

Impact Study of Limited Operation for Generator Interconnection

GEN-2012-011

October 2012
Generation Interconnection



Executive Summary

<OMITTED TEXT> (Interconnection Customer; GEN-2012-011) has requested a Limited Operation System Impact Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for 200.0 MW of wind generation to be interconnected as an Energy Resource (ER) into a transmission facility of ITC-Great Plains (ITCGP) but within the control areas of Midwest Energy, Inc. (MIDW) and Sunflower Electric Power Corporation (SUNC) in Ness County, Kansas. GEN-2012-011, under GIA Section 5.9, has requested this Limited Operation Interconnection Study (LOIS) to determine the impacts of interconnecting to the transmission system before all required Network Upgrades identified in the DISIS-2012-001 Impact Study can be placed into service.

This LOIS addresses the effects of interconnecting the plant to the rest of the transmission system for the system topology and conditions as expected on December 31, 2013. GEN-2012-011 is requesting the interconnection of one-hundred twenty-five (125) General Electric 1.6 MW wind turbine generators and associated facilities into a tap on the Spearville – Post Rock 345kV. For the typical LOIS, both a power flow and transient stability analysis are conducted. The LOIS assumes that only the higher queued projects listed within Table 1 of this study might go into service before the completion of all Network Upgrades identified within Table 2 of this report. If additional generation projects not identified in Table 1 but with queue priority equal to or higher than the study project, GEN-2012-011, request rights to go into commercial operation before all Network Upgrades identified within Table 2 of this report, then this LOIS may need to be restudied to ensure that interconnection service remains for the GEN-2012-011 request.

Power flow analysis from this LOIS has determined that the GEN-2012-011 request can NOT interconnect prior to the completion of the required Network Upgrades, listed within Table 2 of this report. There is 0.0 MW of Limited Operation Interconnection Service available for the period of December 31, 2013 until the completion of the Spearville-Clark County-Thistle-Wichita 345kV double circuit 345kV line. This line is scheduled for completion in December, 2014. After this network upgrade is completed, limited operation may be available until such time that higher queued projects listed in Table 2 come into service. An additional study at a later time should be requested by the customer to determine what this amount of limited operation would be.

Because there was no LOIS available, no transient stability analysis was needed.

Nothing in this study should be construed as a guarantee of transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

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Purpose

<OMITTED TEXT> (Interconnection Customer) has requested a Limited Operation System Impact Study under the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT) for an interconnection request into a transmission facility of ITC-Great Plains (ITCGP) but within the control areas of Midwest Energy, Inc. (MIDW) and Sunflower Electric Power Corporation (SUNC).

The purpose of this study is to evaluate the impacts of interconnecting GEN-2012-011 request of 200.0 MW comprised of one-hundred twenty-five (125) General Electric 1.6 MW wind turbine generators and associated facilities interconnecting into a tap on the Spearville – Post Rock 345kV ITCGP transmission line in Ness County, Kansas. The Customer has requested this amount to be studied as an Energy Resource (ER) with a Limited Operation Interconnection Service to commence on or around January of 2014.

Since there was no interconnection service available only power flow analysis was conducted for this Limited Operation Interconnection Service study. Limited Operation Studies are conducted under GIA Section 5.9.

The LOIS considers the Base Case as well as all Generating Facilities (and with respect to (b) below, any identified Network Upgrades associated with such higher queued interconnection) that, on the date the LOIS is commenced:

- a) are directly interconnected to the Transmission System;
- b) are interconnected to Affected Systems and may have an impact on the Interconnection Request;
- c) have a pending higher queued Interconnection Request to interconnect to the Transmission System listed in Table 1; or
- d) have no Queue Position but have executed an LGIA or requested that an unexecuted LGIA be filed with FERC.

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, may require a re-study of this LOIS at the expense of the Customer.

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

This LOIS study included prior queued generation interconnection requests. Those listed within Table 1 are the prior queued requests that are assumed to have rights to either full or partial interconnection service prior to the requested 1/2014 in-service of GEN-2012-011 for this LOIS. Also listed in Table 1 are both the amount of MWs of interconnection service expected at the

effective time of this study and the total MWs requested of interconnection service, the point of interconnection (POI), and the current status of each particular prior queued request.

Table 1: Prior Queued Projects Included within LOIS

Project	MW	Total MW	POI	Status
Montezuma	110.0	110.0	Haggard 115kV	Commercial Operation
GEN-2001-039A	105.0	105.0	Tap Greensburg – Ft. Dodge 115kV	Commercial Operation
GEN-2001-039M	100.0	100.0	Central Plains 115kV	Commercial Operation
GEN-2002-025A	150.0	150.0	Spearville 230kV	Commercial Operation
GEN-2003-006A	200.0	200.0	Elm Creek 230kV	Commercial Operation
GEN-2003-019	250.0	250.0	Smoky Hills 230kV	Commercial Operation
GEN-2004-014	154.5	154.5	Spearville 230kV	Commercial Operation
GEN-2005-012	160.0	250.0	Spearville 345kV	IA Executed/On Schedule
GEN-2006-021	101.0	101.0	Flat Ridge Tap 138kV	Commercial Operation
GEN-2006-031	75.0	75.0	Goodman Energy Center 115kV	Commercial Operation
GEN-2007-040	200.0	200.1	Buckner 345kV	Commercial Operation
GEN-2008-018	405.0	405.0	Finney 345kV	IA Executed/On Schedule
GEN-2008-079	99.2	99.2	Tap Cudahy – Ft Dodge 115kV	IA Executed/On Schedule
GEN-2010-009	165.6	165.6	Buckner 345kV	IA Executed/On Schedule
GEN-2010-057	201.0	201.0	Rice County 230kV	Commercial Operation
GEN-2012-002	101.2	101.2	Tap Scott City – Pile 115kV	Facility Study

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, may require a re-study of this LOIS at the expense of the Customer. The higher queued projects that were not included in this study are listed in Table 2. While this list is not all inclusive it is a list of the most probable and affecting prior queued requests that were not included within this LOIS, either because no request for an LOIS has been made or the request is on suspension, etc.

Table 2: Prior Queued Projects Not Included within LOIS

Project	Total MW	POI	Status
ASGI-2012-006	22.5	Tap Hugoton – Rolla 69kV	-NA-
GEN-2006-022	150.0	Ninnescah Tap 115kV	IA Executed/On Suspension
GEN-2006-032	200.0	South Hays 230kV	IA Executed/On Suspension
GEN-2006-040	108.0	Mingo 115kV	IA Executed/On Suspension
GEN-2006-006	205.5	Spearville 345kV	IA Pending
GEN-2007-011	135.0	Syracuse 115kV	IA Executed/On Suspension
GEN-2007-038	200.0	Spearville 345kV	IA Executed/On Schedule
GEN-2008-017	300.0	Setab 345kV	IA Executed/On Schedule
GEN-2008-025	101.0	Ruleton 115kV	IA Executed/On Schedule
GEN-2008-092	201.0	Knoll 230kV	IA Pending
GEN-2008-124	200.0	Spearville 345kV	IA Executed/On Schedule
GEN-2009-008	199.5	South Hays 230kV	IA Executed/On Suspension
GEN-2009-020	48.6	Tap Nekoma – Bazine 69kV	IA Executed/On Suspension
GEN-2010-015	200.1	Spearville 345kV	IA Executed/On Schedule
GEN-2010-029	450.0	Spearville 345kV	IA Pending
GEN-2010-045	197.8	Buckner 345kV	IA Pending
GEN-2010-048	70.0	Tap Redline – Beach 115kV	IA Pending

Project	Total MW	POI	Status
GEN-2010-061	180.0	Tap Spearville – Post Rock 345kV	Facility Study
GEN-2011-008	600.0	Clark County 345kV	Facility Study
GEN-2011-016	200.1	Spearville 345kV	IA Pending
GEN-2011-017	299.0	Tap Spearville – Post Rock 345kV	Facility Study
GEN-2011-023	299.0	Clark County 345kV	Facility Study
GEN-2011-043	150.0	Thistle 345kV	Facility Study
GEN-2011-044	150.0	Thistle 345kV	Facility Study
GEN-2012-007	120.0	Rubart 115kV	Facility Study
GEN-2012-012	200.0	Clark County 345kV	Facility Study

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

Facilities

Generating Facility

GEN-2012-011 Interconnection Customer’s request to interconnect a total of 200.0 MW is comprised of one-hundred twenty-five (125) General Electric 1.6 MW wind turbine generators and associated interconnection facilities.

Interconnection Facilities

The POI for GEN-2012-011 Interconnection Customer is at a tap on the Spearville – Post Rock 345kV ITCGP transmission line in Ness County, Kansas. Figure 1 depicts the one-line diagram of the ITCGP 345kV transmission system including the POI as well as the power flow model representing the request.

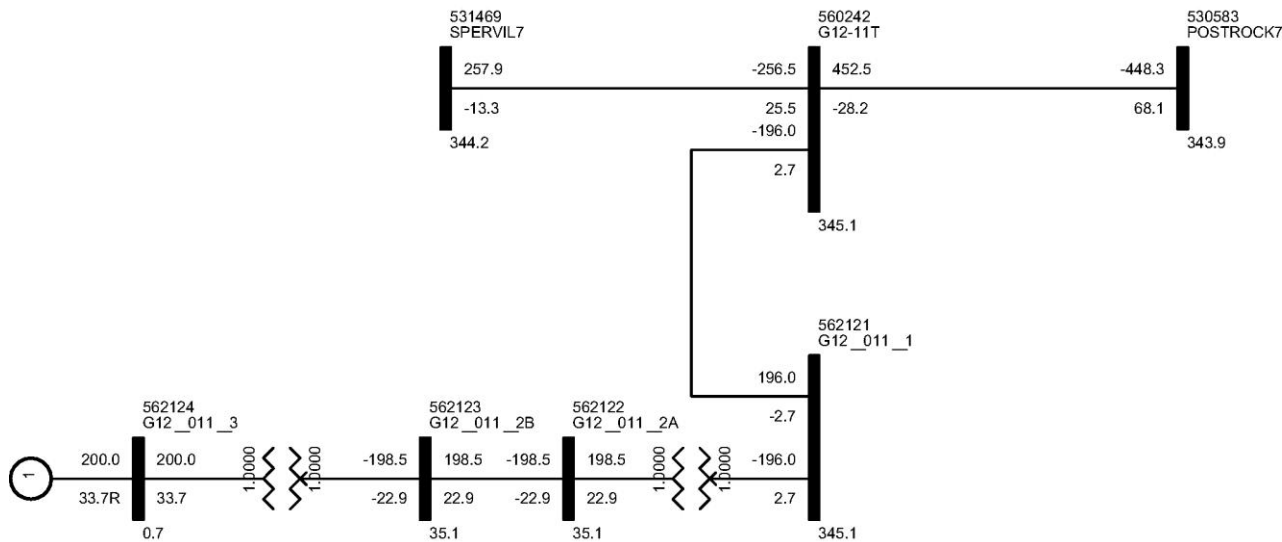


Figure 1: Proposed POI Configuration and Request Power Flow Model

Base Case Network Upgrades

The Network Upgrades included within the cases used for this LOIS study are those facilities that are a part of the SPP Transmission Expansion Plan or the Balanced Portfolio projects that have in-service dates prior to the GEN-2012-011 LOIS requested in-service date of January 1, 2013. These facilities have an approved Notice to Construct (NTC), or are in construction stages and expected to be in-service at the effective time of this study. No other upgrades were included for this LOIS. If for some reason, construction on these projects is discontinued, a restudy may be needed to determine the interconnection service availability of the Customer.

Power Flow Analysis

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

Model Preparation

Power flow analysis was performed using modified versions of the 2011 series of transmission service request study models including the 2012 (spring, summer, and winter) and 2017 (summer and winter) seasonal models. To incorporate the Interconnection Customer's request, a re-dispatch of existing generation within SPP was performed with respect to the amount of the Customer's injection and the interconnecting Balancing Authority. This method allows the request to be studied as an Energy Resource (ERIS) Interconnection Request. For this LOIS, only the previous queued requests listed in Table 1 were assumed to be in-service.

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

Results

The LOIS ACCC analysis indicates that the Customer can NOT interconnect generation into the ITCGP transmission system as requested before all required upgrades listed within the DISIS-2012-001 study can be placed into service. There will be NO LOIS AVAILABILITY for this request.

ACCC results for the LOIS can be found in Table 3 below. For the loss of the GEN-2012-011 Tap – Post Rock 345kV, the most limiting issue is the overload on the Spearville – Mullergren 230kV transmission line. The results listed within Table 3 shows that there will not be enough interconnection availability on the transmission system. It should also be noted that for the highly constrained system scenario, there were convergence issues for the loss of Finney – Hitchland 345kV.

Additional ACCC results can be found within the Appendix. Appendix A details the thermal issues associated with the LOIS study. These ACCC results fall below the 20% transmission distribution factor (TDF) and do not require mitigation for ER interconnection service. They are being provided to help the customer understand that although constraints with a TDF of 20% or greater require mitigation, the transmission system could still be constrained with ER upgrades in service.

Power Flow Analysis

Table 3: Interconnection Constraints for Mitigation of GEN-2012-011 LOIS

Season	Group	Direction	Monitored Element	Rate A (MVA)	Rate B (MVA)	TDF	TC% Loading	MW Available	Contingency
2012 G	03ALL		Non-Converged					0	Hitchland Interchange - STEVENSCO 345.00 345KV CKT 1
2012 G	03ALL		Non-Converged					0	FINNEY SWITCHING STATION - STEVENSCO 345.00 345KV CKT 1
2012 G	03G12_011	TO->FROM	MULLERGREN - SPEARVILLE 230KV CKT 1	330.3	355.3	0.36	122.9	0	G12-11T 345.00 - POST ROCK 345KV CKT 1
2012 G	03G12_011	TO->FROM	MULLERGREN - SPEARVILLE 230KV CKT 1	330.3	355.3	0.20	100.3	0	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1
2012 G	03ALL	TO->FROM	MULLERGREN - SPEARVILLE 230KV CKT 1	330.3	355.3	0.35	127.3	0	G12-11T 345.00 - POST ROCK 345KV CKT 1
2012 G	03ALL	FROM->TO	SMOKYHL6 230.00 - SUMMIT 230KV CKT 1	319	319	0.22	119.5	0	AXTELL - POST ROCK 345KV CKT 1
2012 G	03ALL	TO->FROM	MULLERGREN - SPEARVILLE 230KV CKT 1	330.3	355.3	0.21	107.1	0	POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1

Stability Analysis

Transient stability analysis is used to determine if the transmission system can maintain angular stability and ensure bus voltages stay within planning criteria bandwidth during and after a disturbance while considering the addition of a generator interconnection request.

Since there was no Limited Operation Interconnection Service availability, no stability analysis was performed for this LOIS.

Conclusion

<OMITTED TEXT> (Interconnection Customer; GEN-2012-011) has requested a Limited Operation System Impact Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for 200.0 MW of wind generation to be interconnected as an Energy Resource (ER) into the transmission facility of ITC-Great Plains (ITC-GP) but within the control areas of Midwest Energy, Inc. (MIDW) and Sunflower Electric Power Corporation (SUNC) in Ness County, Kansas. GEN-2012-011, under GIA Section 5.9, has requested this Limited Operation Interconnection Study (LOIS) to determine the impacts of interconnecting to the transmission system before all required Network Upgrades identified in the DISIS-2012-001 report can be placed into service.

Power flow analysis from this LOIS has determined that the GEN-2012-011 request can NOT interconnect prior to the completion of the required Network Upgrades, listed within Table 2 of this report. There is 0.0 MW of Limited Operation Interconnection Service available for the period of December 31, 2013 until the completion of the Spearville-Clark County-Thistle-Wichita 345kV double circuit 345kV line. This line is scheduled for completion in December, 2014. After this network upgrade is completed, limited operation may be available until such time that higher queued projects listed in Table 2 come into service. An additional study at a later time should be requested by the customer to determine what this amount of limited operation would be.

Because Limited Operation Interconnection Service is not available, no transient stability analysis was performed.

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, may require a re-study of this LOIS at the expense of the Customer.

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Appendix

Appendix A - GEN-2012-011 LOIS Constraints <20%

These results are the constraints associated with a TDF below 20%, or those not requiring mitigation for those requests asking for ERS.

Season	Group	Direction	Monitored Element	Rate A (MVA)	Rate B (MVA)	TDF	TC% Loading	Contingency
12G	03ALL	'FROM->TO'	'POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1'	559	559	0.19	102.0	'Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.19	135.3	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'TO->FROM'	'CIRCLE - MULLERGREN 230KV CKT 1'	319	319	0.19	101.1	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'TO->FROM'	'CIRCLE - MULLERGREN 230KV CKT 1'	319	319	0.19	122.4	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.18	122.0	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.18	120.9	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.18	106.5	'GRAY CO 345.00 - SPEARVILLE 345KV CKT 1'
12G	03ALL	'TO->FROM'	'CIRCLE - MULLERGREN 230KV CKT 1'	319	319	0.17	100.5	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.17	113.7	'MULLERGREN - SOUTH HAYS 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	118.5	'AXTELL - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	114.1	'POSTROCK6 230.00 - SOUTH HAYS 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	117.1	'MOORE - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	110.3	'SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	116.0	'MINGO - RED WILLOW 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.16	118.7	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	116.5	'Hitchland Interchange - POTTER COUNTY INTERCHANGE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	116.3	'POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.3	'CIRCLE - EAST MCPHERSON 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.4	'PHILLIPSBURG - SMITH CENTER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.8	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	116.6	'EAST MANHATTAN - ELM CREEK 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	107.8	'CONCORDIA - ELM CREEK 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	107.8	'CONCORDIA (CONCORD6) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.2	'AXTELL - SWEETWATER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.0	'HUNTSVILLE - ST_JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.0	'MIDW-CATB05'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.8	'HUNTSVILLE - HUTCHINSON ENERGY CENTER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.2	'SPP-MKEC-06'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.2	'SEWARD - ST JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.8	'EAST MCPHERSON - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.2	'SPP-MKEC-08'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.9	'SPP-MKEC-05'

12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.9	'SPP-WEPL-03'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.9	'SPP-WERE-34'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.8	'SPP-WEPL-03A'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.5	'CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.5	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.9	'Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.1	'GRAND ISLAND - MCCOOL 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.3	'MCCOOL - MOORE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.9	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.1	'MINGO - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.6	'KNOLL - SALINE RIVER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.0	'KNOLL 230 (KNOLL T1) 230/115/11.49KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	116.1	'SPP-SWPS-03'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	119.1	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.9	'HOLCOMB - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.7	'GRAPEVINE INTERCHANGE - STATELINE INTERCHANGE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.1	'ELK CITY 230KV - SWEETWATER 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.1	'ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.0	'SPP-SWPS-02A'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.0	'STLN-DEMARC6 - SWEETWATER 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.0	'SPP-SWPS-02'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.0	'STATELINE INTERCHANGE - STLN-DEMARC6 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.5	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.4	'COOPER - G10-056T 345.00 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.3	'G10-056T 345.00 - ST JOE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.9	'GREAT BEND TAP - SEWARD 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.9	'GREAT BEND TAP - MULLERGREEN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.8	'MARYVLE7 345.00 - SUB 3458 NEB CTY 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.8	'MARYVLE7 345.00 - SIBLEY 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.2	'103RD & ROKEBY - SUB 3458 NEB CTY 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	106.5	'IATAN - ST JOE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.2	'AXTELL (AXTELL T1) 345/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.4	'GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.6	'COLUMWEST - GRAND ISLAND 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.6	'ASGI-10-01T 345.00 - COOPER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.6	'ASGI-10-01T 345.00 - FAIRPORT 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.0	'NUNDRWD - WAYSIDE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.1	'KCPL-OPGD06B'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.1	'KCPL-OPGD06A'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.1	'KCPL-OPGD01B'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	113.1	'KCPL-OPGD01A'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.6	'STEGALL - WAYSIDE 230KV CKT 1'

12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.5	'NASHUA - ST JOE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.5	'HAWTHORN - NASHUA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.8	'KCPL-OPGD#07'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.8	'KCPL-OPGD#02'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.4	'AI03'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	115.3	'IATAN - STRANGER CREEK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	112.5	'ARKANSAS NUCLEAR ONE - FT SMITH 500KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	121.5	'GEN532751 1-WOLF CREEK GENERATING STATION UNIT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	111.2	'BASE CASE'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.9	'GEN539670 4-JUDSON LARGE GENERATOR'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.5	'SPP-WERE-70B'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.1	'GEN539653 1-CIMARRON RIVER PLANT GENERATOR'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	107.2	'GEN539677 3-A. M. MULLERGREN GENERATOR'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	100.0	'GEN531447 1-HOLCOMB GENERATOR'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	114.3	'EAST MANHATTAN (EMANHT3X) 230/115/18.0KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.4	'AUBURN ROAD - JEFFREY ENERGY CENTER 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.5	'LACYGNE - NEOSHO 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.9	'CIMARRON - G11-007T 345.00 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	109.9	'G11-007T 345.00 - WOODRING 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	108.7	'EMPORIA ENERGY CENTER - MORRIS COUNTY 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.1	'G08-127T 345.00 - ROSE HILL 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	110.1	'G08-127T 345.00 - SOONER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	102.8	'HOYT - JEFFREY ENERGY CENTER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	106.0	'HOYT - STRANGER CREEK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	102.4	'WRTOD400'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	108.7	'SWISSVALE - WEST GARDNER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	108.4	'SUMNERCO 345.00 - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	108.3	'G08-13T 345.00 - SUMNERCO 345.00 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	108.3	'G08-13T 345.00 - WOODRING 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.15	101.0	'RENO COUNTY - SUMMIT 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.14	120.1	'JEFFREY ENERGY CENTER - SUMMIT 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.14	110.2	'SUMMIT - UNIONRG6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.14	101.5	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'	319	319	0.13	108.2	'SUMMIT (SUMMIT1X) 345/230/14.4KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.12	103.0	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.12	100.7	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.12	100.3	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.12	110.0	'CIRCLE - EAST MCPHERSON 230KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.12	107.4	'CIRCLE - EAST MCPHERSON 230KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.10	122.4	'RENO COUNTY - SUMMIT 345KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.10	120.4	'RENO COUNTY - SUMMIT 345KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.10	101.9	'SEWARD - ST JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.10	101.9	'SPP-MKEC-06'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	103.6	'EAST MCPHERSON (EMCPHR1X) 230/115/13.8KV TRANSFORMER CKT 1'

12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	101.6	'EAST MCPHERSON (EMCPHR1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	102.1	'RICECO 230.00 230/115KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	100.8	'SPP-WERE-76'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	100.5	'MIDW-CATB06'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	100.1	'LYONS - RICE_CO 115KV CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	100.0	'RICECO 230.00 230/115KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	102.1	'BASE CASE'
12G	03ALL	'FROM->TO'	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'	280	308	0.09	100.2	'BASE CASE'
12G	03G12_01 1	'TO->FROM'	'HAYS PLANT - SOUTH HAYS 115KV CKT 1'	80	88	0.09	148.3	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'HAYS PLANT - VINE STREET 115KV CKT 1'	80	88	0.09	124.5	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03G12_01 1	'TO->FROM'	'N HAYS3 115.00 - VINE STREET 115KV CKT 1'	83	99	0.09	103.3	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'TO->FROM'	'HAYS PLANT - SOUTH HAYS 115KV CKT 1'	80	88	0.09	139.9	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'HAYS PLANT - VINE STREET 115KV CKT 1'	80	88	0.09	116.0	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.06	127.2	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.06	126.6	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.06	188.4	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.06	187.8	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.05	101.5	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.05	129.4	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.05	120.9	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.05	118.4	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.05	103.8	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.05	138.3	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'ST JOHN - ST JOHN 115KV CKT 1'	86	86	0.05	106.9	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST JOHN 115KV CKT 1'	86	86	0.05	137.2	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	145.7	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	140.1	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.04	111.2	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'HARPER - MILAN TAP 138KV CKT 1'	95.6	95.6	0.04	109.1	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'HARRINGTON STATION - NICHOLS STATION 230KV CKT 1'	478	617	0.04	104.5	'Harrington Station Mid Bus - NICHOLS STATION 230KV CKT 2'
12G	03ALL	'FROM->TO'	'Harrington Station Mid Bus - NICHOLS STATION 230KV CKT 2'	478	617	0.04	104.9	'HARRINGTON STATION - NICHOLS STATION 230KV CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	107.1	'AXTELL - POST ROCK 345KV CKT 1'
12G	03G12_01 1	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	111.4	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'

12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	147.2	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'
12G	03G12_01_1	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	101.7	'FINNEY SWITCHING STATION - STEVENSCO 345.00 345KV CKT 1'
12G	03G12_01_1	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	101.6	'Hitchland Interchange - STEVENSCO 345.00 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	129.5	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	126.0	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.04	105.0	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	104.8	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	120.0	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'GREAT BEND TAP - SEWARD 115KV CKT 1'	83.9	89.6	0.04	117.0	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	114.7	'G11-17T 345.00 - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	131.3	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	127.7	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.04	106.5	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'HARPER - MILAN TAP 138KV CKT 1'	95.6	95.6	0.04	103.8	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	116.2	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'SEWARD - ST JOHN 115KV CKT 1'	79.7	88	0.04	100.2	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.04	109.7	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.04	101.4	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	107.8	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	127.8	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	124.3	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.04	103.6	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	105.6	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	133.8	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.04	130.2	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.04	108.3	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'HARPER - MILAN TAP 138KV CKT 1'	95.6	95.6	0.04	105.8	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	122.0	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	102.7	'KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.04	122.3	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	120.1	'SPP-MKEC-05'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	120.1	'SPP-WEPL-03'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	120.1	'SPP-WERE-34'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	120.0	'SPP-MKEC-08'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	118.4	'SPP-WEPL-03A'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	116.3	'CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1'

12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	115.2	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	138.6	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	135.3	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	110.1	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'HARPER - MILAN TAP 138KV CKT 1'	95.6	95.6	0.03	108.1	'RENO COUNTY - WICHITA 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	111.7	'POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	103.3	'POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	100.8	'POST ROCK (POSTROCK T1) 345/230/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	130.2	'MIDW-CATB05'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	130.2	'HUNTSVILLE - ST_JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	129.4	'HUNTSVILLE - HUTCHINSON ENERGY CENTER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	127.0	'MIDW-CATB05'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	127.0	'HUNTSVILLE - ST_JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	126.2	'HUNTSVILLE - HUTCHINSON ENERGY CENTER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	104.8	'MIDW-CATB05'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	104.8	'HUNTSVILLE - ST_JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	104.3	'HUNTSVILLE - HUTCHINSON ENERGY CENTER 115KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	133.3	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	129.4	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	124.4	'KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	121.2	'KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	109.0	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'HARPER - MILAN TAP 138KV CKT 1'	95.6	95.6	0.03	106.5	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	101.0	'KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	120.1	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	111.7	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	109.2	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST_JOHN 115KV CKT 1'	86	86	0.03	103.1	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	110.1	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	107.0	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'

12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	106.3	'FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	101.7	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	110.9	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	102.6	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	100.2	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	117.4	'SPP-MKEC-06'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	117.3	'SEWARD - ST JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	109.0	'SEWARD - ST JOHN 115KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	109.0	'SPP-MKEC-06'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	106.5	'SEWARD - ST JOHN 115KV CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	106.5	'SPP-MKEC-06'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	126.6	'MINGO - RED WILLOW 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	123.2	'MINGO - RED WILLOW 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	102.3	'MINGO - RED WILLOW 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.8	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	119.8	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	100.2	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	106.7	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	106.0	'AXTELL - POST ROCK 345KV CKT 1'
12G	03ALL	'FROM->TO'	'ST JOHN - ST JOHN 115KV CKT 1'	86	86	0.03	100.0	'KNOLL 230 - POSTROCK6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	124.0	'AXTELL - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	120.9	'AXTELL - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	100.9	'AXTELL - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	126.7	'MINGO - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	123.3	'MINGO - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	102.5	'MINGO - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	123.3	'MOORE - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	120.2	'MOORE - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	100.4	'MOORE - PAULINE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	125.6	'Hitchland Interchange - POTTER COUNTY INTERCHANGE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	125.4	'POTTER COUNTY INTERCHANGE (WAKU 90343-A) 345/230/13.2KV TRANSFORMER CKT 1'

12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.3	'Hitchland Interchange - POTTER COUNTY INTERCHANGE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.1	'POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	101.6	'Hitchland Interchange - POTTER COUNTY INTERCHANGE 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	101.5	'POTTER COUNTY INTERCHANGE (WAUK 90343-A) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	114.4	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	108.2	'KNOLL 230 - SMOKYHL6 230.00 230KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	106.0	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'TO->FROM'	'MEDICINE LODGE - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	103.6	'SMOKYHL6 230.00 - SUMMIT 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	125.0	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	121.8	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	101.4	'GRAND ISLAND - SWEETWATER 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.2	'Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	119.2	'Hitchland Interchange (H TB80155502) 345/230/13.2KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	123.3	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	120.1	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	100.4	'CIRCLE (CIRCLE1X) 230/115/13.8KV TRANSFORMER CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	104.3	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MOUNDRIDGE (MOUND10X) 138/115/13.8KV TRANSFORMER CKT 1'	100	110	0.03	103.6	'GRAY CO 345.00 - HOLCOMB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.0	'HOLCOMB - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	119.0	'HOLCOMB - SETAB 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	123.5	'EAST MANHATTAN - ELM CREEK 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	120.3	'EAST MANHATTAN - ELM CREEK 230KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	100.5	'EAST MANHATTAN - ELM CREEK 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	121.9	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	118.6	'MULLERGREN - SPEARVILLE 230KV CKT 1'
12G	03ALL	'FROM->TO'	'G01_039AT 115.00 - GREENSBURG 115KV CKT 1'	120.7	129.5	0.03	110.6	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'GREENSBURG - SUN CITY 115KV CKT 1'	120.7	129.5	0.03	102.3	'CIRCLE - MULLERGREN 230KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	125.4	'SPP-SWPS-03'

12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	122.1	'SPP-SWPS-03'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	101.6	'SPP-SWPS-03'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	128.5	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'
12G	03ALL	'FROM->TO'	'MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1'	56	65	0.03	125.0	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'
12G	03ALL	'FROM->TO'	'FLATRDG3 - HARPER 138KV CKT 1'	110	110	0.03	103.9	'LAWTON EASTSIDE - OKLAUNION 345KV CKT 1'