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DPP-2015-FEB-West Cluster Limited Operation Impact Study

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REVISION HISTORY

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EXECUTIVE SUMMARY

Southwest Power Pool (SPP) has retained the services of Power System Solutions (PSS) to perform an Affected System Limited Operation Impact Study (AS-LOIS) of the Midcontinent Independent System Operator (MISO) DPP-2015-FEB-West interconnection cluster. The purpose of this Affected System Limited Operation Interconnection Study (AS-LOIS) is to determine the impacts of interconnecting the generation requests listed in *APPENDIX A* the transmission system under the following assumptions:

- Include all higher and equally queued generation interconnection requests, and
- Include higher queued network upgrades outlined in Model Preparation
- Exclude Gentleman – Thedford – Holt 345kV (“R-Plan”) (not yet constructed project)¹

This cluster LOIS was performed to determine if the MISO requests listed in *APPENDIX A* are limited prior to the completion of previously identified contingent facilities.

The results of this AS-LOIS have shown that all of the requests listed in *APPENDIX A* may inject their full MW amount without the Gentleman – Thedford – Holt 345kV (“R-Plan”) Project or any other current study upgrade.

Transient stability and short circuit analysis were not performed for this AS-LOIS.

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 AS-LOIS.

¹ Project Owner Indicated In-Service Date 5/1/2021 at time of posting

PURPOSE

The DPP-2015-FEB-West LOIS consists of steady-state power flow analysis of SPP Generation Interconnection (GI) groups 9, 15, and 16. The purpose of a Limited Operation Interconnection Study (LOIS) is to determine the amount of interconnection service available prior to the in-service dates of the network upgrades identified in the impact study.

Any LOIS may include steady-state power flow, transient stability, and short circuit analyses. This AS-LOIS consisted of power flow analysis only.

This AS-LOIS addresses the effects of interconnecting the generation requests identified in *APPENDIX A* to the rest of the transmission system for the system topology and conditions as identified under the following assumptions:

- Include all higher and equally queued generation interconnection requests, and
- Include higher queued network upgrades outlined in Model Preparation
- Exclude Gentleman – Thedford – Holt 345kV (“R-Plan”) (not yet constructed project)¹

APPENDIX A includes the current study generation requests included within this AS-LOIS.

APPENDIX B outlines the higher queued SPP generation requests that were included in this AS-LOIS.

APPENDIX C lists of all the MISO generation requests that were included within this AS-LOIS.

APPENDIX D consists of the upgrade projects that were excluded from this AS-LOIS.

POWERFLOW ANALYSIS

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

MODEL PREPARATION

The models used for this AS-LOIS are modified versions of the 2016 series of 2017 ITP Near-Term study models including these seasonal models:

- Year 1 (2017) Winter Peak (17WP),
- Year 2 (2018) Spring (18G),
- Year 2 (2018) Summer Peak (18SP),
- Year 5 (2021) Light (21L),
- Year 5 (2021) Summer (21SP),
- Year 5 (2021) Winter (21WP) peak, and
- Year 10 (2026) Summer (26SP) peak.

The following network upgrades were added to the 17ITP models:

- DISIS-2014-002
 - Rebuild Tolk West – Plant X 230 kV Ckts 1 & 2 [17WP – 18G]
 - Rebuild circuit 1 and 2 between Tolk - Plant X 230kV to 1200 amps each
 - Rebuild Tuco 230/345 kV XFMR Ckt 1 [17WP – 18G]
 - Replace existing TUCO 345/230/13.2kV Transformer circuit #1 with 644MVA.
- DISIS-2015-001
 - NRIS Only: Rerate Renfrow – Renfrow 138 kV Ckt 1
 - Assigned to GEN-2015-015
 - Replace current transformer – voltage transformer combo with metering current transformer – voltage transformer to achieve at least 184 MVA (Emergency Rating)
- MISO MVP Project: Big Stone South – Ellendale 345 kV [17WP – 18WP]
 - Multi-value project (MVP) in MISO's 2013 MTEP report
- DPP-2015-FEB-West
 - NIW – Colby 161 kV Rebuild
 - See MISO DPP-2015-FEB-West report
- Upgrade Bismark – Hilken 230 kV per 19ITP ratings [SP & WP]

SPP uses a group dispatch methodology for both SPP and Affected System Impact Studies. SPP and affected system generator interconnection requests are dispatched across their respective footprints using load factor ratios.

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 is dispatched at 20% nameplate of maximum generation.

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

All generators (VER and peaking) that requested 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.

For Energy Resource Interconnection Service (ERIS), thermal overloads are determined for system intact (n-0) (greater than 100% of Rate A - normal) and for contingency (n-1) (greater than 100% of Rate B - emergency) conditions. The overloads are then screened to determine which 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), and
- 3% DF on contingent elements that resulted in a non-converged solution.

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

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

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

LIMITED OPERATION

The results of the Power Flow Analysis and Stability analysis impact study identify the system constraints that require mitigation. The Limited Operation Analysis evaluates the most limiting of these constraints for each current study request and identifies an amount of available interconnection service prior to triggering that constraint.

Power Flow analysis results include the thermal overload amount, circuit rating, size and TDF of each current study request. An initial Limited Operation amount is calculated by identifying the impact of each request on each constraint and identifying a reduced size of each request proportional to the thermal constraint that would result in a circuit loading within the applicable rating.

The Limited Operation amount is calculated according to the following equation:

$$\text{Limited Operation amount} = \text{Request MW} - \frac{\text{MVA Rating} * (\text{Overload PU} - 1)}{\text{Request TDF}}$$

With the initial Limited Operation amount request sizes applied to the study cases, ACCC is repeated to verify that the thermal constraints are not observed, or the calculation and verification is repeated until all thermal constraints are mitigated.

Power Flow Analysis results for voltage violations are then further mitigated by identifying the contribution of each request and determination of the required impact reduction is conducted and verified through ACCC to determine the Power Flow Analysis Limited Operation amount for each request.

Stability Analysis constraints, if any, are evaluated with the Power Flow Analysis Limited Operation amount for each request and determination of the required impact reduction is conducted and verified.

RESULTS

No thermal or voltage constraints were observed meeting SPP mitigation criteria. Several thermal constraints were observed on affected system facilities, which are outlined in Appendix H-T. No voltage constraints met the DF (3%) and Voltage Difference (2%) criteria for Appendix G or H.

Please note that the thermal constraints due to P2-3, P2-4, and P4-1 – P4-5 contingencies have been listed as informational only in Appendix H as these events were not considered in the original analysis.

The following constraints were identified as meeting SPP mitigation criteria, however, due to transmission owner feedback, it was determined no mitigation was necessary.

- Hampton – Sheffield 161 kV: Cornbelt Electric Cooperative's has made exceptions in their op-guides to clarify the ownership of the flowgates that happen on the main thru line from Sheffield - Franklin. If the flowgate is Hampton Tap – Franklin, it is a MISO flowgate. If it is Hampton Tap – Sheffield, it is a SPP flowgate. The rating for this section is currently 326 MVA which is the 954 conductor on the double circuit going into Sheffield and jumpers at Sheffield. Therefore, no upgrades will be required to get the rating above 242 MVA.

While the following lines were observed as non-converged on the MISO system, MISO has confirmed that there is a RAS scheme in place to runback the Manitoba Hydro DC lines for the loss of these assets:

- Forbes – Roseau 500 kV Ckt 1
- Riel – Roseau 500 kV Ckt 1
- Roseau – Roseaum 500 kV Ckt 1

CONCLUSION

Southwest Power Pool (SPP) retained the services of Power System Solutions (PSS) to perform an Affected System Limited Operation Impact Study (AS-LOIS) of the Midcontinent Independent System Operator (MISO) DPP-2015-FEB-West interconnection cluster. The purpose of this Affected System Limited Operation Interconnection Study (AS-LOIS) was to determine the impacts of interconnecting the generation requests listed in *APPENDIX A* to the transmission system under the following assumptions:

- Include all higher and equally queued generation interconnection requests, and
- Include higher queued network upgrades outlined in Model Preparation
- Exclude Gentleman – Thedford – Holt 345kV (“R-Plan”) (not yet constructed project)¹

This AS-LOIS was performed to determine if the current study MISO interconnection requests listed in *APPENDIX A* still required the network upgrades identified in the original affected system impact study.

The results of the power-flow analysis indicate the requests listed in *APPENDIX A* may inject their full MW without any SPP network upgrades.

Transient stability and short circuit analysis were not performed for this AS-LOIS 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 AS-LOIS

APPENDICIES

APPENDIX A

Table 1: Current Study Interconnection Requests for the DPP-2015-FEB-West

Gen Number	Service	Fuel Source	Group	SP MW ²	WP MW
G736	ER/NR	Wind	15 E-SD	200	200
J299	ER	Combined Cycle	15 E-SD	0	73
J385	ER/NR	Solar	15 E-SD	100	100
J400	ER/NR	Solar	15 E-SD	62.5	62.5
J405	ER/NR	Gas	16 W-ND	40	40
J407	ER/NR	Wind	15 E-SD	200	200
J411	ER/NR	Wind	09 NEB	300	300
J416	ER/NR	Wind	09 NEB	200	200
J426	ER/NR	Wind	15 E-SD	100	100

² Spring and Light seasonal cases use Summer Peak capacity ratings for dispatch

APPENDIX B

Table 2: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
PQ	ASGI-2010-006	150	Wind	08 N-OK & S-KS	GIA Executed
PQ	GEN-2001-014	94.5	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-026	74.25	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-033	180.29	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-036	80	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-037	102	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-039A	105	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2001-039M	99	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-004	153	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-005	120	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-008	240	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-009	80	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-022	239.2	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2002-025A	150	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-004	100	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-005	100	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-006A	201	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-019	249.3	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-020	159	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-021N	75	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2003-022	120	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2004-014	100	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2004-020	27	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2004-023	20.6	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2004-023N	75	Coal	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2005-003	30.6	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2005-008	120	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2005-012	248.4	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2005-013	199.8	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-002	100.8	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-018	162	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-020N	42	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-020S	19.8	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-021	94	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-024S	18.9	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-026	502	Gas	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION

APPENDIX B: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
PQ	GEN-2006-035	132	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-038N005	80	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-038N019	80	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-043	99	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-044	370	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2006-046	130	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2007-011N08	81	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	GEN-2008-1190	60	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
PQ	Llano Estacado (White Deer)	80	Wind	02 HITCHLND	
PQ	Gray County Wind (Montezuma)	110	Wind	03 SPRVLE	
PQ	SPS Distributed (Dumas 19th St)	20	Wind	02 HITCHLND	
PQ	SPS Distributed (Etter)	20	Wind	02 HITCHLND	
PQ	SPS Distributed (Sherman)	20	Wind	02 HITCHLND	
PQ	SPS Distributed (Moore E)	17.5	Wind	02 HITCHLND	
PQ	NPPD Distributed (Broken Bow)	7.3	Heat	09 NEB	
PQ	NPPD Distributed (Burwell)	3	Heat	09 NEB	
PQ	NPPD Distributed (Ord)	10.8	Heat	09 NEB	
PQ	NPPD Distributed (Stuart)	1.8	Heat	09 NEB	
PQ	NPPD Distributed (Columbus Hydro)	45	Hydro	09 NEB	
PQ	WAPA SEAMS (Gavins Pt Hydro)	102	Hydro	09 NEB	
PQ	WAPA SEAMS (Ft Randle Hydro)	352	Hydro	09 NEB	
PQ	WAPA SEAMS (Spirit Mound Heat)	120	Heat	09 NEB	
PQ	SPS Distributed (Hopi)	10	Solar	06 NM & W-TX	
PQ	SPS Distributed (Monument)	10	Solar	06 NM & W-TX	
PQ	SPS Distributed (Lea Road)	10	Solar	06 NM & W-TX	
PQ	SPS Distributed (Jal)	10	Solar	06 NM & W-TX	
PQ	SPS Distributed (Ocotillo)	10	Solar	06 NM & W-TX	
PQ	NPPD Distributed (Burt County Wind)	12	Wind	09 NEB	
PQ	NPPD Distributed (Buffalo County Solar)	10	Solar	09 NEB	
PQ	SPS Distributed (Carson)	10	Wind	02 HITCHLND	Commercial Operation
PQ	Sunray	34.5	Wind	06 NM & W-TX	Commercial Operation
ICS1	GEN-2007-021	200	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-025	299.2	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-043	200	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-044	300	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-046	200	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-050	151.8	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-052	150	Gas	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2007-062	425	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION

APPENDIX B: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
ICS1	GEN-2008-003	101.2	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2008-013	299.04	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
ICS1	GEN-2008-018	250	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2006-037N1	74.8	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2006-044N	40.5	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2007-040	131.1	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-023	150	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-051	161	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-079	98.9	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-086N02	201	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-092	200.5	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-124	200.1	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2008-129	80	CT	13 NE-KS & NW-MO	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-09-1	GEN-2009-025	59.8	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	ASGI-2010-010	42.15	Gas	06 NM & W-TX	Commercial Operation
DIS-10-1	GEN-2008-022	299.65	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2008-037	100.8	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2008-044	197.8	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2008-047	263.13	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2008-098	99.5	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2008-123N	89.7	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2009-008	198.9	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2009-020	48.3	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2009-040	73.8	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2010-003	99.5	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2010-005	299.2	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/ON SCHEDULE
DIS-10-1	GEN-2010-006	205	Gas	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2010-009	165.6	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2010-011	29.7	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-1	GEN-2010-014	358.8	Wind	02 HITCHLND	IA FULLY EXECUTED/ON SCHEDULE
DIS-10-2	ASGI-2010-020	30	Wind	06 NM & W-TX	Commercial Operation
DIS-10-2	ASGI-2010-021	15	Wind	06 NM & W-TX	Commercial Operation
DIS-10-2	ASGI-2011-001	27.3	Wind	06 NM & W-TX	Commercial Operation
DIS-10-2	GEN-2010-001	300	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-2	GEN-2010-036	5.9	Hydro	13 NE-KS & NW-MO	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-2	GEN-2010-040	300	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-10-2	GEN-2010-051	200	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	ASGI-2011-002	20	Wind	02 HITCHLND	Commercial Operation
DIS-11-1	ASGI-2011-003	10	Wind	06 NM & W-TX	Commercial Operation
DIS-11-1	GEN-2010-055	4.5	Gas	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2010-057	201	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION

APPENDIX B: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
DIS-11-1	GEN-2011-008	600	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-010	100.8	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-011	50	Coal	13 NE-KS & NW-MO	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-014	198	Wind	02 HITCHLND	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-018	73.6	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-019	175	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-020	165	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-022	299	Wind	02 HITCHLND	IA FULLY EXECUTED/ON SCHEDULE
DIS-11-1	GEN-2011-025	80	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-1	GEN-2011-027	120	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2-PQ	NPPD Distributed (North Platte - Lexington)	54	Hydro	09 NEB	
DIS-11-2	ASGI-2011-004	19.8	Wind	06 NM & W-TX	Commercial Operation
DIS-11-2	GEN-2011-037	7	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-040	110	Wind	14 S-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-045	205	NG CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-046	27	Diesel CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-048	175	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-049	250.7	Wind	07 SW-OK	IA FULLY EXECUTED/ON SCHEDULE
DIS-11-2	GEN-2011-050	109.8	Wind	14 S-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-054	300	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-056	3.6	Hydro	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-056A	3.6	Hydro	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-056B	4.5	Hydro	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-11-2	GEN-2011-057	150	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-1	GEN-2012-001	61.2	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-1	GEN-2012-004	41.4	Wind	14 S-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-1	GEN-2012-007	120	Gas	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-1	ASGI-2012-008	3.55	Gas	13 NE-KS & NW-MO	
DIS-12-2	ASGI-2012-002	18.15	Wind	06 NM & W-TX	
DIS-12-2	GEN-2012-020	477.1	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-021	4.8	Gas	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-024	180	Wind	03 SPRVLE	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-028	74.8	Wind	07 SW-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-032	300	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-033	98.82	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-034	7	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-035	7	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-036	7	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-037	203	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-12-2	GEN-2012-041	121.5	CT	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION

APPENDIX B: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
DIS-13-1	ASGI-2013-001	11.5	Wind	02 HITCHLND	
DIS-13-1	ASGI-2013-002	18.4	Wind	06 NM & W-TX	
DIS-13-1	ASGI-2013-003	18.4	Wind	06 NM & W-TX	
DIS-13-1	GEN-2013-007	100	Wind	14 S-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-1	GEN-2013-008	1.2	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-1	GEN-2013-011	30	Coal	12 W-ARK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-1	GEN-2013-012	147	Gas	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-1	GEN-2013-016	203	CT	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-2	ASGI-2013-004	36.6	Gas	04 NW-KS	
DIS-13-2	ASGI-2013-005	1.65	Wind	06 NM & W-TX	
DIS-13-2	GEN-2013-019	73.6	Wind	09 NEB	IA FULLY EXECUTED/ON SUSPENSION
DIS-13-2	GEN-2013-022	25	Solar	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-2	GEN-2013-028	495	Gas	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-2	GEN-2013-029	299	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-2	GEN-2013-030	300	Wind	02 HITCHLND	IA FULLY EXECUTED/ON SCHEDULE
DIS-13-2	GEN-2013-032	202.5	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-13-2	GEN-2013-033	27	Gas	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-1	GEN-2014-001	200.6	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/ON SCHEDULE
DIS-14-1	GEN-2014-002	10.53	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-1	GEN-2014-004	3.96	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-1	GEN-2014-005	5.67	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-1	GEN-2014-013	73.5	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	ASGI-2014-014	54.3	Thermal	08 N-OK & S-KS	
DIS-14-2	GEN-2013-027	148.35	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-020	100	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-021	300	Wind	13 NE-KS & NW-MO	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-025	2.41	Wind	04 NW-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-028	35	CC	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-031	35.8	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-032	10.22	Wind	09 NEB	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-033	70	Solar	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-034	70	Solar	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-035	30	Solar	06 NM & W-TX	IA FULLY EXECUTED/ON SCHEDULE
DIS-14-2	GEN-2014-039	73.39	Wind	09 NEB	IA FULLY EXECUTED/ON SCHEDULE
DIS-14-2	GEN-2014-040	320	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-056	250	Wind	01 WDWRD	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-057	250	Wind	14 S-OK	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-14-2	GEN-2014-064	248.4	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1-PQ	GEN-2007-017IS	200	Wind	09 NEB	On Schedule
DIS-15-1-PQ	GEN-2007-018IS	200	Wind	09 NEB	On Schedule
DIS-15-1	ASGI-2015-001	6.13	Thermal	03 SPRVLE	

APPENDIX B: Prior Queued SPP Generation Requests Included within the AS-LOIS

Study	Gen Number	Capacity	Fuel Source	Group	Status
DIS-15-1	ASGI-2015-002	2	Wind	06 NM & W-TX	
DIS-15-1	ASGI-2015-004	18.79	Thermal	08 N-OK & S-KS	
DIS-15-1	GEN-2015-001	200	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-004	52.9	Wind	07 SW-OK	IA FULLY EXECUTED/ON SCHEDULE
DIS-15-1	GEN-2015-005	200.11	Wind	13 NE-KS & NW-MO	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-007	160	Wind	09 NEB	IA FULLY EXECUTED/ON SCHEDULE
DIS-15-1	GEN-2015-013	119.95	Solar	07 SW-OK	IA FULLY EXECUTED/ON SUSPENSION
DIS-15-1	GEN-2015-014	150	Wind	06 NM & W-TX	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-015	154.56	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-016	200	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-021	20	Solar	03 SPRVLE	IA FULLY EXECUTED/ON SCHEDULE
DIS-15-1	GEN-2015-023	195	Wind	09 NEB	IA FULLY EXECUTED/ON SCHEDULE
DIS-15-1	GEN-2015-024	220	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-025	220	Wind	08 N-OK & S-KS	IA FULLY EXECUTED/COMMERCIAL OPERATION
DIS-15-1	GEN-2015-029	161	Wind	01 WDWRD	IA FULLY EXECUTED/ON SCHEDULE

APPENDIX C

Table 3: MISO Generation Request Included within the AS- LOIS

Study	MISO Project	SP MW	WP MW	Fuel Source	Area
PQ	G132	180	180	Wind	SD-G15
PQ	G255	100	100	Wind	SD-G15
PQ	G237	575	575	Combined Cycle	18 E-ND
PQ	G263	105	105	Wind	SD-G15
PQ	G287	200	200	Wind	SD-G15
PQ	G349	200	200	Wind	SD-G15
PQ	G362	200	200	Wind	SD-G15
PQ	G370	205	205	Gas	SD-G15
PQ	G380	150	150	Wind	ND-G16
PQ	G386	100	100	Wind	SD-G15
PQ	G389	200	200	Gas	SD-G15
PQ	G514	150	150	Wind	SD-G15
PQ	G540	80	80	Wind	IA-G09
PQ	G548	80	80	Wind	IA-G09
PQ	G551	99	99	Wind	IA-G09
PQ	G573	80	80	Wind	IA-G09
PQ	G574	80	80	Wind	IA-G09
PQ	G575	40	40	Wind	IA-G09
PQ	G586	30	30	Wind	SD-G15
PQ	G595	150	150	Wind	IA-G09
PQ	G602	32	32	Wind	SD-G15
PQ	G604	44	44	Wind	SD-G15
PQ	G612	150	150	Wind	IA-G09
PQ	G619	50	50	Wind	ND-G16
PQ	G621	20	20	Wind	SD-G15
PQ	G685	20	20	Wind	SD-G15
DPP-2008-NOV	G735	200	200	Wind	IA-G09
PQ	G736	200	200	Wind	15 E-SD
DPP-2008-NOV	G741	8	8	Waste Heat	SD-G15
DPP-2012-AUG	G752	150	150	Wind	ND-G16
DPP-2009-MAR	G788	49	49	Wind	ND-G16
DPP-2010-APR	G798	150	150	Wind	IA-G09
DPP-2010-AUG	G826	200	200	Wind	SD-G15
PQ	G830	99	99	Wind	16 W-ND
DPP-2012-AUG	G858	38	38	Wind	SD-G15
DPP-2012-AUG	G870	201	201	Wind	SD-G15
DPP-2013-FEB	G929	60	60	Nuclear	SD-G15
DPP-2012-AUG	G930	60	60	Coal	SD-G15
PQ	G947	99	99	Wind	IA-G09
DPP-2009-MAR	G971	20	20	Wind	SD-G15
DPP-2009-MAR	H007	41	41	Wind	IA-G09
DPP-2013-AUG	H008	36	36	Wind	IA-G09
DPP-2009-MAR	H009	150	150	Wind	IA-G09
DPP-2012-AUG	H021	138.6	138.6	Wind	IA-G09

Study	MISO Project	SP MW	WP MW	Fuel Source	Area
DPP-2012-AUG	H071	40	40	Wind	SD-G15
DPP-2012-AUG	H078	121	121	Wind	IA-G09
DPP-2013-FEB	H092	60	60	Coal	ND-G16
DPP-2008-NOV	H081	201	201	Wind	SD-G15
DPP-2008-NOV	H096	50	50	Wind	IA-G09
DPP-2012-AUG	J020	20	20	Diesel	SD-G15
DPP-2009-JUL	J091	66	66	Wind	IA-G09
DPP-2012-AUG	J110	7.5	7.5	Biomass	ND-G16
DPP-2012-AUG	J112	4.95	4.95	Wind	SD-G15
DPP-2012-AUG	J171	12	12	Biomass	SD-G15
DPP-2012-AUG	J183	200	200	Wind	SD-G15
DPP-2012-AUG	J191	101.2	101.2	Wind	IA-G09
DPP-2012-AUG	J200	75	99	Gas	ND-G16
DPP-2012-AUG	J233	635	635	CC	IA-G09
DPP-2012-AUG	J249	180	180	Wind	ND-G16
DPP-2012-AUG	J262	100	100	Wind	ND-G16
DPP-2013-FEB	J263	100	100	Wind	ND-G16
DPP-2013-FEB	J274	100	100	Wind	IA-G09
DPP-2013-FEB	J278	200	200	Wind	SD-G15
DPP-2013-AUG	J279	(Uprate) 30	(Uprate) 30	Coal	IA-G09
DPP-2013-AUG	J290	150	150	Wind	ND-G16
DPP-2013-AUG	R15	80	80	Wind	IA-G09
DPP-2013-AUG	R23	100	100	Wind	IA-G09
PQ	R26	146	146	Wind	IA-G09
PQ	R34	250	250	Wind	IA-G09
PQ	R38	200	200	Wind	IA-G09
PQ	R39	500	500	Wind	IA-G09
PQ	R41	100	100	Wind	IA-G09
PQ	R42	250	250	Wind	IA-G09
PQ	R49	12	12	Wind	IA-G09
DPP-2012-AUG	R65	92	92	Wind	IA-G09
DPP-2012-AUG	J285	250	250	Wind	IA-G09
DPP-2012-AUG	J289	20	20	Wind	IA-G09
DPP-2014-AUG	J316	150	150	Wind	ND-G16
DPP-2014-AUG	J320	0	55	Gas	SD-G15
DPP-2014-AUG	J329	55	55	Hydro	IA-G09
DPP-2014-AUG	J343	150	150	Wind	IA-G09
DPP-2014-AUG	J344	169	169	Wind	IA-G09

APPENDIX D

Table 4: Network Upgrade Projects not included in the AS-LOIS

Upgrade Project	Type	Description	Status	Study
Gentleman – Thedford – Holt County 345kV (“R-Plan”) Project	New line, transformer, and substation	Build approximately two hundred twenty seven (227) miles of new 345kV from Gentleman – Holt County. Install Thedford 345/115/13kV transformer, and built Holt County Substation	New ISD scheduled for 2021	2012 SPP Integrated Transmission Plan – 10 Year Assessment (ITP10)

APPENDIX H-T

The following thermal constraints do not require mitigation and are posted as informational only.

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BC% LOADING (%)	TC% LOADING (%)	CONTINGENCY	
FDNSLock-Blow up	0	21SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05659	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 21SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05657	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05646	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	21WP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05482	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21WP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05467	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	26SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05709	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 26SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05707	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 26SP	1385			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.05695	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1385			"P45:345:UMZ# 2515 #: SOG IN NB. BREAKER FAULT (7196,7099,7292)"			0	0.03366	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CT 1"	OTF	OTF	319	351	0.04018	98.13287	104.8012	104.8012	BUFFALO - JAMESSTOWN 345KV CKT 1'
FDNS	0DNR	0 26SP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CKT 1"	OTF	OTF	319	351	0.03825	94.65684	104.8012	104.8012	"SQUARE BUTTE - YNG2 4 - 230.00 230KV CKT 1"
FDNS	0DNR	0 26SP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CKT 1"	OTF	OTF	319	351	0.03825	94.65683	104.8012	104.8012	YNG2 4 230.00 230/20.0KV TRANSFORMER CKT 1'
FDNS	0DNR	0 21WP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CKT 1"	OTF	OTF	319	351	0.03875	94.49157	103.7481	103.7481	"MAPLE RIVER - PILSBRY 4 230.00 230KV CKT 1"
FDNS	0DNR	0 26SP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CKT 1"	OTF	OTF	319	351	0.03967	91.13288	101.2366	101.2366	"BISON 3 345.00 - BUFFALO 345KV CKT 1"
FDNS	0DNR	0 26SP	1400		FROM->TO	"HANKINSON - WAHPETON 230KV CKT 1"	OTF	OTF	319	351	0.03825	90.53529	100.6555	100.6555	"COWYTE 345/24.0V TRANSFORMER CKT 1"
FDNSLock-Blow up	0DNR	0 18SP	1400			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.03391	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.0334	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1400			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.0309	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.03399	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 17WP	1400			"P42:345:NPPD-BKR-CPR-3310"			0	0.04238	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 18G	1400			"P42:345:NPPD-BKR-CPR-3310"			0	0.04236	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 18G	1400			"P42:345:NPPD-BKR-CPR-3310"			0	0.04237	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	17WP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03801	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 17WP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03778	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 18G	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.04144	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	18SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.04014	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 18SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.0401	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 18SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03994	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21L	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03924	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	21SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03753	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 21SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03751	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.0374	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	21WP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03574	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21WP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03559	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	26SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03804	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 26SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03802	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 26SP	1400			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.03778	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	17WP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03801	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 17WP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03778	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 18G	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.04144	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	18SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.04014	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 18SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.0401	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 18SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03994	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21L	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03924	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	21SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03753	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 21SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03751	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.0374	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	21WP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03574	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 21WP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03559	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	26SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03804	0	-9999	9999	System Intact	
FDNSLock-Blow up	09ALL	0 26SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03802	0	-9999	9999	System Intact	
FDNSLock-Blow up	15ALL	0 26SP	1400			"P42:345:UMZB# 2495 #: LO IN ND. STUCK BREAKER (2396)"			0	0.03778	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1400			"P42:345:UMZW# 2435 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR"			0	0.03091	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P42:345:UMZW# 2435 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR"			0	0.034	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P42:345:UMZW# 2435 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR"			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1400			"P42:345:UMZW# 2442 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR"			0	0.0309	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P42:345:UMZW# 2442 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR"			0	0.03399	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P42:345:UMZW# 2442 #: GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR"			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1400			"P43:345:UMZW# 2420 #: FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR"			0	0.03091	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P43:345:UMZW# 2420 #: FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR"			0	0.034	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P43:345:UMZW# 2420 #: FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR"			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1400			"P43:345:UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0.0309	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1400			"P43:345:UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0.03399	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1400			"P43:345:UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0.04088	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	18SP	1405			"DONES - ROSEAL 500KV CKT 1"	REL	REL	1732.1	2078.3	0.02649	65.2613	66.0621	66.0621	System Intact
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 2425 #: GI IN NE. GI 1196 BKR FAULT"			0	0.03918	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 2428 #: GI IN NE. GI 1192 BKR FAULT"			0	0.03918	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 2438 #: GI IN NE. GI SWEET LINE FAULT & GI 1492 STUCK BKR"			0	0.03918	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 2445 #: GI IN NE. GI KUIA TRANSFORMER FAULT & GI 1396 STUCK BKR"			0	0.03918	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 2446 #: GI IN NE. GI FT2 LINE FAULT & GI 1196 STUCK BKR"			0	0.03918	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1405			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.03939	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.03947	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1405			"P23:345:UMZW# 821 #: WH IN SD. TRANSFORMER FAULT."			0	0.07566	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP	1405			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.09842	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 21SP	1405			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.09349	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 26SP	1405			"P23:345:UMZW# 822 #: WH IN SD. TRANSFORMER FAULT."			0	0.07566	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	17WP	1405			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.38304	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 17WP	1405			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.1712	0	-9999	9999	System Intact	
FDNSLock-Blow up	0	18SP	1405			"P42:345:UMZB# 2494 #: LO IN ND. STUCK BREAKER (2196)"			0	0.2856	0	-9999	9999	System Intact	
FDNSLock-Blow up	0DNR	0 18SP													

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BC% LOADING (%)	TC% LOADING (% MVA)	CONTINGENCY
FDNSLock-Blown up	0NDR	0	21SP	1405		"P43:345UMZW# 2420 #: FT2 IN SD FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR"			0	0	0.09347	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1405		"P43:345UMZW# 2420 #: FT2 IN SD FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR"			0	0	0.07566	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1405		"P43:345UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0	0.09942	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1405		"P43:345UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0	0.09349	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1405		"P43:345UMZW# 2434 #: GI IN NE. GI KU1B TRANSFORMER FAULT & GI 1592 STUCK BKR"			0	0	0.07566	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1405		"P44:345UMZW# 2436 #: GF IN NE. GI KU4B SW SHUNT FAULT & GI 1192 STUCK BKR"			0	0	0.03918	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1405		"P44:345UMZW# 2443 #: GF IN NE. GI KU4B SW SHUNT FAULT & GI 1196 STUCK BKR"			0	0	0.03918	-9999	9999	System Intact
FDNSLock-Blown up	0	0	18SP	1405		"P45:345UMZW# 2515 #: SQI IN NB. BREAKER FAULT (7196,7092,7292)"			0	0	0.74288	-9999	9999	System Intact
FDNSLock-Blown up	0	0	21SP	1405		"P45:345UMZW# 2515 #: SQI IN NB. BREAKER FAULT (7196,7092,7292)"			0	0	0.73699	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	18SP	1405		"P45:345UMZW# 1999 #: WHT IN SD. WHT 345 KV 5 BUS FAULT"			0	0	0.03918	-9999	9999	System Intact
FDNSLock-Blown up	0	0	18SP	1405		"RIEL - ROSEAU 500KV CKT 1"	MH	XEL	1732.1	2165.1	1.01013	64.16864	64.48092	System Intact
FDNSLock-Blown up	0	0	18SP	1405		"ROSEAU - ROSEAU 2 500.000KV CKT 1"	XEL	XEL	1732.1	2165.1	1.01013	62.60526	62.90044	System Intact
FDNSLock-Blown up	0	0	18SP	1405		"ROSEAU - ROSEAU 2 500.000KV CKT 1"	XEL	XEL	1732.1	2165.1	1.01013	62.60526	62.90044	System Intact
FDNS	0NDR	0	18SP	1407	FROM->TO	"ADAMS I 345/161/13.8KV TRANSFORMER CKT 9"	XEL	ALTW	300	334.6	0.13725	75.14011	101.8348	"ADAMS - PLEASANT VALLEY 345KV CKT 1"
FDNS	0NDR	0	26SP	1407	FROM->TO	"ADAMS SOUTH - BEAVER CREEK 161 161KV CKT 9"	XEL	DPG	240	264	0.06892	84.44554	101.6262	"NORTH LA CROSSE - NORTH ROCHESTER 345KV CKT 1"
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.38391	115.4993	151.7574	HAZLETON - MITCHCO3 345.00 345KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.38391	110.9238	145.3846	ADAMS - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.38873	101.645	145.2719	HAZLETON - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.38873	97.3223	141.3733	ADAMS - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36637	92.27328	135.3254	HAZLETON - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15ALL	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36615	90.95702	134.7075	HAZLETON - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36637	87.17771	130.4881	ADAMS - MITCHCO3 345.00 345KV CKT 1"	
FDNS	0NDR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36615	86.59863	130.4537	ADAMS - MITCHCO3 345.00 345KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	84.2724	126.614	"CKREACTS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	98.89415	128.928	"CKREACTS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36231	90.74453	128.9115	"CKREACTS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36231	90.29482	128.8376	"CKREACTS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	98.2332	128.8019	"CKREACTS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	89.95848	128.7849	"CKREACTS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.4307	86.59596	125.4954	HAYWARD 5 SPLIT INTO HAYW EAST ADAMS - MURPHY CR S 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	94.78661	124.8274	"CRYSTLKS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	94.78661	124.8274	"CRYSTLKS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	94.2363	124.3455	"GEN92997-1-6735 WFS 34.500"	
FDNS	15ALL	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.34892	85.17329	123.4883	"CKREACTS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	15ALL	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.34892	84.84303	123.3792	"CKREACTS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36118	90.69332	121.8002	ADAMS - PLEASANT VALLEY 345KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.40283	85.99033	121.3642	ADAMS SOUTH - HAYWDH15 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.34702	92.34705	120.8966	"COLBY 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35481	93.2513	119.765	"BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35077	82.8909	120.4131	"COLBY 161.00 - LIME CREEK SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36231	81.25462	119.7079	"CRYSTLKS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	78.18064	119.4811	"J416 W/F3 345.00 - QUINNS 345.00 345KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.43271	75.58293	119.2761	HAYWARD 5 SPLIT INTO HAYW EAST ADAMS - MURPHY CR S 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36231	80.71885	119.3377	"GEN92997-1-6735 WFS 34.500"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.33057	80.20796	117.4753	"LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	78.65634	117.4471	"CRYSTLKS 161.00 - CRYSTLKS 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	78.65638	117.4467	"CRYSTLKS 161.00 161/34.5KV TRANSFORMER CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35688	86.75568	117.1306	"WEBSTER (WEB AB) 345/161/13.8KV TRANSFORMER CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36455	999	116.9091	ADAMS - PLEASANT VALLEY 345KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36029	85.7884	116.8732	"ARPIN B4 345.00 - EAU CLAIRE 345KV CKT 1"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	78.19867	116.7666	"GEN92997-1-6735 WFS 34.500"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.349	78.19867	116.7666	"GEN92997-1-6735 WFS 34.500"	
FDNS	15ALL	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.42198	71.07338	116.3375	HAYWARD 5 SPLIT INTO HAYW EAST ADAMS - MURPHY CR S 161.00 161KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36013	77.18486	115.8392	"BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35946	84.50006	115.8	"AS KING - EAU CLAIRE 345KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36037	85.53442	115.5245	"KOSSUTH 3 345.00 - O'BRIEN 3 345.00 345KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.36037	85.5239	115.5015	"KOSSUTH 3 345.00 - WEBSTER 345KV CKT 1"	
FDNS	15NR	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.40481	72.14468	115.3556	ADAMS SOUTH - HAYWDH15 161.00 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35401	84.54417	114.9104	"GEN92997-1-6735 WFS 34.500"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.7198	46.96368	114.0048	"GLENWRITHS 161.00 - HAYWARD 5 SPLIT INTO HAYW EAST ADAMS A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	78.20133	113.8497	"J416 W/F3 345.00 345/34.5KV TRANSFORMER CKT 1"	
FDNS	15ALL	0	18G	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.33649	76.21394	113.8247	"COLBY 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	78.20133	113.7891	"GEN92992-1-4146 GEN2 7000"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901	78.20133	113.6744	"J416 W/F3 345.00 345/34.5KV TRANSFORMER CKT 1"	
FDNS	0NDR	0	17WP	1407	TO->FROM	"COLBY 161.00 - NEW IOWA WIND 161KV CKT 1"	ALTW	ALTW	200	0.35901				

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BCK% LOADING (%)	TCC% LOADING (%)	CONTINGENCY
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.77683	111.2932	'P12:115UMZ5# 118 R: PAS IN SD. LINE FAULT BTWN ASH 51-EVANS ST'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.24321	111.2901	'BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.34123	111.2901	'BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35826	81.26582	111.2123	'LANSING EAST TO POSTVILLE - LANSING WEST 161KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34313	73.14991	111.202	'BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.73526	111.2005	'LAMAR 115/113.8KV TRANSFORMER CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.735	111.2002	'EASTHYBT-MK715.00 - LSSVV SOUTH7115.00 115KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.73483	111.1999	'LAMAR - LSSVV SOUTH7115.00 115KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.73416	111.1978	'ANNEGARD-MK715.00 - EASTHYBT-MK715.00 115KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.24321	111.2901	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36233	80.86292	111.1414	'BEAVER CREEK 161 - HARMONY 161 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.3421	111.0553	'GEN379111-ARKANSAS NUCLEAR ONE UNIT #2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.22079	111.0411	'NUTHTCS 161.00 - WHISWILS 161.00 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35817	81.04922	111.0003	'FRANKLIN - WALL LAKE WINDFARM 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	81.33829	110.9652	'GEN358311-1RIVERBEND UNIT#1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35955	81.09966	110.9568	'NORTH LA CROSSE - NORTH ROCHESTER 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35955	80.99554	110.9551	'NORTH LA CROSSE - HAYWARD 5 SPLITS INTO LIME EAST ADAMS A 161KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34773	71.48479	110.9144	'ADAMS - PLEASANT VALLEY 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35948	80.84043	110.9006	'CAYLERS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35948	80.84043	110.9006	'CAYLERS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.71577	48.5824	110.822	'GLENWRTHS 161.00 - HAYWARD 5 SPLITS INTO HAYW EAST ADAMS A 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.94911	110.6668	'GEN379101-ARKANSAS NUCLEAR ONE UNIT #1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35965	80.49865	110.6631	'GRAN GRAVE 161 - SENECA 161 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	82.14269	110.629	'CAYLERS 345.00 - HAYWARD 5 SPLITS INTO 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36011	80.3941	110.5513	'HIGHND 3 345.00 - RAUN 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3594	80.48708	110.5236	'GRPRAR-LNX345.00 - YANKTON 345KV CKT 2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3594	80.48955	110.5235	'GRANDPRAIRE-HOLT-TUNE-REACTOR-CKT1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3594	80.48955	110.5234	'GRPRAR-LNX345.00 - HOLT CO 345.00 345KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36384	-999	110.4893	'KOSSUTH 3 345.00 - OBRIEN 3 345.00 345KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36384	-999	110.4862	'KOSSUTH 3 345.00 - WEBSTER 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3596	80.3926	110.4607	'RAUN - SUB 345V FT CAL 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3596	80.40893	110.4607	'RAUN - SUB 345V FT CAL 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35835	80.62143	110.4473	'OSGOODS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35961	80.0292	110.4458	'P23:345.00PP-53451-53454FC5 1G'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35919	80.66993	110.4215	'MADISON COUNTY - RHULLIS 345.00 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.78259	110.4214	'GEN338146-1-INDEPENDENCE UNIT #2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.78259	110.4214	'GEN338146-1-INDEPENDENCE UNIT #2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.78259	110.4214	'GEN338146-1-INDEPENDENCE UNIT #2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35792	80.37487	110.3842	'WALL LAKE WINDFARM - WRIGHT 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.35901	110.3657	'GEN376531-WHITE BLUFF UNIT #1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.45882	110.3893	'GEN376531-WHITE BLUFF UNIT #2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35919	80.24269	110.1759	'FALLOW 3 345.00 - GRIMES 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36036	80.21438	110.1143	'PLEASANT VALLEY (345-161) 345/161/13.8KV TRANSFORMER CKT 2'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.36515	110.0869	'GEN34894 1-1LAB G1 20.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.365	110.0867	'GEN34895 2-1LAB G2 20.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.36365	110.0867	'GEN34897 3-1LAB G4 20.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.36365	110.0867	'GEN34898 4-1LAB G3 20.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35948	80.01637	110.0673	'CAYLERS 161.00 - TRIBJOI NO1 + NO2 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3603	80.12	110.012	'PLEASANT VALLEY (345-161) 345/161/13.8KV TRANSFORMER CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36005	80.11743	109.9903	'BONDURANT - MONTEZUMA 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35994	79.66065	109.951	'SIOUXCY-LNX345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35994	79.66065	109.951	'SIOUXCY-LNX345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.31966	109.942	'GEN35670-1-IRISH G1 18.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	80.2478	109.9357	'GEN35671-1-IRISH G2 18.000'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35994	79.64822	109.9409	'P13:115UMZ8# 2729 R: WEL IN ND. WHEELOCK KV2A'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35994	79.64606	109.9314	'SIOUX CITY - SIOUXCY-LNX345.00 345KV CKT 2'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36362	70.44469	109.8868	'ARPIN BA - 345.00 - EAU CLAIRE 345KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3591	79.97427	109.813	'HAYES - POMEROY 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35848	79.9058	109.7973	'LANSING EAST TO POSTVILLE - POSTVILLE 161 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	79.97928	109.7837	'GEN67906-4-PRRAIRE CREEK GENERATOR FOR UNIT NO#'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36139	79.4264	109.654	'GLENWRTHS 161.00 - HAYWARD 5 SPLITS INTO HAYW EAST ADAMS A 161KV CKT 1'
FDNS	DNDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.			

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BC% LOADING (%)	TC% LOADING (%)	CONTINGENCY
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34892	69.01653	107.5632	GEN61152 1-G595 W9 34.500'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35822	67.58254	107.3948	'CBIERY- LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 2'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36456	68.11077	107.3028	'BAVER CREEK 161 - HARMONY 161 161KV CKT 2'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.58075	107.1121	'GEN61150 1-G540 WFS 34.500'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.58073	107.1121	'GEN61151 1-G548 WFS 34.500'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35122	68.19836	106.9135	'ARPIN BA 345.00 -EQU CLAIRE 345KV CKT 3'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36311	67.85291	106.8725	'DKSN COS 161.00 - LAKEFIELD 5 NO1 + NO 2 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.51486	106.6909	'GEN336153 1 - WATERFORD UNITS#'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34892	68.11053	106.6719	'CNSTLKS 161.00 161/34.5KV TRANSFORMER CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35021	68.10021	106.6719	'BARTONS 161.00 - LIME CREEK 5 SPLITS INTO LIME EAST TO A 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.09311	106.5966	'BARTONS 161.00 161/34.5KV TRANSFORMER CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.71575	36.18861	106.5858	'GLENWRTHS 161.00 - HAYWARD 5 SPLIT INTO HAYW EAST ADAMS A 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.30654	106.5064	'GEN337911 1 - ARKANSAS NUCLEAR ONE UNIT #2'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.69559	106.491	'GEN659354 1 - DEERCREK STG18.000'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	68.29709	106.4905	'GEN335831 1 - DEERCREK UNITS#'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.69379	106.4891	'GEN659353 1 - DEERCREK CTG18.000'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35917	76.75721	106.4868	'ARTECH - FEP TAP 115KV CKT 1'
FDNSlock	0	18SP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.40738	61.46639	106.4868	'ADAMS - MITCHCO3 345.00 345KV CKT 1'	
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35698	77.29108	106.4674	'BLACKHAWK - BREMER COS 161.00 161KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35698	77.29108	106.4674	'BLACKHAWK - BREMER COS 161.00 161KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34972	67.92767	106.4592	'DKSN COS 161.00 - TRIBONI NO1 + NO2 161KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.68848	106.4168	'LAKEFIELD 3 345/34.5KV TRANSFORMER CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.63975	106.4121	'GEN600158 -GR26 DEW L100 8000'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.63975	106.4121	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35926	76.84653	106.3966	'NORTH ROCHESTER - PRAIRIE ISLAND 345KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.57912	106.349	'GEN60018 1-S POWER STEAM'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36339	67.02509	106.3365	'SIOUXCY-LNX345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36339	67.02509	106.3365	'SIOUXCY-LNX345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35835	76.78416	106.3232	'FLOYD 161/69KV TRANSFORMER CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36339	67.01032	106.3206	'P13115-UMZB# 2729 #. WEL IN ND. WHELOCK KV2A'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	76.48083	106.3162	'ORDAN MEADOW - PLEASANT VALLEY 161KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35869	76.51121	106.3123	'BUTLER - FRANKLIN 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36339	66.96474	106.3082	'SIOUX CITY - SIOUXCY-LNX345.00 345KV CKT 2'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35851	77.60237	106.3049	'HILLS - TIFIN 345KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	67.73805	106.2968	'NUTHTCHS 161.00 - WHISWILS 161.00 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36355	67.27592	106.267	'GEN0A 161 - SENECA 161 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3628	67.40225	106.2608	'CAVLEYS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3628	67.40225	106.2608	'CAVLEYS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2425 #. GIN NE. GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2427 #. GIN NE. GI 1192 BKR FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2428 #. GIN NE. GI 1192 BKR FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2428 #. GIN NE. GI 1192 BKR FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2428 #. GIN NE. GI 1192 BKR FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2445 #. GIN NE. GI KU3A TRANSFORMER FAULT & GI 1396 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2446 #. GIN NE. GI-172 LINE FAULT & GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2446 #. GIN NE. GI-172 LINE FAULT & GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2445 #. GIN NE. GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2445 #. GIN NE. GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2443 #. GIN NE. GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2443 #. GIN NE. GI 1196 STUCK BKR'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 2507 #. LRS IN NE. LRS BUS FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	67.40225	106.2585	'P23-345-UMZB# 1999 #. WHT IN ND. WHT 345 KV 5 BUS FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36277	67.40225	106.2507	'GR ISLD-LNX345.00 - GR ISLD3 345.00 345KV CKT 2'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36277	67.40225	106.2507	'GR ISLD-LNX345.00 - GR ISLD3 345.00 345KV CKT 2'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36277	67.40225	106.2436	'GR ISLD-LNX345.00 - GR ISLD3 345.00 345KV CKT 2'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35924	76.52924	106.239	'ADAMS TRANSFORMER CKT 1'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35869	76.54501	106.2253	'BUTLER - FRANKLIN 161KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	68.77982	106.22	'GEN636641 1-LOUISA UNIT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36342	66.8755	106.2139	'P23-345-UMZB# 2493 #. LO IN ND. STUCK BREAKER (2596)'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36342	66.8755	106.2139	'P23-345-UMZB# 1935 #. WHT IN ND. WHT 345 KV 5 BUS BREAKER FAULT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200				

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME		TO AREA NAME		RATE A (MVA)		RATE B (MVA)		BCK% LOADING (%)		TC% LOADING (%)		CONTINGENCY
							ALTW	ALTW	ALTW	ALTW	ALTW	ALTW	MVA	MVA	MVA	MVA			
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35903	75.75339	105.5747	ROSEAU - ROSEAU M 2	500.00	500KV CKT 1'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.561	'P23:345/UJM/W# 822 #:	WH IN SD.	TRANSFORMER FAULT'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.561	'P23:345/UJM/W# 2432 #:	GI IN NE.	GI MCCOOL LINE FAULT & GI 1396 STUCK BKR'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.561	'P43:345/UJM/W# 2434 #:	GI IN NE.	GI KUIJB TRANSFORMER FAULT & GI 1592 STUCK BKR'			
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35903	75.74766	105.558	ROSEAU - ROSEAU M 2	500.00	500KV CKT 1'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.5575	'P23:345/UJM/W# 821 #:	WH IN SD.	TRANSFORMER FAULT'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.5575	'P43:345/UJM/W# 2435 #:	GI IN NE.	GI MCCOOL LINE FAULT & GI 1392 STUCK BKR'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36278	-999	105.5575	'P43:345/UJM/W# 2438 #:	FT2 IN SD.	FT2 KUIJB TRANSFORMER FAULT & FT2 3396 STUCK BKR'			
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35903	75.75443	105.573	RIEL - ROSEAU 500KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35903	75.74991	105.573	'GEN600070-RIVER SIDE'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35903	75.74991	105.573	'GEN600070-RIVER SIDE'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.5189	'GEN34894 1-LIBAS G1	20.000'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.7433	105.4992	'GEN300007 1-RIEVER GEN 7'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36011	75.35851	105.4911	'HIGHND 3 345.00 - OBRIEN 3 345.00	345KV CKT 1'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35107	77.55312	105.4903	'P12:230/UJM/W# 109 #:	SB IN SD.	SULLY BUTTES-WHITLOCK-GLENHAM'			
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.488	'GEN3456 20-LIRUSH G1	18.000'				
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.488	'GEN3456 20-LIRUSH G1	18.000'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.7433	105.4182	'GEN600011 1-BLACK DOG GEN 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.75203	105.4145	'GEN629072 4-LANSING GENERATOR FOR UNITS NO4	EIA CODE 1'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35983	76.00716	105.4135	'LAKEFIELD 3 - NOBLES 345KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.67347	105.4126	'GEN615052 1-CAMBRIDGE GENERATING STATION'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35526	76.82892	105.4004	'ARNOLD - HALETON 345KV CKT 1'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36353	66.39768	105.3862	BOUDURANT - MONTIZUMA 345KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.7433	105.3658	'GEN600012 1-FLYD FLOYD 161KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.7433	105.3658	'GEN600012 1-FLYD FLOYD 161KV CKT 1'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3616	66.72488	105.3239	'OSGOODS 161.00 - WISDOMS 161.00	161KV CKT 1'				
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	67.17778	105.3232	'GEN629075 1-OTTUMWA GENERATOR FOR OTTUMWA UNIT NO 1'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36099	66.76633	105.3146	'WEBSTER - WRIGHT 161KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.57204	105.3087	'GEN600100 W-GRAND MEADOW'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.37127	65.95228	105.3078	'ADAMS (1 345/161/13.8KV TRANSFORMER CKT 9'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35652	76.19371	105.2928	'BREMER COS 161 - FLOYD 161KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35652	76.19371	105.2928	'BREMER COS 161 - FLOYD 161KV CKT 1'					
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34968	67.06297	105.2208	'AS KING - EAU CLAIRE 345KV CKT 1'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.2086	'GEN501801 1-NOBLE HILLS UNIT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35164	77.09962	105.1914	'HAMPTONTARP# 161.00 - SHEFFLDS 161.00	161KV CKT 1'				
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.1732	'GEN501813 1-RODEMACHER UNIT 3'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.37677	105.1481	'GEN629988 1-G6604 W/F# 34 500'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.37677	105.1481	'GEN600077 1-CLIS POWER UNIT 6'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35177	75.11977	105.1197	'ARNOLD - MOYER 345.00	345KV CKT 1'				
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36333	66.27485	105.1059	'GRAN GRAE 161 - SENECA 161	161KV CKT 1'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.30779	105.0942	'GEN600046 1-MECST'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36309	66.42732	105.0932	'NOBLES - SPLIT ROCK 345KV CKT 1'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.32012	105.0595	'GEN600067 9-HIGH BRIDGE'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	105.0386	'GEN35206 1-NEELSON UNIT 6'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.20205	104.928	'GEN615021 1-GNE-ER 146	16.000'				
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	75.16161	104.9163	'GEN600035 1-LELAND 161KV CKT 1'					
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	-999	104.9117	'GEN303007 1-18C2 L12'					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	74.99043	104.7657	'GEN600047 1-MECCT1'					
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34972	66.37177	104.7578	'DIXON COS 161.00 - LAKEFIELD 5 NO1 + NO 2	161KV CKT 1'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36357	73.63354	104.7491	'LAKEFIELD 3 - OBRIEN 3 345.00	345KV CKT 1'				
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35939	65.41677	104.6992	'ADAMS NORTH - AUSTIN 161KV CKT 1'					
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35029	66.30534	104.6063	'GENDA 161 - SENECA 161	161KV CKT 1'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	66.04541	104.5844	'MORGAN 345.00 - FRYN 345KV CKT 1'					
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34882	66.19557	104.5844	'GEN629074 1-ARNOLD (DOWSIDE OF GSU FXMR)					
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	67.27435	104.5436	'GEN344225 1-LIBAS G1	25.000'				
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35779	75.61194	104.5372	'HCKRYCK3 345.00					

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BCK% LOADING (%)	TCK% LOADING (%)	CONTINGENCY
FDNS	15ALL	0 18G	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34976	63.63614	102.6736	KOSSUTH 3 345.00 - WEBSTER 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	65.17255	102.6405	'GEN388146 - INDEPENDENCE UNIT #2
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	65.18891	102.6279	'GEN38813 - INDEPENDENCE UNIT #1
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	64.37704	102.6221	'GR ISLD-LNX3345.00 - HOLT COS 345.00 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	64.37449	102.6182	'GR ISLD-LNX3345.00 - GR ISLD3 345.00 345KV CKT 2'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	64.37449	102.6182	'GR ISLD-LNX3345.00 - GR ISLD3 345.00 345KV CKT 2'
FDNS	0NDR	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34773	75.37641	102.6052	'EMERY - SHEFFLDS 161.00 161KV CKT 1'
FDNS	0NDR	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34773	75.37641	102.6052	'EMERY - SHEFFLDS 161.00 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34946	64.43996	102.6004	'CAYLERS 161.00 - TRIBONI NO1 - NO2 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.43996	102.5959	'GEN37651 - IOWA FALLS WINDFARM 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35031	64.35429	102.5985	'PLEASANT VALLEY (345-161) 345/161/13.8KV TRANSFORMER CKT 2'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34995	64.23312	102.3982	'GRAN GRAE 161 - SENeca 161 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3489	64.65744	102.3876	'J412 PO3 3 345.00 - RAUN 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3489	64.66954	102.3868	'IDA CO 3 345.00 - J412 PO3 3 345.00 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.83984	102.3415	'GEN37653 1 - WHITE BLUFF UNIT #2
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.93782	102.333	'P13-115 UIMZB# 118 # - PAS IN SD. LINE FAULT BTWN ASH ST-EVANS ST**
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35025	64.36138	102.2922	'PLEASANT VALLEY (345-161) 345/161/13.8KV TRANSFORMER CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.8857	102.2879	'SIOUXCY-LNX3345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3498	63.6857	102.2879	'SIOUXCY-LNX3345.00 - SPLIT ROCK 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.72525	102.2841	'GEN34894 1-1LAB G1 20.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.7251	102.2839	'GEN34895 2-1LAB G2 20.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.7251	102.2839	'GEN34897 4-1LAB G4 20.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.7254	102.2838	'GEN34896 3-1LAB G3 20.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.84982	102.2798	'GEN34898 1-1LAB G1 20.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.84982	102.2797	'EASTHYBT-MK7115.00 - LSSSW SOUTH115.00 115KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.89482	102.2797	'LAMAR 115/13.8KV TRANSFORMER CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.89462	102.2793	'ARNEGARD-MK7115.00 - EASTHYBT-MK7115.00 115KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3498	63.67529	102.2751	'P13-115 UIMZB# 2729 # - WEL IN SD. WHEELCO KV2A**
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.3498	63.66341	102.2609	'SIOUX CITY - SIOUXCY-LNX3345.00 345KV CKT 2'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.67797	102.2355	'GEN345670 1-1RUSH G1 18.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.67797	102.2351	'GEN345672 2-1RUSH G2 18.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	63.67529	102.2191	'J415 WFS3 QUINS 3 345.00 345KV CKT 1'
FDNS	0NDR	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35705	73.67259	102.1674	'HAZLETON - HCKRYCK 345.00 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34725	64.11396	102.0368	'WEBSTER - WRIGHT 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.79992	102.0344	'GRPRARI-LNX3345.00 - YANKTON 345KV CKT 2'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.79421	102.028	'GRANDPRAIRIE-HOLT-TUNE-REA-COR-CKT1'
FDNS	0NDR	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35001	72.34689	102.0279	'BOSTONE 230/24.0KV TRANSFORMER CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	62.92845	102.0241	'GRPRARI-LNX3345.00 - HOLT COS 345.00 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.80006	102.0098	'GEN38388 1-1PUML PT U1 23.000'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 821 # - WH IN SD. TRANSFORMER FAULT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 822 # - WH IN SD. TRANSFORMER FAULT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 2435 # - GIN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 2442 # - GIN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 2420 # - FT IN SD. FTZ RULB TRANSFORMER FAULT & FT 3396 STUCK BKR'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34941	63.75597	102.0087	'P23-345 UIMZB# 2434 # - GIN NE. GI UHUB TRANSFORMER FAULT & GI 1592 STUCK BKR'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34988	64.068	102.0001	'OSGOODS 161.00 - WISDOMS 161.00 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34982	63.31129	101.9952	'P42-345 UIMZB# 2493 # - LO IN ND. STUCK BREAKER (2596)'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34982	63.31129	101.9952	'P42-345 UIMZB# 1935 # - WHT IN SD. WHT 345 KV 5 BUS BREAKER FAULT'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34982	63.31129	101.9952	'P43-345 UIMZB# 1972 # - WHT IN SD. WHT 345 KV 5 BUS BREAKER FAULT'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34982	64.08298	101.9945	'FALLOW 3 345.00 - GRIMES 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34974	63.66439	101.9886	'RAUN - SUB 3451 FT CAL 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34974	63.66439	101.9886	'RAUN - SUB 3451 FT CAL 345KV CKT 1'
FDNS	15ALL	0 18G	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35123	62.68752	101.9873	'ARPIN BA 345.00 - EAU CLAIRE 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34974	63.64376	101.9698	'P23-345 OPPD-S3451-S34548-FCS 1G'
FDNS	15NR	0 18G	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36257	63.41931	101.9691	'ADAMS NORTH 161/69KV TRANSFORMER CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34979	63.93172	101.9535	'ROCHSETER 161 - WABACO 161 161KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	64.17233	101.9486	'GEN62966 4-PRAIRIE CREEK GENERATOR FOR UNIT ND4'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34982	64.09928	101.9436	'MADISON COUNTY - RHILLST 345.00 345KV CKT 1'
FDNS	15ALL	0 17WP	1407	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34928	63.60928	101.9051	'KANSAS EAST TO POLKVILLE - POSTVILLE 161 161KV CKT 1'
FDNS	15NR	0 17WP	1407	1407	TO->FROM*	'COLBYS								

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BCK% LOADING (%)	TCK% LOADING (%)	CONTINGENCY
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35986	62.93773	101.0418	'BREMER COS 161.00 - FLOYD 161KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36639	61.52527	101.0308	'GLENWRITHS 161.00 161/69KV TRANSFORMER CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.82249	101.0115	'GENE55022 CAMBRIDGE GENERATING STATION'
FDNS	15NR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	71.29565	100.9692	'GENE61542-IP MADGETT'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35737	-999	100.9166	'ARNOLD - HAZLETON 345KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35223	61.89524	100.8851	'ADAMS SOUTH - BEAVER CREEK 161.161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.45735	100.8068	'GEN600151 W-J278 PVS W1 0.6900'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.45735	100.8068	'GEN600151 W-J278 PVS W2 0.6900'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35387	63.43852	100.7789	'PI2-230UMZB# 109 # 58 IN SD. SULLY BUTTES-WHITLOCK-GLENHAM'
FDNSLock	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36235	62.22432	100.751	'ROSEAU - ROSEAU# 2.500.00 500KV CKT 1'
FDNSLock	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36235	62.22432	100.751	'ROSEAU - ROSEAU# 2.500.00 500KV CKT 1'
FDNSLock	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36235	62.22432	100.751	'ROSEAU - ROSEAU# 2.500.00 500KV CKT 1'
FDNSLock	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.39092	100.75	'GEN600100 W-GRAND MEADOW'
FDNSLock	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36235	62.22732	100.75	'RIEL - ROSEAU 500KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.38634	100.7325	'GEN657748 - JOYKING 2 GENERATOR'
FDNS	15ALL	0	21WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.73432	30.46884	100.7066	'GLENWRITHS 161.00 - HAYWARD 5 SPLIT INTO HAYW EAST ADAMS A 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34965	61.74696	100.6997	'DKN COS 161.00 - TRIBONI NO1 + NO2 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35447	63.11243	100.6319	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.14174	100.5986	'GEN629988 -16604 W9F 34.500'
FDNS	0NDR	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35901	70.98745	100.4999	'ALMA 161.161/24.0KV TRANSFORMER CKT 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	62.1049	100.4448	'GEN615021 1-GRE-ER 14G 16.000'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35986	60.63373	100.4234	'ADAMS NORTH - BUSTIN 161KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34892	62.05983	100.2973	'GEN629075 1-OTTUMWA GENERATOR FOR OTTUMWA UNIT NO 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34500	62.04500	100.2445	'HOBBS 345.00 - SALEM 345KV CKT 1'
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	62.79861	100.2305	System Intact
FDNS	15ALL	0	17WP	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.349	62.79861	100.2305	System Intact
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	61.89524	100.1942	'GEN672310 1-POPLAR RIVER GENERATOR 1'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	61.89442	100.1931	'GEN672311 2-POPLAR RIVER GENERATOR 2'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	61.8696	100.169	'GEN672306 6-BOUNDARY DAM GENERATOR 6'
FDNS	15NR	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.36231	61.85941	100.1582	'GEN672321 1-SHAND GENERATOR 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.82961	100.6683	100.0683	'KIN344253-1CAL 41 35.000'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.35426	61.91243	100.0531	'HIGHLAND - RAIN 345KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34964	61.3317	100	'AS KING - EAU CLAIRE 345KV CKT 1'
FDNS	15ALL	0	18G	1407	TO->FROM*	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'	ALTW	ALTW	200	200	0.34892	61.999	100	'GEN336821 1-GRAND GULF UNIT 1'
FDNS	0NDR	0	18SP	1407	TO->FROM*	'DKN COS 161.00 - LAKEFIELD 5 NO1 + NO 2 161KV CKT 1'	ALTW	ALTW	184	184	0.03114	91.59055	105.1269	'COLBYS 161.00 - NEW IOWA WIND 161KV CKT 1'
FDNS	0NDR	0	18SP	1407	TO->FROM*	'DKN COS 161.00 - LAKEFIELD 5 NO1 + NO 2 161KV CKT 1'	ALTW	ALTW	184	184	0.03114	90.10203	103.5939	'GLENWRITHS 161.00 - NEW IOWA WIND 161KV CKT 1'
FDNS	0NDR	0	26SP	1407	FROM->TO*	'EMERY - FLOYD 161KV CKT 1'	ALTW	MEC	272	272	0.03495	83.79939	102.2833	'FRANKLIN 3 345.00 - QUINNS 345.00 345KV CKT 1'
FDNS	0NDR	0	26SP	1407	FROM->TO*	'EMERY - FLOYD 161KV CKT 1'	ALTW	MEC	272	272	0.03495	83.79939	102.1494	'BLACKHAWK 3 345.00 - FRANKLIN 3 345.00 345KV CKT 1'
FDNS	0NDR	0	18SP	1407	FROM->TO*	'EMERY - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	308	308	0.08251	73.04500	100	'FRANKLIN 3 345.00 - QUINNS 345.00 345KV CKT 1'
FDNS	0NDR	0	18SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.071	82.73054	115.8311	'FRANKLIN 3 345.00 - QUINNS 345.00 345KV CKT 1'
FDNS	0NDR	0	18SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.071	82.73109	115.8089	'BLACKHAWK 3 345.00 - FRANKLIN 3 345.00 345KV CKT 1'
FDNS	0NDR	0	26SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.04972	87.23272	112.2269	'FRANKLIN 3 345.00 - QUINNS 345.00 345KV CKT 1'
FDNS	0NDR	0	26SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.04972	87.18481	112.2237	'BLACKHAWK 3 345.00 - FRANKLIN 3 345.00 345KV CKT 1'
FDNS	0NDR	0	21SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.04961	83.43748	108.6642	'BLACKHAWK 3 345.00 - FRANKLIN 3 345.00 345KV CKT 1'
FDNS	0NDR	0	21SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.04961	83.43748	108.6642	'BLACKHAWK 3 345.00 - FRANKLIN 3 345.00 345KV CKT 1'
FDNS	0NDR	0	18SP	1407	FROM->TO*	'HAMPTONTAPS 161.00 - SHEFFLDS 161.00 161KV CKT 1'	WAPA	WAPA	215	215	0.04973	81.4931	101.4311	'FRANKLIN 3 345.00 - QUINNS 345.00 345KV CKT 1'
FDNS	0NDR	0	17WP	1407	FROM->TO*	'HCKRYCKS 161.00 - LORE 5 NO1 + NO 2 161KV CKT 1'	ALTW	ALTW	223	223	0.03274	105.3763	130.8474	'HCKRYCKS 345.00 - SALEM 345KV CKT 1'
FDNS	15NR	0	18G	1407	FROM->TO*	'HCKRYCKS 161.00 - LORE 5 NO1 + NO 2 161KV CKT 1'	ALTW	ALTW	223	223	0.03153	-999	108.9684	'HCKRYCKS 345.00 - SALEM 345KV CKT 1'
FDNSLock-Blown up	0NDR	0	18SP	1407	FROM->TO*	'P23-345UMZW# 821 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.05121	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1407	FROM->TO*	'P23-345UMZW# 821 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.04201	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1407	FROM->TO*	'P23-345UMZW# 821 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.04649	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	18SP	1407	FROM->TO*	'P23-345UMZW# 822 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.05121	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1407	FROM->TO*	'P23-345UMZW# 822 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.042	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1407	FROM->TO*	'P23-345UMZW# 822 # WH IN SD. TRANSFORMER FAULT.'	ALTW	ALTW	0	0	0.04649	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	18SP	1407	FROM->TO*	'P42-345UMZW# 2435 # GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR'	ALTW	ALTW	0	0	0.05121	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1407	FROM->TO*	'P42-345UMZW# 2435 # GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR'	ALTW	ALTW	0	0	0.04201	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1407	FROM->TO*	'P42-345UMZW# 2435 # GI IN NE. GI MCCOOL LINE FAULT & GI 1392 STUCK BKR'	ALTW	ALTW	0	0	0.04649	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	18SP	1407	FROM->TO*	'P42-345UMZW# 2442 # GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR'	ALTW	ALTW	0	0	0.05121	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1407	FROM->TO*	'P42-345UMZW# 2442 # GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR'	ALTW	ALTW	0	0	0.042	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1407	FROM->TO*	'P42-345UMZW# 2442 # GI IN NE. GI MCCOOL LINE FAULT & GI 1396 STUCK BKR'	ALTW	ALTW	0	0	0.04649	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	18SP	1407	FROM->TO*	'P43-345UMZW# 2420 # FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR'	ALTW	ALTW	0	0	0.05121	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	21SP	1407	FROM->TO*	'P43-345UMZW# 2420 # FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR'	ALTW	ALTW	0	0	0.04201	-9999	9999	System Intact
FDNSLock-Blown up	0NDR	0	26SP	1407	FROM->TO*	'P43-345UMZW# 2420 # FT2 IN SD. FT2 KU1B TRANSFORMER FAULT & FT2 3396 STUCK BKR'	ALTW	ALTW	0	0	0.04649	-9999	9999	System Intact

SOLUTION	GROUP	SCENARIO	SEASON	SOURCE	DIRECTION	MONITORED ELEMENT	FROM AREA NAME	TO AREA NAME	RATE A (MVA)	RATE B (MVA)	TDF	BC% LOADING (%)		CONTINGENCY
												MVA	TC% LOADING (%)	
FDNS	00NR	0	26SP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.04137	98.71307	108.6058	BUFFALO - JAMESTOWN 345KV CKT 1'
FDNS	00NR	0	26SP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.03879	94.65686	104.8013	SQUARE BUTTE - YNG2 4' 230.00 230KV CKT 1'
FDNS	00NR	0	26SP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.03879	94.65683	104.8012	YNG2 4' 230.00 230/20.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	21WP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.0383	94.49157	103.7481	MAPLE RIVER - PHSBRYA 230.00 230KV CKT 1'
FDNS	00NR	0	26SP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.04065	91.13288	101.2366	BISON 3 345.00 - BUFFALO 345KV CKT 1'
FDNS	00NR	0	26SP	1426	FROM->TO	HANKINSON - WAHPETON 230KV CKT 1'	OTP	OTP	319	351	0.03879	90.53529	100.6555	COYOTE 345/24.0KV TRANSFORMER CKT 1'
FDNS	00NR	0	18SP	1426	FROM->TO	LAWRENCE - SIOUX FALLS 115KV CKT 1'	XEL	WAPA	184.2	184.2	0.04418	77.1112	101.6435	"P42:345:UMZB-# 2493 #: LO IN ND. STUCK BREAKER (2596)"
FDNS	00NR	0	18SP	1426	FROM->TO	LAWRENCE - SIOUX FALLS 115KV CKT 1'	XEL	WAPA	184.2	184.2	0.04418	77.1112	101.6435	"P42:345:UMZW-# 1935 #: WHT IN SD. WHT 345 KV S BUS BREAKER FAIL"
FDNS	00NR	0	18SP	1426	FROM->TO	LAWRENCE - SIOUX FALLS 115KV CKT 1'	XEL	WAPA	184.2	184.2	0.04418	77.1112	101.6435	"P43:345:UMZW-# 1972 #: WHT IN SD. WHT 345 KV S BUS BREAKER FAIL"
FDNSLock-Blown up	09ALL	0	17WP	1426		"P42:345.NPPD:BKR-CPR-3310"			0	0	0.04448	-9999	9999	System Intact
FDNSLock-Blown up	09ALL	0	18G	1426		"P42:345.NPPD:BKR-CPR-3310"			0	0	0.04505	-9999	9999	System Intact
FDNSLock-Blown up	09ALL	0	18SP	1426		"P42:345.NPPD:BKR-CPR-3310"			0	0	0.04381	-9999	9999	System Intact

APPENDIX H-V

No voltage constraints met the DF (3%) and Voltage Difference (2%) criteria.