4    138.00] AMP    12323.2   -81.32
515531 [VANOSTP4    138.00] AMP    13432.7   -78.52
515563 [ORIGINW4    138.00] AMP     5096.1   -83.22
520874 [DARWIN 4    138.00] AMP     4711.4   -83.78
520953 [IDABEL 4    138.00] AMP     6299.6   -83.22
520972 [LEBANON4    138.00] AMP     5928.0   -78.16
521066 [TEXOMA 4    138.00] AMP     6373.5   -75.14
521077 [UNGER  4    138.00] AMP     5311.0   -84.14
585280 [GEN-2015-092345.00] AMP     6319.8   -85.04
587744 [G16-091-TAP 345.00] AMP    14725.6   -85.17
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