Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-403

Blue Mound-Chestnut 345 KV

35.2 MW Capacity / 200 MW Energy

October 2021

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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.

The conduct of light load analysis as required under the PJM planning process is not performed during the Generation Interconnection Feasibility Study phase of the PJM study process. Additional reinforcement requirements for this Interconnection Request may be defined during the conduct of the light load analysis which shall be performed following execution of the System Impact Study agreement.

3 General

The Interconnection Customer (IC), has proposed a Wind generating facility located in McLean County, Illinois. The installed facilities will have a total capability of 200 MW with 35.2 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is September 24, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-403
Project Name	Blue Mound-Chestnut 345 KV
State	Illinois
County	McLean
Transmission Owner	ComEd
MFO	200
MWE	200
MWC	35.2
Fuel	Wind
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

AG1-403 proposes a primary Point of Interconnection with the ComEd on transmission system tapping the Blue Mound to Chestnut 345 kV line. Queue Position AG1-403 proposes to connect 'Pumpkin Vine Wind III' with 200 MW wind generation at Pumpkin Vine Wind I to be built under PJM queue AG1-399. The proposed addition is behind the Point-of-Interconnection between ComEd and Pumpkin Vine Wind I.

4.2 Secondary

AG1-403 proposes a secondary Point of Interconnection with the ComEd on transmission system tapping the Brokaw to Mount Pulaski 345 kV line.

5 Cost Summary

The AG1-403 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$250,000
Total System Network Upgrade Costs (PJM Identified - Summer Peak)*	$294,600,000
Total Costs	$294,850,000

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 88-129. 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

To accommodate interconnection of AG1-403, the relaying, SCADA, Communication, and metering between ComEd-owned Interconnection Substation to be built under AG1-399 and Pumpkin Vine Wind I would be reviewed and upgraded if needed. The preliminary cost estimate for the Attachment Facilities is estimated at $ 250,000. ComEd would take approximately 18-months to review and possibly upgrade the relaying, SCADA, Communication, and metering after the ISA / ICSA are signed.

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

- Wind speed (meters/second) - (Required)
- Wind direction (decimal degrees from true north) - (Required)
- Ambient air temperature (Fahrenheit) - (Required)
- Air Pressure (Hectopascals) - (Required)
- Humidity (Percent) (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/totech-standards/private-comed.aspx

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-403 was evaluated as a 200.0 MW (Capacity 35.20 MW) injection tapping the Blue Mound to Chestnut 345 kV line in the ComEd area. Project AG1-403 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-403 was studied with a commercial probability of 53.0 %. 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
161798087	243221	05EUGENE	345.0	AEP	249504	08CAYSUB	345.0	AEP	1	AEP_P7-1_#11014-A	tower	1374.0	127.08	127.79	AC	17.25
180498122	243221	05EUGENE	345.0	AEP	249504	08CAYSUB	345.0	AEP	1	AEP_P4_#4697_05DEQUIN345_B	breaker	1374.0	115.78	116.48	AC	16.91
174290765	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	238.53	243.21	AC	68.98
179429830	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	228.44	233.04	AC	68.12
179429917	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	225.69	230.32	AC	69.02
179429918	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	217.87	222.42	AC	68.16
174290761	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	255.6	260.28	AC	68.98
179429708	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	245.5	250.11	AC	68.12
180200006	965340	AG1-399 TAP	345.0	CE	270668	BLUE MOUND; B	345.0	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1829.0	123.38	128.0	AC	86.15

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
16822 4987	243221	05EUGENE	345.0	AEP	249504	08CAY SUB	345.0	AEP	1	AEP_P1-2_#672_1713-A	operation	1374.0	115.73	116.42	AC	16.91
16850 6128	270668	BLUEMOUND; B	345.0	CE	270852	PONTIAC ; B	345.0	CE	1	COMED_P1-2_345-L8001___-S	operation	1528.0	173.51	179.07	AC	85.99
16850 6130	270668	BLUEMOUND; B	345.0	CE	270852	PONTIAC ; B	345.0	CE	1	Base Case	operation	1334.0	133.14	139.37	AC	86.82
16850 6248	270685	CHESTNUT ; B	345.0	CE	348856	7LATHAM	345.0	CE	1	COMED_P1-2_345-L8002___-S	operation	1793.0	117.13	127.9	AC	199.88
16850 6052	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	227.81	232.41	AC	68.0
16850 6054	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	Base Case	operation	1364.0	173.12	176.61	AC	47.4
16850 6393	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	117.12	117.26	AC	17.06
16850 6395	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	Base Case	operation	1334.0	105.66	106.14	AC	14.14
17592 6921	270717	DRESDEN ; R	345.0	CE	270737	ELWOOD ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1479.0	103.71	104.74	AC	18.06
16850 6203	270796	KINCAID ; B	345.0	CE	347955	7AUSTIN	345.0	CE	1	COMED_P1-2_345-L2105___-S-D	operation	1319.0	143.33	146.5	AC	43.11
16850 6205	270796	KINCAID ; B	345.0	CE	347955	7AUSTIN	345.0	CE	1	Base Case	operation	1200.0	106.24	108.7	AC	30.41
16850 6486	270797	KINCAID ; R	345.0	CE	942480	AE2-261 TAP	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	110.49	112.6	AC	26.39
16850 6178	270819	MCLEAN ; R	345.0	CE	270853	PONTIAC ; R	345.0	CE	1	COMED_P1-2_345-L8002___-S	operation	1819.0	165.83	168.26	AC	43.49
16850 6062	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P1-2_345-L8014__R-S-C	operation	1528.0	217.25	221.78	AC	68.04
16850 6064	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	Base Case	operation	1364.0	161.39	164.87	AC	47.44
16850 6099	270853	PONTIAC ; R	345.0	CE	964580	AG1-321 TAP	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	187.72	191.63	AC	62.52
16850 6101	270853	PONTIAC ; R	345.0	CE	964580	AG1-321 TAP	345.0	CE	1	Base Case	operation	1334.0	125.65	128.43	AC	37.26

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
16850 6318	348847	7BROKAW	345.0	CE	270819	MCLEAN ; R	345.0	CE	1	COMED_P1-2_345-L8002___-S	operation	1793.0	140.74	143.18	AC	43.55
16973 3296	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	Base Case	operation	1364.0	151.86	153.42	AC	23.07
17963 4203	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	179.96	182.58	AC	39.54
16850 6401	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	113.79	115.72	AC	29.52
16973 3239	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	205.93	209.87	AC	62.52
16973 3241	935000	AD1-133 TAP	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	Base Case	operation	1334.0	143.99	146.74	AC	37.26
16973 3565	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	134.86	136.93	AC	26.39
16973 3203	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	244.86	249.46	AC	68.0
16973 3205	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	Base Case	operation	1364.0	187.69	191.18	AC	47.4
16973 3629	942480	AE2-261 TAP	345.0	CE	936770	AD2-100 TAP	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	122.3	124.55	AC	26.39
16973 3508	944220	AF1-090 TAP	345.0	CE	347945	7PANA	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	134.26	136.36	AC	26.39
17001 7882	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	193.83	197.74	AC	62.52
17001 7884	964580	AG1-321 TAP	345.0	CE	935000	AD1-133 TAP	345.0	CE	1	Base Case	operation	1334.0	131.23	134.01	AC	37.26
17001 8108	965340	AG1-399 TAP	345.0	CE	270668	BLUEMOUND; B	345.0	CE	1	COMED_P1-2_345-L8001___-S	operation	1829.0	122.93	127.55	AC	86.07

11.5 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost
161798087, 180498122	1	**05EUGENE 345.0 kV - 08CAYSUB 345.0 kV Ckt 1**	**AEP** **AEPI0050a: An engineering study will need to be conducted to determine if the Eugene Compliance Thermal limits 2997 Amps settings can be adjusted to mitigate the overload, Estimated Cost $25,000. New relay packages will be required if the settings cannot be adjusted. Estimated Cost: $600,000.** **Project Type : FAC** **Cost : $600,000** **Time Estimate : 6-12 Months**	$600,000
180200006	7	**AG1-399 TAP 345.0 kV - BLUEMOUND; B 345.0 kV Ckt 1**	**ComEd** **CE_NUN_L9515: The upgrade will be to reconductor the line, upgrade station conductor at both stations, new relay settings. A preliminary estimate is $40M with a construction timeline of 36 months. Upon completion, the ratings will be 1961/2112/2524/3015 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $40,000,000** **Time Estimate : 36 Months**	$40,000,000
174290761, 179429708	6	**AE1-172 TAP 345.0 kV - AD1-100 TAP 345.0 kV Ckt 1**	**ComEd** **CE_NUN_L112XX_NEW LINE: Construct a new 345kV line from TSS 93 Loretto to TSS 905 Essex (AD1-100 Interconnection Substation). New 345kV circuit breakers, relay upgrades and 345kV bus expansion. A preliminary estimate is a minimum cost estimate of $127M with an estimated construction timeline of 6-10 years dependent on right of way access and land availability.** **Project Type : FAC** **Cost : $127,000,000** **Time Estimate : 60-120 Months**	$127,000,000
179429830, 174290765	3	**LORETTO ; B 345.0 kV - AE1-172 TAP 345.0 kV Ckt 1**		

ID	Idx	Facility	Upgrade Description	Cost
179429917, 179429918	5	**PONTIAC ; B 345.0 kV - LORETTO ; B 345.0 kV Ckt 1**	**ComEd** **CE_NUN_L80XX_NEW LINE: Construct a new 345kV line from TSS 80 Pontiac to TSS 196 Katydid. New 345kV circuit breakers, relay upgrades and 345kV bus expansion. A preliminary estimate is a minimum cost estimate of $127M with an estimated construction timeline of 6-10 years dependent on right of way access and land availability.** **Project Type : FAC** **Cost : $127,000,000** **Time Estimate : 60-120 Months**	$127,000,000
			TOTAL COST	**$294,600,000**

11.6 Flow Gate Details

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
161798087	243221	05EUGENE	AEP	249504	08CAYSUB	AEP	1	AEP_P7-1_#11014-A	tower	1374.0	127.08	127.79	AC	17.25

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
276615	W2-048 GEN	3.8	Adder	4.47
276621	X2-022 GEN	14.25	Adder	16.76
290261	S-027 E	10.37	Adder	12.2
290265	S-028 E	10.37	Adder	12.2
293777	CAYUG;1U E	5.39	Adder	6.34
293778	CAYUG;2U E	5.39	Adder	6.34
293798	W4-005 E	20.88	Adder	24.56
917502	Z2-087 E	11.08	Adder	13.04
924042	AB2-047 E O1	13.86	Adder	16.31
924261	AB2-070 C O1	2.07	Adder	2.44
924262	AB2-070 E O1	12.53	Adder	14.74
925771	AC1-053 C	2.05	Adder	2.41
925772	AC1-053 E	13.71	Adder	16.13
926841	AC1-171 C O1	0.46	Adder	0.54
926842	AC1-171 E O1	3.06	Adder	3.6
930461	AB1-087 CT1	38.23	80|50	38.23
930462	AB1-087 ST1	30.39	80|50	30.39
930471	AB1-088 CT1	38.23	80|50	38.23
930472	AB1-088 ST1	30.39	80|50	30.39
933446	AC2-157 1C	4.74	80|50	4.74
933447	AC2-157 2C	4.74	80|50	4.74
933448	AC2-157 1E	7.74	80|50	7.74
933449	AC2-157 2E	7.74	80|50	7.74
935141	AD1-148	3.77	Adder	4.44
936771	AD2-100 C	9.14	Adder	10.75
936772	AD2-100 E	6.09	Adder	7.16
936971	AD2-131 C	0.6	Adder	0.71
936972	AD2-131 E	3.02	Adder	3.55
937211	AD2-159 C	2.65	Adder	3.12
937212	AD2-159 E	12.39	Adder	14.58
939741	AE1-205 C O1	5.35	Adder	6.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939742	AE1-205 E O1	7.39	Adder	8.69
941341	AE2-130 C	24.78	Adder	29.15
941342	AE2-130 E	16.52	Adder	19.44
941731	AE2-173 O1	3.19	Adder	3.75
942111	AE2-223 C	1.24	Adder	1.46
942112	AE2-223 E	8.31	Adder	9.78
942481	AE2-261 C	13.1	Adder	15.41
942482	AE2-261 E	8.73	Adder	10.27
942601	AE2-276	6.24	80|50	6.24
944201	AF1-088 FTIR	124.77	80|50	124.77
944221	AF1-090 C O1	2.5	Adder	2.94
944222	AF1-090 E O1	11.71	Adder	13.78
945391	AF1-204 C O1	34.19	80|50	34.19
945392	AF1-204 E O1	102.57	80|50	102.57
945871	AF1-252 O1	4.43	Adder	5.21
945881	AF1-253	3.07	Adder	3.61
957141	AF2-008 FTIR	62.38	80|50	62.38
957142	AF2-008 NFTI	62.38	80|50	62.38
957381	AF2-032 C	1.0	Adder	1.18
957382	AF2-032 E	0.47	Adder	0.55
959341	AF2-225 C	4.01	Adder	4.72
959342	AF2-225 E	5.54	Adder	6.52
959611	AF2-252 C	1.31	Adder	1.54
959612	AF2-252 E	1.96	Adder	2.31
960141	AF2-305	0.73	Adder	0.86
960261	AF2-317	1.21	Adder	1.42
960611	AF2-352 C	1.31	Adder	1.54
960612	AF2-352 E	1.96	Adder	2.31
961162	AF2-407 BAT	20.73	Adder	24.39
961172	AF2-408 BAT	4.88	Adder	5.74
963741	AG1-226 C O1	177.78	80|50	177.78
963742	AG1-226 E O1	63.55	80|50	63.55
963831	AG1-236 C	2.05	Adder	2.41
963832	AG1-236 E	13.71	Adder	16.13
963841	AG1-237 C O1	13.94	80|50	13.94
963842	AG1-237 E O1	93.31	80|50	93.31
964353	AG1-297 BAT	30.11	Adder	35.42
964581	AG1-321 C O1	6.29	Adder	7.4
964582	AG1-321 E O1	3.66	Adder	4.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965091	AG1-374 C	11.78	Adder	13.86
965092	AG1-374 E	7.85	Adder	9.24
965331	AG1-398	0.58	Adder	0.68
965341	AG1-399 C	3.87	Adder	4.55
965342	AG1-399 E	18.12	Adder	21.32
965351	AG1-400	11.0	Adder	12.94
965361	AG1-401 C	3.87	Adder	4.55
965362	AG1-401 E	18.12	Adder	21.32
965371	AG1-402	11.0	Adder	12.94
965381	AG1-403 C	2.58	Adder	3.04
965382	AG1-403 E	12.08	Adder	14.21
965391	AG1-404	7.33	Adder	8.62
965911	AG1-460 C	0.88	Adder	1.04
965912	AG1-460 E	1.31	Adder	1.54
966531	AG1-522 C	14.82	Adder	17.44
966532	AG1-522 E	9.88	Adder	11.62
966541	AG1-523 C	14.82	Adder	17.44
966542	AG1-523 E	9.88	Adder	11.62
966551	AG1-524 C	14.82	Adder	17.44
966552	AG1-524 E	9.88	Adder	11.62
966561	AG1-525 C	14.82	Adder	17.44
966562	AG1-525 E	9.88	Adder	11.62
951741	J474 C	2.02	Queue MISO	2.02
951742	J474 E	10.91	Queue MISO	10.91
953741	J826 C	2.41	Queue MISO	2.41
953742	J826 E	13.06	Queue MISO	13.06
953851	J845 C	3.0	Queue MISO	3.0
953852	J845 E	16.24	Queue MISO	16.24
954681	J949 C	13.76	Queue MISO	13.76
954821	J955	76.05	Queue MISO	76.05
955401	J1022 C	3.62	Queue MISO	3.62
955402	J1022 E	19.59	Queue MISO	19.59
956281	J1115 C	3.07	Queue MISO	3.07
956282	J1115 E	16.59	Queue MISO	16.59
956451	J1139	33.98	Queue MISO	33.98
990071	J1204	16.07	Queue MISO	16.07
990181	J1232	10.12	Queue MISO	10.12
990271	J1263	31.12	Queue MISO	31.12
990641	J1354	13.23	Queue MISO	13.23

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
990671	J1360 C	7.5	Queue MISO	7.5
990672	J1360 E	40.59	Queue MISO	40.59
991081	J1475	7.29	Queue MISO	7.29
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.0043	Confirmed LTF	0.0043
LTFEXP_BlueG	LTFEXP_BlueG->LTFIMP_BlueG	2.9	Confirmed LTF	2.9
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.2823	LTF/CBM	0.2823
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	1.9175	LTF/CBM	1.9175
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	25.252	LTF/CBM	25.252
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	7.8904	LTF/CBM	7.8904
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	0.0122	Confirmed LTF	0.0122
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	0.5466	LTF/CMTX NF	0.5466
LTFEXP_GIBSON	LTFEXP_GIBSON->LTFIMP_GIBSON	2.1721	Confirmed LTF	2.1721
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	3.6361	Confirmed LTF	3.6361
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.6128	Confirmed LTF	0.6128
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	6.1445	Confirmed LTF	6.1445
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.2995	Confirmed LTF	0.2995
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	3.5104	LTF/CMTX NF	3.5104
LTFEXP_TRIMBLE	LTFEXP_TRIMBLE->LTFIMP_TRIMBLE	0.8771	Confirmed LTF	0.8771
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	1.8084	Confirmed LTF	1.8084
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.9743	Confirmed LTF	0.9743

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
179430157	270668	BLUEMOUND; B	CE	270852	PONTIAC ; B	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1528.0	174.07	179.65	AC	86.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	15.11	80|50	15.11
274651	KINCAID ;2U	15.13	80|50	15.13
274853	TWINGROVE;U1	3.25	80|50	3.25
274854	TWINGROVE;U2	3.34	80|50	3.34
274880	RADFORD R;1U	2.32	80|50	2.32
274889	BRIGHTSTK;1U	0.69	80|50	0.69
276615	W2-048 GEN	8.05	80|50	8.05
276621	X2-022 GEN	30.2	80|50	30.2
290261	S-027 E	90.05	80|50	90.05
290265	S-028 E	90.05	80|50	90.05
293798	W4-005 E	80.74	80|50	80.74
917502	Z2-087 E	27.96	80|50	27.96
924041	AB2-047 C O1	0.86	80|50	0.86
924042	AB2-047 E O1	34.95	80|50	34.95
924261	AB2-070 C O1	4.22	80|50	4.22
924262	AB2-070 E O1	25.54	80|50	25.54
925771	AC1-053 C	4.23	80|50	4.23
925772	AC1-053 E	28.28	80|50	28.28
935141	AD1-148	8.0	80|50	8.0
936771	AD2-100 C	19.89	80|50	19.89
936772	AD2-100 E	13.26	80|50	13.26
936971	AD2-131 C	1.31	80|50	1.31
936972	AD2-131 E	6.58	80|50	6.58
937211	AD2-159 C	10.23	80|50	10.23
937212	AD2-159 E	47.9	80|50	47.9
939741	AE1-205 C O1	13.5	80|50	13.5
939742	AE1-205 E O1	18.64	80|50	18.64
941731	AE2-173 O1	8.03	80|50	8.03
942111	AE2-223 C	3.13	80|50	3.13
942112	AE2-223 E	20.97	80|50	20.97
942481	AE2-261 C	29.34	80|50	29.34
942482	AE2-261 E	19.56	80|50	19.56

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944221	AF1-090 C O1	4.97	80|50	4.97
944222	AF1-090 E O1	23.28	80|50	23.28
945871	AF1-252 O1	8.81	80|50	8.81
945881	AF1-253	6.1	80|50	6.1
957381	AF2-032 C	2.25	80|50	2.25
957382	AF2-032 E	1.06	80|50	1.06
959341	AF2-225 C	10.12	80|50	10.12
959342	AF2-225 E	13.98	80|50	13.98
959611	AF2-252 C	11.37	80|50	11.37
959612	AF2-252 E	17.06	80|50	17.06
960141	AF2-305	1.49	80|50	1.49
960261	AF2-317	2.56	80|50	2.56
960611	AF2-352 C	11.37	80|50	11.37
960612	AF2-352 E	17.06	80|50	17.06
963831	AG1-236 C	4.23	80|50	4.23
963832	AG1-236 E	28.28	80|50	28.28
965091	AG1-374 C	102.33	80|50	102.33
965092	AG1-374 E	68.22	80|50	68.22
965331	AG1-398	1.19	80|50	1.19
965341	AG1-399 C	22.72	80|50	22.72
965342	AG1-399 E	106.38	80|50	106.38
965351	AG1-400	64.55	80|50	64.55
965361	AG1-401 C	22.72	80|50	22.72
965362	AG1-401 E	106.38	80|50	106.38
965371	AG1-402	64.55	80|50	64.55
965381	AG1-403 C	15.15	80|50	15.15
965382	AG1-403 E	70.92	80|50	70.92
965391	AG1-404	43.04	80|50	43.04
965911	AG1-460 C	1.96	80|50	1.96
965912	AG1-460 E	2.94	80|50	2.94
951741	J474 C	3.42	Queue MISO	3.42
951742	J474 E	18.49	Queue MISO	18.49
952651	J756 C	3.89	Queue MISO	3.89
952652	J756 E	21.04	Queue MISO	21.04
952871	J757 C	4.56	Queue MISO	4.56
952872	J757 E	24.69	Queue MISO	24.69
953401	J811	9.02	Queue MISO	9.02
953651	J815	32.09	Queue MISO	32.09
953741	J826 C	1.83	Queue MISO	1.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953742	J826 E	9.9	Queue MISO	9.9
953851	J845 C	1.82	Queue MISO	1.82
953852	J845 E	9.84	Queue MISO	9.84
953881	J848 C	4.93	Queue MISO	4.93
953882	J848 E	26.67	Queue MISO	26.67
954411	J912	12.12	Queue MISO	12.12
954721	J750 C	3.11	Queue MISO	3.11
954722	J750 E	16.83	Queue MISO	16.83
954821	J955	154.2	Queue MISO	154.2
955031	J979 C	3.94	Queue MISO	3.94
955032	J979 E	21.34	Queue MISO	21.34
955401	J1022 C	2.75	Queue MISO	2.75
955402	J1022 E	14.86	Queue MISO	14.86
956151	J1102	10.09	Queue MISO	10.09
956281	J1115 C	6.94	Queue MISO	6.94
956282	J1115 E	37.57	Queue MISO	37.57
956451	J1139	13.05	Queue MISO	13.05
990056	J1201	4.21	Queue MISO	4.21
990641	J1354	25.15	Queue MISO	25.15
990671	J1360 C	6.72	Queue MISO	6.72
990672	J1360 E	36.37	Queue MISO	36.37
990856	J1408	13.14	Queue MISO	13.14
991001	J1453 C	2.6	Queue MISO	2.6
991002	J1453 E	14.07	Queue MISO	14.07
991006	J1454 C	0.93	Queue MISO	0.93
991007	J1454 E	5.04	Queue MISO	5.04
991036	J1464	57.12	Queue MISO	57.12
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.616	Confirmed LTF	0.616
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.7853	LTF/CBM	0.7853
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	1.0083	LTF/CBM	1.0083
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	16.2765	LTF/CBM	16.2765
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	34.7585	LTF/CBM	34.7585
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	0.9254	Confirmed LTF	0.9254

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	1.5771	LTF/CMTX	1.5771
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	5.0667	Confirmed LTF	5.0667
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.0342	Confirmed LTF	0.0342
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	1.2238	Confirmed LTF	1.2238
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	0.839	Confirmed LTF	0.839
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.3276	Confirmed LTF	0.3276
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	3.9341	Confirmed LTF	3.9341
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	4.2361	Confirmed LTF	4.2361

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
174290765	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	238.53	243.21	AC	68.98

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.83	80|50	18.83
274651	KINCAID ;2U	18.82	80|50	18.82
274853	TWINGROVE;U1	2.33	80|50	2.33
274854	TWINGROVE;U2	2.4	80|50	2.4
274863	CAYUGA RI;1U	2.25	80|50	2.25
274864	CAYUGA RI;2U	2.25	80|50	2.25
274880	RADFORD R;1U	2.16	80|50	2.16
274889	BRIGHTSTK;1U	1.87	80|50	1.87
276615	W2-048 GEN	12.21	80|50	12.21
276621	X2-022 GEN	45.79	80|50	45.79
290261	S-027 E	64.75	80|50	64.75
290265	S-028 E	64.75	80|50	64.75
293777	CAYUG;1U E	73.06	80|50	73.06
293778	CAYUG;2U E	73.06	80|50	73.06
293798	W4-005 E	75.31	80|50	75.31
917502	Z2-087 E	76.44	80|50	76.44
924041	AB2-047 C O1	2.34	80|50	2.34
924042	AB2-047 E O1	95.55	80|50	95.55
924261	AB2-070 C O1	7.14	80|50	7.14
924262	AB2-070 E O1	43.27	80|50	43.27
925771	AC1-053 C	6.92	80|50	6.92
925772	AC1-053 E	46.3	80|50	46.3
935001	AD1-133 C O1	90.15	80|50	90.15
935002	AD1-133 E O1	60.1	80|50	60.1
935141	AD1-148	12.13	80|50	12.13
936771	AD2-100 C	24.87	80|50	24.87
936772	AD2-100 E	16.58	80|50	16.58
936971	AD2-131 C	1.64	80|50	1.64
936972	AD2-131 E	8.23	80|50	8.23
937211	AD2-159 C	9.54	80|50	9.54
937212	AD2-159 E	44.68	80|50	44.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939741	AE1-205 C O1	36.9	80|50	36.9
939742	AE1-205 E O1	50.96	80|50	50.96
941731	AE2-173 O1	21.97	80|50	21.97
942111	AE2-223 C	8.57	80|50	8.57
942112	AE2-223 E	57.33	80|50	57.33
942481	AE2-261 C	36.59	80|50	36.59
942482	AE2-261 E	24.39	80|50	24.39
944221	AF1-090 C O1	6.27	80|50	6.27
944222	AF1-090 E O1	29.37	80|50	29.37
945871	AF1-252 O1	11.12	80|50	11.12
945881	AF1-253	7.7	80|50	7.7
957381	AF2-032 C	2.81	80|50	2.81
957382	AF2-032 E	1.32	80|50	1.32
958013	AF2-095 BAT	4.54	80|50	4.54
958023	AF2-096 BAT	9.06	80|50	9.06
959341	AF2-225 C	27.68	80|50	27.68
959342	AF2-225 E	38.22	80|50	38.22
959611	AF2-252 C	8.18	80|50	8.18
959612	AF2-252 E	12.26	80|50	12.26
960141	AF2-305	2.53	80|50	2.53
960261	AF2-317	3.88	80|50	3.88
960603	AF2-351 BAT	2.27	80|50	2.27
960611	AF2-352 C	8.18	80|50	8.18
960612	AF2-352 E	12.26	80|50	12.26
963831	AG1-236 C	6.92	80|50	6.92
963832	AG1-236 E	46.3	80|50	46.3
964581	AG1-321 C O1	63.3	80|50	63.3
964582	AG1-321 E O1	36.86	80|50	36.86
965091	AG1-374 C	73.58	80|50	73.58
965092	AG1-374 E	49.05	80|50	49.05
965331	AG1-398	2.01	80|50	2.01
965341	AG1-399 C	18.21	80|50	18.21
965342	AG1-399 E	85.25	80|50	85.25
965351	AG1-400	51.73	80|50	51.73
965361	AG1-401 C	18.21	80|50	18.21
965362	AG1-401 E	85.25	80|50	85.25
965371	AG1-402	51.73	80|50	51.73
965381	AG1-403 C	12.14	80|50	12.14
965382	AG1-403 E	56.84	80|50	56.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965391	AG1-404	34.49	80|50	34.49
965911	AG1-460 C	2.45	80|50	2.45
965912	AG1-460 E	3.67	80|50	3.67
951741	J474 C	5.35	Queue MISO	5.35
951742	J474 E	28.93	Queue MISO	28.93
952651	J756 C	4.84	Queue MISO	4.84
952652	J756 E	26.21	Queue MISO	26.21
952871	J757 C	5.98	Queue MISO	5.98
952872	J757 E	32.33	Queue MISO	32.33
953401	J811	11.09	Queue MISO	11.09
953651	J815	39.31	Queue MISO	39.31
953741	J826 C	3.16	Queue MISO	3.16
953742	J826 E	17.1	Queue MISO	17.1
953851	J845 C	3.11	Queue MISO	3.11
953852	J845 E	16.83	Queue MISO	16.83
953881	J848 C	6.01	Queue MISO	6.01
953882	J848 E	32.53	Queue MISO	32.53
954411	J912	14.81	Queue MISO	14.81
954721	J750 C	3.98	Queue MISO	3.98
954722	J750 E	21.54	Queue MISO	21.54
954821	J955	187.12	Queue MISO	187.12
955031	J979 C	4.81	Queue MISO	4.81
955032	J979 E	26.02	Queue MISO	26.02
955401	J1022 C	4.74	Queue MISO	4.74
955402	J1022 E	25.64	Queue MISO	25.64
955711	J1055 C	2.37	Queue MISO	2.37
955712	J1055 E	12.84	Queue MISO	12.84
956151	J1102	12.11	Queue MISO	12.11
956281	J1115 C	7.66	Queue MISO	7.66
956282	J1115 E	41.46	Queue MISO	41.46
956451	J1139	17.91	Queue MISO	17.91
990056	J1201	5.18	Queue MISO	5.18
990121	J1216	26.23	Queue MISO	26.23
990641	J1354	30.76	Queue MISO	30.76
990671	J1360 C	9.12	Queue MISO	9.12
990672	J1360 E	49.35	Queue MISO	49.35
990856	J1408	16.3	Queue MISO	16.3
991001	J1453 C	3.67	Queue MISO	3.67
991002	J1453 E	19.85	Queue MISO	19.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
991006	J1454 C	1.22	Queue MISO	1.22
991007	J1454 E	6.61	Queue MISO	6.61
991036	J1464	74.79	Queue MISO	74.79
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.8114	Confirmed LTF	0.8114
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.9256	LTF/CBM	0.9256
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	1.3887	LTF/CBM	1.3887
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	21.7447	LTF/CBM	21.7447
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	49.4763	LTF/CBM	49.4763
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	1.2196	Confirmed LTF	1.2196
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	1.861	LTF/CMTX	1.861
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	7.2908	Confirmed LTF	7.2908
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.072	Confirmed LTF	0.072
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	1.6099	Confirmed LTF	1.6099
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	3.2482	Confirmed LTF	3.2482
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.4395	Confirmed LTF	0.4395
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	5.4556	Confirmed LTF	5.4556
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	4.9968	Confirmed LTF	4.9968

11.6.4 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
174468615	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	117.53	117.68	AC	17.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	39.12	Adder	46.02
274659	DRESDEN ;3U	243.86	80|50	243.86
274677	POWERTON ;5U	17.81	80|50	17.81
274678	POWERTON ;6U	17.88	80|50	17.88
274729	ELWOOD EC;1P	2.51	80|50	2.51
274731	ELWOOD EC;2P	2.51	80|50	2.51
274733	ELWOOD EC;3P	2.51	80|50	2.51
276615	W2-048 GEN	3.16	Adder	3.72
276621	X2-022 GEN	11.86	Adder	13.95
290021	O50 E	13.82	Adder	16.26
290261	S-027 E	12.54	Adder	14.75
290265	S-028 E	12.54	Adder	14.75
293644	O22 E1	4.8	Adder	5.65
293645	O22 E2	9.31	Adder	10.95
293771	O-035 E	3.73	Adder	4.39
293777	CAYUG;1U E	7.5	Adder	8.82
293778	CAYUG;2U E	7.5	Adder	8.82
293798	W4-005 E	17.37	Adder	20.44
294401	BSHIL;1U E	5.23	Adder	6.15
294410	BSHIL;2U E	5.23	Adder	6.15
916211	Z1-072 E	2.82	Adder	3.32
917502	Z2-087 E	14.45	Adder	17.0
918052	AA1-018 E OP	6.99	Adder	8.22
924042	AB2-047 E O1	18.06	Adder	21.25
924261	AB2-070 C O1	1.73	Adder	2.04
924262	AB2-070 E O1	10.49	Adder	12.34
925581	AC1-033 C	0.86	Adder	1.01
925582	AC1-033 E	5.74	Adder	6.75
925771	AC1-053 C	1.71	Adder	2.01
925772	AC1-053 E	11.45	Adder	13.47
926821	AC1-168 C O1	0.56	Adder	0.66
926822	AC1-168 E O1	3.73	Adder	4.39

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
926841	AC1-171 C O1	1.2	80|50	1.2
926842	AC1-171 E O1	8.01	80|50	8.01
927091	AC1-204 GEN1	9.34	80|50	9.34
927202	AC1-214 E O1	3.81	Adder	4.48
930761	AB1-122 CT1	126.62	80|50	126.62
930771	AB1-122 CT2	25.77	Adder	30.32
934051	AD1-031 C O1	1.74	Adder	2.05
934052	AD1-031 E O1	2.84	Adder	3.34
934101	AD1-039 1	12.41	80|50	12.41
934111	AD1-039 2	2.53	Adder	2.98
934871	AD1-116 C	0.41	Adder	0.48
934872	AD1-116 E	0.66	Adder	0.78
935001	AD1-133 C O1	35.02	80|50	35.02
935002	AD1-133 E O1	23.35	80|50	23.35
935141	AD1-148	3.14	Adder	3.69
936291	AD2-038 C O1	1.94	Adder	2.28
936292	AD2-038 E O1	9.07	Adder	10.67
936771	AD2-100 C	7.14	Adder	8.4
936772	AD2-100 E	4.76	Adder	5.6
936971	AD2-131 C	0.47	Adder	0.55
936972	AD2-131 E	2.36	Adder	2.78
937211	AD2-159 C	2.2	Adder	2.59
937212	AD2-159 E	10.31	Adder	12.13
937401	AD2-194 1	5.2	Adder	6.12
937411	AD2-194 2	5.14	Adder	6.05
938511	AE1-070 1	6.03	Adder	7.09
938521	AE1-070 2	5.59	Adder	6.58
938851	AE1-113 C O1	5.7	Adder	6.71
938852	AE1-113 E O1	20.21	Adder	23.78
939321	AE1-163 C O1	3.59	Adder	4.22
939322	AE1-163 E O1	22.08	Adder	25.98
939401	AE1-172 C O1	2.13	Adder	2.51
939402	AE1-172 E O1	10.0	Adder	11.76
939741	AE1-205 C O1	6.98	Adder	8.21
939742	AE1-205 E O1	9.63	Adder	11.33
940101	AE1-252 C O1	4.28	Adder	5.04
940102	AE1-252 E O1	2.85	Adder	3.35
941731	AE2-173 O1	4.15	Adder	4.88
942111	AE2-223 C	1.62	Adder	1.91

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942112	AE2-223 E	10.84	Adder	12.75
942421	AE2-255 C O1	2.16	Adder	2.54
942422	AE2-255 E O1	6.48	Adder	7.62
942481	AE2-261 C	10.47	Adder	12.32
942482	AE2-261 E	6.98	Adder	8.21
942651	AE2-281 C O1	0.51	Adder	0.6
942652	AE2-281 E O1	3.15	Adder	3.71
944221	AF1-090 C O1	1.82	Adder	2.14
944222	AF1-090 E O1	8.53	Adder	10.04
945871	AF1-252 O1	3.23	Adder	3.8
945881	AF1-253	2.24	Adder	2.64
946541	AF1-318 C O1	3.16	Adder	3.72
946542	AF1-318 E O1	14.77	Adder	17.38
957381	AF2-032 C	0.8	Adder	0.94
957382	AF2-032 E	0.38	Adder	0.45
957751	AF2-069 C	0.14	Adder	0.16
957752	AF2-069 E	0.45	Adder	0.53
957761	AF2-070 C	0.2	Adder	0.24
957762	AF2-070 E	0.95	Adder	1.12
958341	AF2-128 C O1	0.83	Adder	0.98
958342	AF2-128 E O1	3.87	Adder	4.55
958481	AF2-142 C	4.82	Adder	5.67
958482	AF2-142 E	3.21	Adder	3.78
958491	AF2-143 C	6.6	Adder	7.76
958492	AF2-143 E	4.4	Adder	5.18
959341	AF2-225 C	5.23	Adder	6.15
959342	AF2-225 E	7.23	Adder	8.51
959351	AF2-226 C	1.18	Adder	1.39
959352	AF2-226 E	1.76	Adder	2.07
959611	AF2-252 C	1.58	Adder	1.86
959612	AF2-252 E	2.37	Adder	2.79
960141	AF2-305	0.61	Adder	0.72
960261	AF2-317	1.01	Adder	1.19
960281	AF2-319 C	1.18	Adder	1.39
960282	AF2-319 E	1.76	Adder	2.07
960611	AF2-352 C	1.58	Adder	1.86
960612	AF2-352 E	2.37	Adder	2.79
961651	AG1-005 C O1	8.93	Adder	10.51
961652	AG1-005 E O1	5.95	Adder	7.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962721	AG1-121 C O1	3.29	Adder	3.87
962722	AG1-121 E O1	15.4	Adder	18.12
963831	AG1-236 C	1.71	Adder	2.01
963832	AG1-236 E	11.45	Adder	13.47
964581	AG1-321 C O1	16.96	80|50	16.96
964582	AG1-321 E O1	9.88	80|50	9.88
965091	AG1-374 C	14.25	Adder	16.76
965092	AG1-374 E	9.5	Adder	11.18
965141	AG1-379 C	11.85	Adder	13.94
965142	AG1-379 E	5.42	Adder	6.38
965331	AG1-398	0.49	Adder	0.58
965341	AG1-399 C	3.83	Adder	4.51
965342	AG1-399 E	17.92	Adder	21.08
965351	AG1-400	10.87	Adder	12.79
965361	AG1-401 C	3.83	Adder	4.51
965362	AG1-401 E	17.92	Adder	21.08
965371	AG1-402	10.87	Adder	12.79
965381	AG1-403 C	2.55	Adder	3.0
965382	AG1-403 E	11.95	Adder	14.06
965391	AG1-404	7.25	Adder	8.53
965671	AG1-435 C O1	2.26	Adder	2.66
965672	AG1-435 E O1	10.58	Adder	12.45
965911	AG1-460 C	0.7	Adder	0.82
965912	AG1-460 E	1.05	Adder	1.24
990901	L-005 E	8.99	Adder	10.58
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.1253	Confirmed LTF	0.1253
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	0.5252	LTF/CBM	0.5252
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	4.8638	LTF/CBM	4.8638
LTFEXP_CBM-W1	LTFEXP_CBM-W1->LTFIMP_CBM-W1	15.6753	LTF/CBM	15.6753
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	22.4134	LTF/CBM	22.4134
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	0.1915	Confirmed LTF	0.1915
LTFEXP_G-007	LTFEXP_G-007->LTFIMP_G-007	0.3337	LTF/CMTX NF	0.3337

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	3.7896	Confirmed LTF	3.7896
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.1551	Confirmed LTF	0.1551
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	0.2434	Confirmed LTF	0.2434
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	6.3597	Confirmed LTF	6.3597
LTFEXP_NY	LTFEXP_NY->LTFIMP_NY	0.1892	Confirmed LTF	0.1892
LTFEXP_O-066	LTFEXP_O-066->LTFIMP_O-066	2.1468	LTF/CMTX NF	2.1468
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.1124	Confirmed LTF	0.1124
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	2.2438	Confirmed LTF	2.2438
LTFEXP_WEC	LTFEXP_WEC->LTFIMP_WEC	0.0402	Confirmed LTF	0.0402

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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
179429917	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	225.69	230.32	AC	69.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.85	80|50	18.85
274651	KINCAID ;2U	18.84	80|50	18.84
274853	TWINGROVE;U1	2.34	80|50	2.34
274854	TWINGROVE;U2	2.4	80|50	2.4
274880	RADFORD R;1U	2.17	80|50	2.17
274889	BRIGHTSTK;1U	1.88	80|50	1.88
276615	W2-048 GEN	12.22	80|50	12.22
276621	X2-022 GEN	45.83	80|50	45.83
290261	S-027 E	64.79	80|50	64.79
290265	S-028 E	64.79	80|50	64.79
293798	W4-005 E	75.37	80|50	75.37
917502	Z2-087 E	76.48	80|50	76.48
924041	AB2-047 C O1	2.34	80|50	2.34
924042	AB2-047 E O1	95.6	80|50	95.6
924261	AB2-070 C O1	7.15	80|50	7.15
924262	AB2-070 E O1	43.31	80|50	43.31
925771	AC1-053 C	6.92	80|50	6.92
925772	AC1-053 E	46.34	80|50	46.34
935001	AD1-133 C O1	90.19	80|50	90.19
935002	AD1-133 E O1	60.13	80|50	60.13
935141	AD1-148	12.14	80|50	12.14
936771	AD2-100 C	24.9	80|50	24.9
936772	AD2-100 E	16.6	80|50	16.6
936971	AD2-131 C	1.64	80|50	1.64
936972	AD2-131 E	8.24	80|50	8.24
937211	AD2-159 C	9.55	80|50	9.55
937212	AD2-159 E	44.72	80|50	44.72
939741	AE1-205 C O1	36.92	80|50	36.92
939742	AE1-205 E O1	50.99	80|50	50.99
941731	AE2-173 O1	21.98	80|50	21.98
942111	AE2-223 C	8.57	80|50	8.57
942112	AE2-223 E	57.36	80|50	57.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942481	AE2-261 C	36.63	80|50	36.63
942482	AE2-261 E	24.42	80|50	24.42
944221	AF1-090 C O1	6.28	80|50	6.28
944222	AF1-090 E O1	29.41	80|50	29.41
945871	AF1-252 O1	11.14	80|50	11.14
945881	AF1-253	7.71	80|50	7.71
957381	AF2-032 C	2.81	80|50	2.81
957382	AF2-032 E	1.32	80|50	1.32
958013	AF2-095 BAT	4.53	80|50	4.53
958023	AF2-096 BAT	9.04	80|50	9.04
959341	AF2-225 C	27.69	80|50	27.69
959342	AF2-225 E	38.24	80|50	38.24
959611	AF2-252 C	8.18	80|50	8.18
959612	AF2-252 E	12.27	80|50	12.27
960141	AF2-305	2.53	80|50	2.53
960261	AF2-317	3.88	80|50	3.88
960603	AF2-351 BAT	2.27	80|50	2.27
960611	AF2-352 C	8.18	80|50	8.18
960612	AF2-352 E	12.27	80|50	12.27
963831	AG1-236 C	6.92	80|50	6.92
963832	AG1-236 E	46.34	80|50	46.34
964581	AG1-321 C O1	63.33	80|50	63.33
964582	AG1-321 E O1	36.87	80|50	36.87
965091	AG1-374 C	73.62	80|50	73.62
965092	AG1-374 E	49.08	80|50	49.08
965331	AG1-398	2.02	80|50	2.02
965341	AG1-399 C	18.22	80|50	18.22
965342	AG1-399 E	85.31	80|50	85.31
965351	AG1-400	51.77	80|50	51.77
965361	AG1-401 C	18.22	80|50	18.22
965362	AG1-401 E	85.31	80|50	85.31
965371	AG1-402	51.77	80|50	51.77
965381	AG1-403 C	12.15	80|50	12.15
965382	AG1-403 E	56.87	80|50	56.87
965391	AG1-404	34.51	80|50	34.51
965911	AG1-460 C	2.45	80|50	2.45
965912	AG1-460 E	3.68	80|50	3.68
951741	J474 C	5.35	Queue MISO	5.35
951742	J474 E	28.93	Queue MISO	28.93

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
952651	J756 C	4.84	Queue MISO	4.84
952652	J756 E	26.21	Queue MISO	26.21
952871	J757 C	5.98	Queue MISO	5.98
952872	J757 E	32.33	Queue MISO	32.33
953401	J811	11.09	Queue MISO	11.09
953651	J815	39.31	Queue MISO	39.31
953741	J826 C	3.16	Queue MISO	3.16
953742	J826 E	17.1	Queue MISO	17.1
953851	J845 C	3.11	Queue MISO	3.11
953852	J845 E	16.83	Queue MISO	16.83
953881	J848 C	6.01	Queue MISO	6.01
953882	J848 E	32.53	Queue MISO	32.53
954411	J912	14.81	Queue MISO	14.81
954721	J750 C	3.98	Queue MISO	3.98
954722	J750 E	21.54	Queue MISO	21.54
954821	J955	187.12	Queue MISO	187.12
955031	J979 C	4.81	Queue MISO	4.81
955032	J979 E	26.02	Queue MISO	26.02
955401	J1022 C	4.74	Queue MISO	4.74
955402	J1022 E	25.64	Queue MISO	25.64
955711	J1055 C	2.37	Queue MISO	2.37
955712	J1055 E	12.84	Queue MISO	12.84
956151	J1102	12.11	Queue MISO	12.11
956281	J1115 C	7.66	Queue MISO	7.66
956282	J1115 E	41.46	Queue MISO	41.46
956451	J1139	17.91	Queue MISO	17.91
990056	J1201	5.18	Queue MISO	5.18
990121	J1216	26.23	Queue MISO	26.23
990641	J1354	30.76	Queue MISO	30.76
990671	J1360 C	9.12	Queue MISO	9.12
990672	J1360 E	49.35	Queue MISO	49.35
990856	J1408	16.3	Queue MISO	16.3
991001	J1453 C	3.67	Queue MISO	3.67
991002	J1453 E	19.85	Queue MISO	19.85
991006	J1454 C	1.22	Queue MISO	1.22
991007	J1454 E	6.61	Queue MISO	6.61
991036	J1464	74.79	Queue MISO	74.79
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.8221	Confirmed LTF	0.8221

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.9538	LTF/CBM	0.9538
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	1.3976	LTF/CBM	1.3976
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	21.9899	LTF/CBM	21.9899
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	49.6868	LTF/CBM	49.6868
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	1.2356	Confirmed LTF	1.2356
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	1.9173	LTF/CMTX	1.9173
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	7.3319	Confirmed LTF	7.3319
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.072	Confirmed LTF	0.072
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	1.6247	Confirmed LTF	1.6247
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	3.2855	Confirmed LTF	3.2855
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.442	Confirmed LTF	0.442
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	5.4885	Confirmed LTF	5.4885
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	5.1483	Confirmed LTF	5.1483

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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
174290761	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	255.6	260.28	AC	68.98

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	18.83	80|50	18.83
274651	KINCAID ;2U	18.82	80|50	18.82
274853	TWINGROVE;U1	2.33	80|50	2.33
274854	TWINGROVE;U2	2.4	80|50	2.4
274863	CAYUGA RI;1U	2.25	80|50	2.25
274864	CAYUGA RI;2U	2.25	80|50	2.25
274880	RADFORD R;1U	2.16	80|50	2.16
274889	BRIGHTSTK;1U	1.87	80|50	1.87
276615	W2-048 GEN	12.21	80|50	12.21
276621	X2-022 GEN	45.79	80|50	45.79
290261	S-027 E	64.75	80|50	64.75
290265	S-028 E	64.75	80|50	64.75
293777	CAYUG;1U E	73.06	80|50	73.06
293778	CAYUG;2U E	73.06	80|50	73.06
293798	W4-005 E	75.31	80|50	75.31
917502	Z2-087 E	76.44	80|50	76.44
924041	AB2-047 C O1	2.34	80|50	2.34
924042	AB2-047 E O1	95.55	80|50	95.55
924261	AB2-070 C O1	7.14	80|50	7.14
924262	AB2-070 E O1	43.27	80|50	43.27
925771	AC1-053 C	6.92	80|50	6.92
925772	AC1-053 E	46.3	80|50	46.3
935001	AD1-133 C O1	90.15	80|50	90.15
935002	AD1-133 E O1	60.1	80|50	60.1
935141	AD1-148	12.13	80|50	12.13
936771	AD2-100 C	24.87	80|50	24.87
936772	AD2-100 E	16.58	80|50	16.58
936971	AD2-131 C	1.64	80|50	1.64
936972	AD2-131 E	8.23	80|50	8.23
937211	AD2-159 C	9.54	80|50	9.54
937212	AD2-159 E	44.68	80|50	44.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939401	AE1-172 C O1	29.99	80|50	29.99
939402	AE1-172 E O1	140.72	80|50	140.72
939741	AE1-205 C O1	36.9	80|50	36.9
939742	AE1-205 E O1	50.96	80|50	50.96
940101	AE1-252 C O1	60.25	80|50	60.25
940102	AE1-252 E O1	40.17	80|50	40.17
941731	AE2-173 O1	21.97	80|50	21.97
942111	AE2-223 C	8.57	80|50	8.57
942112	AE2-223 E	57.33	80|50	57.33
942481	AE2-261 C	36.59	80|50	36.59
942482	AE2-261 E	24.39	80|50	24.39
944221	AF1-090 C O1	6.27	80|50	6.27
944222	AF1-090 E O1	29.37	80|50	29.37
945871	AF1-252 O1	11.12	80|50	11.12
945881	AF1-253	7.7	80|50	7.7
957381	AF2-032 C	2.81	80|50	2.81
957382	AF2-032 E	1.32	80|50	1.32
958013	AF2-095 BAT	4.54	80|50	4.54
958023	AF2-096 BAT	9.06	80|50	9.06
959341	AF2-225 C	27.68	80|50	27.68
959342	AF2-225 E	38.22	80|50	38.22
959611	AF2-252 C	8.18	80|50	8.18
959612	AF2-252 E	12.26	80|50	12.26
960141	AF2-305	2.53	80|50	2.53
960261	AF2-317	3.88	80|50	3.88
960603	AF2-351 BAT	2.27	80|50	2.27
960611	AF2-352 C	8.18	80|50	8.18
960612	AF2-352 E	12.26	80|50	12.26
963831	AG1-236 C	6.92	80|50	6.92
963832	AG1-236 E	46.3	80|50	46.3
964581	AG1-321 C O1	63.3	80|50	63.3
964582	AG1-321 E O1	36.86	80|50	36.86
965091	AG1-374 C	73.58	80|50	73.58
965092	AG1-374 E	49.05	80|50	49.05
965331	AG1-398	2.01	80|50	2.01
965341	AG1-399 C	18.21	80|50	18.21
965342	AG1-399 E	85.25	80|50	85.25
965351	AG1-400	51.73	80|50	51.73
965361	AG1-401 C	18.21	80|50	18.21

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965362	AG1-401 E	85.25	80|50	85.25
965371	AG1-402	51.73	80|50	51.73
965381	AG1-403 C	12.14	80|50	12.14
965382	AG1-403 E	56.84	80|50	56.84
965391	AG1-404	34.49	80|50	34.49
965911	AG1-460 C	2.45	80|50	2.45
965912	AG1-460 E	3.67	80|50	3.67
951741	J474 C	5.35	Queue MISO	5.35
951742	J474 E	28.93	Queue MISO	28.93
952651	J756 C	4.84	Queue MISO	4.84
952652	J756 E	26.21	Queue MISO	26.21
952871	J757 C	5.98	Queue MISO	5.98
952872	J757 E	32.33	Queue MISO	32.33
953401	J811	11.09	Queue MISO	11.09
953651	J815	39.31	Queue MISO	39.31
953741	J826 C	3.16	Queue MISO	3.16
953742	J826 E	17.1	Queue MISO	17.1
953851	J845 C	3.11	Queue MISO	3.11
953852	J845 E	16.83	Queue MISO	16.83
953881	J848 C	6.01	Queue MISO	6.01
953882	J848 E	32.53	Queue MISO	32.53
954411	J912	14.81	Queue MISO	14.81
954721	J750 C	3.98	Queue MISO	3.98
954722	J750 E	21.54	Queue MISO	21.54
954821	J955	187.12	Queue MISO	187.12
955031	J979 C	4.81	Queue MISO	4.81
955032	J979 E	26.02	Queue MISO	26.02
955401	J1022 C	4.74	Queue MISO	4.74
955402	J1022 E	25.64	Queue MISO	25.64
955711	J1055 C	2.37	Queue MISO	2.37
955712	J1055 E	12.84	Queue MISO	12.84
956151	J1102	12.11	Queue MISO	12.11
956281	J1115 C	7.66	Queue MISO	7.66
956282	J1115 E	41.46	Queue MISO	41.46
956451	J1139	17.91	Queue MISO	17.91
990056	J1201	5.18	Queue MISO	5.18
990121	J1216	26.23	Queue MISO	26.23
990641	J1354	30.76	Queue MISO	30.76
990671	J1360 C	9.12	Queue MISO	9.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
990672	J1360 E	49.35	Queue MISO	49.35
990856	J1408	16.3	Queue MISO	16.3
991001	J1453 C	3.67	Queue MISO	3.67
991002	J1453 E	19.85	Queue MISO	19.85
991006	J1454 C	1.22	Queue MISO	1.22
991007	J1454 E	6.61	Queue MISO	6.61
991036	J1464	74.79	Queue MISO	74.79
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.8114	Confirmed LTF	0.8114
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.9256	LTF/CBM	0.9256
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	1.3887	LTF/CBM	1.3887
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	21.7447	LTF/CBM	21.7447
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	49.4763	LTF/CBM	49.4763
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	1.2196	Confirmed LTF	1.2196
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	1.861	LTF/CMTX	1.861
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	7.2908	Confirmed LTF	7.2908
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.072	Confirmed LTF	0.072
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	1.6099	Confirmed LTF	1.6099
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	3.2482	Confirmed LTF	3.2482
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.4395	Confirmed LTF	0.4395
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	5.4556	Confirmed LTF	5.4556
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	4.9968	Confirmed LTF	4.9968

11.6.7 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
180200006	965340	AG1-399 TAP	CE	270668	BLUEMOUND; B	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1829.0	123.38	128.0	AC	86.15

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274650	KINCAID ;1U	15.15	80|50	15.15
274651	KINCAID ;2U	15.17	80|50	15.17
274880	RADFORD R;1U	2.32	80|50	2.32
274889	BRIGHTSTK;1U	0.69	80|50	0.69
276615	W2-048 GEN	8.07	80|50	8.07
276621	X2-022 GEN	30.26	80|50	30.26
293798	W4-005 E	80.83	80|50	80.83
917502	Z2-087 E	28.03	80|50	28.03
924041	AB2-047 C O1	0.86	80|50	0.86
924042	AB2-047 E O1	35.03	80|50	35.03
924261	AB2-070 C O1	4.23	80|50	4.23
924262	AB2-070 E O1	25.6	80|50	25.6
925771	AC1-053 C	4.24	80|50	4.24
925772	AC1-053 E	28.34	80|50	28.34
935141	AD1-148	8.02	80|50	8.02
936771	AD2-100 C	19.94	80|50	19.94
936772	AD2-100 E	13.29	80|50	13.29
936971	AD2-131 C	1.31	80|50	1.31
936972	AD2-131 E	6.6	80|50	6.6
937211	AD2-159 C	10.24	80|50	10.24
937212	AD2-159 E	47.96	80|50	47.96
939741	AE1-205 C O1	13.53	80|50	13.53
939742	AE1-205 E O1	18.68	80|50	18.68
941731	AE2-173 O1	8.05	80|50	8.05
942111	AE2-223 C	3.14	80|50	3.14
942112	AE2-223 E	21.02	80|50	21.02
942481	AE2-261 C	29.41	80|50	29.41
942482	AE2-261 E	19.61	80|50	19.61
944221	AF1-090 C O1	4.98	80|50	4.98
944222	AF1-090 E O1	23.34	80|50	23.34
945871	AF1-252 O1	8.84	80|50	8.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945881	AF1-253	6.12	80|50	6.12
957381	AF2-032 C	2.26	80|50	2.26
957382	AF2-032 E	1.06	80|50	1.06
958023	AF2-096 BAT	5.63	Adder	6.62
959341	AF2-225 C	10.15	80|50	10.15
959342	AF2-225 E	14.01	80|50	14.01
959613	AF2-252 BAT	21.56	80|50	21.56
960141	AF2-305	1.5	80|50	1.5
960261	AF2-317	2.57	80|50	2.57
960613	AF2-352 BAT	21.56	80|50	21.56
963831	AG1-236 C	4.24	80|50	4.24
963832	AG1-236 E	28.34	80|50	28.34
965331	AG1-398	1.19	80|50	1.19
965341	AG1-399 C	22.74	80|50	22.74
965342	AG1-399 E	106.48	80|50	106.48
965351	AG1-400	64.61	80|50	64.61
965361	AG1-401 C	22.74	80|50	22.74
965362	AG1-401 E	106.48	80|50	106.48
965371	AG1-402	64.61	80|50	64.61
965381	AG1-403 C	15.16	80|50	15.16
965382	AG1-403 E	70.98	80|50	70.98
965391	AG1-404	43.07	80|50	43.07
965911	AG1-460 C	1.97	80|50	1.97
965912	AG1-460 E	2.95	80|50	2.95
951741	J474 C	3.42	Queue MISO	3.42
951742	J474 E	18.49	Queue MISO	18.49
952651	J756 C	3.89	Queue MISO	3.89
952652	J756 E	21.04	Queue MISO	21.04
952871	J757 C	4.56	Queue MISO	4.56
952872	J757 E	24.69	Queue MISO	24.69
953401	J811	9.02	Queue MISO	9.02
953651	J815	32.09	Queue MISO	32.09
953741	J826 C	1.83	Queue MISO	1.83
953742	J826 E	9.9	Queue MISO	9.9
953851	J845 C	1.82	Queue MISO	1.82
953852	J845 E	9.84	Queue MISO	9.84
953881	J848 C	4.93	Queue MISO	4.93
953882	J848 E	26.67	Queue MISO	26.67
954411	J912	12.12	Queue MISO	12.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954721	J750 C	3.11	Queue MISO	3.11
954722	J750 E	16.83	Queue MISO	16.83
954821	J955	154.2	Queue MISO	154.2
955031	J979 C	3.94	Queue MISO	3.94
955032	J979 E	21.34	Queue MISO	21.34
955401	J1022 C	2.75	Queue MISO	2.75
955402	J1022 E	14.86	Queue MISO	14.86
956151	J1102	10.09	Queue MISO	10.09
956281	J1115 C	6.94	Queue MISO	6.94
956282	J1115 E	37.57	Queue MISO	37.57
956451	J1139	13.05	Queue MISO	13.05
990056	J1201	4.21	Queue MISO	4.21
990121	J1216	19.01	Queue MISO	19.01
990181	J1232	7.45	Queue MISO	7.45
990641	J1354	25.15	Queue MISO	25.15
990671	J1360 C	6.72	Queue MISO	6.72
990672	J1360 E	36.37	Queue MISO	36.37
990856	J1408	13.14	Queue MISO	13.14
991001	J1453 C	2.6	Queue MISO	2.6
991002	J1453 E	14.07	Queue MISO	14.07
991006	J1454 C	0.93	Queue MISO	0.93
991007	J1454 E	5.04	Queue MISO	5.04
991036	J1464	57.12	Queue MISO	57.12
LTFEXP_AA2-074	LTFEXP_AA2-074->LTFIMP_AA2-074	0.6328	Confirmed LTF	0.6328
LTFEXP_CBM-N	LTFEXP_CBM-N->LTFIMP_CBM-N	0.8295	LTF/CBM	0.8295
LTFEXP_CBM-S1	LTFEXP_CBM-S1->LTFIMP_CBM-S1	1.0223	LTF/CBM	1.0223
LTFEXP_CBM-S2	LTFEXP_CBM-S2->LTFIMP_CBM-S2	16.6612	LTF/CBM	16.6612
LTFEXP_CBM-W2	LTFEXP_CBM-W2->LTFIMP_CBM-W2	35.0887	LTF/CBM	35.0887
LTFEXP_CPLE	LTFEXP_CPLE->LTFIMP_CPLE	0.9506	Confirmed LTF	0.9506
LTFEXP_G-007A	LTFEXP_G-007A->LTFIMP_G-007A	1.6655	LTF/CMTX	1.6655
LTFEXP_LAGN	LTFEXP_LAGN->LTFIMP_LAGN	5.1312	Confirmed LTF	5.1312

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LTFEXP_LGE-0012019	LTFEXP_LGE-0012019->LTFIMP_LGE-0012019	0.0342	Confirmed LTF	0.0342
LTFEXP_LGEE	LTFEXP_LGEE->LTFIMP_LGEE	1.247	Confirmed LTF	1.247
LTFEXP_MEC	LTFEXP_MEC->LTFIMP_MEC	0.8975	Confirmed LTF	0.8975
LTFEXP_SIGE	LTFEXP_SIGE->LTFIMP_SIGE	0.3315	Confirmed LTF	0.3315
LTFEXP_TVA	LTFEXP_TVA->LTFIMP_TVA	3.9857	Confirmed LTF	3.9857
LTFEXP_VFT	LTFEXP_VFT->LTFIMP_VFT	4.4738	Confirmed LTF	4.4738

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
AA1-018	Powerton-Goodings Grove	In Service
AA2-074	CPLE-PJM	Confirmed
AB1-087	Sullivan 345kV #1	Active
AB1-088	Sullivan 345kV #2	Active
AB1-122	Kendall-Tazewell & Dresden-Mole Creek	Under Construction
AB2-047	Brokaw-Pontiac Midpoint	In Service
AB2-070	Mt. Pulaski-Brokaw	Engineering and Procurement
AC1-033	Kewanee	Active
AC1-053	Lanesville-Brokaw	Active
AC1-168	Kewanee-Streator	Active
AC1-171	Powerton	Active
AC1-204	Elwood	Under Construction
AC1-214	Crescent Ridge	In Service
AC2-157	Sullivan 345 kV	Active
AD1-031	Kewanee 138 kV	Active
AD1-039	Kendall-Tazewell & Dresden-Mole Creek	Active
AD1-116	Nevada 345 kV	Active
AD1-133	Pontiac MidPoint-Dresden	Active
AD1-148	Brokaw-Lanesville	Active
AD2-038	Powerton	Active
AD2-100	Kincaid-Pana	Active
AD2-131	Kincaid-Pana 345kV	Active
AD2-159	Chestnut 345kV	Active
AD2-194	Elwood	Active
AE1-070	Elwood 345 kV	Active
AE1-113	Mole Creek 345 kV	Active
AE1-163	Powerton-Nevada 345 kV	Active
AE1-172	Loretto-Wilton Center	Active
AE1-205	McLean 345 kV	Active

Queue Number	Project Name	Status
AE1-252	Loretto-Wilton Center	Active
AE2-130	Rockport 765 kV	Active
AE2-173	McLean 345 kV	Active
AE2-223	McLean 345 kV	Active
AE2-255	Molecreek 345 kV	Active
AE2-261	Kincaid-Pana	Active
AE2-276	Sullivan 345kV	Active
AE2-281	Powerton-Nevada 345 kV	Active
AF1-088	Sullivan 345 kV	Active
AF1-090	Kincaid-Pana	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
AF2-069	Crescent Ridge 138 kV	Active
AF2-070	Crescent Ridge 138 kV	Active
AF2-095	Davis Creek 138 kV	Active
AF2-096	Braidwood-East Frankfort 345 kV	Active
AF2-128	Crescent Ridge-Corbin 138 kV	Active
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-225	McLean 345 kV	Active
AF2-226	Katydid Road 345 kV	Active
AF2-252	Blue Mound 345 kV	Active
AF2-305	Brokaw-Lanesville 345 kV	Active
AF2-317	Hill Topper 345 kV	Active
AF2-319	Katydid Road 345 kV	Active
AF2-351	Kensington 138 kV	Active
AF2-352	Blue Mound 345 kV	Active
AF2-407	Fall Creek 345 kV	Active
AF2-408	Fall Creek 138 kV	Active
AG1-005	Corbin-Crescent Ridge 138 kV	Active
AG1-121	Kewanee-Streator 138 kV	Active
AG1-226	Eugene-Dequine 345 kV	Active
AG1-236	Lanesville-Brokaw 345 kV	Active
AG1-237	Dequine-Eugene 345 kV	Active
AG1-297	Hanna-Tanners Creek 345 kV	Active
AG1-321	Dresden-Pontiac Midpoint 345 kV	Active

Queue Number	Project Name	Status
AG1-374	Blue Mound 345 kV	Active
AG1-379	Minonk 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
AG1-435	Kewanee-Hennepin 138 kV	Active
AG1-460	Kincaid-Pana 345 kV	Active
AG1-522	Sullivan-Rockport 765 kV	Active
AG1-523	Sullivan-Rockport 765 kV	Active
AG1-524	Sullivan-Rockport 765 kV	Active
AG1-525	Sullivan-Rockport 765 kV	Active
W2-048	Brokaw-Lanesville	In Service
W4-005	Blue Mound-Latham	In Service
X2-022	Brokaw-Lanesville	In Service
Z1-072	Crescent Ridge	In Service
Z2-087	Pontiac MidPoint-Brokaw 345kV	In Service
J1022	MISO	MISO
J1055	MISO	MISO
J1102	MISO	MISO
J1115	MISO	MISO
J1139	MISO	MISO
J1201	MISO	MISO
J1204	MISO	MISO
J1216	MISO	MISO
J1232	MISO	MISO
J1263	MISO	MISO
J1354	MISO	MISO
J1360	MISO	MISO
J1408	MISO	MISO
J1453	MISO	MISO
J1454	MISO	MISO
J1464	MISO	MISO
J1475	MISO	MISO
J474	MISO	MISO
J750	MISO	MISO
J756	MISO	MISO

Queue Number	Project Name	Status
J757	MISO	MISO
J811	MISO	MISO
J815	MISO	MISO
J826	MISO	MISO
J845	MISO	MISO
J848	MISO	MISO
J912	MISO	MISO
J949	MISO	MISO
J955	MISO	MISO
J979	MISO	MISO

11.8 Contingency Descriptions – Primary POI

Contingency Name	Contingency Definition
COMED_P4_BRO-45-BT2-3__	CONTINGENCY 'COMED_P4_BRO-45-BT2-3__' / CONTINGENCY # 849 TRIP BRANCH FROM BUS 270853 TO BUS 270819 CKT 1 / PONTIAC ; R 345 MCLEAN ; R 345 TRIP BRANCH FROM BUS 348847 TO BUS 348848 CKT 2 / 7BROKAW T1 345 4BROKAW 138 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
AEP_P7-1_#11014-A	CONTINGENCY 'AEP_P7-1_#11014-A' OPEN BRANCH FROM BUS 243217 TO BUS 963840 CKT 1 / 243217 05DEQUIN 345 963840 AG1-237 TAP 345 1 OPEN BRANCH FROM BUS 243217 TO BUS 247712 CKT 1 / 243217 05DEQUIN 345 247712 05SULLIVAN 345 1 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

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_P4_012-45-BT14-15	CONTINGENCY 'COMED_P4_012-45-BT14-15' / CONTINGENCY # 79 TRIP BRANCH FROM BUS 935000 TO BUS 270717 CKT 1 / AD1-133 TAP 345 DRESDEN ; R 345 TRIP BRANCH FROM BUS 270697 TO BUS 270717 CKT 1 / COLLINS ; R 345 DRESDEN ; R 345 END
AEP_P4_#4697_05DEQUIN 345_B	CONTINGENCY 'AEP_P4_#4697_05DEQUIN 345_B' OPEN BRANCH FROM BUS 243217 TO BUS 963840 CKT 1 / 243217 05DEQUIN 345 963840 AG1-237 TAP 345 1 OPEN BRANCH FROM BUS 243217 TO BUS 243878 CKT 1 / 243217 05DEQUIN 345 243878 05MEADOW 345 1 END
COMED_P4_012-45-BT12-14	CONTINGENCY 'COMED_P4_012-45-BT12-14' / CONTINGENCY # 78 TRIP BRANCH FROM BUS 270717 TO BUS 930760 CKT 1 / DRESDEN ; R 345 AB1-122 345 TRIP BRANCH FROM BUS 935000 TO BUS 270717 CKT 1 / AD1-133 TAP 345 DRESDEN ; R 345 END
AEP_P1-2_#672_1713-A	CONTINGENCY 'AEP_P1-2_#672_1713-A' OPEN BRANCH FROM BUS 243217 TO BUS 963840 CKT 1 / 243217 05DEQUIN 345 963840 AG1-237 TAP 345 1 END
COMED_P1-2_345-L8001___-S	CONTINGENCY 'COMED_P1-2_345-L8001___-S' / CONTINGENCY # 542 TRIP BRANCH FROM BUS 270853 TO BUS 270819 CKT 1 / PONTIAC ; R 345 MCLEAN ; R 345 END

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
Base Case	
COMED_P4_111-45-L1223T_	CONTINGENCY 'COMED_P4_111-45-L1223T_' / CONTINGENCY # 402 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 DISCONNECT BUS 270731 / ELECT JCT;4R 345 DISCONNECT BUS 275184 / ELECT JCT;4M 138 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
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

Contingency Name	Contingency Definition
COMED_P1-2_345-L8002___-S	CONTINGENCY 'COMED_P1-2_345-L8002___-S' / CONTINGENCY # 543 TRIP BRANCH FROM BUS 270852 TO BUS 270668 CKT 1 / PONTIAC ; B 345 BLUEMOUND; B 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 AG1-403 was evaluated as a 300.0 MW (Capacity 35.20 MW) injection tapping the Brokaw to Mount Pulaski 345 kV line in the ComEd area. Project AG1-403 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-401 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

13.1 Generation Deliverability

(Single or N-1 contingencies)

None

13.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies)

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
179430157	270668	BLUEMOUND; B	345.0	CE	270852	PONTIAC ; B	345.0	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1528.0	174.1	176.19	AC	32.31
174290765	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	238.54	242.51	AC	58.38
179429830	270704	LORETTO ; B	345.0	CE	939400	AE1-172 TAP	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	228.46	232.34	AC	57.33
179429917	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	226.35	230.27	AC	58.43
179429918	270852	PONTIAC ; B	345.0	CE	270704	LORETTO ; B	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	217.92	221.74	AC	57.38
174290761	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P4_012-45-BT12-14	breaker	1528.0	255.63	259.6	AC	58.38
179429708	939400	AE1-172 TAP	345.0	CE	934720	AD1-100 TAP	345.0	CE	1	COMED_P4_012-45-BT14-15	breaker	1528.0	245.54	249.42	AC	57.33
180200006	965340	AG1-399 TAP	345.0	CE	270668	BLUEMOUND; B	345.0	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1829.0	123.66	125.42	AC	32.39
	270685	CHESTNUT ; B	345.0	CE	348856	7LATHAM	345.0	AMIL	1	COMED_P4_BRO-45-BT2-3__	breaker	1793.0	102.39	104.12	AC	32.56
	270685	CHESTNUT ; B	345.0	CE	965340	AG1-399 TAP	345.0	CE	1	COMED_P4_BRO-45-BT2-3__	breaker	1829.0	111.09	112.78	AC	32.39

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
	348847	7BROKAW	345.0	AMIL	965380	AG1-403 TAP	345.0	CE	1	COMED_P4_LAT-45-BT15___	breaker	1327.0	126.37	136.34	AC	135.6
	348847	7BROKAW	345.0	AMIL	965380	AG1-403 TAP	345.0	CE	1	COMED_P4_LAT-45-BT11___	breaker	1327.0	128.26	138.17	AC	135.11

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
168506393	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1528.0	114.32	114.75	AC	19.71
175926921	270717	DRESDEN ; R	345.0	CE	270737	ELWOOD ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1479.0	103.71	104.66	AC	16.76
168506203	270796	KINCAID ; B	345.0	CE	347955	7AUSTIN	345.0	AMIL	1	COMED_P1-2_345-L2105___-S-D	operation	1319.0	142.47	145.87	AC	46.32
168506486	270797	KINCAID ; R	345.0	CE	942480	AE2-261 TAP	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	110.49	112.79	AC	28.72
168506178	270819	MCLEAN ; R	345.0	CE	270853	PONTIAC ; R	345.0	CE	1	COMED_P1-2_345-L8002___-S	operation	1819.0	165.82	169.59	AC	67.56
168506099	270853	PONTIAC ; R	345.0	CE	964580	AG1-321 TAP	345.0	CE	1	COMED_P1-2_345-L11212_B-S-B	operation	1656.0	187.74	191.01	AC	52.19
168506318	348847	7BROKAW	345.0	AMIL	270819	MCLEAN ; R	345.0	CE	1	COMED_P1-2_345-L8002___-S	operation	1793.0	140.22	144	AC	67.62
179634203	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	179.99	182.22	AC	33.61
169733239	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	205.96	209.25	AC	52.19
169733565	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	134.83	137.07	AC	28.72
169733629	942480	AE2-261 TAP	345.0	CE	936770	AD2-100 TAP	345.0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	122.26	124.71	AC	28.72
169733508	944220	AF1-090 TAP	345.0	CE	347945	7PANA	345.0	AMIL	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	134.21	136.49	AC	28.72
170017882	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	194.43	197.69	AC	52.19

14 Affected Systems

14.1 MISO

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