Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-321

DRESDEN-PONTIAC MIDPOINT 345 KV

126.4 MW Capacity / 200 MW Energy

January 2021

Table of Contents

1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is ComEd.

2 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

An Interconnection Customer with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Livingston County, Illinois. The installed facilities will have a total capability of 200 MW with 126.4 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is October 01, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-321
Project Name	DRESDEN-PONTIAC MIDPOINT 345 KV
State	Illinois
County	Livingston
Transmission Owner	ComEd
MFO	200
MWE	200
MWC	126.4
Fuel	Solar
Basecase Study Year	2024

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

4.1 Primary

AG1-321 has proposed a primary Point of Interconnection with the ComEd transmission system tapping the Dresden to Pontiac Midpoint 345 kV line L8014.

4.2 Secondary

AG1-321 has proposed a secondary Point of Interconnection with the ComEd transmission system tapping the Loretto to Pontiac Midpoint 345 kV line L8012.

5 Cost Summary

The AG1-321 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$ 27,000,000
Total System Network Upgrade Costs	$ 75,000,000
Total Costs	**$ 102,000,000**

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

6 Transmission Owner Scope of Work

6.1 Attachment Facilities

The AG1-321 generator lead would interconnect to a new 345kV Interconnection Substation (see details in Direct Connection section below). The required Attachment Facilities are one 345kV line MOD, a dead-end structure and revenue metering as shown in the one-line diagram.

Scope of Work	Cost Estimate
Installation of one 345kV line MOD, one dead-end structure and one set of revenue metering (see notes below on cost estimate)	$1,000,000

6.2 Direct Connection Network Upgrades

To accommodate interconnection of AG1-321, a new 345kV Interconnection Substation would need to be built close to the 'Pontiac Midpoint - Dresden' 345kV transmission line L8014, 7.5 miles from Pontiac Midpoint and 35.8 miles from Dresden.

The scope of work includes the installation of three 345kV circuit breakers in a "breaker-and-a-half" bus configuration and cutting in the Interconnection Substation to 'Pontiac Midpoint - Dresden' 345kV transmission line L8014, as shown in the one-line diagram below.

The Interconnection Customer ("IC") is responsible for constructing all of the facilities on the IC side of the Point of Interconnection ("POI"). It is assumed for the purposes of this report that the IC will obtain the site for the Interconnection Substation and right-of-way between the Interconnection Substation and the 345kV transmission line.

In the event that the IC exercises the option to build the Interconnecting Substation, the IC will be required to construct all interconnection facilities that will be turned over to ComEd in accordance with ComEd published standards and the PJM Tariff.

ComEd would design, engineer and construct the tie in of the Interconnection Substation to the 'Pontiac Midpoint - Dresden' 345kV transmission line L8014.

The preliminary cost estimate for Direct Connection Network Upgrade is given in the following tables.

For Option to Build Direct Connection cost estimates:

Scope of Work	Cost Estimate
Installation of a new 345kV substation as described above	N/A
Transmission line tie in work (foundations, structures, conductors)	$ 4,000,000
ComEd oversight and testing	$ 2,000,000
Total Cost Estimate (see notes below on cost estimate)	$ 6,000,000

For ComEd building the Interconnecting Substation cost estimates:

Scope of Work	Cost Estimate
Installation of a new 345kV substation as described above	$ 20,000,000
Transmission line tie in work (foundations, structures, conductors)	$ 4,000,000
Total Cost Estimate (see notes below on cost estimate)	$ 24,000,000

ComEd would take approximately 24-months to construct the substation and transmission line work after the ISA / ICSA are signed.

6.3 Non-Direct Connection Network Upgrades

The integration of the new 345kV Interconnection Substation would require relay, communications and SCADA upgrades at the Pontiac Midpoint TSS 80 and Dresden Station 12. The ComEd cost is given below:

Scope of Work	Cost Estimate
Relay/communications/SCADA upgrades at Pontiac Midpoint TSS 80	$ 1,000,000
Relay/communications/SCADA upgrades at Dresden Station 12	$ 1,000,000
Total Cost Estimate (see notes below on cost estimate)	$ 2,000,000

6.4 Notes on Cost Estimate:

1) These estimates are Order-of-Magnitude estimates of the costs that ComEd would bill to the customer for this interconnection. These estimates are based on a one-line electrical diagram of the project and the information provided by the IC.
2) There were no site visits performed for these estimates. There may be costs related to specific site related issues that are not identified in these estimates. The site reviews will be performed during the Facilities Study or during detailed engineering.
3) These estimates are not a guarantee of the maximum amount payable by the IC and the actual costs of ComEd's work may differ significantly from these estimates. IC will be responsible for paying actual costs of ComEd's work in accordance with Sections 212.1 and 217 of the PJM Open Access Transmission Tariff.
4) The IC is responsible for all engineering, procurement, testing and construction of all equipment on the IC's side of the POI.
5) These cost estimates do not include cost of acquiring right-of-way for the transmission line and purchasing any additional land, if needed, for the line terminations. The need and cost of acquiring property and associated legal costs will be investigated during Facilities Study for this project.

7 Schedule

See Sections 6 and 11.

8 Transmission Owner Analysis

See Sections 6 and 11.

9 Interconnection Customer Requirements

The Interconnection Customer is responsible for all design and construction related activities on the Interconnection Customer's side of the Point of Interconnection.

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

10.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Irradiance (Watts/meter2) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Ambient air temperature (Fahrenheit) - (Accepted, not required)
- Wind speed (meters/second) - (Accepted, not required)
- Wind direction (decimal degrees from true north) - (Accepted, not required)

10.3 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

ComEd interconnection requirements can be found at https://www.pjm.com/planning/design-engineering/to-tech-standards/private-comed.aspx

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-321 was evaluated as a 200.0 MW (Capacity 126.4 MW) injection tapping the Dresden to Pontiac Midpoint 345 kV line in the ComEd area. Project AG1-321 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-321 was studied with a commercial probability of 53%. Potential network impacts were as follows:

11.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

11.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

11.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168459495	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	102.08	106.2	DC	62.99
162154964	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	tower	2221.0	116.58	117.72	DC	30.87
169685046	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	107.96	112.09	DC	62.99
169685047	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-B	single	1528.0	102.13	106.26	DC	62.99

11.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168459492	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	180.13	186.66	DC	99.66
168459494	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	Base Case	operation	1364.0	136.53	140.74	DC	57.36
168459833	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	115.51	116.18	DC	26.85
168459835	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	Base Case	operation	1334.0	98.46	100.11	DC	21.85
168459643	270796	KINCAID ; B	345.0	CE	347955	7AUSTIN	345.0	AMIL	1	COMED_P1-2_345-L2105___-S-D	operation	1319.0	123.87	125.48	DC	21.25
168459502	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	167.96	174.49	DC	99.71
168459504	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	Base Case	operation	1364.0	124.91	129.12	DC	57.41
169685134	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1	operation	1528.0	155.55	158.69	DC	47.9
169685136	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	Base Case	operation	1364.0	139.5	141.57	DC	28.09
168459841	934730	AD1-100 TAP	345.0	CE	270670	BRAIDWOOD; B	345.0	CE	1	COMED_P1-2_345-L11212_B-S-A	operation	1528.0	99.18	101.51	DC	35.6

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC| DC	MW IMPACT
169685079	935000	AD1-133 TAP	345.0	CE	270717	DRESDEN; R	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	168.86	175.33	DC	107.09
169685081	935000	AD1-133 TAP	345.0	CE	270717	DRESDEN; R	345.0	CE	1	Base Case	operation	1334.0	125.45	131.19	DC	76.51
169685405	936770	AD2-100 TAP	345.0	CE	944220	AF1-090 TAP	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	104.98	105.58	DC	16.13
169685043	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	197.86	204.38	DC	99.66
169685045	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	Base Case	operation	1364.0	153.86	158.06	DC	57.36
169685347	944220	AF1-090 TAP	345.0	CE	347945	7PANA	345.0	AMIL	1	COMED_P1-2_345-L2106___-S	operation	1201.0	111.92	112.6	DC	18.17
169975402	964580	AG1-321 TAP	345.0	CE	935000	AD1-133 TAP	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	156.63	163.09	DC	107.09
169975404	964580	AG1-321 TAP	345.0	CE	935000	AD1-133 TAP	345.0	CE	1	Base Case	operation	1334.0	112.35	118.09	DC	76.51

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
168459495	1	LORETTO ; B 345.0 kV - AE1-172 TAP 345.0 kV Ckt 1	ComEd CE_NUN_L11212_2 (1023) : ComEd 345kV L11212 SSTE rating is 1846 MVA. The upgrade will be to replace-4-345kV circuit breakers, upgrade a line relay scheme, station conductor upgrades at both terminals and recconductor a portion of the line. A preliminary estimate for the upgrades is $47M with an estimated construction timeline of 24-30 months. Upon completion the ratings will be 1754/2246/2297/2488/2861 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : $47,000,000 Time Estimate : 24-30 Months	$47,000,000
169685046,169685047	3	AE1-172 TAP 345.0 kV - AD1-100 TAP 345.0 kV Ckt 1		
162154964	2	AD1-100 TAP 345.0 kV - WILTON ; B 345.0 kV Ckt 1	ComEd CE_NUN_L11212_3 (1154) : ComEd 345kV L11212 ALDR is 2554 MVA MVA. The upgrade will be to replace-2-345kV circuit breakers, upgrade a line relay scheme, station conductor upgrades at both terminals and recconductor a portion of the line along with 5-upgraded motor operated disconnect switches at TSS 112 Wilton Center. A preliminary estimate for the upgrades is $28M with an estimated construction timeline of 24-30 months. Upon completion the ratings will be 1560/1802/2083/2477/2849 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : $28,000,000 Time Estimate : 24-30 Months	$28,000,000
			TOTAL COST	$75,000,000

11.6 Flow Gate Details - Primary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168459495	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	102.08	106.2	DC	62.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	17.4703	80/20	17.4703
274651	KINCAID ;2U	17.4641	80/20	17.4641
274853	TWINGROVE;U1	2.2232	80/20	2.2232
274854	TWINGROVE;U2	2.2870	80/20	2.2870
274863	CAYUGA RI;1U	2.1585	80/20	2.1585
274864	CAYUGA RI;2U	2.1585	80/20	2.1585
274880	RADFORD R;1U	2.0398	80/20	2.0398
274889	BRIGHTSTK;1U	1.7879	80/20	1.7879
924041	AB2-047 C O1	2.2352	80/20	2.2352
924261	AB2-070 C O1	6.9833	80/20	6.9833
925771	AC1-053 C	6.7517	80/20	6.7517
930461	AB1-087 CT1	16.7938	80/20	16.7938
930462	AB1-087 ST1	13.3517	80/20	13.3517
930471	AB1-088 CT1	16.7938	80/20	16.7938
930472	AB1-088 ST1	13.3517	80/20	13.3517
933446	AC2-157 1C	2.0828	80/20	2.0828
933447	AC2-157 2C	2.0828	80/20	2.0828
935001	AD1-133 C O1	89.7048	80/20	89.7048
935141	AD1-148	11.7967	80/20	11.7967
936771	AD2-100 C	23.9942	80/20	23.9942
936971	AD2-131 C	1.5806	80/20	1.5806
937211	AD2-159 C	9.3565	80/20	9.3565
939741	AE1-205 C O1	36.6131	80/20	36.6131
941731	AE2-173 O1	21.7935	80/20	21.7935
942111	AE2-223 C	8.4995	80/20	8.4995
942481	AE2-261 C	35.3059	80/20	35.3059
942601	AE2-276	2.7405	80/20	2.7405
944201	AF1-088 FTIR	54.8100	80/20	54.8100
944221	AF1-090 C O1	6.0456	80/20	6.0456
945391	AF1-204 C O1	4.1705	80/20	4.1705
945871	AF1-252 O1	10.7172	80/20	10.7172
945881	AF1-253	7.4196	80/20	7.4196
951741	J474 C	5.2474	PJM External (MISO)	5.2474
952651	J756 C	4.4978	PJM External (MISO)	4.4978
952871	J757 C	5.5356	PJM External (MISO)	5.5356
953401	J811	10.8326	PJM External (MISO)	10.8326
953651	J815	38.1850	PJM External (MISO)	38.1850
953741	J826 C	3.1200	PJM External (MISO)	3.1200
953851	J845 C	3.0789	PJM External (MISO)	3.0789
953881	J848 C	5.8590	PJM External (MISO)	5.8590
954411	J912	14.4410	PJM External (MISO)	14.4410

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954721	J750 C	3.8030	PJM External (MISO)	3.8030
954821	J955	181.6984	PJM External (MISO)	181.6984
955031	J979 C	4.6872	PJM External (MISO)	4.6872
955401	J1022 C	4.6800	PJM External (MISO)	4.6800
956151	J1102	11.4597	PJM External (MISO)	11.4597
956281	J1115 C	7.5579	PJM External (MISO)	7.5579
956451	J1139	17.7780	PJM External (MISO)	17.7780
957141	AF2-008 FTIR	27.4050	80/20	27.4050
957381	AF2-032 C	2.7086	80/20	2.7086
959341	AF2-225 C	27.4598	80/20	27.4598
959611	AF2-252 C	8.0984	80/20	8.0984
960141	AF2-305	2.4710	80/20	2.4710
960261	AF2-317	3.7750	80/20	3.7750
960611	AF2-352 C	8.0984	80/20	8.0984
963831	AG1-236 C	6.7517	80/20	6.7517
964581	AG1-321 C O1	62.9877	80/20	62.9877
965091	AG1-374 C	72.8856	80/20	72.8856
965331	AG1-398	1.9688	80/20	1.9688
965341	AG1-399 C	17.9541	80/20	17.9541
965351	AG1-400	51.0060	80/20	51.0060
965361	AG1-401 C	17.9541	80/20	17.9541
965371	AG1-402	51.0060	80/20	51.0060
965381	AG1-403 C	11.9694	80/20	11.9694
965391	AG1-404	34.0040	80/20	34.0040
965911	AG1-460 C	2.3616	80/20	2.3616
LGEE	LGEE	1.5670	Confirmed LTF	1.5670
CPLE	CPLE	1.1684	Confirmed LTF	1.1684
G-007A	G-007A	1.8653	Confirmed LTF	1.8653
VFT	VFT	5.0052	Confirmed LTF	5.0052
CBM-W2	CBM-W2	46.2246	Confirmed LTF	46.2246
TVA	TVA	5.1100	Confirmed LTF	5.1100
SIGE	SIGE	0.3437	Confirmed LTF	0.3437
CBM-S2	CBM-S2	20.7130	Confirmed LTF	20.7130
CBM-S1	CBM-S1	1.3072	Confirmed LTF	1.3072
CBM-N	CBM-N	0.9276	Confirmed LTF	0.9276
MEC	MEC	2.2008	Confirmed LTF	2.2008
LAGN	LAGN	6.7060	Confirmed LTF	6.7060

11.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
162154964	934720	AD1-100 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	tower	2221.0	116.58	117.72	DC	30.87

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274654	BRAIDWOOD;1U	43.3810	50/50	43.3810
274655	BRAIDWOOD;2U	42.1282	50/50	42.1282
274660	LASCO STA;1U	27.4271	50/50	27.4271
274661	LASCO STA;2U	27.5500	50/50	27.5500
274847	GR RIDGE ;BU	0.5494	50/50	0.5494
274853	TWINGROVE;U1	0.8181	50/50	0.8181
274854	TWINGROVE;U2	0.8416	50/50	0.8416
274863	CAYUGA RI;1U	0.9165	50/50	0.9165
274864	CAYUGA RI;2U	0.9165	50/50	0.9165
274871	GR RIDGE ;2U	0.2045	50/50	0.2045
274880	RADFORD R;1U	0.7710	50/50	0.7710
274887	PILOT HIL;1U	0.8066	50/50	0.8066
274888	KELLY CRK;1U	0.8066	50/50	0.8066
274889	BRIGHTSTK;1U	0.6536	50/50	0.6536
275149	KELLYCK ;1E	20.4512	50/50	20.4512
276615	W2-048 GEN	3.9096	Adder	4.6
276621	X2-022 GEN	14.6651	Adder	17.25
290261	S-027 E	23.6016	50/50	23.6016
290265	S-028 E	23.6016	50/50	23.6016
293061	N-015 E	15.2520	50/50	15.2520
293777	CAYUG;1U E	30.9828	50/50	30.9828
293778	CAYUG;2U E	30.9828	50/50	30.9828
293798	W4-005 E	32.7265	50/50	32.7265
293799	PILOT HIL;1E	20.4512	50/50	20.4512
294392	P-010 E	19.3700	50/50	19.3700
917502	Z2-087 E	27.7252	50/50	27.7252
924041	AB2-047 C O1	0.8171	50/50	0.8171
924042	AB2-047 E O1	34.6564	50/50	34.6564
924261	AB2-070 C O1	2.6702	50/50	2.6702
924262	AB2-070 E O1	16.1722	50/50	16.1722
925771	AC1-053 C	2.2029	Adder	2.59
925772	AC1-053 E	14.7427	Adder	17.34
926821	AC1-168 C O1	0.5759	Adder	0.68
926822	AC1-168 E O1	3.8645	Adder	4.55
930501	AB1-091 CT	51.7908	50/50	51.7908
930502	AB1-091 ST	41.1757	50/50	41.1757
933411	AC2-154 C	2.7753	50/50	2.7753
933412	AC2-154 E	4.5282	50/50	4.5282
934721	AD1-100 C	51.7620	50/50	51.7620

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934722	AD1-100 E	241.5560	50/50	241.5560
935001	AD1-133 C O1	15.2954	Adder	17.99
935002	AD1-133 E O1	10.1969	Adder	12.0
935141	AD1-148	3.8843	Adder	4.57
936371	AD2-047 C O1	4.9664	50/50	4.9664
936372	AD2-047 E O1	24.2476	50/50	24.2476
936461	AD2-060	2.9214	50/50	2.9214
936771	AD2-100 C	8.0432	Adder	9.46
936772	AD2-100 E	5.3621	Adder	6.31
936971	AD2-131 C	0.5298	Adder	0.62
936972	AD2-131 E	2.6619	Adder	3.13
937211	AD2-159 C	3.5366	50/50	3.5366
937212	AD2-159 E	16.5578	50/50	16.5578
939351	AE1-166 C O1	22.6434	50/50	22.6434
939352	AE1-166 E O1	20.9016	50/50	20.9016
939401	AE1-172 C O1	13.5135	50/50	13.5135
939402	AE1-172 E O1	63.4047	50/50	63.4047
939741	AE1-205 C O1	13.3846	50/50	13.3846
939742	AE1-205 E O1	18.4834	50/50	18.4834
940101	AE1-252 C O1	27.1476	50/50	27.1476
940102	AE1-252 E O1	18.0984	50/50	18.0984
941551	AE2-152 C O1	26.1270	50/50	26.1270
941552	AE2-152 E O1	17.4180	50/50	17.4180
941561	AE2-153 C O1	7.3987	50/50	7.3987
941562	AE2-153 E O1	34.6393	50/50	34.6393
941731	AE2-173 O1	7.9670	50/50	7.9670
942111	AE2-223 C	3.1071	50/50	3.1071
942112	AE2-223 E	20.7939	50/50	20.7939
942481	AE2-261 C	11.8454	Adder	13.94
942482	AE2-261 E	7.8969	Adder	9.29
944221	AF1-090 C O1	2.0208	Adder	2.38
944222	AF1-090 E O1	9.4610	Adder	11.13
944911	AF1-156 C	18.9171	50/50	18.9171
944912	AF1-156 E	12.6114	50/50	12.6114
945871	AF1-252 O1	3.5823	Adder	4.21
945881	AF1-253	2.4801	Adder	2.92
946541	AF1-318 C O1	2.5270	Adder	2.97
946542	AF1-318 E O1	11.8307	Adder	13.92
951741	J474 C	1.8441	PJM External (MISO)	1.8441
951742	J474 E	9.9769	PJM External (MISO)	9.9769
953741	J826 C	1.0351	PJM External (MISO)	1.0351
953742	J826 E	5.5999	PJM External (MISO)	5.5999
954821	J955	37.8570	PJM External (MISO)	37.8570
955401	J1022 C	1.5526	PJM External (MISO)	1.5526
955402	J1022 E	8.3999	PJM External (MISO)	8.3999
956151	J1102	4.3890	PJM External (MISO)	4.3890
956281	J1115 C	2.5908	PJM External (MISO)	2.5908
956282	J1115 E	14.0172	PJM External (MISO)	14.0172
957381	AF2-032 C	0.9091	Adder	1.07
957382	AF2-032 E	0.4278	Adder	0.5
958011	AF2-095 C O1	19.8682	50/50	19.8682
958012	AF2-095 E O1	9.3498	50/50	9.3498

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958021	AF2-096 C	59.2620	50/50	59.2620
958022	AF2-096 E	27.8880	50/50	27.8880
958341	AF2-128 C O1	0.6870	Adder	0.81
958342	AF2-128 E O1	3.2162	Adder	3.78
959341	AF2-225 C	10.0384	50/50	10.0384
959342	AF2-225 E	13.8626	50/50	13.8626
959611	AF2-252 C	2.9800	50/50	2.9800
959612	AF2-252 E	4.4700	50/50	4.4700
960141	AF2-305	0.9448	50/50	0.9448
960261	AF2-317	1.2430	Adder	1.46
960591	AF2-350 C O1	8.7648	50/50	8.7648
960592	AF2-350 E O1	5.8432	50/50	5.8432
960601	AF2-351 C O1	1.1686	50/50	1.1686
960602	AF2-351 E O1	1.7530	50/50	1.7530
960611	AF2-352 C	2.9800	50/50	2.9800
960612	AF2-352 E	4.4700	50/50	4.4700
961651	AG1-005 C O1	3.8389	Adder	8.52
961652	AG1-005 E O1	2.5593	Adder	5.68
963831	AG1-236 C	1.1676	Adder	2.59
963832	AG1-236 E	7.8136	Adder	17.34
964581	AG1-321 C O1	19.5086	50/50	19.5086
964582	AG1-321 E O1	11.3594	50/50	11.3594
965091	AG1-374 C	26.8200	50/50	26.8200
965092	AG1-374 E	17.8800	50/50	17.8800
965331	AG1-398	0.7528	50/50	0.7528
965341	AG1-399 C	6.6866	50/50	6.6866
965342	AG1-399 E	31.3054	50/50	31.3054
965351	AG1-400	18.9960	50/50	18.9960
965361	AG1-401 C	6.6866	50/50	6.6866
965362	AG1-401 E	31.3054	50/50	31.3054
965371	AG1-402	18.9960	50/50	18.9960
965381	AG1-403 C	4.4577	50/50	4.4577
965382	AG1-403 E	20.8703	50/50	20.8703
965391	AG1-404	12.6640	50/50	12.6640
965911	AG1-460 C	0.4199	Adder	0.93
965912	AG1-460 E	0.6299	Adder	1.4
966081	AG1-477 C	0.4344	Adder	0.96
966082	AG1-477 E	0.1093	Adder	0.24
966091	AG1-478 C	0.4920	Adder	1.09
966092	AG1-478 E	0.1238	Adder	0.27
966101	**AG1-479 C (Withdrawn : 12/03/2020)**	**0.4344**	**Adder**	**0.96**
966102	**AG1-479 E (Withdrawn : 12/03/2020)**	**0.1093**	**Adder**	**0.24**
WEC	WEC	0.4564	Confirmed LTF	0.4564
LGEE	LGEE	0.0823	Confirmed LTF	0.0823
CBM-W2	CBM-W2	17.9827	Confirmed LTF	17.9827
NY	NY	0.3932	Confirmed LTF	0.3932
TVA	TVA	1.6072	Confirmed LTF	1.6072
O-066	O-066	4.6302	Confirmed LTF	4.6302
SIGE	SIGE	0.1667	Confirmed LTF	0.1667
CBM-S2	CBM-S2	0.7308	Confirmed LTF	0.7308
CBM-S1	CBM-S1	0.3659	Confirmed LTF	0.3659

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007	G-007	0.7214	Confirmed LTF	0.7214
HAMLET	HAMLET	0.0162	Confirmed LTF	0.0162
MEC	MEC	4.3300	Confirmed LTF	4.3300
LAGN	LAGN	2.7720	Confirmed LTF	2.7720
CBM-W1	CBM-W1	10.7393	Confirmed LTF	10.7393

11.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
169685046	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	107.96	112.09	DC	62.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	17.4703	80/20	17.4703
274651	KINCAID ;2U	17.4641	80/20	17.4641
274853	TWINGROVE;U1	2.2232	80/20	2.2232
274854	TWINGROVE;U2	2.2870	80/20	2.2870
274863	CAYUGA RI;1U	2.1585	80/20	2.1585
274864	CAYUGA RI;2U	2.1585	80/20	2.1585
274880	RADFORD R;1U	2.0398	80/20	2.0398
274889	BRIGHTSTK;1U	1.7879	80/20	1.7879
924041	AB2-047 C O1	2.2352	80/20	2.2352
924261	AB2-070 C O1	6.9833	80/20	6.9833
925771	AC1-053 C	6.7517	80/20	6.7517
930461	AB1-087 CT1	16.7938	80/20	16.7938
930462	AB1-087 ST1	13.3517	80/20	13.3517
930471	AB1-088 CT1	16.7938	80/20	16.7938
930472	AB1-088 ST1	13.3517	80/20	13.3517
933446	AC2-157 1C	2.0828	80/20	2.0828
933447	AC2-157 2C	2.0828	80/20	2.0828
935001	AD1-133 C O1	89.7048	80/20	89.7048
935141	AD1-148	11.7967	80/20	11.7967
936771	AD2-100 C	23.9942	80/20	23.9942
936971	AD2-131 C	1.5806	80/20	1.5806
937211	AD2-159 C	9.3565	80/20	9.3565
939401	AE1-172 C O1	29.9990	80/20	29.9990
939741	AE1-205 C O1	36.6131	80/20	36.6131
940101	AE1-252 C O1	60.2658	80/20	60.2658
941731	AE2-173 O1	21.7935	80/20	21.7935
942111	AE2-223 C	8.4995	80/20	8.4995
942481	AE2-261 C	35.3059	80/20	35.3059
942601	AE2-276	2.7405	80/20	2.7405
944201	AF1-088 FTIR	54.8100	80/20	54.8100
944221	AF1-090 C O1	6.0456	80/20	6.0456
945391	AF1-204 C O1	4.1705	80/20	4.1705
945871	AF1-252 O1	10.7172	80/20	10.7172
945881	AF1-253	7.4196	80/20	7.4196
951741	J474 C	5.2474	PJM External (MISO)	5.2474
952651	J756 C	4.4978	PJM External (MISO)	4.4978
952871	J757 C	5.5356	PJM External (MISO)	5.5356
953401	J811	10.8326	PJM External (MISO)	10.8326
953651	J815	38.1850	PJM External (MISO)	38.1850
953741	J826 C	3.1200	PJM External (MISO)	3.1200
953851	J845 C	3.0789	PJM External (MISO)	3.0789

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953881	J848 C	5.8590	PJM External (MISO)	5.8590
954411	J912	14.4410	PJM External (MISO)	14.4410
954721	J750 C	3.8030	PJM External (MISO)	3.8030
954821	J955	181.6984	PJM External (MISO)	181.6984
955031	J979 C	4.6872	PJM External (MISO)	4.6872
955401	J1022 C	4.6800	PJM External (MISO)	4.6800
956151	J1102	11.4597	PJM External (MISO)	11.4597
956281	J1115 C	7.5579	PJM External (MISO)	7.5579
956451	J1139	17.7780	PJM External (MISO)	17.7780
957141	AF2-008 FTIR	27.4050	80/20	27.4050
957381	AF2-032 C	2.7086	80/20	2.7086
959341	AF2-225 C	27.4598	80/20	27.4598
959611	AF2-252 C	8.0984	80/20	8.0984
960141	AF2-305	2.4710	80/20	2.4710
960261	AF2-317	3.7750	80/20	3.7750
960611	AF2-352 C	8.0984	80/20	8.0984
963831	AG1-236 C	6.7517	80/20	6.7517
964581	AG1-321 C O1	62.9877	80/20	62.9877
965091	AG1-374 C	72.8856	80/20	72.8856
965331	AG1-398	1.9688	80/20	1.9688
965341	AG1-399 C	17.9541	80/20	17.9541
965351	AG1-400	51.0060	80/20	51.0060
965361	AG1-401 C	17.9541	80/20	17.9541
965371	AG1-402	51.0060	80/20	51.0060
965381	AG1-403 C	11.9694	80/20	11.9694
965391	AG1-404	34.0040	80/20	34.0040
965911	AG1-460 C	2.3616	80/20	2.3616
LGEE	LGEE	1.5670	Confirmed LTF	1.5670
CPLE	CPLE	1.1684	Confirmed LTF	1.1684
G-007A	G-007A	1.8653	Confirmed LTF	1.8653
VFT	VFT	5.0052	Confirmed LTF	5.0052
CBM-W2	CBM-W2	46.2246	Confirmed LTF	46.2246
TVA	TVA	5.1100	Confirmed LTF	5.1100
SIGE	SIGE	0.3437	Confirmed LTF	0.3437
CBM-S2	CBM-S2	20.7130	Confirmed LTF	20.7130
CBM-S1	CBM-S1	1.3072	Confirmed LTF	1.3072
CBM-N	CBM-N	0.9276	Confirmed LTF	0.9276
MEC	MEC	2.2008	Confirmed LTF	2.2008
LAGN	LAGN	6.7060	Confirmed LTF	6.7060

11.7 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AB1-087	Sullivan 345kV #1	Active
AB1-088	Sullivan 345kV #2	Active
AB1-091	Davis Creek 345kV	Active
AB2-047	Brokaw-Pontiac Midpoint	In Service
AB2-070	Mt. Pulaski-Brokaw	Engineering and Procurement
AC1-053	Lanesville-Brokaw	Active
AC1-168	Kewanee-Streator	Active
AC2-154	Davis Creek 138kV	Active
AC2-157	Sullivan 345 kV	Active
AD1-100	Loretto-Wilton & Braidwood-Davis Creek	Active
AD1-133	Pontiac MidPoint-Dresden	Active
AD1-148	Brokaw-Lanesville	Active
AD2-047	Davis Creek 138 kV	Active
AD2-060	Davis Creek 138kV	Active
AD2-100	Kincaid-Pana	Active
AD2-131	Latham Kincaid	Active
AD2-159	Chestnut 345kV	Active
AE1-166	Loretto-Wilton & Braidwood-Davis Creek	Active
AE1-172	Loretto-Wilton Center	Active
AE1-205	McLean 345 kV	Active
AE1-252	Loretto-Wilton Center	Active
AE2-152	Loretto-Wilton & Braidwood-Davis Creek	Active
AE2-153	Braidwood-Davis Creek	Active
AE2-173	McLean 345 kV	Active
AE2-223	McLean 345 kV	Active
AE2-261	Kincaid-Pana	Active
AE2-276	Sullivan 345kV	Active
AF1-088	Sullivan 345 kV	Active
AF1-090	Kincaid-Pana	Active
AF1-156	Braidwood-Davis Creek	Active
AF1-204	Eugene 345 kV	Active
AF1-252	Kincaid-Pana	Active
AF1-253	Kincaid-Pana	Active
AF1-318	Crescent Ridge-Corbin	Active
AF2-008	Sullivan 345 kV	Active
AF2-032	Kincaid	Active
AF2-095	Wilmington-Davis Creek	Active
AF2-096	Braidwood-East Frankfort 345 kV	Active
AF2-128	Crescent Ridge-Corbin 138 kV	Active

Queue Number	Project Name	Status
AF2-225	McLean 345 kV	Active
AF2-252	Blue Mound 345 kV	Active
AF2-305	Brokaw-Lanesville 345 kV	Active
AF2-317	Hill Topper 345 kV	Active
AF2-350	Kensington 138 kV	Active
AF2-351	Kensington 138 kV	Active
AF2-352	Blue Mound 34.5 kV	Active
AG1-005	Corbin-Crescent Ridge 138 kV	Active
AG1-236	Lanesville-Brokaw 345 kV	Active
AG1-321	Dresden-Pontiac Midpoint 345 kV	Active
AG1-374	Blue Mound 345 kV	Active
AG1-398	Brokaw-Lanesville 345 kV	Active
AG1-399	Blue Mound-Chestnut 345 kV	Active
AG1-400	Blue Mound-Chestnut 345 kV	Active
AG1-401	Blue Mound-Chestnut 345 kV	Active
AG1-402	Blue Mound-Chestnut 345 kV	Active
AG1-403	Clinton-Brokaw 345 kV	Active
AG1-404	Clinton-Brokaw 345 kV	Active
AG1-460	Kincaid-Pana 345 kV	Active
AG1-477	Grundy County 34.5 kV	Active
AG1-478	Will County 34.5 kV	Active
AG1-479	Grundy County 34.5 kV II	Withdrawn
W2-048	Brokaw-Lanesville	In Service
W4-005	Blue Mound-Latham	In Service
X2-022	Brokaw-Lanesville	In Service
Z2-087	Pontiac MidPoint-Brokaw 345kV	In Service
J1022	MISO	MISO
J1102	MISO	MISO
J1115	MISO	MISO
J1139	MISO	MISO
J474	MISO	MISO
J750	MISO	MISO
J756	MISO	MISO
J757	MISO	MISO
J811	MISO	MISO
J815	MISO	MISO
J826	MISO	MISO
J845	MISO	MISO
J848	MISO	MISO
J912	MISO	MISO
J955	MISO	MISO
J979	MISO	MISO

11.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
COMED_P1-2_345-L11212_B-S-B	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-B' / CONTINGENCY # 198 TRIP BRANCH FROM BUS 934720 TO BUS 939400 CKT 1 / AD1-100 TAP 345 AE1-172 TAP 345 END
COMED_P1-2_345-L11212_B-S-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-A' / CONTINGENCY # 198 TRIP BRANCH FROM BUS 270926 TO BUS 934720 CKT 1 / WILTON ; B 345 AD1-100 TAP 345 END
934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1	CONTINGENCY '934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1' OPEN BRANCH FROM BUS 934725 TO BUS 934730 CKT 1 END
EXT_P12:345:AMIL::AUSTIN:PANA:1	CONTINGENCY 'EXT_P12:345:AMIL::AUSTIN:PANA:1' / 10111 OPEN BRANCH FROM BUS 347945 TO BUS 347955 CKT 1 / 347945 7PANA 345 347955 7AUSTIN 345 1 END
COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	CONTINGENCY 'COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A' / CONTINGENCY # 184 TRIP BRANCH FROM BUS 958020 TO BUS 270728 CKT 1 / AF2-096 TAP 345 E FRANKFO; B 345 TRIP BRANCH FROM BUS 270728 TO BUS 270766 CKT 1 / E FRANKFO; B 345 GOODINGS ;3B 345 TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRANKFO; B 345 CRETE EC ;BP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAIDWOOD; R 345 E FRANKFO; R 345 END
COMED_P1-2_345-L2105___-S-D	CONTINGENCY 'COMED_P1-2_345-L2105___-S-D' / CONTINGENCY # 441 TRIP BRANCH FROM BUS 944220 TO BUS 347945 CKT 1 / AF1-090 TAP ; R 345 7PANA 345 END
Base Case	

Contingency Name	Contingency Definition
COMED_P1-2_345-L1223_TR-S	CONTINGENCY 'COMED_P1-2_345-L1223_TR-S' / CONTINGENCY # 264 TRIP BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / DRESDEN ; R 345 ELECT JCT;4R 345 TRIP BRANCH FROM BUS 275180 TO BUS 270717 CKT 1 / DRESDEN ;3M 138 DRESDEN ; R 345 TRIP BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / DRESDEN ;3M 138 DRESDEN ; B 138 TRIP BRANCH FROM BUS 275180 TO BUS 275280 CKT 1 / DRESDEN ;3M 138 DRESDEN ;3C 34.5 END
COMED_P1-2_345-L8014__R-S-B	CONTINGENCY 'COMED_P1-2_345-L8014__R-S-B' / CONTINGENCY # 545 TRIP BRANCH FROM BUS 964580 TO BUS 935000 CKT 1 / AG1-321 TAP TAP 345 AD1-133 TAP 345 END
COMED_P1-2_345-L8014__R-S-C	CONTINGENCY 'COMED_P1-2_345-L8014__R-S-C' / CONTINGENCY # 545 TRIP BRANCH FROM BUS 935000 TO BUS 270717 CKT 1 / AD1-133 TAP 345 DRESDEN ; R 345 END
COMED_P1-2_345-L2106___-S	CONTINGENCY 'COMED_P1-2_345-L2106___-S' / CONTINGENCY # 442 TRIP BRANCH FROM BUS 270796 TO BUS 347955 CKT 1 / KINCAID ; B 345 AUSTIN 345 END

12 Short Circuit Analysis - Primary POI

No breakers were identified as over-dutied as part of this analysis.

13 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AG1-321 was evaluated as a 200.0 MW (Capacity 126.4 MW) injection tapping the Loretto to Pontiac Midpoint 345 kV line in the ComEd area. Project AG1-321 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-321 was studied with a commercial probability of 53%. Potential network impacts were as follows:

13.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
175494340	964580	AG1-321 TAP	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	99.45	104.18	DC	72.3

13.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

13.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168459495	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	102.07	106.8	DC	72.27
174257645	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	187.73	195.24	DC	114.63
174443335	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	115.79	115.96	DC	16.77
174443203	270926	WILTON ; B	345.0	CE	275232	WILTON ;3M	345.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.76	153.8	DC	32.35
174443196	270927	WILTON ; R	345.0	CE	275233	WILTON ;4M	345.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	157.0	157.05	DC	33.0
174443202	275232	WILTON ;3M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.76	153.8	DC	32.35
174443197	275233	WILTON ;4M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	157.0	157.05	DC	33.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
162154964	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	tower	2221.0	116.58	118.28	DC	46.52
169685046	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	single	1528.0	107.97	112.69	DC	72.27
174257641	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	205.47	212.97	DC	114.63
174257651	964580	AG1-321 TAP	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	175.55	183.05	DC	114.68

13.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168459492	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	180.13	187.61	DC	114.35
168459494	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	Base Case	operation	1364.0	136.53	143.06	DC	89.12
168459833	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	115.41	115.57	DC	16.81
175494377	270853	PONTIAC ; R	345.0	CE	935000	AD1-133 TAP	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	156.62	162.24	DC	93.15
175494378	270853	PONTIAC ; R	345.0	CE	935000	AD1-133 TAP	345.0	CE	1	Base Case	operation	1334.0	113.17	116.59	DC	45.65
169685134	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1	operation	1528.0	155.55	160.38	DC	73.87
169685136	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	Base Case	operation	1364.0	139.51	142.61	DC	41.93
168459841	934730	AD1-100 TAP	345.0	CE	270670	BRAIDWOOD; B	345.0	CE	1	COMED_P1-2_345-L11212_B-S-A	operation	1528.0	99.18	102.84	DC	55.9

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
169685079	935000	AD1-133 TAP	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	168.86	174.49	DC	93.15
169685081	935000	AD1-133 TAP	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	Base Case	operation	1334.0	125.45	128.87	DC	45.65
169685043	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	197.86	205.35	DC	114.35
169685045	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	Base Case	operation	1364.0	153.86	160.39	DC	89.12
169685347	944220	AF1-090 TAP	345.0	CE	347945	7PANA	345.0	AMIL	1	COMED_P1-2_345-L2106___-S	operation	1201.0	111.92	112.59	DC	17.87
175494338	964580	AG1-321 TAP	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	167.95	175.44	DC	114.4
175494339	964580	AG1-321 TAP	345.0	CE	270704	LORETTO ; B	345.0	CE	1	Base Case	operation	1364.0	124.89	131.43	DC	89.16

13.5 Flow Gate Details - Secondary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

13.5.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174257651	964580	AG1-321 TAP	CE	270704	LORETTO ; B	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	175.55	183.05	DC	114.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.1264	50/50	18.1264
274651	KINCAID ;2U	18.1211	50/50	18.1211
274853	TWINGROVE;U1	2.2461	50/50	2.2461
274854	TWINGROVE;U2	2.3106	50/50	2.3106
274880	RADFORD R;1U	2.0829	50/50	2.0829
274889	BRIGHTSTK;1U	1.8033	50/50	1.8033
276615	W2-048 GEN	12.2215	50/50	12.2215
276621	X2-022 GEN	45.8430	50/50	45.8430
290261	S-027 E	64.7999	50/50	64.7999
290265	S-028 E	64.7999	50/50	64.7999
293798	W4-005 E	88.4107	50/50	88.4107
917502	Z2-087 E	76.4921	50/50	76.4921
924041	AB2-047 C O1	2.2544	50/50	2.2544
924042	AB2-047 E O1	95.6152	50/50	95.6152
924261	AB2-070 C O1	7.1526	50/50	7.1526
924262	AB2-070 E O1	43.3200	50/50	43.3200
925771	AC1-053 C	6.9256	50/50	6.9256
925772	AC1-053 E	46.3484	50/50	46.3484
935001	AD1-133 C O1	90.2016	50/50	90.2016
935002	AD1-133 E O1	60.1344	50/50	60.1344
935141	AD1-148	12.1422	50/50	12.1422
936771	AD2-100 C	24.9089	50/50	24.9089
936772	AD2-100 E	16.6060	50/50	16.6060
936971	AD2-131 C	1.6408	50/50	1.6408
936972	AD2-131 E	8.2437	50/50	8.2437
937211	AD2-159 C	9.5542	50/50	9.5542
937212	AD2-159 E	44.7308	50/50	44.7308
939741	AE1-205 C O1	36.9272	50/50	36.9272
939742	AE1-205 E O1	50.9948	50/50	50.9948
941731	AE2-173 O1	21.9805	50/50	21.9805
942111	AE2-223 C	8.5724	50/50	8.5724
942112	AE2-223 E	57.3691	50/50	57.3691
942481	AE2-261 C	36.6389	50/50	36.6389
942482	AE2-261 E	24.4259	50/50	24.4259
944221	AF1-090 C O1	6.2846	50/50	6.2846
944222	AF1-090 E O1	29.4234	50/50	29.4234
945871	AF1-252 O1	11.1409	50/50	11.1409
945881	AF1-253	7.7129	50/50	7.7129
951741	J474 C	5.3464	PJM External (MISO)	5.3464
951742	J474 E	28.9256	PJM External (MISO)	28.9256
952651	J756 C	4.8438	PJM External (MISO)	4.8438

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
952652	J756 E	26.2064	PJM External (MISO)	26.2064
952871	J757 C	5.9747	PJM External (MISO)	5.9747
952872	J757 E	32.3245	PJM External (MISO)	32.3245
953401	J811	11.0920	PJM External (MISO)	11.0920
953651	J815	39.3050	PJM External (MISO)	39.3050
953741	J826 C	3.1599	PJM External (MISO)	3.1599
953742	J826 E	17.0961	PJM External (MISO)	17.0961
953851	J845 C	3.1107	PJM External (MISO)	3.1107
953852	J845 E	16.8297	PJM External (MISO)	16.8297
953881	J848 C	6.0115	PJM External (MISO)	6.0115
953882	J848 E	32.5235	PJM External (MISO)	32.5235
954411	J912	14.8130	PJM External (MISO)	14.8130
954721	J750 C	3.9815	PJM External (MISO)	3.9815
954722	J750 E	21.5410	PJM External (MISO)	21.5410
954821	J955	187.1064	PJM External (MISO)	187.1064
955031	J979 C	4.8092	PJM External (MISO)	4.8092
955032	J979 E	26.0188	PJM External (MISO)	26.0188
955401	J1022 C	4.7399	PJM External (MISO)	4.7399
955402	J1022 E	25.6441	PJM External (MISO)	25.6441
955711	J1055 C	2.3738	PJM External (MISO)	2.3738
955712	J1055 E	12.8427	PJM External (MISO)	12.8427
956151	J1102	12.1114	PJM External (MISO)	12.1114
956281	J1115 C	7.6640	PJM External (MISO)	7.6640
956282	J1115 E	41.4640	PJM External (MISO)	41.4640
956451	J1139	17.9130	PJM External (MISO)	17.9130
957381	AF2-032 C	2.8103	50/50	2.8103
957382	AF2-032 E	1.3225	50/50	1.3225
958013	AF2-095 BAT	4.5280	50/50	4.5280
958023	AF2-096 BAT	9.0353	50/50	9.0353
959341	AF2-225 C	27.6954	50/50	27.6954
959342	AF2-225 E	38.2461	50/50	38.2461
959611	AF2-252 C	8.1818	50/50	8.1818
959612	AF2-252 E	12.2727	50/50	12.2727
960141	AF2-305	2.5309	50/50	2.5309
960261	AF2-317	3.8855	50/50	3.8855
960603	AF2-351 BAT	2.2640	50/50	2.2640
960611	AF2-352 C	8.1818	50/50	8.1818
960612	AF2-352 E	12.2727	50/50	12.2727
963831	AG1-236 C	6.9256	50/50	6.9256
963832	AG1-236 E	46.3484	50/50	46.3484
964581	AG1-321 C O2	72.4765	50/50	72.4765
964582	AG1-321 E O2	42.2015	50/50	42.2015
965091	AG1-374 C	73.6362	50/50	73.6362
965092	AG1-374 E	49.0908	50/50	49.0908
965331	AG1-398	2.0165	50/50	2.0165
965341	AG1-399 C O2	15.4345	50/50	15.4345
965342	AG1-399 E O2	72.2615	50/50	72.2615
965351	AG1-400 O2	43.8480	50/50	43.8480
965361	AG1-401 C O2	15.4345	50/50	15.4345
965362	AG1-401 E O2	72.2615	50/50	72.2615
965371	AG1-402 O2	43.8480	50/50	43.8480
965381	AG1-403 C O2	10.2897	50/50	10.2897

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965382	AG1-403 E O2	48.1743	50/50	48.1743
965391	AG1-404 O2	29.2320	50/50	29.2320
965911	AG1-460 C	2.4508	50/50	2.4508
965912	AG1-460 E	3.6761	50/50	3.6761
LGEE	LGEE	1.6286	Confirmed LTF	1.6286
CPLE	CPLE	1.2401	Confirmed LTF	1.2401
G-007A	G-007A	1.9324	Confirmed LTF	1.9324
VFT	VFT	5.1923	Confirmed LTF	5.1923
CBM-W2	CBM-W2	49.7459	Confirmed LTF	49.7459
TVA	TVA	5.4978	Confirmed LTF	5.4978
SIGE	SIGE	0.3583	Confirmed LTF	0.3583
CBM-S2	CBM-S2	22.0597	Confirmed LTF	22.0597
CBM-S1	CBM-S1	1.3999	Confirmed LTF	1.3999
CBM-N	CBM-N	0.9612	Confirmed LTF	0.9612
MEC	MEC	3.2940	Confirmed LTF	3.2940
LAGN	LAGN	7.3430	Confirmed LTF	7.3430

13.5.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174257645	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	187.73	195.24	DC	114.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.1054	50/50	18.1054
274651	KINCAID ;2U	18.1001	50/50	18.1001
274853	TWINGROVE;U1	2.2447	50/50	2.2447
274854	TWINGROVE;U2	2.3092	50/50	2.3092
274863	CAYUGA RI;1U	2.1614	50/50	2.1614
274864	CAYUGA RI;2U	2.1614	50/50	2.1614
274880	RADFORD R;1U	2.0812	50/50	2.0812
274889	BRIGHTSTK;1U	1.8023	50/50	1.8023
276615	W2-048 GEN	12.2102	50/50	12.2102
276621	X2-022 GEN	45.8004	50/50	45.8004
290261	S-027 E	64.7618	50/50	64.7618
290265	S-028 E	64.7618	50/50	64.7618
293777	CAYUG;1U E	73.0668	50/50	73.0668
293778	CAYUG;2U E	73.0668	50/50	73.0668
293798	W4-005 E	88.3374	50/50	88.3374
917502	Z2-087 E	76.4504	50/50	76.4504
924041	AB2-047 C O1	2.2531	50/50	2.2531
924042	AB2-047 E O1	95.5630	50/50	95.5630
924261	AB2-070 C O1	7.1464	50/50	7.1464
924262	AB2-070 E O1	43.2822	50/50	43.2822
925771	AC1-053 C	6.9194	50/50	6.9194
925772	AC1-053 E	46.3066	50/50	46.3066
935001	AD1-133 C O1	90.1584	50/50	90.1584
935002	AD1-133 E O1	60.1056	50/50	60.1056
935141	AD1-148	12.1309	50/50	12.1309
936771	AD2-100 C	24.8800	50/50	24.8800
936772	AD2-100 E	16.5866	50/50	16.5866
936971	AD2-131 C	1.6389	50/50	1.6389
936972	AD2-131 E	8.2341	50/50	8.2341
937211	AD2-159 C	9.5462	50/50	9.5462
937212	AD2-159 E	44.6938	50/50	44.6938
939741	AE1-205 C O1	36.9071	50/50	36.9071
939742	AE1-205 E O1	50.9669	50/50	50.9669
941731	AE2-173 O1	21.9685	50/50	21.9685
942111	AE2-223 C	8.5677	50/50	8.5677
942112	AE2-223 E	57.3378	50/50	57.3378
942481	AE2-261 C	36.5958	50/50	36.5958
942482	AE2-261 E	24.3972	50/50	24.3972
944221	AF1-090 C O1	6.2762	50/50	6.2762
944222	AF1-090 E O1	29.3838	50/50	29.3838
945871	AF1-252 O1	11.1259	50/50	11.1259

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945881	AF1-253	7.7026	50/50	7.7026
951741	J474 C	5.3464	PJM External (MISO)	5.3464
951742	J474 E	28.9256	PJM External (MISO)	28.9256
952651	J756 C	4.8438	PJM External (MISO)	4.8438
952652	J756 E	26.2064	PJM External (MISO)	26.2064
952871	J757 C	5.9747	PJM External (MISO)	5.9747
952872	J757 E	32.3245	PJM External (MISO)	32.3245
953401	J811	11.0920	PJM External (MISO)	11.0920
953651	J815	39.3050	PJM External (MISO)	39.3050
953741	J826 C	3.1599	PJM External (MISO)	3.1599
953742	J826 E	17.0961	PJM External (MISO)	17.0961
953851	J845 C	3.1107	PJM External (MISO)	3.1107
953852	J845 E	16.8297	PJM External (MISO)	16.8297
953881	J848 C	6.0115	PJM External (MISO)	6.0115
953882	J848 E	32.5235	PJM External (MISO)	32.5235
954411	J912	14.8130	PJM External (MISO)	14.8130
954721	J750 C	3.9815	PJM External (MISO)	3.9815
954722	J750 E	21.5410	PJM External (MISO)	21.5410
954821	J955	187.1064	PJM External (MISO)	187.1064
955031	J979 C	4.8092	PJM External (MISO)	4.8092
955032	J979 E	26.0188	PJM External (MISO)	26.0188
955401	J1022 C	4.7399	PJM External (MISO)	4.7399
955402	J1022 E	25.6441	PJM External (MISO)	25.6441
955711	J1055 C	2.3738	PJM External (MISO)	2.3738
955712	J1055 E	12.8427	PJM External (MISO)	12.8427
956151	J1102	12.1114	PJM External (MISO)	12.1114
956281	J1115 C	7.6640	PJM External (MISO)	7.6640
956282	J1115 E	41.4640	PJM External (MISO)	41.4640
956451	J1139	17.9130	PJM External (MISO)	17.9130
957381	AF2-032 C	2.8070	50/50	2.8070
957382	AF2-032 E	1.3210	50/50	1.3210
958013	AF2-095 BAT	4.5372	50/50	4.5372
958023	AF2-096 BAT	9.0533	50/50	9.0533
959341	AF2-225 C	27.6803	50/50	27.6803
959342	AF2-225 E	38.2252	50/50	38.2252
959611	AF2-252 C	8.1770	50/50	8.1770
959612	AF2-252 E	12.2655	50/50	12.2655
960141	AF2-305	2.5287	50/50	2.5287
960261	AF2-317	3.8819	50/50	3.8819
960603	AF2-351 BAT	2.2686	50/50	2.2686
960611	AF2-352 C	8.1770	50/50	8.1770
960612	AF2-352 E	12.2655	50/50	12.2655
963831	AG1-236 C	6.9194	50/50	6.9194
963832	AG1-236 E	46.3066	50/50	46.3066
964581	AG1-321 C O2	72.4474	50/50	72.4474
964582	AG1-321 E O2	42.1846	50/50	42.1846
965091	AG1-374 C	73.5930	50/50	73.5930
965092	AG1-374 E	49.0620	50/50	49.0620
965331	AG1-398	2.0147	50/50	2.0147
965341	AG1-399 C O2	15.4218	50/50	15.4218
965342	AG1-399 E O2	72.2022	50/50	72.2022
965351	AG1-400 O2	43.8120	50/50	43.8120

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965361	AG1-401 C O2	15.4218	50/50	15.4218
965362	AG1-401 E O2	72.2022	50/50	72.2022
965371	AG1-402 O2	43.8120	50/50	43.8120
965381	AG1-403 C O2	10.2812	50/50	10.2812
965382	AG1-403 E O2	48.1348	50/50	48.1348
965391	AG1-404 O2	29.2080	50/50	29.2080
965911	AG1-460 C	2.4479	50/50	2.4479
965912	AG1-460 E	3.6718	50/50	3.6718
LGEE	LGEE	1.6135	Confirmed LTF	1.6135
CPLE	CPLE	1.2237	Confirmed LTF	1.2237
G-007A	G-007A	1.8748	Confirmed LTF	1.8748
VFT	VFT	5.0374	Confirmed LTF	5.0374
CBM-W2	CBM-W2	49.5309	Confirmed LTF	49.5309
TVA	TVA	5.4642	Confirmed LTF	5.4642
SIGE	SIGE	0.3583	Confirmed LTF	0.3583
CBM-S2	CBM-S2	21.8092	Confirmed LTF	21.8092
CBM-S1	CBM-S1	1.3908	Confirmed LTF	1.3908
CBM-N	CBM-N	0.9324	Confirmed LTF	0.9324
MEC	MEC	3.2559	Confirmed LTF	3.2559
LAGN	LAGN	7.3010	Confirmed LTF	7.3010

13.5.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174443335	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	115.79	115.96	DC	16.77

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	39.1004	Adder	46.0
274659	DRESDEN ;3U	243.8267	50/50	243.8267
274677	POWERTON ;5U	17.1201	50/50	17.1201
274678	POWERTON ;6U	17.1844	50/50	17.1844
274731	ELWOOD EC;2P	2.4120	50/50	2.4120
274733	ELWOOD EC;3P	2.4120	50/50	2.4120
274735	ELWOOD EC;4P	2.4120	50/50	2.4120
276615	W2-048 GEN	3.1605	Adder	3.72
276621	X2-022 GEN	11.8551	Adder	13.95
290021	O50 E	13.8162	Adder	16.25
290261	S-027 E	12.5309	Adder	14.74
290265	S-028 E	12.5309	Adder	14.74
293644	O22 E1	4.7935	Adder	5.64
293645	O22 E2	9.3050	Adder	10.95
293771	O-035 E	3.7292	Adder	4.39
293777	CAYUG;1U E	7.4960	Adder	8.82
293778	CAYUG;2U E	7.4960	Adder	8.82
293798	W4-005 E	20.3602	Adder	23.95
294401	BSHIL;1U E	5.2292	Adder	6.15
294410	BSHIL;2U E	5.2292	Adder	6.15
916211	Z1-072 E	2.8221	Adder	3.32
917502	Z2-087 E	14.4454	Adder	16.99
918052	AA1-018 E OP	6.9861	Adder	8.22
924042	AB2-047 E O1	18.0567	Adder	21.24
924261	AB2-070 C O1	1.7304	Adder	2.04
924262	AB2-070 E O1	10.4804	Adder	12.33
925581	AC1-033 C	0.8562	Adder	1.01
925582	AC1-033 E	5.7318	Adder	6.74
925771	AC1-053 C	1.7099	Adder	2.01
925772	AC1-053 E	11.4430	Adder	13.46
926821	AC1-168 C O1	0.5549	Adder	0.65
926822	AC1-168 E O1	3.7237	Adder	4.38
926841	AC1-171 C O1	1.1991	50/50	1.1991
926842	AC1-171 E O1	8.0097	50/50	8.0097
927091	AC1-204 GEN1	8.9718	50/50	8.9718
927202	AC1-214 E O1	3.8048	Adder	4.48
930761	AB1-122 CT1	126.6035	50/50	126.6035
930771	AB1-122 CT2	25.7571	Adder	30.3
934051	AD1-031 C O1	1.7380	Adder	2.04
934052	AD1-031 E O1	2.8357	Adder	3.34
934101	AD1-039 1	12.4071	50/50	12.4071
934111	AD1-039 2	2.5242	Adder	2.97

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934871	AD1-116 C	0.4069	Adder	0.48
934872	AD1-116 E	0.6638	Adder	0.78
935001	AD1-133 C O1	35.0154	50/50	35.0154
935002	AD1-133 E O1	23.3436	50/50	23.3436
935141	AD1-148	3.1400	Adder	3.69
936291	AD2-038 C O1	1.4298	Adder	1.68
936292	AD2-038 E O1	9.5684	Adder	11.26
936771	AD2-100 C	7.1361	Adder	8.4
936772	AD2-100 E	4.7574	Adder	5.6
936971	AD2-131 C	0.4701	Adder	0.55
936972	AD2-131 E	2.3617	Adder	2.78
937211	AD2-159 C	2.2002	Adder	2.59
937212	AD2-159 E	10.3011	Adder	12.12
937401	AD2-194 1	5.1979	Adder	6.12
937411	AD2-194 2	5.1342	Adder	6.04
938511	AE1-070 1	6.0326	Adder	7.1
938521	AE1-070 2	5.5878	Adder	6.57
938851	AE1-113 C O1	5.6992	Adder	6.7
938852	AE1-113 E O1	20.2062	Adder	23.77
939321	AE1-163 C O1	3.5927	Adder	4.23
939322	AE1-163 E O1	22.0696	Adder	25.96
939401	AE1-172 C O1	2.1291	Adder	2.5
939402	AE1-172 E O1	9.9894	Adder	11.75
939741	AE1-205 C O1	6.9736	Adder	8.2
939742	AE1-205 E O1	9.6303	Adder	11.33
940101	AE1-252 C O1	4.2771	Adder	5.03
940102	AE1-252 E O1	2.8514	Adder	3.35
941731	AE2-173 O1	4.1510	Adder	4.88
942111	AE2-223 C	1.6189	Adder	1.9
942112	AE2-223 E	10.8340	Adder	12.75
942421	AE2-255 C O1	2.1588	Adder	2.54
942422	AE2-255 E O1	6.4764	Adder	7.62
942481	AE2-261 C	10.4608	Adder	12.31
942482	AE2-261 E	6.9739	Adder	8.2
942651	AE2-281 C O1	0.5132	Adder	0.6
942652	AE2-281 E O1	3.1528	Adder	3.71
944221	AF1-090 C O1	1.8215	Adder	2.14
944222	AF1-090 E O1	8.5281	Adder	10.03
945871	AF1-252 O1	3.2291	Adder	3.8
945881	AF1-253	2.2355	Adder	2.63
946541	AF1-318 C O1	3.1530	Adder	3.71
946542	AF1-318 E O1	14.7615	Adder	17.37
951631	J456 C	1.6006	PJM External (MISO)	1.6006
951632	J456 E	8.6594	PJM External (MISO)	8.6594
952651	J756 C	2.2484	PJM External (MISO)	2.2484
952652	J756 E	12.1645	PJM External (MISO)	12.1645
953951	J859	10.4073	PJM External (MISO)	10.4073
954702	J844 E	8.9319	PJM External (MISO)	8.9319
954981	J974 C	5.0926	PJM External (MISO)	5.0926
954982	J974 E	27.5524	PJM External (MISO)	27.5524
955711	J1055 C	2.0004	PJM External (MISO)	2.0004
955712	J1055 E	10.8228	PJM External (MISO)	10.8228

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
956151	J1102	4.7446	PJM External (MISO)	4.7446
957381	AF2-032 C	0.8013	Adder	0.94
957382	AF2-032 E	0.3771	Adder	0.44
957751	AF2-069 C	0.1386	Adder	0.16
957752	AF2-069 E	0.4473	Adder	0.53
957761	AF2-070 C	0.1953	Adder	0.23
957762	AF2-070 E	0.9481	Adder	1.12
958341	AF2-128 C O1	0.8261	Adder	0.97
958342	AF2-128 E O1	3.8677	Adder	4.55
958481	AF2-142 C	4.8180	Adder	5.67
958482	AF2-142 E	3.2120	Adder	3.78
958491	AF2-143 C	6.5989	Adder	7.76
958492	AF2-143 E	4.3993	Adder	5.18
959341	AF2-225 C	5.2302	Adder	6.15
959342	AF2-225 E	7.2227	Adder	8.5
959351	AF2-226 C	1.1749	Adder	1.38
959352	AF2-226 E	1.7623	Adder	2.07
959611	AF2-252 C	1.5822	Adder	1.86
959612	AF2-252 E	2.3733	Adder	2.79
960141	AF2-305	0.6123	Adder	0.72
960261	AF2-317	1.0048	Adder	1.18
960281	AF2-319 C	1.1749	Adder	1.38
960282	AF2-319 E	1.7623	Adder	2.07
960611	AF2-352 C	1.5822	Adder	1.86
960612	AF2-352 E	2.3733	Adder	2.79
961651	AG1-005 C O1	4.7289	Adder	10.5
961652	AG1-005 E O1	3.1526	Adder	7.0
962721	AG1-121 C O2	1.7328	Adder	3.85
962722	AG1-121 E O2	8.1063	Adder	17.99
963831	AG1-236 C	0.9062	Adder	2.01
963832	AG1-236 E	6.0648	Adder	13.46
964581	AG1-321 C O2	4.7747	Adder	10.6
964582	AG1-321 E O2	2.7802	Adder	6.17
965091	AG1-374 C	7.5470	Adder	16.75
965092	AG1-374 E	5.0314	Adder	11.17
965141	AG1-379 C	6.2791	Adder	13.94
965142	AG1-379 E	2.8741	Adder	6.38
965331	AG1-398	0.2586	Adder	0.57
965341	AG1-399 C O2	1.9060	Adder	4.23
965342	AG1-399 E O2	8.9236	Adder	19.81
965351	AG1-400 O2	5.4148	Adder	12.02
965361	AG1-401 C O2	1.9060	Adder	4.23
965362	AG1-401 E O2	8.9236	Adder	19.81
965371	AG1-402 O2	5.4148	Adder	12.02
965381	AG1-403 C O2	1.2707	Adder	2.82
965382	AG1-403 E O2	5.9490	Adder	13.21
965391	AG1-404 O2	3.6099	Adder	8.01
965671	AG1-435 C O2	1.1752	Adder	2.61
965672	AG1-435 E O2	5.5021	Adder	12.21
965911	AG1-460 C	0.3709	Adder	0.82
965912	AG1-460 E	0.5563	Adder	1.23
990901	L-005 E	8.9822	Adder	10.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
WEC	WEC	0.0397	Confirmed LTF	0.0397
LGEE	LGEE	0.2413	Confirmed LTF	0.2413
CPLE	CPLE	0.1891	Confirmed LTF	0.1891
CBM-W2	CBM-W2	22.3821	Confirmed LTF	22.3821
NY	NY	0.1908	Confirmed LTF	0.1908
TVA	TVA	2.2386	Confirmed LTF	2.2386
O-066	O-066	2.1671	Confirmed LTF	2.1671
SIGE	SIGE	0.1458	Confirmed LTF	0.1458
CBM-S2	CBM-S2	4.8233	Confirmed LTF	4.8233
CBM-S1	CBM-S1	0.5236	Confirmed LTF	0.5236
G-007	G-007	0.3370	Confirmed LTF	0.3370
MEC	MEC	6.3528	Confirmed LTF	6.3528
LAGN	LAGN	3.7835	Confirmed LTF	3.7835
CBM-W1	CBM-W1	15.6323	Confirmed LTF	15.6323

13.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174443203	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.76	153.8	DC	32.35

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	120.6764	Adder	141.97
274659	DRESDEN ;3U	116.6196	Adder	137.2
274771	LINCOLN ;2U	3.4563	50/50	3.4563
274772	LINCOLN ;3U	3.4563	50/50	3.4563
274773	LINCOLN ;4U	3.4563	50/50	3.4563
274774	LINCOLN ;5U	3.4563	50/50	3.4563
274775	LINCOLN ;6U	3.4563	50/50	3.4563
274776	LINCOLN ;7U	3.4563	50/50	3.4563
274777	LINCOLN ;8U	3.4563	50/50	3.4563
275149	KELLYCK ;1E	20.0491	Adder	23.59
276167	Z1-106 E2	1.3104	Adder	1.54
276168	Z1-106 E1	1.3104	Adder	1.54
276169	Z1-107 E	2.6814	Adder	3.15
276170	Z1-108 E	2.5779	Adder	3.03
276591	L-013 2	3.8000	Adder	4.47
290021	O50 E	20.6394	Adder	24.28
290108	LEEDK;1U E	25.3691	Adder	29.85
293061	N-015 E	16.5373	Adder	19.46
293644	O22 E1	10.8389	Adder	12.75
293645	O22 E2	21.0402	Adder	24.75
293777	CAYUG;1U E	17.1901	Adder	20.22
293778	CAYUG;2U E	17.1901	Adder	20.22
293799	PILOT HIL;1E	20.0491	Adder	23.59
294392	P-010 E	21.0023	Adder	24.71
910542	X3-005 E	0.7602	Adder	0.89
915011	Y3-013 1	3.8706	Adder	4.55
915021	Y3-013 2	3.8706	Adder	4.55
915031	Y3-013 3	3.8706	Adder	4.55
918052	AA1-018 E OP	17.3764	Adder	20.44
920272	AA2-123 E	2.5338	Adder	2.98
926331	AC1-110 1	1.9713	Adder	2.32
926341	AC1-110 2	1.9713	Adder	2.32
927451	AC1-142A 1	4.3411	Adder	5.11
927461	AC1-142A 2	4.3411	Adder	5.11
930501	AB1-091 CT	44.4493	Adder	52.29
930502	AB1-091 ST	35.3389	Adder	41.58
930761	AB1-122 CT1	47.2136	Adder	55.55
930771	AB1-122 CT2	76.7924	Adder	90.34
933411	AC2-154 C	2.7210	Adder	3.2
933412	AC2-154 E	4.4394	Adder	5.22
933431	AC2-156 C O1	0.9941	Adder	1.17
933432	AC2-156 E O1	1.6219	Adder	1.91

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	0.9618	Adder	1.13
933932	AD1-016 E	1.5693	Adder	1.85
934101	AD1-039 1	7.1243	Adder	8.38
934111	AD1-039 2	7.5257	Adder	8.85
934721	AD1-100 C	24.9926	Adder	29.4
934722	AD1-100 E	116.6319	Adder	137.21
934871	AD1-116 C	1.0120	Adder	1.19
934872	AD1-116 E	1.6511	Adder	1.94
935001	AD1-133 C O1	23.0709	Adder	27.14
935002	AD1-133 E O1	15.3806	Adder	18.09
936291	AD2-038 C O1	2.5509	Adder	3.0
936292	AD2-038 E O1	17.0714	Adder	20.08
936371	AD2-047 C O1	4.8691	Adder	5.73
936372	AD2-047 E O1	23.7725	Adder	27.97
936461	AD2-060	2.8642	Adder	3.37
936511	AD2-066 C O1	8.8657	Adder	10.43
936512	AD2-066 E O1	5.9105	Adder	6.95
937401	AD2-194 1	8.0820	Adder	9.51
937411	AD2-194 2	8.0830	Adder	9.51
938511	AE1-070 1	9.4975	Adder	11.17
938521	AE1-070 2	8.6881	Adder	10.22
938851	AE1-113 C O1	8.5137	Adder	10.02
938852	AE1-113 E O1	30.1851	Adder	35.51
939321	AE1-163 C O1	6.4099	Adder	7.54
939322	AE1-163 E O1	39.3753	Adder	46.32
939351	AE1-166 C O1	6.5352	Adder	14.51
939352	AE1-166 E O1	6.0324	Adder	13.39
939401	AE1-172 C O1	6.8559	Adder	8.07
939402	AE1-172 E O1	32.1677	Adder	37.84
940101	AE1-252 C O1	13.7731	Adder	16.2
940102	AE1-252 E O1	9.1820	Adder	10.8
940752	AE2-062 E	0.0716	Adder	0.16
941131	AE2-107 C	6.8497	Adder	8.06
941132	AE2-107 E	4.5664	Adder	5.37
941551	AE2-152 C O1	7.5406	Adder	16.74
941552	AE2-152 E O1	5.0270	Adder	11.16
941561	AE2-153 C O1	5.1525	Adder	6.06
941562	AE2-153 E O1	24.1232	Adder	28.38
942421	AE2-255 C O1	3.2249	Adder	3.79
942422	AE2-255 E O1	9.6747	Adder	11.38
942651	AE2-281 C O1	0.9157	Adder	1.08
942652	AE2-281 E O1	5.6250	Adder	6.62
942991	AE2-321 C	8.4850	Adder	9.98
942992	AE2-321 E	4.1792	Adder	4.92
943121	AE2-341 C	13.2635	Adder	15.6
943122	AE2-341 E	6.5131	Adder	7.66
943591	AF1-030 C O1	8.8203	Adder	10.38
943592	AF1-030 E O1	4.3640	Adder	5.13
943801	AF1-048 C	3.9664	Adder	4.67
943802	AF1-048 E	2.6443	Adder	3.11
944041	AF1-072	2.2326	Adder	2.63
944911	AF1-156 C	13.1741	Adder	15.5

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944912	AF1-156 E	8.7827	Adder	10.33
945351	AF1-200 FTIR	323.5650	Merchant Transmission	323.5650
946661	AF1-330 C	2.0778	Adder	2.44
946662	AF1-330 E	0.4561	Adder	0.54
957331	AF2-027 C	2.5804	Adder	3.04
957332	AF2-027 E	3.8706	Adder	4.55
957401	AF2-034 C	1.4518	Adder	1.71
957402	AF2-034 E	1.2367	Adder	1.45
958011	AF2-095 C O1	19.4774	Adder	22.91
958012	AF2-095 E O1	9.1659	Adder	10.78
958021	AF2-096 C	37.0643	Adder	43.61
958022	AF2-096 E	17.4420	Adder	20.52
958481	AF2-142 C	11.9837	Adder	14.1
958482	AF2-142 E	7.9892	Adder	9.4
958491	AF2-143 C	11.7733	Adder	13.85
958492	AF2-143 E	7.8489	Adder	9.23
959351	AF2-226 C	2.6566	Adder	3.13
959352	AF2-226 E	3.9849	Adder	4.69
960281	AF2-319 C	2.6566	Adder	3.13
960282	AF2-319 E	3.9849	Adder	4.69
960381	AF2-329	6.8822	Adder	8.1
960591	AF2-350 C O1	8.5925	Adder	10.11
960592	AF2-350 E O1	5.7283	Adder	6.74
960601	AF2-351 C O1	1.1457	Adder	1.35
960602	AF2-351 E O1	1.7185	Adder	2.02
960731	AF2-364 C O1	6.3699	Adder	7.49
960732	AF2-364 E O1	4.2466	Adder	5.0
960751	AF2-366 C	7.2468	Adder	8.53
960752	AF2-366 E	4.8312	Adder	5.68
961501	AF2-441 C O1	10.4156	Adder	12.25
961502	AF2-441 E O1	15.6233	Adder	18.38
962691	AG1-118 C O2	12.2316	Adder	27.15
962692	AG1-118 E O2	8.1544	Adder	18.1
962701	AG1-119 C O2	12.4327	Adder	27.6
962702	AG1-119 E O2	8.2885	Adder	18.4
962711	AG1-120 C O2	4.9151	Adder	10.91
962712	AG1-120 E O2	3.2767	Adder	7.27
962781	AG1-127 C O2	4.2536	Adder	9.44
962782	AG1-127 E O2	2.8357	Adder	6.29
964361	AG1-298 O2	35.1525	Adder	78.03
964581	AG1-321 C O2	9.2100	Adder	20.44
964582	AG1-321 E O2	5.3628	Adder	11.9
965141	AG1-379 C	9.3801	Adder	20.82
965142	AG1-379 E	4.2935	Adder	9.53
966081	AG1-477 C	1.1136	Adder	2.47
966082	AG1-477 E	0.2802	Adder	0.62
966091	AG1-478 C	1.1541	Adder	2.56
966092	AG1-478 E	0.2903	Adder	0.64
966101	**AG1-479 C (Withdrawn : 12/03/2020)**	**1.1136**	**Adder**	**2.47**
966102	**AG1-479 E (Withdrawn : 12/03/2020)**	**0.2802**	**Adder**	**0.62**
966441	AG1-513 C	0.2796	Adder	0.62

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966442	AG1-513 E	0.4194	Adder	0.93
966651	AG1-535 O2	5.8990	Adder	13.09
WEC	WEC	4.5675	Confirmed LTF	4.5675
CBM-W2	CBM-W2	27.9642	Confirmed LTF	27.9642
NY	NY	1.3466	Confirmed LTF	1.3466
TVA	TVA	2.0930	Confirmed LTF	2.0930
O-066	O-066	16.1251	Confirmed LTF	16.1251
SIGE	SIGE	0.2641	Confirmed LTF	0.2641
CBM-S1	CBM-S1	0.3861	Confirmed LTF	0.3861
G-007	G-007	2.5137	Confirmed LTF	2.5137
HAMLET	HAMLET	0.5989	Confirmed LTF	0.5989
MEC	MEC	16.4700	Confirmed LTF	16.4700
BLUEG	BLUEG	2.1457	Confirmed LTF	2.1457
TRIMBLE	TRIMBLE	0.7440	Confirmed LTF	0.7440
LAGN	LAGN	5.2552	Confirmed LTF	5.2552
CATAWBA	CATAWBA	0.3024	Confirmed LTF	0.3024
CBM-W1	CBM-W1	91.1580	Confirmed LTF	91.1580

13.5.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174443196	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	157.0	157.05	DC	33.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	123.2540	Adder	145.0
274659	DRESDEN ;3U	119.0934	Adder	140.11
274771	LINCOLN ;2U	3.5496	50/50	3.5496
274772	LINCOLN ;3U	3.5496	50/50	3.5496
274773	LINCOLN ;4U	3.5496	50/50	3.5496
274774	LINCOLN ;5U	3.5496	50/50	3.5496
274775	LINCOLN ;6U	3.5496	50/50	3.5496
274776	LINCOLN ;7U	3.5496	50/50	3.5496
274777	LINCOLN ;8U	3.5496	50/50	3.5496
275149	KELLYCK ;1E	20.4680	Adder	24.08
276167	Z1-106 E2	1.3383	Adder	1.57
276168	Z1-106 E1	1.3382	Adder	1.57
276169	Z1-107 E	2.7385	Adder	3.22
276170	Z1-108 E	2.6328	Adder	3.1
276591	L-013 2	3.8811	Adder	4.57
290021	O50 E	21.0800	Adder	24.8
290108	LEEDK;1U E	25.9080	Adder	30.48
293061	N-015 E	16.8820	Adder	19.86
293644	O22 E1	11.0678	Adder	13.02
293645	O22 E2	21.4845	Adder	25.28
293777	CAYUG;1U E	17.5328	Adder	20.63
293778	CAYUG;2U E	17.5328	Adder	20.63
293799	PILOT HIL;1E	20.4680	Adder	24.08
294392	P-010 E	21.4402	Adder	25.22
910542	X3-005 E	0.7767	Adder	0.91
915011	Y3-013 1	3.9533	Adder	4.65
915021	Y3-013 2	3.9533	Adder	4.65
915031	Y3-013 3	3.9533	Adder	4.65
918052	AA1-018 E OP	17.7547	Adder	20.89
920272	AA2-123 E	2.5879	Adder	3.04
926331	AC1-110 1	2.0132	Adder	2.37
926341	AC1-110 2	2.0132	Adder	2.37
927451	AC1-142A 1	4.4344	Adder	5.22
927461	AC1-142A 2	4.4344	Adder	5.22
930501	AB1-091 CT	45.3739	Adder	53.38
930502	AB1-091 ST	36.0740	Adder	42.44
930761	AB1-122 CT1	48.2135	Adder	56.72
930771	AB1-122 CT2	78.4346	Adder	92.28
933411	AC2-154 C	2.7778	Adder	3.27
933412	AC2-154 E	4.5322	Adder	5.33
933431	AC2-156 C O1	1.0152	Adder	1.19
933432	AC2-156 E O1	1.6564	Adder	1.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	0.9823	Adder	1.16
933932	AD1-016 E	1.6027	Adder	1.89
934101	AD1-039 1	7.2752	Adder	8.56
934111	AD1-039 2	7.6866	Adder	9.04
934721	AD1-100 C	25.4885	Adder	29.99
934722	AD1-100 E	118.9464	Adder	139.94
934871	AD1-116 C	1.0340	Adder	1.22
934872	AD1-116 E	1.6870	Adder	1.98
935001	AD1-133 C O1	23.5513	Adder	27.71
935002	AD1-133 E O1	15.7009	Adder	18.47
936291	AD2-038 C O1	2.6061	Adder	3.07
936292	AD2-038 E O1	17.4407	Adder	20.52
936371	AD2-047 C O1	4.9708	Adder	5.85
936372	AD2-047 E O1	24.2692	Adder	28.55
936461	AD2-060	2.9240	Adder	3.44
936511	AD2-066 C O1	9.0533	Adder	10.65
936512	AD2-066 E O1	6.0355	Adder	7.1
937401	AD2-194 1	8.2554	Adder	9.71
937411	AD2-194 2	8.2564	Adder	9.71
938511	AE1-070 1	9.7013	Adder	11.41
938521	AE1-070 2	8.8745	Adder	10.44
938851	AE1-113 C O1	8.6955	Adder	10.23
938852	AE1-113 E O1	30.8295	Adder	36.27
939321	AE1-163 C O1	6.5486	Adder	7.7
939322	AE1-163 E O1	40.2273	Adder	47.33
939351	AE1-166 C O1	6.6669	Adder	14.8
939352	AE1-166 E O1	6.1541	Adder	13.66
939401	AE1-172 C O1	6.9919	Adder	8.23
939402	AE1-172 E O1	32.8056	Adder	38.59
940101	AE1-252 C O1	14.0462	Adder	16.52
940102	AE1-252 E O1	9.3641	Adder	11.02
940752	AE2-062 E	0.0732	Adder	0.16
941131	AE2-107 C	6.9952	Adder	8.23
941132	AE2-107 E	4.6634	Adder	5.49
941551	AE2-152 C O1	7.6926	Adder	17.08
941552	AE2-152 E O1	5.1284	Adder	11.38
941561	AE2-153 C O1	5.2587	Adder	6.19
941562	AE2-153 E O1	24.6205	Adder	28.97
942421	AE2-255 C O1	3.2938	Adder	3.88
942422	AE2-255 E O1	9.8813	Adder	11.63
942651	AE2-281 C O1	0.9355	Adder	1.1
942652	AE2-281 E O1	5.7468	Adder	6.76
942991	AE2-321 C	8.6655	Adder	10.19
942992	AE2-321 E	4.2681	Adder	5.02
943121	AE2-341 C	13.5456	Adder	15.94
943122	AE2-341 E	6.6516	Adder	7.83
943591	AF1-030 C O1	9.0080	Adder	10.6
943592	AF1-030 E O1	4.4569	Adder	5.24
943801	AF1-048 C	4.0508	Adder	4.77
943802	AF1-048 E	2.7005	Adder	3.18
944041	AF1-072	2.2801	Adder	2.68
944911	AF1-156 C	13.4456	Adder	15.82

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944912	AF1-156 E	8.9638	Adder	10.55
945351	AF1-200 FTIR	330.4026	Merchant Transmission	330.4026
946661	AF1-330 C	2.1221	Adder	2.5
946662	AF1-330 E	0.4658	Adder	0.55
957331	AF2-027 C	2.6355	Adder	3.1
957332	AF2-027 E	3.9533	Adder	4.65
957401	AF2-034 C	1.4828	Adder	1.74
957402	AF2-034 E	1.2631	Adder	1.49
958011	AF2-095 C O1	19.8832	Adder	23.39
958012	AF2-095 E O1	9.3568	Adder	11.01
958021	AF2-096 C	37.8272	Adder	44.5
958022	AF2-096 E	17.8010	Adder	20.94
958481	AF2-142 C	12.2446	Adder	14.41
958482	AF2-142 E	8.1631	Adder	9.6
958491	AF2-143 C	12.0281	Adder	14.15
958492	AF2-143 E	8.0187	Adder	9.43
959351	AF2-226 C	2.7127	Adder	3.19
959352	AF2-226 E	4.0690	Adder	4.79
960281	AF2-319 C	2.7127	Adder	3.19
960282	AF2-319 E	4.0690	Adder	4.79
960381	AF2-329	7.0287	Adder	8.27
960591	AF2-350 C O1	8.7720	Adder	10.32
960592	AF2-350 E O1	5.8480	Adder	6.88
960601	AF2-351 C O1	1.1696	Adder	1.38
960602	AF2-351 E O1	1.7544	Adder	2.06
960731	AF2-364 C O1	6.5057	Adder	7.65
960732	AF2-364 E O1	4.3371	Adder	5.1
960751	AF2-366 C	7.4012	Adder	8.71
960752	AF2-366 E	4.9341	Adder	5.8
961501	AF2-441 C O1	10.6359	Adder	12.51
961502	AF2-441 E O1	15.9538	Adder	18.77
962691	AG1-118 C O2	12.4919	Adder	27.73
962692	AG1-118 E O2	8.3279	Adder	18.49
962701	AG1-119 C O2	12.6979	Adder	28.19
962702	AG1-119 E O2	8.4653	Adder	18.79
962711	AG1-120 C O2	5.0199	Adder	11.14
962712	AG1-120 E O2	3.3466	Adder	7.43
962781	AG1-127 C O2	4.3442	Adder	9.64
962782	AG1-127 E O2	2.8962	Adder	6.43
964361	AG1-298 O2	35.8958	Adder	79.68
964581	AG1-321 C O2	9.3945	Adder	20.85
964582	AG1-321 E O2	5.4702	Adder	12.14
965141	AG1-379 C	9.5803	Adder	21.27
965142	AG1-379 E	4.3852	Adder	9.73
966081	AG1-477 C	1.1371	Adder	2.52
966082	AG1-477 E	0.2861	Adder	0.64
966091	AG1-478 C	1.1785	Adder	2.62
966092	AG1-478 E	0.2965	Adder	0.66
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.1371	Adder	2.52
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.2861	Adder	0.64
966441	AG1-513 C	0.2856	Adder	0.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966442	AG1-513 E	0.4284	Adder	0.95
966651	AG1-535 O2	6.0246	Adder	13.37
WEC	WEC	4.6648	Confirmed LTF	4.6648
CBM-W2	CBM-W2	28.5376	Confirmed LTF	28.5376
NY	NY	1.3759	Confirmed LTF	1.3759
TVA	TVA	2.1350	Confirmed LTF	2.1350
O-066	O-066	16.4750	Confirmed LTF	16.4750
SIGE	SIGE	0.2695	Confirmed LTF	0.2695
CBM-S1	CBM-S1	0.3933	Confirmed LTF	0.3933
G-007	G-007	2.5683	Confirmed LTF	2.5683
HAMLET	HAMLET	0.6121	Confirmed LTF	0.6121
MEC	MEC	16.8164	Confirmed LTF	16.8164
BLUEG	BLUEG	2.1943	Confirmed LTF	2.1943
TRIMBLE	TRIMBLE	0.7607	Confirmed LTF	0.7607
LAGN	LAGN	5.3637	Confirmed LTF	5.3637
CATAWBA	CATAWBA	0.3094	Confirmed LTF	0.3094
CBM-W1	CBM-W1	93.0788	Confirmed LTF	93.0788

13.5.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174443202	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.76	153.8	DC	32.35

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	120.6764	Adder	141.97
274659	DRESDEN ;3U	116.6196	Adder	137.2
274771	LINCOLN ;2U	3.4563	50/50	3.4563
274772	LINCOLN ;3U	3.4563	50/50	3.4563
274773	LINCOLN ;4U	3.4563	50/50	3.4563
274774	LINCOLN ;5U	3.4563	50/50	3.4563
274775	LINCOLN ;6U	3.4563	50/50	3.4563
274776	LINCOLN ;7U	3.4563	50/50	3.4563
274777	LINCOLN ;8U	3.4563	50/50	3.4563
275149	KELLYCK ;1E	20.0491	Adder	23.59
276167	Z1-106 E2	1.3104	Adder	1.54
276168	Z1-106 E1	1.3104	Adder	1.54
276169	Z1-107 E	2.6814	Adder	3.15
276170	Z1-108 E	2.5779	Adder	3.03
276591	L-013 2	3.8000	Adder	4.47
290021	O50 E	20.6394	Adder	24.28
290108	LEEDK;1U E	25.3691	Adder	29.85
293061	N-015 E	16.5373	Adder	19.46
293644	O22 E1	10.8389	Adder	12.75
293645	O22 E2	21.0402	Adder	24.75
293777	CAYUG;1U E	17.1901	Adder	20.22
293778	CAYUG;2U E	17.1901	Adder	20.22
293799	PILOT HIL;1E	20.0491	Adder	23.59
294392	P-010 E	21.0023	Adder	24.71
910542	X3-005 E	0.7602	Adder	0.89
915011	Y3-013 1	3.8706	Adder	4.55
915021	Y3-013 2	3.8706	Adder	4.55
915031	Y3-013 3	3.8706	Adder	4.55
918052	AA1-018 E OP	17.3764	Adder	20.44
920272	AA2-123 E	2.5338	Adder	2.98
926331	AC1-110 1	1.9713	Adder	2.32
926341	AC1-110 2	1.9713	Adder	2.32
927451	AC1-142A 1	4.3411	Adder	5.11
927461	AC1-142A 2	4.3411	Adder	5.11
930501	AB1-091 CT	44.4493	Adder	52.29
930502	AB1-091 ST	35.3389	Adder	41.58
930761	AB1-122 CT1	47.2136	Adder	55.55
930771	AB1-122 CT2	76.7924	Adder	90.34
933411	AC2-154 C	2.7210	Adder	3.2
933412	AC2-154 E	4.4394	Adder	5.22
933431	AC2-156 C O1	0.9941	Adder	1.17
933432	AC2-156 E O1	1.6219	Adder	1.91

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	0.9618	Adder	1.13
933932	AD1-016 E	1.5693	Adder	1.85
934101	AD1-039 1	7.1243	Adder	8.38
934111	AD1-039 2	7.5257	Adder	8.85
934721	AD1-100 C	24.9926	Adder	29.4
934722	AD1-100 E	116.6319	Adder	137.21
934871	AD1-116 C	1.0120	Adder	1.19
934872	AD1-116 E	1.6511	Adder	1.94
935001	AD1-133 C O1	23.0709	Adder	27.14
935002	AD1-133 E O1	15.3806	Adder	18.09
936291	AD2-038 C O1	2.5509	Adder	3.0
936292	AD2-038 E O1	17.0714	Adder	20.08
936371	AD2-047 C O1	4.8691	Adder	5.73
936372	AD2-047 E O1	23.7725	Adder	27.97
936461	AD2-060	2.8642	Adder	3.37
936511	AD2-066 C O1	8.8657	Adder	10.43
936512	AD2-066 E O1	5.9105	Adder	6.95
937401	AD2-194 1	8.0820	Adder	9.51
937411	AD2-194 2	8.0830	Adder	9.51
938511	AE1-070 1	9.4975	Adder	11.17
938521	AE1-070 2	8.6881	Adder	10.22
938851	AE1-113 C O1	8.5137	Adder	10.02
938852	AE1-113 E O1	30.1851	Adder	35.51
939321	AE1-163 C O1	6.4099	Adder	7.54
939322	AE1-163 E O1	39.3753	Adder	46.32
939351	AE1-166 C O1	6.5352	Adder	14.51
939352	AE1-166 E O1	6.0324	Adder	13.39
939401	AE1-172 C O1	6.8559	Adder	8.07
939402	AE1-172 E O1	32.1677	Adder	37.84
940101	AE1-252 C O1	13.7731	Adder	16.2
940102	AE1-252 E O1	9.1820	Adder	10.8
940752	AE2-062 E	0.0716	Adder	0.16
941131	AE2-107 C	6.8497	Adder	8.06
941132	AE2-107 E	4.5664	Adder	5.37
941551	AE2-152 C O1	7.5406	Adder	16.74
941552	AE2-152 E O1	5.0270	Adder	11.16
941561	AE2-153 C O1	5.1525	Adder	6.06
941562	AE2-153 E O1	24.1232	Adder	28.38
942421	AE2-255 C O1	3.2249	Adder	3.79
942422	AE2-255 E O1	9.6747	Adder	11.38
942651	AE2-281 C O1	0.9157	Adder	1.08
942652	AE2-281 E O1	5.6250	Adder	6.62
942991	AE2-321 C	8.4850	Adder	9.98
942992	AE2-321 E	4.1792	Adder	4.92
943121	AE2-341 C	13.2635	Adder	15.6
943122	AE2-341 E	6.5131	Adder	7.66
943591	AF1-030 C O1	8.8203	Adder	10.38
943592	AF1-030 E O1	4.3640	Adder	5.13
943801	AF1-048 C	3.9664	Adder	4.67
943802	AF1-048 E	2.6443	Adder	3.11
944041	AF1-072	2.2326	Adder	2.63
944911	AF1-156 C	13.1741	Adder	15.5

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944912	AF1-156 E	8.7827	Adder	10.33
945351	AF1-200 FTIR	323.5650	Merchant Transmission	323.5650
946661	AF1-330 C	2.0778	Adder	2.44
946662	AF1-330 E	0.4561	Adder	0.54
957331	AF2-027 C	2.5804	Adder	3.04
957332	AF2-027 E	3.8706	Adder	4.55
957401	AF2-034 C	1.4518	Adder	1.71
957402	AF2-034 E	1.2367	Adder	1.45
958011	AF2-095 C O1	19.4774	Adder	22.91
958012	AF2-095 E O1	9.1659	Adder	10.78
958021	AF2-096 C	37.0643	Adder	43.61
958022	AF2-096 E	17.4420	Adder	20.52
958481	AF2-142 C	11.9837	Adder	14.1
958482	AF2-142 E	7.9892	Adder	9.4
958491	AF2-143 C	11.7733	Adder	13.85
958492	AF2-143 E	7.8489	Adder	9.23
959351	AF2-226 C	2.6566	Adder	3.13
959352	AF2-226 E	3.9849	Adder	4.69
960281	AF2-319 C	2.6566	Adder	3.13
960282	AF2-319 E	3.9849	Adder	4.69
960381	AF2-329	6.8822	Adder	8.1
960591	AF2-350 C O1	8.5925	Adder	10.11
960592	AF2-350 E O1	5.7283	Adder	6.74
960601	AF2-351 C O1	1.1457	Adder	1.35
960602	AF2-351 E O1	1.7185	Adder	2.02
960731	AF2-364 C O1	6.3699	Adder	7.49
960732	AF2-364 E O1	4.2466	Adder	5.0
960751	AF2-366 C	7.2468	Adder	8.53
960752	AF2-366 E	4.8312	Adder	5.68
961501	AF2-441 C O1	10.4156	Adder	12.25
961502	AF2-441 E O1	15.6233	Adder	18.38
962691	AG1-118 C O2	12.2316	Adder	27.15
962692	AG1-118 E O2	8.1544	Adder	18.1
962701	AG1-119 C O2	12.4327	Adder	27.6
962702	AG1-119 E O2	8.2885	Adder	18.4
962711	AG1-120 C O2	4.9151	Adder	10.91
962712	AG1-120 E O2	3.2767	Adder	7.27
962781	AG1-127 C O2	4.2536	Adder	9.44
962782	AG1-127 E O2	2.8357	Adder	6.29
964361	AG1-298 O2	35.1525	Adder	78.03
964581	AG1-321 C O2	9.2100	Adder	20.44
964582	AG1-321 E O2	5.3628	Adder	11.9
965141	AG1-379 C	9.3801	Adder	20.82
965142	AG1-379 E	4.2935	Adder	9.53
966081	AG1-477 C	1.1136	Adder	2.47
966082	AG1-477 E	0.2802	Adder	0.62
966091	AG1-478 C	1.1541	Adder	2.56
966092	AG1-478 E	0.2903	Adder	0.64
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.1136	Adder	2.47
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.2802	Adder	0.62
966441	AG1-513 C	0.2796	Adder	0.62

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966442	AG1-513 E	0.4194	Adder	0.93
966651	AG1-535 O2	5.8990	Adder	13.09
WEC	WEC	4.5675	Confirmed LTF	4.5675
CBM-W2	CBM-W2	27.9642	Confirmed LTF	27.9642
NY	NY	1.3466	Confirmed LTF	1.3466
TVA	TVA	2.0930	Confirmed LTF	2.0930
O-066	O-066	16.1251	Confirmed LTF	16.1251
SIGE	SIGE	0.2641	Confirmed LTF	0.2641
CBM-S1	CBM-S1	0.3861	Confirmed LTF	0.3861
G-007	G-007	2.5137	Confirmed LTF	2.5137
HAMLET	HAMLET	0.5989	Confirmed LTF	0.5989
MEC	MEC	16.4700	Confirmed LTF	16.4700
BLUEG	BLUEG	2.1457	Confirmed LTF	2.1457
TRIMBLE	TRIMBLE	0.7440	Confirmed LTF	0.7440
LAGN	LAGN	5.2552	Confirmed LTF	5.2552
CATAWBA	CATAWBA	0.3024	Confirmed LTF	0.3024
CBM-W1	CBM-W1	91.1580	Confirmed LTF	91.1580

13.5.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174443197	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	157.0	157.05	DC	33.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	123.2540	Adder	145.0
274659	DRESDEN ;3U	119.0934	Adder	140.11
274771	LINCOLN ;2U	3.5496	50/50	3.5496
274772	LINCOLN ;3U	3.5496	50/50	3.5496
274773	LINCOLN ;4U	3.5496	50/50	3.5496
274774	LINCOLN ;5U	3.5496	50/50	3.5496
274775	LINCOLN ;6U	3.5496	50/50	3.5496
274776	LINCOLN ;7U	3.5496	50/50	3.5496
274777	LINCOLN ;8U	3.5496	50/50	3.5496
275149	KELLYCK ;1E	20.4680	Adder	24.08
276167	Z1-106 E2	1.3383	Adder	1.57
276168	Z1-106 E1	1.3382	Adder	1.57
276169	Z1-107 E	2.7385	Adder	3.22
276170	Z1-108 E	2.6328	Adder	3.1
276591	L-013 2	3.8811	Adder	4.57
290021	O50 E	21.0800	Adder	24.8
290108	LEEDK;1U E	25.9080	Adder	30.48
293061	N-015 E	16.8820	Adder	19.86
293644	O22 E1	11.0678	Adder	13.02
293645	O22 E2	21.4845	Adder	25.28
293777	CAYUG;1U E	17.5328	Adder	20.63
293778	CAYUG;2U E	17.5328	Adder	20.63
293799	PILOT HIL;1E	20.4680	Adder	24.08
294392	P-010 E	21.4402	Adder	25.22
910542	X3-005 E	0.7767	Adder	0.91
915011	Y3-013 1	3.9533	Adder	4.65
915021	Y3-013 2	3.9533	Adder	4.65
915031	Y3-013 3	3.9533	Adder	4.65
918052	AA1-018 E OP	17.7547	Adder	20.89
920272	AA2-123 E	2.5879	Adder	3.04
926331	AC1-110 1	2.0132	Adder	2.37
926341	AC1-110 2	2.0132	Adder	2.37
927451	AC1-142A 1	4.4344	Adder	5.22
927461	AC1-142A 2	4.4344	Adder	5.22
930501	AB1-091 CT	45.3739	Adder	53.38
930502	AB1-091 ST	36.0740	Adder	42.44
930761	AB1-122 CT1	48.2135	Adder	56.72
930771	AB1-122 CT2	78.4346	Adder	92.28
933411	AC2-154 C	2.7778	Adder	3.27
933412	AC2-154 E	4.5322	Adder	5.33
933431	AC2-156 C O1	1.0152	Adder	1.19
933432	AC2-156 E O1	1.6564	Adder	1.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	0.9823	Adder	1.16
933932	AD1-016 E	1.6027	Adder	1.89
934101	AD1-039 1	7.2752	Adder	8.56
934111	AD1-039 2	7.6866	Adder	9.04
934721	AD1-100 C	25.4885	Adder	29.99
934722	AD1-100 E	118.9464	Adder	139.94
934871	AD1-116 C	1.0340	Adder	1.22
934872	AD1-116 E	1.6870	Adder	1.98
935001	AD1-133 C O1	23.5513	Adder	27.71
935002	AD1-133 E O1	15.7009	Adder	18.47
936291	AD2-038 C O1	2.6061	Adder	3.07
936292	AD2-038 E O1	17.4407	Adder	20.52
936371	AD2-047 C O1	4.9708	Adder	5.85
936372	AD2-047 E O1	24.2692	Adder	28.55
936461	AD2-060	2.9240	Adder	3.44
936511	AD2-066 C O1	9.0533	Adder	10.65
936512	AD2-066 E O1	6.0355	Adder	7.1
937401	AD2-194 1	8.2554	Adder	9.71
937411	AD2-194 2	8.2564	Adder	9.71
938511	AE1-070 1	9.7013	Adder	11.41
938521	AE1-070 2	8.8745	Adder	10.44
938851	AE1-113 C O1	8.6955	Adder	10.23
938852	AE1-113 E O1	30.8295	Adder	36.27
939321	AE1-163 C O1	6.5486	Adder	7.7
939322	AE1-163 E O1	40.2273	Adder	47.33
939351	AE1-166 C O1	6.6669	Adder	14.8
939352	AE1-166 E O1	6.1541	Adder	13.66
939401	AE1-172 C O1	6.9919	Adder	8.23
939402	AE1-172 E O1	32.8056	Adder	38.59
940101	AE1-252 C O1	14.0462	Adder	16.52
940102	AE1-252 E O1	9.3641	Adder	11.02
940752	AE2-062 E	0.0732	Adder	0.16
941131	AE2-107 C	6.9952	Adder	8.23
941132	AE2-107 E	4.6634	Adder	5.49
941551	AE2-152 C O1	7.6926	Adder	17.08
941552	AE2-152 E O1	5.1284	Adder	11.38
941561	AE2-153 C O1	5.2587	Adder	6.19
941562	AE2-153 E O1	24.6205	Adder	28.97
942421	AE2-255 C O1	3.2938	Adder	3.88
942422	AE2-255 E O1	9.8813	Adder	11.63
942651	AE2-281 C O1	0.9355	Adder	1.1
942652	AE2-281 E O1	5.7468	Adder	6.76
942991	AE2-321 C	8.6655	Adder	10.19
942992	AE2-321 E	4.2681	Adder	5.02
943121	AE2-341 C	13.5456	Adder	15.94
943122	AE2-341 E	6.6516	Adder	7.83
943591	AF1-030 C O1	9.0080	Adder	10.6
943592	AF1-030 E O1	4.4569	Adder	5.24
943801	AF1-048 C	4.0508	Adder	4.77
943802	AF1-048 E	2.7005	Adder	3.18
944041	AF1-072	2.2801	Adder	2.68
944911	AF1-156 C	13.4456	Adder	15.82

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944912	AF1-156 E	8.9638	Adder	10.55
945351	AF1-200 FTIR	330.4026	Merchant Transmission	330.4026
946661	AF1-330 C	2.1221	Adder	2.5
946662	AF1-330 E	0.4658	Adder	0.55
957331	AF2-027 C	2.6355	Adder	3.1
957332	AF2-027 E	3.9533	Adder	4.65
957401	AF2-034 C	1.4828	Adder	1.74
957402	AF2-034 E	1.2631	Adder	1.49
958011	AF2-095 C O1	19.8832	Adder	23.39
958012	AF2-095 E O1	9.3568	Adder	11.01
958021	AF2-096 C	37.8272	Adder	44.5
958022	AF2-096 E	17.8010	Adder	20.94
958481	AF2-142 C	12.2446	Adder	14.41
958482	AF2-142 E	8.1631	Adder	9.6
958491	AF2-143 C	12.0281	Adder	14.15
958492	AF2-143 E	8.0187	Adder	9.43
959351	AF2-226 C	2.7127	Adder	3.19
959352	AF2-226 E	4.0690	Adder	4.79
960281	AF2-319 C	2.7127	Adder	3.19
960282	AF2-319 E	4.0690	Adder	4.79
960381	AF2-329	7.0287	Adder	8.27
960591	AF2-350 C O1	8.7720	Adder	10.32
960592	AF2-350 E O1	5.8480	Adder	6.88
960601	AF2-351 C O1	1.1696	Adder	1.38
960602	AF2-351 E O1	1.7544	Adder	2.06
960731	AF2-364 C O1	6.5057	Adder	7.65
960732	AF2-364 E O1	4.3371	Adder	5.1
960751	AF2-366 C	7.4012	Adder	8.71
960752	AF2-366 E	4.9341	Adder	5.8
961501	AF2-441 C O1	10.6359	Adder	12.51
961502	AF2-441 E O1	15.9538	Adder	18.77
962691	AG1-118 C O2	12.4919	Adder	27.73
962692	AG1-118 E O2	8.3279	Adder	18.49
962701	AG1-119 C O2	12.6979	Adder	28.19
962702	AG1-119 E O2	8.4653	Adder	18.79
962711	AG1-120 C O2	5.0199	Adder	11.14
962712	AG1-120 E O2	3.3466	Adder	7.43
962781	AG1-127 C O2	4.3442	Adder	9.64
962782	AG1-127 E O2	2.8962	Adder	6.43
964361	AG1-298 O2	35.8958	Adder	79.68
964581	AG1-321 C O2	9.3945	Adder	20.85
964582	AG1-321 E O2	5.4702	Adder	12.14
965141	AG1-379 C	9.5803	Adder	21.27
965142	AG1-379 E	4.3852	Adder	9.73
966081	AG1-477 C	1.1371	Adder	2.52
966082	AG1-477 E	0.2861	Adder	0.64
966091	AG1-478 C	1.1785	Adder	2.62
966092	AG1-478 E	0.2965	Adder	0.66
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.1371	Adder	2.52
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.2861	Adder	0.64
966441	AG1-513 C	0.2856	Adder	0.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966442	AG1-513 E	0.4284	Adder	0.95
966651	AG1-535 O2	6.0246	Adder	13.37
WEC	WEC	4.6648	Confirmed LTF	4.6648
CBM-W2	CBM-W2	28.5376	Confirmed LTF	28.5376
NY	NY	1.3759	Confirmed LTF	1.3759
TVA	TVA	2.1350	Confirmed LTF	2.1350
O-066	O-066	16.4750	Confirmed LTF	16.4750
SIGE	SIGE	0.2695	Confirmed LTF	0.2695
CBM-S1	CBM-S1	0.3933	Confirmed LTF	0.3933
G-007	G-007	2.5683	Confirmed LTF	2.5683
HAMLET	HAMLET	0.6121	Confirmed LTF	0.6121
MEC	MEC	16.8164	Confirmed LTF	16.8164
BLUEG	BLUEG	2.1943	Confirmed LTF	2.1943
TRIMBLE	TRIMBLE	0.7607	Confirmed LTF	0.7607
LAGN	LAGN	5.3637	Confirmed LTF	5.3637
CATAWBA	CATAWBA	0.3094	Confirmed LTF	0.3094
CBM-W1	CBM-W1	93.0788	Confirmed LTF	93.0788

13.5.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
162154964	934720	AD1-100 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	tower	2221.0	116.58	118.28	DC	46.52

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274654	BRAIDWOOD;1U	43.3810	50/50	43.3810
274655	BRAIDWOOD;2U	42.1282	50/50	42.1282
274660	LASCO STA;1U	27.4271	50/50	27.4271
274661	LASCO STA;2U	27.5500	50/50	27.5500
274847	GR RIDGE ;BU	0.5494	50/50	0.5494
274853	TWINGROVE;U1	0.8181	50/50	0.8181
274854	TWINGROVE;U2	0.8416	50/50	0.8416
274863	CAYUGA RI;1U	0.9165	50/50	0.9165
274864	CAYUGA RI;2U	0.9165	50/50	0.9165
274871	GR RIDGE ;2U	0.2045	50/50	0.2045
274880	RADFORD R;1U	0.7711	50/50	0.7711
274887	PILOT HIL;1U	0.8066	50/50	0.8066
274888	KELLY CRK;1U	0.8066	50/50	0.8066
274889	BRIGHTSTK;1U	0.6536	50/50	0.6536
275149	KELLYCK ;1E	20.4512	50/50	20.4512
276615	W2-048 GEN	3.9096	Adder	4.6
276621	X2-022 GEN	14.6651	Adder	17.25
290261	S-027 E	23.6016	50/50	23.6016
290265	S-028 E	23.6016	50/50	23.6016
293061	N-015 E	15.2520	50/50	15.2520
293777	CAYUG;1U E	30.9828	50/50	30.9828
293778	CAYUG;2U E	30.9828	50/50	30.9828
293798	W4-005 E	32.7296	50/50	32.7296
293799	PILOT HIL;1E	20.4512	50/50	20.4512
294392	P-010 E	19.3700	50/50	19.3700
917502	Z2-087 E	27.7252	50/50	27.7252
924041	AB2-047 C O1	0.8171	50/50	0.8171
924042	AB2-047 E O1	34.6564	50/50	34.6564
924261	AB2-070 C O1	2.6702	50/50	2.6702
924262	AB2-070 E O1	16.1722	50/50	16.1722
925771	AC1-053 C	2.2029	Adder	2.59
925772	AC1-053 E	14.7427	Adder	17.34
926821	AC1-168 C O1	0.5758	Adder	0.68
926822	AC1-168 E O1	3.8639	Adder	4.55
930501	AB1-091 CT	51.7908	50/50	51.7908
930502	AB1-091 ST	41.1757	50/50	41.1757
933411	AC2-154 C	2.7753	50/50	2.7753
933412	AC2-154 E	4.5282	50/50	4.5282
934721	AD1-100 C	51.7620	50/50	51.7620

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934722	AD1-100 E	241.5560	50/50	241.5560
935001	AD1-133 C O1	15.2954	Adder	17.99
935002	AD1-133 E O1	10.1969	Adder	12.0
935141	AD1-148	3.8843	Adder	4.57
936371	AD2-047 C O1	4.9664	50/50	4.9664
936372	AD2-047 E O1	24.2476	50/50	24.2476
936461	AD2-060	2.9214	50/50	2.9214
936771	AD2-100 C	8.0432	Adder	9.46
936772	AD2-100 E	5.3621	Adder	6.31
936971	AD2-131 C	0.5298	Adder	0.62
936972	AD2-131 E	2.6619	Adder	3.13
937211	AD2-159 C	3.5369	50/50	3.5369
937212	AD2-159 E	16.5593	50/50	16.5593
939351	AE1-166 C O1	22.6434	50/50	22.6434
939352	AE1-166 E O1	20.9016	50/50	20.9016
939401	AE1-172 C O1	13.5135	50/50	13.5135
939402	AE1-172 E O1	63.4047	50/50	63.4047
939741	AE1-205 C O1	13.3846	50/50	13.3846
939742	AE1-205 E O1	18.4834	50/50	18.4834
940101	AE1-252 C O1	27.1476	50/50	27.1476
940102	AE1-252 E O1	18.0984	50/50	18.0984
941551	AE2-152 C O1	26.1270	50/50	26.1270
941552	AE2-152 E O1	17.4180	50/50	17.4180
941561	AE2-153 C O1	7.3987	50/50	7.3987
941562	AE2-153 E O1	34.6393	50/50	34.6393
941731	AE2-173 O1	7.9670	50/50	7.9670
942111	AE2-223 C	3.1071	50/50	3.1071
942112	AE2-223 E	20.7939	50/50	20.7939
942481	AE2-261 C	11.8454	Adder	13.94
942482	AE2-261 E	7.8969	Adder	9.29
944221	AF1-090 C O1	2.0208	Adder	2.38
944222	AF1-090 E O1	9.4610	Adder	11.13
944911	AF1-156 C	18.9171	50/50	18.9171
944912	AF1-156 E	12.6114	50/50	12.6114
945871	AF1-252 O1	3.5823	Adder	4.21
945881	AF1-253	2.4801	Adder	2.92
946541	AF1-318 C O1	2.5270	Adder	2.97
946542	AF1-318 E O1	11.8307	Adder	13.92
951741	J474 C	1.8441	PJM External (MISO)	1.8441
951742	J474 E	9.9769	PJM External (MISO)	9.9769
953741	J826 C	1.0351	PJM External (MISO)	1.0351
953742	J826 E	5.5999	PJM External (MISO)	5.5999
954821	J955	37.8570	PJM External (MISO)	37.8570
955401	J1022 C	1.5526	PJM External (MISO)	1.5526
955402	J1022 E	8.3999	PJM External (MISO)	8.3999
956151	J1102	4.3890	PJM External (MISO)	4.3890
956281	J1115 C	2.5908	PJM External (MISO)	2.5908
956282	J1115 E	14.0172	PJM External (MISO)	14.0172
957381	AF2-032 C	0.9091	Adder	1.07
957382	AF2-032 E	0.4278	Adder	0.5
958011	AF2-095 C O1	19.8682	50/50	19.8682
958012	AF2-095 E O1	9.3498	50/50	9.3498

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958021	AF2-096 C	59.2620	50/50	59.2620
958022	AF2-096 E	27.8880	50/50	27.8880
958341	AF2-128 C O1	0.6870	Adder	0.81
958342	AF2-128 E O1	3.2162	Adder	3.78
959341	AF2-225 C	10.0384	50/50	10.0384
959342	AF2-225 E	13.8626	50/50	13.8626
959611	AF2-252 C	2.9800	50/50	2.9800
959612	AF2-252 E	4.4700	50/50	4.4700
960141	AF2-305	0.9448	50/50	0.9448
960261	AF2-317	1.2430	Adder	1.46
960591	AF2-350 C O1	8.7648	50/50	8.7648
960592	AF2-350 E O1	5.8432	50/50	5.8432
960601	AF2-351 C O1	1.1686	50/50	1.1686
960602	AF2-351 E O1	1.7530	50/50	1.7530
960611	AF2-352 C	2.9800	50/50	2.9800
960612	AF2-352 E	4.4700	50/50	4.4700
961651	AG1-005 C O1	3.8389	Adder	8.52
961652	AG1-005 E O1	2.5593	Adder	5.68
963831	AG1-236 C	1.1676	Adder	2.59
963832	AG1-236 E	7.8136	Adder	17.34
964581	AG1-321 C O2	29.3981	50/50	29.3981
964582	AG1-321 E O2	17.1179	50/50	17.1179
965091	AG1-374 C	26.8200	50/50	26.8200
965092	AG1-374 E	17.8800	50/50	17.8800
965331	AG1-398	0.7528	50/50	0.7528
965341	AG1-399 C O2	5.7367	50/50	5.7367
965342	AG1-399 E O2	26.8583	50/50	26.8583
965351	AG1-400 O2	16.2975	50/50	16.2975
965361	AG1-401 C O2	5.7367	50/50	5.7367
965362	AG1-401 E O2	26.8583	50/50	26.8583
965371	AG1-402 O2	16.2975	50/50	16.2975
965381	AG1-403 C O2	3.8245	50/50	3.8245
965382	AG1-403 E O2	17.9055	50/50	17.9055
965391	AG1-404 O2	10.8650	50/50	10.8650
965911	AG1-460 C	0.4199	Adder	0.93
965912	AG1-460 E	0.6299	Adder	1.4
966081	AG1-477 C	0.4344	Adder	0.96
966082	AG1-477 E	0.1093	Adder	0.24
966091	AG1-478 C	0.4920	Adder	1.09
966092	AG1-478 E	0.1238	Adder	0.27
966101	**AG1-479 C (Withdrawn : 12/03/2020)**	**0.4344**	**Adder**	**0.96**
966102	**AG1-479 E (Withdrawn : 12/03/2020)**	**0.1093**	**Adder**	**0.24**
WEC	WEC	0.4564	Confirmed LTF	0.4564
LGEE	LGEE	0.0823	Confirmed LTF	0.0823
CBM-W2	CBM-W2	17.9827	Confirmed LTF	17.9827
NY	NY	0.3932	Confirmed LTF	0.3932
TVA	TVA	1.6072	Confirmed LTF	1.6072
O-066	O-066	4.6302	Confirmed LTF	4.6302
SIGE	SIGE	0.1667	Confirmed LTF	0.1667
CBM-S2	CBM-S2	0.7308	Confirmed LTF	0.7308
CBM-S1	CBM-S1	0.3659	Confirmed LTF	0.3659

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007	G-007	0.7214	Confirmed LTF	0.7214
HAMLET	HAMLET	0.0162	Confirmed LTF	0.0162
MEC	MEC	4.3300	Confirmed LTF	4.3300
LAGN	LAGN	2.7720	Confirmed LTF	2.7720
CBM-W1	CBM-W1	10.7393	Confirmed LTF	10.7393

13.5.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
174257641	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	205.47	212.97	DC	114.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.1054	50/50	18.1054
274651	KINCAID ;2U	18.1001	50/50	18.1001
274853	TWINGROVE;U1	2.2447	50/50	2.2447
274854	TWINGROVE;U2	2.3092	50/50	2.3092
274863	CAYUGA RI;1U	2.1614	50/50	2.1614
274864	CAYUGA RI;2U	2.1614	50/50	2.1614
274880	RADFORD R;1U	2.0812	50/50	2.0812
274889	BRIGHTSTK;1U	1.8023	50/50	1.8023
276615	W2-048 GEN	12.2102	50/50	12.2102
276621	X2-022 GEN	45.8004	50/50	45.8004
290261	S-027 E	64.7618	50/50	64.7618
290265	S-028 E	64.7618	50/50	64.7618
293777	CAYUG;1U E	73.0668	50/50	73.0668
293778	CAYUG;2U E	73.0668	50/50	73.0668
293798	W4-005 E	88.3374	50/50	88.3374
917502	Z2-087 E	76.4504	50/50	76.4504
924041	AB2-047 C O1	2.2531	50/50	2.2531
924042	AB2-047 E O1	95.5630	50/50	95.5630
924261	AB2-070 C O1	7.1464	50/50	7.1464
924262	AB2-070 E O1	43.2822	50/50	43.2822
925771	AC1-053 C	6.9194	50/50	6.9194
925772	AC1-053 E	46.3066	50/50	46.3066
935001	AD1-133 C O1	90.1584	50/50	90.1584
935002	AD1-133 E O1	60.1056	50/50	60.1056
935141	AD1-148	12.1309	50/50	12.1309
936771	AD2-100 C	24.8800	50/50	24.8800
936772	AD2-100 E	16.5866	50/50	16.5866
936971	AD2-131 C	1.6389	50/50	1.6389
936972	AD2-131 E	8.2341	50/50	8.2341
937211	AD2-159 C	9.5462	50/50	9.5462
937212	AD2-159 E	44.6938	50/50	44.6938
939401	AE1-172 C O1	29.9936	50/50	29.9936
939402	AE1-172 E O1	140.7289	50/50	140.7289
939741	AE1-205 C O1	36.9071	50/50	36.9071
939742	AE1-205 E O1	50.9669	50/50	50.9669
940101	AE1-252 C O1	60.2550	50/50	60.2550
940102	AE1-252 E O1	40.1700	50/50	40.1700
941731	AE2-173 O1	21.9685	50/50	21.9685
942111	AE2-223 C	8.5677	50/50	8.5677
942112	AE2-223 E	57.3378	50/50	57.3378
942481	AE2-261 C	36.5958	50/50	36.5958

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942482	AE2-261 E	24.3972	50/50	24.3972
944221	AF1-090 C O1	6.2762	50/50	6.2762
944222	AF1-090 E O1	29.3838	50/50	29.3838
945871	AF1-252 O1	11.1259	50/50	11.1259
945881	AF1-253	7.7026	50/50	7.7026
951741	J474 C	5.3464	PJM External (MISO)	5.3464
951742	J474 E	28.9256	PJM External (MISO)	28.9256
952651	J756 C	4.8438	PJM External (MISO)	4.8438
952652	J756 E	26.2064	PJM External (MISO)	26.2064
952871	J757 C	5.9747	PJM External (MISO)	5.9747
952872	J757 E	32.3245	PJM External (MISO)	32.3245
953401	J811	11.0920	PJM External (MISO)	11.0920
953651	J815	39.3050	PJM External (MISO)	39.3050
953741	J826 C	3.1599	PJM External (MISO)	3.1599
953742	J826 E	17.0961	PJM External (MISO)	17.0961
953851	J845 C	3.1107	PJM External (MISO)	3.1107
953852	J845 E	16.8297	PJM External (MISO)	16.8297
953881	J848 C	6.0115	PJM External (MISO)	6.0115
953882	J848 E	32.5235	PJM External (MISO)	32.5235
954411	J912	14.8130	PJM External (MISO)	14.8130
954721	J750 C	3.9815	PJM External (MISO)	3.9815
954722	J750 E	21.5410	PJM External (MISO)	21.5410
954821	J955	187.1064	PJM External (MISO)	187.1064
955031	J979 C	4.8092	PJM External (MISO)	4.8092
955032	J979 E	26.0188	PJM External (MISO)	26.0188
955401	J1022 C	4.7399	PJM External (MISO)	4.7399
955402	J1022 E	25.6441	PJM External (MISO)	25.6441
955711	J1055 C	2.3738	PJM External (MISO)	2.3738
955712	J1055 E	12.8427	PJM External (MISO)	12.8427
956151	J1102	12.1114	PJM External (MISO)	12.1114
956281	J1115 C	7.6640	PJM External (MISO)	7.6640
956282	J1115 E	41.4640	PJM External (MISO)	41.4640
956451	J1139	17.9130	PJM External (MISO)	17.9130
957381	AF2-032 C	2.8070	50/50	2.8070
957382	AF2-032 E	1.3210	50/50	1.3210
958013	AF2-095 BAT	4.5372	50/50	4.5372
958023	AF2-096 BAT	9.0533	50/50	9.0533
959341	AF2-225 C	27.6803	50/50	27.6803
959342	AF2-225 E	38.2252	50/50	38.2252
959611	AF2-252 C	8.1770	50/50	8.1770
959612	AF2-252 E	12.2655	50/50	12.2655
960141	AF2-305	2.5287	50/50	2.5287
960261	AF2-317	3.8819	50/50	3.8819
960603	AF2-351 BAT	2.2686	50/50	2.2686
960611	AF2-352 C	8.1770	50/50	8.1770
960612	AF2-352 E	12.2655	50/50	12.2655
963831	AG1-236 C	6.9194	50/50	6.9194
963832	AG1-236 E	46.3066	50/50	46.3066
964581	AG1-321 C O2	72.4474	50/50	72.4474
964582	AG1-321 E O2	42.1846	50/50	42.1846
965091	AG1-374 C	73.5930	50/50	73.5930
965092	AG1-374 E	49.0620	50/50	49.0620

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965331	AG1-398	2.0147	50/50	2.0147
965341	AG1-399 C O2	15.4218	50/50	15.4218
965342	AG1-399 E O2	72.2022	50/50	72.2022
965351	AG1-400 O2	43.8120	50/50	43.8120
965361	AG1-401 C O2	15.4218	50/50	15.4218
965362	AG1-401 E O2	72.2022	50/50	72.2022
965371	AG1-402 O2	43.8120	50/50	43.8120
965381	AG1-403 C O2	10.2812	50/50	10.2812
965382	AG1-403 E O2	48.1348	50/50	48.1348
965391	AG1-404 O2	29.2080	50/50	29.2080
965911	AG1-460 C	2.4479	50/50	2.4479
965912	AG1-460 E	3.6718	50/50	3.6718
LGEE	LGEE	1.6135	Confirmed LTF	1.6135
CPLE	CPLE	1.2237	Confirmed LTF	1.2237
G-007A	G-007A	1.8748	Confirmed LTF	1.8748
VFT	VFT	5.0374	Confirmed LTF	5.0374
CBM-W2	CBM-W2	49.5309	Confirmed LTF	49.5309
TVA	TVA	5.4642	Confirmed LTF	5.4642
SIGE	SIGE	0.3583	Confirmed LTF	0.3583
CBM-S2	CBM-S2	21.8092	Confirmed LTF	21.8092
CBM-S1	CBM-S1	1.3908	Confirmed LTF	1.3908
CBM-N	CBM-N	0.9324	Confirmed LTF	0.9324
MEC	MEC	3.2559	Confirmed LTF	3.2559
LAGN	LAGN	7.3010	Confirmed LTF	7.3010

13.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
COMED_P1-2_345-L11212_B-S-B	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-B' / 1292 OPEN BRANCH FROM BUS 934720 TO BUS 939400 CKT 1 / 934720 AD1-100 TAP 345 939400 AE1-172 TAP 345 1 END
COMED_P1-2_345-L11212_B-S-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-A' / 2852 OPEN BRANCH FROM BUS 270926 TO BUS 934720 CKT 1 / 270926 WILTON ; B 345 934720 AD1-100 TAP 345 1 END
934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1	CONTINGENCY '934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1' / 1288 OPEN BRANCH FROM BUS 934725 TO BUS 934730 CKT 1 / 934725 AD1-100 JNT 345 934730 AD1-100 TAP 345 1 END
COMED_P4_111-45-L1223T_	CONTINGENCY 'COMED_P4_111-45-L1223T_' / 2664 OPEN BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / 270717 DRESDEN ; R 345 270731 ELECT JCT;4R 345 1 OPEN BRANCH FROM BUS 270717 TO BUS 275180 CKT 1 / 270717 DRESDEN ; R 345 275180 DRESDEN ;3M 138 1 OPEN BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / 275180 DRESDEN ;3M 138 271336 DRESDEN ; B 138 1 OPEN BRANCH FROM BUS 275280 TO BUS 275180 CKT 1 / 275280 DRESDEN ;3C 34.5 275180 DRESDEN ;3M 138 1 OPEN BRANCH FROM BUS 270731 TO BUS 270733 CKT 1 / 270731 ELECT JCT;4R 345 270733 ELECT JCT;3R 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 274749 CKT 1 / 270731 ELECT JCT;4R 345 274749 AURORA EC;RP 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 275184 CKT 1 / 270731 ELECT JCT;4R 345 275184 ELECT JCT;4M 138 1 OPEN BRANCH FROM BUS 275184 TO BUS 271393 CKT 1 / 275184 ELECT JCT;4M 138 271393 ELECT JCT;4R 138 1 OPEN BRANCH FROM BUS 275284 TO BUS 275184 CKT 1 / 275284 ELECT JCT;4C 34.5 275184 ELECT JCT;4M 138 1 END
COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A	CONTINGENCY 'COMED_P7-1_345-L2001__B-S_+_345-L2003__R-S-A' / CONTINGENCY # 184 TRIP BRANCH FROM BUS 958020 TO BUS 270728 CKT 1 / AF2-096 TAP 345 E FRANKFO; B 345 TRIP BRANCH FROM BUS 270728 TO BUS 270766 CKT 1 / E FRANKFO; B 345 GOODINGS ;3B 345 TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRANKFO; B 345 CRETE EC ;BP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAIDWOOD; R 345 E FRANKFO; R 345 END

Contingency Name	Contingency Definition
COMED_P4_112-65-BT2-3__	CONTINGENCY 'COMED_P4_112-65-BT2-3__' / 2653 OPEN BRANCH FROM BUS 270607 TO BUS 270644 CKT 1 / 270607 COLLINS ; 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275232 CKT 1 / 270644 WILTON ; 765 275232 WILTON ;3M 345 1 OPEN BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / 275232 WILTON ;3M 345 270926 WILTON ; B 345 1 OPEN BRANCH FROM BUS 275332 TO BUS 275232 CKT 1 / 275332 WILTON ;3C 33.0 275232 WILTON ;3M 345 1 END
COMED_P4_012-45-BT12-14	CONTINGENCY 'COMED_P4_012-45-BT12-14' / 1099 OPEN BRANCH FROM BUS 270717 TO BUS 930760 CKT 1 / 270717 DRESDEN ; R 345 930760 AB1-122 TAP1 345 1 OPEN BRANCH FROM BUS 270717 TO BUS 935000 CKT 1 / 270717 DRESDEN ; R 345 935000 AD1-133 TAP 345 1 END
Base Case	
COMED_P1-2_345-L1223_TR-S	CONTINGENCY 'COMED_P1-2_345-L1223_TR-S' / 2455 OPEN BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / 270717 DRESDEN ; R 345 270731 ELECT JCT;4R 345 1 OPEN BRANCH FROM BUS 270717 TO BUS 275180 CKT 1 / 270717 DRESDEN ; R 345 275180 DRESDEN ;3M 138 1 OPEN BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / 275180 DRESDEN ;3M 138 271336 DRESDEN ; B 138 1 OPEN BRANCH FROM BUS 275280 TO BUS 275180 CKT 1 / 275280 DRESDEN ;3C 34.5 275180 DRESDEN ;3M 138 1 END
COMED_P1-2_345-L2106___-S	CONTINGENCY 'COMED_P1-2_345-L2106___-S' / 1644 OPEN BRANCH FROM BUS 270796 TO BUS 347955 CKT 1 / 270796 KINCAID ; B 345 347955 7AUSTIN 345 1 END
COMED_P1-2_345-L8014__R-S-C	CONTINGENCY 'COMED_P1-2_345-L8014__R-S-C' / 1081 OPEN BRANCH FROM BUS 270717 TO BUS 935000 CKT 1 / 270717 DRESDEN ; R 345 935000 AD1-133 TAP 345 1 END

Contingency Name	Contingency Definition
COMED_P4_112-65-BT5-6__	CONTINGENCY 'COMED_P4_112-65-BT5-6__' / 2675 OPEN BRANCH FROM BUS 270607 TO BUS 270644 CKT 1 / 270607 COLLINS ; 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275233 CKT 1 / 270644 WILTON ; 765 275233 WILTON ;4M 345 1 OPEN BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / 275233 WILTON ;4M 345 270927 WILTON ; R 345 1 OPEN BRANCH FROM BUS 275333 TO BUS 275233 CKT 1 / 275333 WILTON ;4C 33.0 275233 WILTON ;4M 345 1 END

14 Affected Systems

14.1 MISO

MISO Impacts to be determined during later study phases (as applicable).

Attachment 1: One Line Diagram