SCREENING STUDY

SPP-DPT-2016-004

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By SPP Engineering, SPP Transmission Service Studies

REVISION HISTORY

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EXECUTIVE SUMMARY

Resale Power Group of Iowa has requested a screening study to determine the impacts on SPP and first-tier third party facilities due to a Delivery Point Transfer of 6 MW. Third party includes both first-tier neighboring facilities outside SPP and Transmission Owner facilities within SPP that are not under the SPP OATT. The service type requested for this screening study is Delivery Point Transfer (DPT). The period of the service requested is from 12/31/2016 to 12/31/2021.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the DPT request while maintaining system reliability. The DPT request was studied using two system scenarios. The service was modeled by a transfer from WAUE to WAUE. The two scenarios were studied to capture system limitations caused or impacted by the requested service. An analysis was conducted on the planning horizon.

The requested service does not significantly impact facilities on the SPP system. Tables 1 and 2 summarize the results of the screening study analysis for the new source location for the scenarios listed in the table. Table 1 lists SPP and first-tier third party thermal transfer limitations identified. Table 2 lists SPP and first-tier third party voltage transfer limitations identified. Table 3 lists the network upgrades required to mitigate the limitations impacted by this request. Table 4 lists the potential redispatch relief pairs to prevent deferral of service, if applicable.

INTRODUCTION

Resale Power Group of Iowa has requested a screening study to determine the impacts on SPP and first-tier third party facilities for a Delivery Point Transfer of 6 MW. The principal objective of this study is to identify the constraints on the SPP and first-tier third party transmission systems that may limit the requested service and to determine the potential least cost solutions required to alleviate the limiting facilities.

This study includes steady-state contingency analysis (PSS/E function ACCC). The steady-state analysis considers the impact of the request on transmission line and transformer loadings, and bus voltages for outages of single transmission lines, transformers, and generating units, and selected multiple transmission lines and transformers on the SPP and first-tier third party systems.

The DPT request was studied using two system scenarios. The service was modeled by a transfer from WAUE to WAUE. Two scenarios were studied to capture the system limitations caused or impacted by the requested service. Scenario 0 includes projected usage of transmission service included in the SPP 2015 Series Cases. Scenario 5 includes transmission service not already included in the SPP 2015 Series Cases.

STUDY METHODOLOGY

DESCRIPTION

The facility study analysis was conducted to determine the steady-state impact of the requested service on the SPP and first tier non-SPP control area systems. The steady-state analysis was performed consistent with current SPP Criteria and NERC Reliability Standards requirements. SPP conforms to NERC Reliability Standards, which provide strict requirements related to voltage violations and thermal overloads during normal conditions and during a contingency. NERC Standards require all facilities to be within normal operating ratings for normal system conditions and within emergency ratings after a contingency.

Normal operating ratings and emergency operating ratings monitored are Rate A and B in the SPP Model Development Working Group (MDWG) models, respectively. The upper bound and lower bound of the normal voltage range monitored is 105% and 95%. The upper bound and lower bound of the emergency voltage range monitored is 105% and 90%. Transmission Owner voltage monitoring criteria is used if more restrictive. The SPS Tuco 230 kV bus voltage is monitored at 92.5% due to pre-determined system stability limitations. The WERE Wolf Creek 345 kV bus voltage is monitored at 103.5% and 98.5% due to transmission operating procedure.

The contingency set includes all SPP control area branches and ties 69 kV 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 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 115 kV and above. Voltage monitoring was performed for SPP control area buses 69 kV and above.

A 3% transfer distribution factor (TDF) cutoff was applied to all SPP control area facilities. For first tier non-SPP control area facilities, a 3% TDF cutoff was applied to AECI, AMRN (Ameren), and ENTR (Entergy) control areas. For voltage monitoring, a 0.02 per unit change in voltage must occur due to the transfer or modeling upgrades to be considered a valid limit to the transfer.

MODEL DEVELOPMENT

SPP used five seasonal models to study the 6 MW DPT request for the requested service period. The following SPP Transmission Expansion Plan 2015 Series (2016 ITP Near Term) Cases were used to study the impact of the requested service on the transmission system:

- 2016/17 Winter Peak (16WP)
- 2017 Summer Peak (17SP)
- 2017/18 Winter Peak (17WP)
- 2020 Summer Peak (20SP)
- 2020/21 Winter Peak (20WP)

The Summer Peak models apply to June through September and the Winter Peak models apply to December through March.

The chosen base case models were modified to reflect the current modeling information. One group of requests was developed from the aggregate to model the requested service. From the seasonal models, two system scenarios were developed. Scenario 0 includes projected usage of transmission included in the SPP 2015 Series Cases. Scenario 5 includes transmission service not already included in the SPP 2015 Series Cases.

TRANSMISSION REQUEST MODELING

NITS requests are modeled as Generation to Load transfers in addition to Generation to Generation transfers. NITS requests are modeled as Generation to Load transfers in addition to Generation to Generation because the requested NITS is a request to serve network load with the new designated network resource, and the impacts on Transmission System are determined accordingly. PTP Transmission Service requests are modeled as Generation to Generation transfers. Generation to Generation transfers are accomplished by developing a post-transfer case for comparison by dispatching the request source and redispatching the request sink.

TRANSFER ANALYSIS

Using the selected cases both with and without the requested transfers modeled, the PSS/E Activity ACCC was run on the cases and compared to determine the facility overloads caused or impacted by the transfer. TDF cutoffs (SPP and 1st-Tier) and voltage threshold (0.02 change) were applied to determine the impacted facilities. The PSS/E options chosen to conduct the analysis can be found in Appendix A.

STUDY RESULTS

STUDY ANALYSIS RESULTS

Tables 1 and 2 contain the initial steady-state analysis results of the DPT. The tables are attached to the end of this report, if applicable. The tables identify the scenario and season in which the event occurred, the transfer amount studied, the facility control area location, applicable ratings of the thermal transfer limitations and voltage transfer limitations, and the loading percentage and voltage per unit (pu).

TABLE 1

Table 1 lists the SPP and first-tier third party thermal transfer limitations caused or impacted by the 6 MW transfer for applicable scenarios. Solutions are identified for the limitations in this table.

TABLE 2

Table 2 lists the SPP and first-tier third party voltage transfer limitations caused or impacted by the 6 MW transfer for applicable scenarios. Solutions are identified for the violations in this table.

TABLE 3

Table 3 lists the network upgrades required to mitigate the limitations caused or impacted by this request. Engineering and construction costs are provided for assigned upgrades in this table.

TABLE 4

Table 4 lists the potential redispatch relief pairs to prevent deferral of service.

CONCLUSION

The results of the screening study show that limiting constraints do not exist on the SPP system for the 6 MW DPT. No new Network Upgrades are required to support the requested transfer. Redispatch is required to mitigate impacts for which Network Upgrades have been previously approved. Potential redispatch pairs are identified in Table 4. Since no additional limitations were identified, the request will be accepted. Once the request has been confirmed, SPP will issue a service agreement.

APPENDIX A

PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

BASE CASE SETTINGS:

- Solutions: Fixed slope decoupled Newton-Raphson solution (FDNS)
- Tap adjustment: Stepping
- Area Interchange Control: Tie lines and loads
- Var limits: Apply immediately
- Solution Options:

  X Phase shift adjustment
  _ Flat start
  _ Lock DC taps
  _ Lock switched shunts

ACCC CASE SETTINGS:

- Solutions: AC contingency checking (ACCC)
- MW mismatch tolerance: 0.5
- System intact rating: Rate A
- Contingency case rating: Rate B
- Percent of rating: 100
- Output code: Summary
- Min flow change in overload report: 3mw
- Excld cases w/ no overloads from report: YES
- Exclude interfaces from report: NO
- Perform voltage limit check: YES
- Elements in available capacity table: 60000
- Cutoff threshold for available capacity table: 99999.0
- Min. contng. Case Vltg chng for report: 0.02
- Sorted output: None
- Newton Solution:
- Tap adjustment: Stepping
- Area interchange control: Tie lines and loads (Disabled for generator outages)
- Var limits: Apply immediately
- Solution options: X Phase shift adjustment
  _ Flat start
  _ Lock DC taps
  _ Lock switched shunts

Table 1 - SPP Facility Thermal Transfer Limitations

Scenario	Season	From Area	To Area	Monitored Branch Over 100% Rate B	Base Case Loading (%)	Transfer Case Loading (%)	TDF (%)	Outaged Branch Causing Overload	Upgrade Name	Solution
5	17WP	WAPA	WAPA	CHAR.CK4 230.00 - WATFORD 230KV CKT 1	104.8	104.7	65.1%	CHARLIE CREEK - PATENTGATE 3345.00 345KV CKT 1	Kummer Ridge - Roundup 345kV Ckt 1	Construct new 345 kV line from Kummer Ridge to Roundup.

Table 2 - SPP Facility Voltage Transfer Limitations

Scenario	Season	Area	Monitored Bus with Violation	Post-transfer Voltage (PU)	Outaged Branch Causing Overload	Upgrade Name	Solution
			None				

Table 3 - Upgrade Requirements and Solutions Needed

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)	Estimated Engineering & Construction Cost	NTC
	None					

Construction Pending Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)	Estimated Engineering & Construction Cost	NTC
	None					

Expansion Plan Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
BEPC	Kummer Ridge - Roundup 345kV Ckt 1	Construct new 345 kV line from Kummer Ridge to Roundup.	12/1/2017	12/31/2019

Reliability Projects - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Transmission Owner	Upgrade	Solution	Earliest Date Upgrade Required (DUN)	Estimated Date of Upgrade Completion (EOC)
	None			

Table 4 - Potential Redispatch Relief Pairs to Prevent Deferral of Service

Upgrade: Kummer Ridge - Roundup 345kV Ckt 1
Limiting Facility: CHAR.CK4 230.00 - WATFORD 230KV CKT 1
Direction: FROM->TO
Line Outage: CHARLIE CREEK - PATENTGATE 3345.00 345KV CKT 1
Flowgate: 2016AG1AFS21T1605517WP
Date Redispatch Needed: Starting 2017 12/1 - 4/1 Until EOC of Upgrade
Season Flowgate Identified: 2017 Winter Peak

Reservation	Relief Amount	Aggregate Relief Amount
83273160	4.3	4.3

Source Control Area	Source	Maximum Increment (MW)	GSF	Sink Control Area	Sink	Maximum Decrement (MW)	GSF	Factor	Aggregate Redispatch Amount (MW)
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.49701	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.49646	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.5235	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.5235	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.49498	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.4968	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.49557	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.49551	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.49551	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.49838	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.49595	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	BROKEN BOW 115KV	3	0.00128	-0.49595	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.49416	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.49573	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	CRETE 115KV	2	0.00091	-0.49558	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.49608	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.49593	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.49608	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.49584	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.49584	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.49523	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.49694	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.49696	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.49622	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.52843	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.49619	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.49597	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.49595	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.49486	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.52843	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.49574	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.49498	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.49959	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.49838	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.49638	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.50482	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.49384	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.4953	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS12 1G13.800 115KV	5.5	0.00003	-0.4947	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.54366	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.49473	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.49322	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.49651	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.51135	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.49584	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.49597	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.49794	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.49787	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.49787	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.49787	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.49856	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.49583	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.49583	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	PLATTE 115KV	90	0.00125	-0.49592	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.49786	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.49553	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.49588	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	NPPD	SUB H 13KV	14	0.00126	-0.49593	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.49959	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.49786	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.49858	5
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.49627	5
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.42924	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.42869	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.45573	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.45573	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.42721	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.42903	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.4278	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.42774	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.42774	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.43061	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.42818	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	BROKEN BOW 115KV	3	0.00128	-0.42818	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.42639	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.42796	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	CRETE 115KV	2	0.00091	-0.42781	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.42831	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.42816	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.42831	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.42807	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.42807	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.42746	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.42917	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.42919	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.42845	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.46066	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.42842	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.4282	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.42818	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.42709	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.46066	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.42797	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.42721	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.43182	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.43061	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.42861	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.43705	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.42607	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.42753	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS12 1G13.800 115KV	5.5	0.00003	-0.42693	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.47589	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.42696	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.42545	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.42874	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.44358	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.42807	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.4282	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.43017	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.4301	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.4301	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.4301	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.43079	6

Table 4 - Potential Redispatch Relief Pairs to Prevent Deferral of Service

WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.42806	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.42806	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	PLATTE 115KV	90	0.00125	-0.42815	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.42363	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.43009	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.42776	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.42811	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	NPPD	SUB H 13KV	14	0.00126	-0.42816	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.43182	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.43009	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.4196	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.43081	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.4285	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.43683	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.43628	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.46332	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.46332	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.4348	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.43662	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.43539	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.43533	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.43533	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.4382	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.43577	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	BROKEN BOW 115KV	3	0.00128	-0.43577	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.43398	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.43555	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	CRETE 115KV	2	0.00091	-0.4354	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.4359	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.43575	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.4359	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.43566	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.43566	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.43505	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.43676	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.43678	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.43604	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.46825	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.42024	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.43601	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.43579	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.43577	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.43468	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.46825	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.43556	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.4348	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.43941	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.4382	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.4362	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.44464	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.43366	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.43512	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS12 1G13.800 115KV	5.5	0.00003	-0.43452	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.48348	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.43455	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.43304	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.43633	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.45117	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.43566	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.43579	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.43776	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.43769	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.43769	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.43769	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.43838	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.43565	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.43565	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	PLATTE 115KV	90	0.00125	-0.43574	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.43122	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.43768	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.43535	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.4357	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	NPPD	SUB H 13KV	14	0.00126	-0.43575	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.43941	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.43768	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.42719	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.4384	6
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.43609	6
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.48042	6
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.45126	6
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.4914	6
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.48737	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.43068	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.43013	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.45717	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.45717	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.42865	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.43047	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.42924	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.42918	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.42918	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.43205	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.42962	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	BROKEN BOW 115KV	3	0.00128	-0.42962	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.42783	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.4294	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	CRETE 115KV	2	0.00091	-0.42925	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.42975	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.4296	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.42975	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.42951	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.42951	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.4289	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.43061	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.43063	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.42989	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.4621	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.42986	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.42964	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.42962	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.42853	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.4621	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.42941	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.42865	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.43326	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.43205	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.43005	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.43849	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.42751	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.42897	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS12 1G13.800 115KV	5.5	0.00003	-0.42837	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.47733	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.4284	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.42689	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.43018	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.44502	6

Table 4 - Potential Redispatch Relief Pairs to Prevent Deferral of Service

WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.42951	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.42964	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.43161	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.43223	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.4295	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.4295	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	PLATTE 115KV	90	0.00125	-0.42959	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.42507	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.43153	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.4292	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.42955	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	NPPD	SUB H 13KV	14	0.00126	-0.4296	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.43326	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.43153	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.42104	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.43225	6
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.42994	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.43068	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.43013	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.45717	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.45717	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.42865	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.43047	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.42924	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.42918	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.42918	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.43205	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.42962	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	BROKEN BOW 115KV	3	0.00128	-0.42962	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.42783	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.4294	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	CRETE 115KV	2	0.00091	-0.42925	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.42975	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.4296	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.42975	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.42951	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.42951	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.4289	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.43061	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.43063	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.42989	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.4621	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.42986	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.42964	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.42962	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.42853	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.4621	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.42941	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.42865	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.43326	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.43205	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.43005	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.43849	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.42751	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.42897	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS11G1G13.800 115KV	5.5	0.00003	-0.42837	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.47733	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.4284	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.42689	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.43018	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.44502	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.42951	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.42964	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.43161	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.43154	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.43223	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.4295	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.4295	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	PLATTE 115KV	90	0.00125	-0.42959	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.42507	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.43153	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.4292	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.42955	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	NPPD	SUB H 13KV	14	0.00126	-0.4296	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.43326	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.43153	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.42104	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.43225	6
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.42994	6
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.41265	7
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.38349	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.37762	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.37762	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.38255	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.38255	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS5 KLDR1G13.800 115KV	5.5	0.04899	-0.39778	7
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.36547	7
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.39108	7
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.39608	7
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.40478	7
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.41409	7
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.38493	7
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.41409	7
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.38493	7
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.32831	8
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.33701	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	ABDNSBT7 115.00 115KV	80.3	0.00234	-0.35113	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	AINSWORTH WIND 34KV	60	0.00179	-0.35058	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	AYRSHIRE W8 34.500 69KV	21	0.00031	-0.3491	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	B_H WIND 0.7000 34KV	79.55	0.00213	-0.35092	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	BANCRFT9 34.500 115KV	4	0.0009	-0.34969	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	BEATRICE POWER STATION UNIT 2 115KV	27.92432	0.00084	-0.34963	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	BEATRICE POWER STATION UNIT 3 115KV	15	0.00084	-0.34963	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	BGBND78G 13.800 230KV	275.6997	0.00371	-0.3525	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	BRKNBW.GEN2W0.6900 34KV	154.8	0.00128	-0.35007	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	BROKEN BOW 115KV	3	0.00128	-0.35007	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	CAMPBLCNTY W0.6900 34KV	99	-0.00051	-0.34828	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	COLUMCOGENERATION 115KV	70	0.00106	-0.34985	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	CROFTON HILLS WIND 34KV	42.3	0.00141	-0.3502	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	CW BURDICKGT3 115KV	12	0.00126	-0.35005	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	ELKHORN RIDGE WIND 34KV	81	0.00141	-0.3502	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	ENERGY CENTER 115KV	76.42	0.00117	-0.34996	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	ENERGY CENTER 2 115KV	220	0.00117	-0.34996	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	EXIRA 3G 13.800 161KV	22.75108	0.00056	-0.34935	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	FTRDL12G 13.800 115KV	83.39837	0.00227	-0.35106	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	FTRDL78G 13.800 230KV	250.1951	0.00229	-0.35108	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	G14_013_3 0.6900 34KV	514	0.00155	-0.35034	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	GARISN3G 13.800 230KV	306	-0.01425	-0.33454	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	GAVINS3G 13.200 115KV	102	0.00152	-0.35031	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	653	0.0013	-0.35009	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	700	0.00128	-0.35007	8

Table 4 - Potential Redispatch Relief Pairs to Prevent Deferral of Service

WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	GERLED W8 34.500 69KV	10.5	0.00019	-0.34898	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	GUIDE R8 69.000 115KV	4	0.00107	-0.34986	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	HUMMEL W8 34.500 69KV	10.5	0.00031	-0.3491	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	HURONWP7 115.00 115KV	46	0.00492	-0.35371	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	HYDE W0.6900 34KV	40.5	0.00371	-0.3525	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	LARAM31G 24.000 345KV	235	0.00171	-0.3505	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.35894	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	LELAN41G 22.000 230KV	212	-0.00083	-0.34796	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS111G 12.500 69KV	11	0.00063	-0.34942	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS12 1G13.800 115KV	5.5	0.00003	-0.34882	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS7 1G 12.500 115KV	5.5	0.00006	-0.34885	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS8 ZLND1G13.800 115KV	5.733638	-0.00145	-0.34734	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NBCS9 1G 12.500 69KV	5.5	0.00184	-0.35063	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	NELIGH 9 34.500 115KV	5	0.00117	-0.34996	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	NORTH PLATTE HYDRO 115KV	12	0.0013	-0.35009	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	OAHE 1G 13.800 115KV	104.7318	0.00327	-0.35206	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	OAHE2-3G 13.800 230KV	194	0.0032	-0.35199	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	OAHE4-5G 13.800 230KV	194	0.0032	-0.35199	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	OAHE6-7G 13.800 230KV	194	0.0032	-0.35199	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	OAKTREE WIND0.7000 34KV	20.35	0.00389	-0.35268	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	ORLEANS8 69.000 115KV	3	0.00116	-0.34995	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	PETERSBURG WIND 34KV	79	0.00116	-0.34995	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	PLATTE 115KV	90	0.00125	-0.35004	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	POMONA W0.6900 34KV	40.5	-0.00327	-0.34552	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	SDPRAIRWND1W0.6900 34KV	162	0.00319	-0.35198	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	SHELDON STATION UNIT 2 115KV	214.4354	0.00086	-0.34965	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	STOCKVL8 69.000 115KV	3	0.00121	-0.35	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	NPPD	SUB H 13KV	14	0.00126	-0.35005	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	TITAN WIND W0.6900 34KV	25	0.00492	-0.35371	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	WESSINGTON190.5750 34KV	51	0.00319	-0.35198	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	WILTON 3 W0.6900 34KV	199	-0.0073	-0.34149	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	WOONSKT7 115.00 115KV	4	0.00391	-0.3527	8
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	YKNTJCT7 115.00 115KV	13	0.0016	-0.35039	8
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.3359	8
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.3446	8
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.35381	8
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.32975	8
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.33845	8
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.32975	8
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.33845	8
WAPA	BEPCPKFT 3GX13.800 115KV	141	-0.4269	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.28604	9
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	GARISN5G 13.800 115KV	204	-0.04341	-0.30538	9
WAPA	G15046_3 0.6900 34KV	143.628	-0.43449	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.29363	9
WAPA	PIONEER G313.800 115KV	141	-0.42834	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.28748	9
WAPA	PNSRECIP_B G13.800 115KV	113.328	-0.42834	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.28748	9
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	NDPRAIRWND1W0.6900 34KV	115.5	-0.08989	-0.2589	10
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	FTPECK5G 13.800 230KV	83.39837	-0.09859	-0.2502	11
WAPA	CULBERTSON1G13.800 115KV	122	-0.34879	WAPA	FTPECK3G 13.800 115KV	37	-0.14086	-0.20793	13
WAPA	LONESMCRK 5G13.800 115KV	235	-0.49467	WAPA	G15046_3 0.6900 34KV	156.372	-0.43449	-0.06018	45
WAPA	SPENCRMU G 69.000 69KV	52	0.00045	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03331	81
WAPA	SPENCRMU G 69.000 69KV	52	0.00045	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03331	81
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03331	81
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03331	81
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03292	82
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03292	82
NPPD	BEATRICE POWER STATION UNIT 3 115KV	75	0.00084	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03292	82
NPPD	BEATRICE POWER STATION UNIT 3 115KV	75	0.00084	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03292	82
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0332	82
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0332	82
NPPD	HALLAM CT 115KV	52	0.00086	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0329	82
NPPD	HALLAM CT 115KV	52	0.00086	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0329	82
NPPD	S.FLATS.GENW0.6900 34KV	74.8	0.0008	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03296	82
NPPD	S.FLATS.GENW0.6900 34KV	74.8	0.0008	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03296	82
NPPD	SHELDON STATION UNIT 2 115KV	42.56462	0.00086	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0329	82
NPPD	SHELDON STATION UNIT 2 115KV	42.56462	0.00086	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0329	82
NPPD	BURDICK 115KV	76	0.00126	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0325	83
NPPD	BURDICK 115KV	76	0.00126	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0325	83
NPPD	CANADAY 115KV	125	0.00123	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03253	83
NPPD	CANADAY 115KV	125	0.00123	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03253	83
NPPD	CW BURDICKGT2 115KV	40	0.00126	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0325	83
NPPD	CW BURDICKGT2 115KV	40	0.00126	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0325	83
NPPD	CW BURDICKGT3 115KV	28	0.00126	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0325	83
NPPD	CW BURDICKGT3 115KV	28	0.00126	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0325	83
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03274	83
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03274	83
NPPD	DENVER 115KV	37	0.00117	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03259	83
NPPD	DENVER 115KV	37	0.00117	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03259	83
NPPD	ENERGY CENTER 2 115KV	28	0.00117	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03259	83
NPPD	ENERGY CENTER 2 115KV	28	0.00117	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03259	83
NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	66	0.0013	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03246	83
NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	66	0.0013	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03246	83
NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	32	0.00128	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03248	83
NPPD	GERALD GENTLEMAN STATION UNIT 2 345KV	32	0.00128	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03248	83
NPPD	HEBRON CT 115KV	52	0.00099	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03277	83
NPPD	HEBRON CT 115KV	52	0.00099	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03277	83
NPPD	MCCOOK CT 115KV	51	0.00116	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.0326	83
NPPD	MCCOOK CT 115KV	51	0.00116	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.0326	83
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03221	84
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03221	84
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03205	84
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03205	84
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03232	84
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03232	84
WAPA	WTRTNPPG 13.800 115KV	56.6	0.00185	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03191	85
WAPA	WTRTNPPG 13.800 115KV	56.6	0.00185	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03191	85
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03113	87
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03113	87
WAPA	DAYCNTYWND W0.6900 34KV	99.5	0.00295	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03081	88
WAPA	DAYCNTYWND W0.6900 34KV	99.5	0.00295	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03081	88
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03081	88
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03081	88
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.03005	90
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.03005	90
WAPA	SPENCRMU G 69.000 69KV	52	0.00045	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02838	95
WAPA	SPENCRMU G 69.000 69KV	52	0.00045	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02838	95
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02838	95
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02838	95
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02827	96
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02827	96
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02799	97
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02799	97
NPPD	BEATRICE POWER STATION UNIT 3 115KV	75	0.00084	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02799	97
NPPD	BEATRICE POWER STATION UNIT 3 115KV	75	0.00084	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02799	97
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02781	97
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02781	97
NPPD	HALLAM CT 115KV	52	0.00086	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02797	97
NPPD	HALLAM CT 115KV	52	0.00086	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02797	97
NPPD	HEBRON CT 115KV	52	0.00099	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02784	97
NPPD	HEBRON CT 115KV	52	0.00099	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02784	97
NPPD	S.FLATS.GENW0.6900 34KV	74.8	0.0008	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02803	97
NPPD	S.FLATS.GENW0.6900 34KV	74.8	0.0008	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02803	97
NPPD	SHELDON STATION UNIT 2 115KV	42.56462	0.00086	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02797	97

Table 4 - Potential Redispatch Relief Pairs to Prevent Deferral of Service

NPPD	SHELDON STATION UNIT 2 115KV	42.56462	0.00086	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02797	97
NPPD	BURDICK 115KV	76	0.00126	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02757	98
NPPD	BURDICK 115KV	76	0.00126	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02757	98
NPPD	CANADAY 115KV	125	0.00123	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.0276	98
NPPD	CANADAY 115KV	125	0.00123	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.0276	98
NPPD	CW BURDICKGT2 115KV	40	0.00126	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02757	98
NPPD	CW BURDICKGT2 115KV	40	0.00126	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02757	98
NPPD	DENVER 115KV	37	0.00117	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02766	98
NPPD	DENVER 115KV	37	0.00117	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02766	98
NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	66	0.0013	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02753	98
NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	66	0.0013	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02753	98
NPPD	MCCOOK CT 115KV	51	0.00116	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02767	98
NPPD	MCCOOK CT 115KV	51	0.00116	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02767	98
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02728	99
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02728	99
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02739	99
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02739	99
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02712	100
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02712	100
WAPA	WTRTNPPG 13.800 115KV	56.6	0.00185	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02698	100
WAPA	WTRTNPPG 13.800 115KV	56.6	0.00185	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02698	100
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.0262	103
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.0262	103
WAPA	DAYCNTYWND W0.6900 34KV	99.5	0.00295	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02588	105
WAPA	DAYCNTYWND W0.6900 34KV	99.5	0.00295	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02588	105
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02588	105
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02588	105
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.02512	108
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.02512	108
WAPA	LELAN32G 20.000 345KV	210.8609	0.01015	WAPA	G15096_3 0.6900 34KV	150	0.03376	-0.02361	115
WAPA	LELAN32G 20.000 345KV	210.8609	0.01015	WAPA	GI1414GEN W0.6900 34KV	151.5	0.03376	-0.02361	115
WAPA	LELAN32G 20.000 345KV	210.8609	0.01015	WAPA	ANTEL32G 23.000 345KV	959.0811	0.02883	-0.01868	145
WAPA	LELAN32G 20.000 345KV	210.8609	0.01015	WAPA	ANTELPHILLSW0.6900 34KV	172.5	0.02883	-0.01868	145
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01623	167
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01612	168
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01584	171
NPPD	BEATRICE POWER STATION UNIT 3 115KV	75	0.00084	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01584	171
NPPD	S.FLATS.GENW0.6900 34KV	74.8	0.0008	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01588	171
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01566	173
NPPD	CANADAY 115KV	125	0.00123	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01545	175
NPPD	BURDICK 115KV	76	0.00126	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01542	176
NPPD	GERALD GENTLEMAN STATION UNIT 1 230KV	66	0.0013	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01538	176
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01524	178
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01513	179
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01497	181
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01405	193
WAPA	DAYCNTYWND W0.6900 34KV	99.5	0.00295	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01373	197
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01373	197
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	NDSUNFLWR W0.6900 34KV	106.5	0.01668	-0.01297	209
WAPA	WISDOM G 69.000 69KV	118	0.00045	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.0097	279
WAPA	EXIRA 3G 13.800 161KV	117.3489	0.00056	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00959	282
NPPD	BEATRICE POWER STATION UNIT 2 115KV	132.0757	0.00084	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00931	291
WAPA	DEERCREK STG18.000 345KV	321	0.00102	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00913	297
NPPD	CANADAY 115KV	125	0.00123	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00892	304
WAPA	SPIRI72G 13.800 115KV	120	0.00144	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00871	311
NPPD	G14_013_3 0.6900 34KV	200	0.00155	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.0086	315
WAPA	LARAM31G 24.000 345KV	376	0.00171	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00844	321
WAPA	GR PRAIRIEG 0.6900 34KV	249.6	0.00263	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00752	360
WAPA	GROTON 1G13.800 115KV	217.4	0.00295	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.0072	376
WAPA	BGBND78G 13.800 230KV	244.3003	0.00371	WAPA	LELAN32G 20.000 345KV	264.1391	0.01015	-0.00644	421

Maximum Decrement and Maximum Increment were determine from the Souce and Sink Operating Points in the study models where limiting facility was identified.
Factor = Source GSF - Sink GSF
Redispatch Amount = Relief Amount / Factor