



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-005
CORBIN-CRESCENT RIDGE 138 KV
150 MW Capacity / 250 MW Energy**

January 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.

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Stephenson County, Illinois. The installed facilities will have a total capability of 250 MW with 150 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	AG1-005
Project Name	CORBIN-CRESCENT RIDGE 138 KV
State	Illinois
County	Stephenson
Transmission Owner	ComEd
MFO	250
MWE	250
MWC	150
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

Queue Position AG1-005, a 250 MW solar-farm, proposes to interconnect with the ComEd transmission system by tying into Crescent Ridge- Corbin 138kV line 98105, approximately 20 miles from TSS 981 Crescent Ridge.

5 Cost Summary

The AG1-005 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 20,000,000
Total System Network Upgrade Costs	\$ 422,040,000
Total Costs	\$ 442,040,000

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 AG1-005 generator lead will interconnect to a new 138 kV substation (see details in Direct Connection section below). The required Attachment Facilities are one 138 kV line MOD, one dead-end structure and one set of revenue-metering as shown in the one-line diagram.

Scope of Work	Cost Estimate
Installation of one 138 kV 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

In order to accommodate interconnection of AG1-005, a new 138 kV Interconnection Substation would need to be built looping in the 138kV line 98105 between TSS 981 Crescent Ridge and Corbin (Ameren) substation.

The scope of work includes installation of three 138 kV circuit breakers in “breaker-and-a-half” bus configuration and tie in the Interconnection Substation to the 138kV line 98105, as shown in the one-line diagram below.

The Interconnection Customer is responsible for constructing all the facilities on the Interconnection Customer 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 138kV transmission line.

ComEd would design, engineer and construct the tie in of the Interconnection Substation to 138 kV Line 98105. 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 138 kV substation as described above	N/A
Transmission line tie in work (foundations, structures, conductors)	\$3,000,000
ComEd oversight and testing	\$1,500,000
Total Cost Estimate (see notes below on cost estimate)	\$4,500,000

For ComEd building the interconnecting substation cost estimates:

Scope of Work	Cost Estimate
---------------	---------------

Installation of a new 138 kV substation as described above	\$ 15,000,000
Transmission line tie in work (foundations, structures, conductors)	\$ 3,000,000
Total Cost Estimate (see notes below on cost estimate)	\$ 18,000,000

Normally it takes about 24-months to engineer, design, procure material and construct 138 V facilities after ISA/ICSA are signed.

The total preliminary cost estimate for Non-Direct Connection work is given in the following table below:

6.3 Non-Direct Connection Cost Estimate

Scope of Work	Cost Estimate
Relay/communications/SCADA upgrades at Crescent Ridge TSS 981	\$1,000,000
Relay/communications/SCADA upgrades at Corbin (By Ameren)	0
Total Cost Estimate (see notes below on cost estimate)	\$1,000,000

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 Interconnection Customer.
- 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 Interconnection Customer and the actual costs of ComEd's work may differ significantly from these estimates. Interconnection Customer 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 Interconnection Customer is responsible for all engineering, procurement, testing and construction of all equipment on the Interconnection Customer's side of the POI.

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 for acquiring property and associated legal costs will be investigation during Facilities Study for this project.

The total physical interconnection costs is given in the table below:

Description	Total Cost
Attachment Facilities	\$ 1,000,000
Greenfield 138kV substation	\$ 18,000,000
Substation tie-in	\$ 1,000,000
Total Physical Interconnection Costs	\$ 20,000,000

7 Schedule

See Section 6 and 11.5.

8 Transmission Owner Analysis

See Section 6 and 11.5.

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

The Queue Project AG1-005 was evaluated as a 250.0 MW (Capacity 150.0 MW) injection tapping the Corbin to Crescent Ridge 138 kV line in the ComEd area. Project AG1-005 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-005 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)

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
162539256	271836	KEWANEENEE;11	138.0	CE	271837	KEWANEENEE;12	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	single	246.0	67.9	120.13	DC	128.48
162539248	946540	AF1-318 TAP	138.0	CE	271241	CRESCENT; R	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	single	179.0	37.09	120.89	DC	150.0
169825538	958340	AF2-128 TAP	138.0	CE	348935	4CORBIN	138.0	AMILL	1	COMED_P1-2_138-L6101___-S-B	single	179.0	81.7	140.68	DC	105.58
169825539	958340	AF2-128 TAP	138.0	CE	348935	4CORBIN	138.0	AMILL	1	EXT_P21:138:AMILL::EKEWANEENEE:PRINCETONTAP	single	179.0	82.44	142.13	DC	106.85
169825540	958340	AF2-128 TAP	138.0	CE	348935	4CORBIN	138.0	AMILL	1	Base Case	single	179.0	72.5	133.38	DC	108.98
162539264	961650	AG1-005 TAP	138.0	CE	958340	AF2-128 TAP	138.0	CE	1	COMED_P1-2_138-L6101___-S-B	single	179.0	75.95	134.93	DC	105.58
162539265	961650	AG1-005 TAP	138.0	CE	958340	AF2-128 TAP	138.0	CE	1	COMED_P2-1_074-L6101___-C	single	179.0	74.75	134.47	DC	106.9
162539269	961650	AG1-005 TAP	138.0	CE	958340	AF2-128 TAP	138.0	CE	1	Base Case	single	179.0	66.55	127.43	DC	108.98

11.2 Multiple Facility Contingency

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

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
162949880	271987	MAZON; R	138.0	CE	271187	CHANNAHON; R	138.0	CE	1	COMED_P7-1_138-L6101___-S_+_138-L7413__R-S-B	tower	230.0	80.2	102.09	DC	50.35
162949881	271987	MAZON; R	138.0	CE	271187	CHANNAHON; R	138.0	CE	1	COMED_P7-1_138-L6101___-S_+_138-L7413__R-S-A	tower	230.0	88.62	110.05	DC	49.29
162949906	272125	ESSJ339; R	138.0	CE	271337	DRESDEN; R	138.0	CE	1	COMED_P7-1_138-L6101___-S_+_138-L7413__R-S-A	tower	280.0	87.11	104.68	DC	49.14
162949868	272607	TOULON; R	138.0	CE	272269	POWERTON;	138.0	CE	1	COMED_P7-1_138-L6101___-S_+_138-L98105__R-S-B	tower	274.0	92.8	110.58	DC	48.69

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
162949869	272607	TOULON ; R	138.0	CE	272269	POWERTON ;	138.0	CE	1	COMED_P7-1_138-L6101__S+_138-L98105_R-S-D	tower	274.0	92.8	110.58	DC	48.69
161979276	348935	4CORBIN	138.0	AMIL	936510	AD2-066 TAP	138.0	CE	1	COMED_P2-2_001_LA-138B_1	bus	223.0	85.16	106.6	DC	47.81
162949859	936510	AD2-066 TAP	138.0	CE	271987	MAZON ; R	138.0	CE	1	COMED_P7-1_138-L6101__S+_138-L7413__R-S-B	tower	230.0	94.58	119.05	DC	56.28

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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
161979486	271838	KEWANEE ;13	138.0	CE	348923	4KEWANEE N	138.0	AMIL	1	COMED_P7-1_138-L6101__S+_138-L98105_R-S-B	tower	449.0	127.7	147.9	DC	90.68
161979487	271838	KEWANEE ;13	138.0	CE	348923	4KEWANEE N	138.0	AMIL	1	COMED_P7-1_138-L6101__S+_138-L98105_R-S-D	tower	449.0	127.7	147.9	DC	90.68
161979166	272269	POWERTON ;	138.0	CE	349600	4TOWERLINE	138.0	AMIL	1	COMED_P2-2_074_KE-138_1	bus	214.0	131.19	134.82	DC	17.26
161979481	272269	POWERTON ;	138.0	CE	349600	4TOWERLINE	138.0	AMIL	1	COMED_P7-1_138-L6101__S+_138-L98105_R-S-B	tower	214.0	148.21	170.96	DC	48.69
161979482	272269	POWERTON ;	138.0	CE	349600	4TOWERLINE	138.0	AMIL	1	COMED_P7-1_138-L6101__S+_138-L98105_R-S-D	tower	214.0	148.21	170.96	DC	48.69
161979491	349662	7TAZEWELL	345.0	AMIL	930760	AB1-122 TAP1	345.0	CE	1	COMED_P7-1_345-L9806__R-S+_345-L19601_B-S	tower	1479.0	171.77	174.33	DC	37.63
161979492	349662	7TAZEWELL	345.0	AMIL	930760	AB1-122 TAP1	345.0	CE	1	COMED_P7-1_345-L0301__B-S+_345-L0303__R-S-B	tower	1479.0	155.83	158.4	DC	37.69
161979506	930760	AB1-122 TAP1	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	COMED_P7-1_345-L9806__R-S+_345-L19601_B-S	tower	1768.0	162.96	165.1	DC	37.63

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
169515338	930760	AB1-122 TAP1	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	COMED_P1-2_345-L1202_B-S	single	1479.0	122.28	123.62	DC	19.79
169515339	930760	AB1-122 TAP1	345.0	CE	270717	DRESDEN ; R	345.0	CE	1	Base Case	single	1201.0	111.69	113.25	DC	18.77
162298006	936510	AD2-066 TAP	138.0	CE	271987	MAZON ; R	138.0	CE	1	COMED_P2-2_074_KE-138_1	bus	230.0	100.39	123.68	DC	53.56
162394480	936510	AD2-066 TAP	138.0	CE	271987	MAZON ; R	138.0	CE	1	COMED_P4_074-38-L15508_	breaker	230.0	100.94	124.26	DC	53.63
162394481	936510	AD2-066 TAP	138.0	CE	271987	MAZON ; R	138.0	CE	1	COMED_P4_074-38-L7413_	breaker	230.0	100.39	123.68	DC	53.56
162949860	936510	AD2-066 TAP	138.0	CE	271987	MAZON ; R	138.0	CE	1	COMED_P7-1_138-L6101_-S+_138-L7413_R-S-A	tower	230.0	107.16	131.35	DC	55.62

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
168295709	270717	DRESDEN ; R	345.0	CE	270697	COLLINS ; R	345.0	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	114.89	115.09	DC	17.39
162539239	271241	CRESCENT ; R	138.0	CE	271836	KEWANE ;11	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	214.0	284.71	401.5	DC	249.95
162539243	271241	CRESCENT ; R	138.0	CE	271836	KEWANE ;11	138.0	CE	1	Base Case	operation	190.0	116.26	152.21	DC	68.31
162539486	271835	KEWANE ;23	138.0	CE	965670	AG1-435 TAP	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	201.0	106.96	121.71	DC	29.65
162539252	271836	KEWANE ;11	138.0	CE	271837	KEWANE ;12	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	246.0	253.97	341.02	DC	214.13
162539254	271836	KEWANE ;11	138.0	CE	271837	KEWANE ;12	138.0	CE	1	Base Case	operation	190.0	123.05	148.37	DC	48.12
162539396	271837	KEWANE ;12	138.0	CE	271838	KEWANE ;13	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	449.0	128.35	169.73	DC	185.81
168295625	271838	KEWANE ;13	138.0	CE	348923	4KEWANE N	138.0	AMIL	1	COMED_P1-2_138-L98105_R-S-D	operation	449.0	98.55	115.51	DC	76.18
162539522	271845	KEWANE ;21	138.0	CE	271839	KEWANE ;22	138.0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	449.0	82.12	106.53	DC	109.58
162539518	271908	LASCO STA; B	138.0	CE	271986	MAZON ; B	138.0	CE	1	COMED_P1-3_TR81_LASCO_B-S	operation	223.0	96.43	100.92	DC	22.17
162539440	271987	MAZON ; R	138.0	CE	271187	CHANNAHON; R	138.0	CE	1	Base Case	operation	173.0	98.0	119.51	DC	37.21

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 PROJE CT LOADING %	POST PROJE CT LOADING %	AC DC	MW IMP ACT
162539 441	2719 87	MAZON ; R	138 .0	CE	2711 87	CHANNA HON; R	138 .0	CE	1	EXT_P12:138:AMIL::MCCLEANCOUNTY:OGLESBY:1382	operation	223.0	83.31	102.99	DC	43.88
162539 465	2721 25	ESS J339; R	138 .0	CE	2713 37	DRESDEN ; R	138 .0	CE	1	Base Case	operation	210.0	99.89	117.56	DC	37.06
162539 466	2721 25	ESS J339; R	138 .0	CE	2713 37	DRESDEN ; R	138 .0	CE	1	EXT_P12:138:AMIL::MCCLEANCOUNTY:OGLESBY:1382	operation	268.0	84.47	100.79	DC	43.73
168295 430	2722 69	POWER TON ;	138 .0	CE	3496 00	4TOWER LINE	138 .0	AMIL	1	EXT_348923 4KEWANEE N 138 348974 4KEWANEE S 138 Z	operation	214.0	131.4	144.7	DC	28.46
168295 431	2722 69	POWER TON ;	138 .0	CE	3496 00	4TOWER LINE	138 .0	AMIL	1	Base Case	operation	184.0	130.45	136.12	DC	23.15
162539 369	2726 07	TOULON ; R	138 .0	CE	2722 69	POWER TON ;	138 .0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	194.0	120.18	142.83	DC	43.95
162539 372	2726 07	TOULON ; R	138 .0	CE	2722 69	POWER TON ;	138 .0	CE	1	Base Case	operation	155.0	114.69	121.42	DC	23.15
169515 593	3489 35	4CORBIN	138 .0	AMIL	9365 10	AD2-066 TAP	138 .0	CE	1	COMED_P1-2_138-L0112__B-S	operation	223.0	83.74	105.25	DC	47.96
169515 594	3489 35	4CORBIN	138 .0	AMIL	9365 10	AD2-066 TAP	138 .0	CE	1	Base Case	operation	173.0	76.13	100.18	DC	41.61
169515 394	3496 62	7TAZE WELL	345 .0	AMIL	9307 60	AB1-122 TAP1	345 .0	CE	1	COMED_P1-2_345-L1202__B-S	operation	1479.0	154.88	157.12	DC	32.98
169515 395	3496 62	7TAZE WELL	345 .0	AMIL	9307 60	AB1-122 TAP1	345 .0	CE	1	Base Case	operation	1201.0	143.21	145.83	DC	31.28
169515 336	9307 60	AB1-122 TAP1	345 .0	CE	2707 17	DRESDEN ; R	345 .0	CE	1	COMED_P1-2_345-L1202__B-S	operation	1479.0	180.1	182.34	DC	32.98
169515 337	9307 60	AB1-122 TAP1	345 .0	CE	2707 17	DRESDEN ; R	345 .0	CE	1	Base Case	operation	1201.0	172.3	174.92	DC	31.28
162539 409	9365 10	AD2-066 TAP	138 .0	CE	2719 87	MAZON ; R	138 .0	CE	1	Base Case	operation	173.0	118.17	142.22	DC	41.61
162539 410	9365 10	AD2-066 TAP	138 .0	CE	2719 87	MAZON ; R	138 .0	CE	1	EXT_P12:138:AMIL::MCCLEANCOUNTY:OGLESBY:1382	operation	223.0	98.16	120.16	DC	49.07
169515 641	9367 70	AD2-100 TAP	345 .0	CE	9442 20	AF1-090 TAP	345 .0	CE	1	EXT_P12:345:AMIL::AUSTIN:PANA:1	operation	1201.0	100.74	101.32	DC	15.31
162539 246	9465 40	AF1-318 TAP	138 .0	CE	2712 41	CRESCENT ; R	138 .0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	179.0	211.77	351.44	DC	250.0
169825 535	9583 40	AF2-128 TAP	138 .0	CE	3489 35	4CORBIN	138 .0	AMIL	1	COMED_P1-2_138-L6101__S-B	operation	179.0	255.18	353.5	DC	175.97
169825 537	9583 40	AF2-128 TAP	138 .0	CE	3489 35	4CORBIN	138 .0	AMIL	1	Base Case	operation	179.0	247.21	348.68	DC	181.64
162539 258	9616 50	AG1-005 TAP	138 .0	CE	9583 40	AF2-128 TAP	138 .0	CE	1	COMED_P2-1_074-L6101__C	operation	179.0	223.45	322.99	DC	178.17
162539 263	9616 50	AG1-005 TAP	138 .0	CE	9583 40	AF2-128 TAP	138 .0	CE	1	Base Case	operation	179.0	212.89	314.36	DC	181.64
162539 341	9616 50	AG1-005 TAP	138 .0	CE	9465 40	AF1-318 TAP	138 .0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	179.0	44.25	183.91	DC	250.0
162539 415	9656 70	AG1-435 TAP	138 .0	CE	9627 20	AG1-121 TAP	138 .0	CE	1	COMED_P1-2_138-L98105_R-S-D	operation	201.0	106.81	121.56	DC	29.65

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
169515338,169515339,161979506	13	AB1-122 TAP1 345.0 kV - DRESDEN ; R 345.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L1227_1 (124) : Re-conductor the line segment impacted. A preliminary estimate for the work is \$4M. An estimated construction timeline is 30 months subject to outage coordination with Dresden Nuclear Station. Upon completion the rating limits will be 1679/2058/2107/2280 MVA (SN/SLTE/SSTE/SLD) Project Type : FAC Cost : \$4,000,000 Time Estimate : 30.0 Months</p> <p>CE_NUN_L1227_3 (126) : Re-conductor the line segment impacted and upgrade relay package. A preliminary estimate for the work is \$5M. An estimated construction timeline is 30 months subject to outage coordination with Dresden Nuclear Station. Upon completion the rating limits will be 1961/2112/2524/3015/3467 MVA (SN/SLTE/SSTE/SLD/ALDR) Project Type : FAC Cost : \$5,000,000 Time Estimate : 30.0 Months</p>	\$9,000,000
162949868,162949869	7	TOULON ; R 138.0 kV - POWERTON ; 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L0321_1 (106) : ComEd 138kV L0321 ALDR rating is 315 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to reconductor the line, upgrade the station conductor upgrade the line disconnect switch. A preliminary estimate for the upgrade is \$32M. Additional costs such as multiple tower replacements were not included in this estimate and would not be determined until the Facility Study Phase. The tower replacement costs could add significantly to the project cost. The estimated construction timeline for this upgrade (minus tower replacements) is 36 months. Upon completion of the upgrade the ratings will be 245/318/372/392/451 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : \$32,000,000 Time Estimate : 36.0 Months</p>	\$32,000,000
162949906	6	ESS J339 ; R 138.0 kV - DRESDEN ; R 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L1206 (105) : Reconductor 138kV L1206 from Dresden Station to ESS J339. Upon completion of work the ratings will be 312/312/318/334/384 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : \$1,750,000 Time Estimate : 24.0 Months</p>	\$1,750,000

ID	Idx	Facility	Upgrade Description	Cost
162298006,162949859,162394480,162394481,162949860	9	AD2-066 TAP 138.0 kV - MAZON ; R 138.0 kV Ckt 1	<u>ComEd</u> CE_NUN_L7713_1 (20) : ComEd 138kV L7713 ALDR rating is 265 MVA. The upgrade will be to replace a circuit breaker and re-conductor a portion of the line. A preliminary estimate for the upgrade is \$32.2M with an estimated construction timeline of 24-30 months. Upon completion of the upgrade the ratings will be 292/321/367/280/433 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$32,200,000 Time Estimate : 24-30 Months	\$32,200,000
161979276	8	4OGLESBY MN 138.0 kV - AD2-066 TAP 138.0 kV Ckt 1	<u>AMIL</u> NonPJMArea (33) : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months <u>ComEd</u> Not a violation for ComEd portion	\$0
169825540,169825538,169825539	3	AF2-128 TAP 138.0 kV - 4OGLESBY MN 138.0 kV Ckt 1	<u>AMIL</u> NonPJMArea (33) : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months <u>ComEd</u> CE_NUN_L7713_2 (80) : Re-conductor a portion of the line. A preliminary estimate for this upgrade is \$7.2M with an estimated construction timeline of 30 months. Upon completion of the upgrade the new ratings will be 351/449/459/498/688 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : \$7,200,000 Time Estimate : 30.0 Months	\$7,200,000
161979166,161979482,161979481	11	POWERTON ; 138.0 kV - 4TOWERLINE 138.0 kV Ckt 1	<u>ComEd</u> CE_NUN_1404 (48) : ComEd 138kV L1404 (former L1352) ALDR rating is 265 MVA. The upgrade will be to re-conductor the line, replace station conductor and a line trap. A preliminary estimate for the upgrade is \$5.8M with an estimated construction timeline of 30 months. Upon completion of the upgrade the ratings will be 302/332/402/482/554 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : \$5,800,000 Time Estimate : 30.0 Months	\$5,800,000

ID	Idx	Facility	Upgrade Description	Cost
162539269,162539265,162539264	4	AG1-005 TAP 138.0 kV - AF2-128 TAP 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L7713_3 (81) : Perform sag mitigation on a portion of the line. A preliminary estimate for this upgrade is \$3.6M with an estimated construction timeline of 30 months. Upon completion of the upgrade the new ratings will be 210/268/269/280/322 MVA (SN/SLTE/SSSTE/SLD/ALDR). Project Type : FAC Cost : \$3,600,000 Time Estimate : 30.0 Months</p> <p>CE_NUN_L7713_4 (85) : Re-conductor a portion of the line. A preliminary estimate for this upgrade is \$15.1M with an estimated construction timeline of 30-36 months. Upon completion of the upgrade the new ratings will be 351/449/459/498/688 MVA (SN/SLTE/SSSTE/SLD/ALDR). Project Type : FAC Cost : \$15,100,000 Time Estimate : 30-36 Months</p>	\$18,700,000
162539248	2	AF1-318 TAP 138.0 kV - CRESCENT ; R 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L7713_3 (81) : Perform sag mitigation on a portion of the line. A preliminary estimate for this upgrade is \$3.6M with an estimated construction timeline of 30 months. Upon completion of the upgrade the new ratings will be 210/268/269/280/322 MVA (SN/SLTE/SSSTE/SLD/ALDR). Project Type : FAC Cost : \$3,600,000 Time Estimate : 30.0 Months</p>	\$3,600,000
162949880,162949881	5	MAZON ; R 138.0 kV - CHANNAHON; R 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_L7719 (141) : 138kV line conductor upgrades, replace station conductor at both terminals and upgrade 1-138kV circuit breaker. A preliminary estimate is \$5.2M with a construction timeline of 30 months. Upon completion the limit rating swill be 292/321/367/433 MVA (SN/SLTE/SSSTE/SLD). Project Type : FAC Cost : \$5,200,000 Time Estimate : 30.0 Months</p>	\$5,200,000
161979486,161979487	10	KEWANEE ;13 138.0 kV - 4KEWANEE N 138.0 kV Ckt 1	<p><u>ComEd</u> CE_NUN_TSS 74 BT N-13 (151) : The upgrade will be to re-conductor the line segment. This upgrade will need to be confirmed during the Facility Study. A preliminary estimate for the upgrade is \$2.5M. A preliminary estimate is 30 months. Upon completion of the upgrade the ratings will be 702/898/919/995 MVA (SN/SLTE/SSSTE/SLD). Project Type : FAC Cost : \$2,500,000 Time Estimate : 30.0 Months</p>	\$2,500,000

ID	Idx	Facility	Upgrade Description	Cost
161979492,161979491	12	7TAZEWELL 345.0 kV - AB1-122 TAP1 345.0 kV Ckt 1	<p><u>AMIL</u> NonPJMArea (33) : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months</p> <p><u>ComEd</u> CE_NUN_L1227_2 (125) : Sag mitigation the line segment impacted. A preliminary estimate for the work is \$39.9M. An estimated construction timeline is 30 months. Upon completion the rating limits will be 1679/2058/2107/2280 MVA (SN/SLTE/SSTE/SLD) Project Type : FAC Cost : \$39,900,000 Time Estimate : 30.0 Months</p> <p>CE_NUN_L93915 (Former L1227)_NEW LINE (152) : Construct new 345kV from AB1-122 Interconnection Substation to Ameren (Tazewell) Station. In addition to new overhead conductor and new towers. Upgrade existing towers, new 345kV circuit breakers at the AB1-122 Interconnection Substation and facility work at Ameren's station. A minimum estimate for this upgrade will be \$306M (not including Ameren costs). A construction timeline is subject to availability of easement. This upgrade relieves the constrained path and does not impact the ratings. Project Type : CON Cost : \$306,000,000 Time Estimate : Months</p>	\$345,900,000
162539256	1	KEWANEE ;11 138.0 kV - KEWANEE ;12 138.0 kV Ckt 1	<p><u>AMIL</u> NonPJMArea (33) : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months</p> <p><u>ComEd</u> CE_NUN_TSS 74 BT 11-12 (95) : The post contingency flow for this event exceeds the station conductor rating. The upgrade will be to replace the station conductor. A preliminary estimate for the upgrade is \$540,000 with an estimated construction timeline of 24 months. Upon completion of the upgrade the ratings will be 351/449/459/498 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$540,000 Time Estimate : 24.0 Months</p>	\$540,000
			TOTAL COST	\$422,040,000

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
162539256	271836	KEWANEE ;11	CE	271837	KEWANEE ;12	CE	1	COMED_P1-2_138-L98105_R-S-D	single	246.0	67.9	120.13	DC	128.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274849	CRESCENT ;1U	1.3513	80/20	1.3513
274851	PROVIDENC;RU	1.3919	80/20	1.3919
276156	O-029 C	0.2113	80/20	0.2113
276157	O-029 C	0.2285	80/20	0.2285
276158	O-029 C	0.4169	80/20	0.4169
293513	O-009 C1	0.3903	80/20	0.3903
293514	O-009 C2	0.1980	80/20	0.1980
293515	O-009 C3	0.2189	80/20	0.2189
295110	SUBLETTE C	0.0258	80/20	0.0258
927201	AC1-214 C O1	2.5679	80/20	2.5679
946541	AF1-318 C O1	45.2189	80/20	45.2189
957751	AF2-069 C	1.8844	80/20	1.8844
957761	AF2-070 C	2.6552	80/20	2.6552
958341	AF2-128 C O1	11.9840	80/20	11.9840
961651	AG1-005 C O1	128.4750	80/20	128.4750
WEC	WEC	0.2659	Confirmed LTF	0.2659
CALDERWOOD	CALDERWOOD	0.0373	Confirmed LTF	0.0373
NY	NY	0.0553	Confirmed LTF	0.0553
PRAIRIE	PRAIRIE	0.2273	Confirmed LTF	0.2273
CHEOAH	CHEOAH	0.0375	Confirmed LTF	0.0375
HAMLET	HAMLET	0.0491	Confirmed LTF	0.0491
MEC	MEC	1.0853	Confirmed LTF	1.0853
GIBSON	GIBSON	0.0890	Confirmed LTF	0.0890
BLUEG	BLUEG	0.2239	Confirmed LTF	0.2239
TRIMBLE	TRIMBLE	0.0718	Confirmed LTF	0.0718
LAGN	LAGN	0.0367	Confirmed LTF	0.0367
CATAWBA	CATAWBA	0.0290	Confirmed LTF	0.0290
CBM-W1	CBM-W1	6.7857	Confirmed LTF	6.7857

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
162539248	946540	AF1-318 TAP	CE	271241	CRESCENT	CE	1	COMED_P1-2_138-L98105_R-S-D	single	179.0	37.09	120.89	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946541	AF1-318 C O1	52.7950	80/20	52.7950
958341	AF2-128 C O1	13.9920	80/20	13.9920
961651	AG1-005 C O1	150.0000	80/20	150.0000

11.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
169825539	958340	AF2-128 TAP	CE	348935	4CORBIN	AMILL	1	EXT_P21:138:AMIL::EKEWANEE:PRINCETONTAP	single	179.0	82.44	142.13	DC	106.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274848	CAMP GROVE;RU	0.3385	80/20	0.3385
274849	CRESCENT ;1U	0.5434	80/20	0.5434
274851	PROVIDENC;RU	0.5597	80/20	0.5597
274877	BISHOP HL;1U	0.3091	80/20	0.3091
274878	BISHOP HL;2U	0.3091	80/20	0.3091
925581	AC1-033 C	1.2910	80/20	1.2910
927201	AC1-214 C O1	1.0325	80/20	1.0325
934051	AD1-031 C O1	2.5932	80/20	2.5932
946541	AF1-318 C O1	36.3082	80/20	36.3082
957751	AF2-069 C	0.7577	80/20	0.7577
957761	AF2-070 C	1.0676	80/20	1.0676
958341	AF2-128 C O1	10.6127	80/20	10.6127
961651	AG1-005 C O1	106.8450	80/20	106.8450
WEC	WEC	0.1096	Confirmed LTF	0.1096
CBM-W2	CBM-W2	0.9766	Confirmed LTF	0.9766
NY	NY	0.0205	Confirmed LTF	0.0205
TVA	TVA	0.1078	Confirmed LTF	0.1078
SIGE	SIGE	0.0008	Confirmed LTF	0.0008
CBM-S2	CBM-S2	0.0940	Confirmed LTF	0.0940
CBM-S1	CBM-S1	0.0217	Confirmed LTF	0.0217
MEC	MEC	1.0916	Confirmed LTF	1.0916
GIBSON	GIBSON	0.0224	Confirmed LTF	0.0224
BLUEG	BLUEG	0.0660	Confirmed LTF	0.0660
TRIMBLE	TRIMBLE	0.0223	Confirmed LTF	0.0223
LAGN	LAGN	0.2713	Confirmed LTF	0.2713
CBM-W1	CBM-W1	4.5425	Confirmed LTF	4.5425

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
162539265	961650	AG1-005 TAP	CE	958340	AF2-128 TAP	CE	1	COMED_P2-1_074-L6101__-C	single	179.0	74.75	134.47	DC	106.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274848	CAMPGROVE;RU	0.3398	80/20	0.3398
274849	CRESCENT ;1U	0.5436	80/20	0.5436
274851	PROVIDENC;RU	0.5599	80/20	0.5599
274877	BISHOP HL;1U	0.3097	80/20	0.3097
274878	BISHOP HL;2U	0.3097	80/20	0.3097
925581	AC1-033 C	1.2915	80/20	1.2915
927201	AC1-214 C O1	1.0330	80/20	1.0330
934051	AD1-031 C O1	2.6065	80/20	2.6065
946541	AF1-318 C O1	36.3277	80/20	36.3277
957751	AF2-069 C	0.7581	80/20	0.7581
957761	AF2-070 C	1.0682	80/20	1.0682
961651	AG1-005 C O1	106.9020	80/20	106.9020
962721	AG1-121 C O1	5.0852	80/20	5.0852
965671	AG1-435 C O1	3.4489	80/20	3.4489
WEC	WEC	0.1096	Confirmed LTF	0.1096
CBM-W2	CBM-W2	0.9766	Confirmed LTF	0.9766
NY	NY	0.0210	Confirmed LTF	0.0210
TVA	TVA	0.1078	Confirmed LTF	0.1078
SIGE	SIGE	0.0009	Confirmed LTF	0.0009
CBM-S2	CBM-S2	0.0940	Confirmed LTF	0.0940
CBM-S1	CBM-S1	0.0217	Confirmed LTF	0.0217
MEC	MEC	1.0948	Confirmed LTF	1.0948
GIBSON	GIBSON	0.0224	Confirmed LTF	0.0224
BLUEG	BLUEG	0.0677	Confirmed LTF	0.0677
TRIMBLE	TRIMBLE	0.0223	Confirmed LTF	0.0223
LAGN	LAGN	0.2713	Confirmed LTF	0.2713
CBM-W1	CBM-W1	4.5425	Confirmed LTF	4.5425

11.6.5 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
162949881	271987	MAZON ;R	CE	271187	CHANNAHON; R	CE	1	COMED_P7-1_138-L6101__ - S_+_138-L7413__R-S-A	tower	230.0	88.62	110.05	DC	49.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274849	CRESCENT ;1U	0.3111	50/50	0.3111
274851	PROVIDENC;RU	0.3204	50/50	0.3204
293771	O-035 E	11.6731	50/50	11.6731
294401	BSHIL;1U E	3.7788	Adder	4.45
294410	BSHIL;2U E	3.7788	Adder	4.45
916211	Z1-072 E	8.8337	50/50	8.8337
925581	AC1-033 C	0.6181	Adder	0.73
925582	AC1-033 E	4.1380	Adder	4.87
926821	AC1-168 C O1	1.4083	50/50	1.4083
926822	AC1-168 E O1	9.4509	50/50	9.4509
927201	AC1-214 C O1	0.5911	50/50	0.5911
927202	AC1-214 E O1	11.9097	50/50	11.9097
934051	AD1-031 C O1	1.2576	Adder	1.48
934052	AD1-031 E O1	2.0518	Adder	2.41
936511	AD2-066 C O1	39.4305	50/50	39.4305
936512	AD2-066 E O1	26.2870	50/50	26.2870
946541	AF1-318 C O1	10.4101	50/50	10.4101
946542	AF1-318 E O1	48.7380	50/50	48.7380
953201	J715 C	3.0462	PJM External (MISO)	3.0462
953202	J715 E	16.4808	PJM External (MISO)	16.4808
957751	AF2-069 C	0.4338	50/50	0.4338
957752	AF2-069 E	1.4000	50/50	1.4000
957761	AF2-070 C	0.6113	50/50	0.6113
957762	AF2-070 E	2.9676	50/50	2.9676
958341	AF2-128 C O1	2.7588	50/50	2.7588
958342	AF2-128 E O1	12.9162	50/50	12.9162
961651	AG1-005 C O1	29.5755	50/50	29.5755
961652	AG1-005 E O1	19.7170	50/50	19.7170
962721	AG1-121 C O1	2.2642	Adder	5.03
962722	AG1-121 E O1	10.5925	Adder	23.51
965671	AG1-435 C O1	1.2880	Adder	2.86
965672	AG1-435 E O1	6.0300	Adder	13.39
966081	AG1-477 C	5.3834	50/50	5.3834
966082	AG1-477 E	1.3543	50/50	1.3543
966101	AG1-479 C (Withdrawn : 12/03/2020)	5.3834	50/50	5.3834
966102	AG1-479 E (Withdrawn : 12/03/2020)	1.3543	50/50	1.3543
LGEE	LGEE	0.0540	Confirmed LTF	0.0540

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CPL	CPL	0.0532	Confirmed LTF	0.0532
G-007A	G-007A	0.0551	Confirmed LTF	0.0551
VFT	VFT	0.1484	Confirmed LTF	0.1484
CBM-W2	CBM-W2	2.5715	Confirmed LTF	2.5715
TVA	TVA	0.2786	Confirmed LTF	0.2786
SIGE	SIGE	0.0129	Confirmed LTF	0.0129
CBM-S2	CBM-S2	0.9918	Confirmed LTF	0.9918
CBM-S1	CBM-S1	0.0676	Confirmed LTF	0.0676
CBM-N	CBM-N	0.0276	Confirmed LTF	0.0276
MEC	MEC	0.7866	Confirmed LTF	0.7866
LAGN	LAGN	0.4445	Confirmed LTF	0.4445
CBM-W1	CBM-W1	1.7104	Confirmed LTF	1.7104

11.6.6 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
162949906	272125	ESS J339 ; R	CE	271337	DRESDEN ; R	CE	1	COMED_P7-1_138-L6101__S_+_138-L7413__R-S-A	tower	280.0	87.11	104.68	DC	49.14

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274836	EQUISTAR ; R	15.6223	50/50	15.6223
274849	CRESCENT ;1U	0.3101	50/50	0.3101
274851	PROVIDENC;RU	0.3194	50/50	0.3194
293771	O-035 E	11.6375	50/50	11.6375
294401	BSHIL;1U E	3.7373	Adder	4.4
294410	BSHIL;2U E	3.7373	Adder	4.4
916211	Z1-072 E	8.8068	50/50	8.8068
925581	AC1-033 C	0.6114	Adder	0.72
925582	AC1-033 E	4.0933	Adder	4.82
926821	AC1-168 C O1	1.4021	50/50	1.4021
926822	AC1-168 E O1	9.4091	50/50	9.4091
927201	AC1-214 C O1	0.5893	50/50	0.5893
927202	AC1-214 E O1	11.8734	50/50	11.8734
934051	AD1-031 C O1	1.2438	Adder	1.46
934052	AD1-031 E O1	2.0293	Adder	2.39
936511	AD2-066 C O1	39.3880	50/50	39.3880
936512	AD2-066 E O1	26.2587	50/50	26.2587
946541	AF1-318 C O1	10.3779	50/50	10.3779
946542	AF1-318 E O1	48.5872	50/50	48.5872
953201	J715 C	3.0462	PJM External (MISO)	3.0462
953202	J715 E	16.4808	PJM External (MISO)	16.4808
957751	AF2-069 C	0.4325	50/50	0.4325
957752	AF2-069 E	1.3957	50/50	1.3957
957761	AF2-070 C	0.6094	50/50	0.6094
957762	AF2-070 E	2.9585	50/50	2.9585
958341	AF2-128 C O1	2.7504	50/50	2.7504
958342	AF2-128 E O1	12.8769	50/50	12.8769
961651	AG1-005 C O1	29.4855	50/50	29.4855
961652	AG1-005 E O1	19.6570	50/50	19.6570
962721	AG1-121 C O1	2.2502	Adder	4.99
962722	AG1-121 E O1	10.5269	Adder	23.37
965671	AG1-435 C O1	1.2783	Adder	2.84
965672	AG1-435 E O1	5.9847	Adder	13.28
966081	AG1-477 C	5.3739	50/50	5.3739
966082	AG1-477 E	1.3519	50/50	1.3519
966093	AG1-478 BAT	0.2675	Merchant Transmission	0.2675
966101	AG1-479 C (Withdrawn : 12/03/2020)	5.3739	50/50	5.3739

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966102	AG1-479 E (Withdrawn : 12/03/2020)	1.3519	50/50	1.3519
LGEE	LGEE	0.0157	Confirmed LTF	0.0157
CPL	CPL	0.0116	Confirmed LTF	0.0116
CBM-W2	CBM-W2	2.0250	Confirmed LTF	2.0250
NY	NY	0.0227	Confirmed LTF	0.0227
TVA	TVA	0.1932	Confirmed LTF	0.1932
O-066	O-066	0.2557	Confirmed LTF	0.2557
SIGE	SIGE	0.0129	Confirmed LTF	0.0129
CBM-S2	CBM-S2	0.3550	Confirmed LTF	0.3550
CBM-S1	CBM-S1	0.0445	Confirmed LTF	0.0445
G-007	G-007	0.0399	Confirmed LTF	0.0399
MEC	MEC	0.6896	Confirmed LTF	0.6896
LAGN	LAGN	0.3378	Confirmed LTF	0.3378
CBM-W1	CBM-W1	0.8552	Confirmed LTF	0.8552

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
162949869	272607	TOULON ;R	CE	272269	POWERTON ;	CE	1	COMED_P7-1_138-L6101__-S+_138-L98105_R-S-D	tower	274.0	92.8	110.58	DC	48.69

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274848	CAMPGROVE;RU	1.3210	50/50	1.3210
274849	CRESCENT ;1U	0.3073	50/50	0.3073
274851	PROVIDENC;RU	0.3165	50/50	0.3165
274877	BISHOP HL;1U	0.6170	50/50	0.6170
274878	BISHOP HL;2U	0.6170	50/50	0.6170
293516	O-009 E1	4.9539	Adder	5.83
293517	O-009 E2	2.5162	Adder	2.96
293518	O-009 E3	2.7710	Adder	3.26
293715	O-029 E	5.2963	Adder	6.23
293716	O-029 E	2.9039	Adder	3.42
293717	O-029 E	2.6690	Adder	3.14
293771	O-035 E	11.5316	50/50	11.5316
294401	BSHIL;1U E	15.6424	50/50	15.6424
294410	BSHIL;2U E	15.6424	50/50	15.6424
916211	Z1-072 E	8.7266	50/50	8.7266
925581	AC1-033 C	2.5533	50/50	2.5533
925582	AC1-033 E	17.0936	50/50	17.0936
927201	AC1-214 C O1	0.5840	50/50	0.5840
927202	AC1-214 E O1	11.7653	50/50	11.7653
934051	AD1-031 C O1	5.2099	50/50	5.2099
934052	AD1-031 E O1	8.5003	50/50	8.5003
946541	AF1-318 C O1	10.2829	50/50	10.2829
946542	AF1-318 E O1	48.1423	50/50	48.1423
957751	AF2-069 C	0.4285	50/50	0.4285
957752	AF2-069 E	1.3830	50/50	1.3830
957761	AF2-070 C	0.6038	50/50	0.6038
957762	AF2-070 E	2.9316	50/50	2.9316
958341	AF2-128 C O1	2.7251	50/50	2.7251
958342	AF2-128 E O1	12.7583	50/50	12.7583
961651	AG1-005 C O1	29.2155	50/50	29.2155
961652	AG1-005 E O1	19.4770	50/50	19.4770
962721	AG1-121 C O1	10.1641	50/50	10.1641
962722	AG1-121 E O1	47.5500	50/50	47.5500
965671	AG1-435 C O1	6.8939	50/50	6.8939
965672	AG1-435 E O1	32.2761	50/50	32.2761
990901	L-005 E	39.9342	50/50	39.9342
WEC	WEC	0.2419	Confirmed LTF	0.2419
CALDERWOOD	CALDERWOOD	0.0308	Confirmed LTF	0.0308
NY	NY	0.0503	Confirmed LTF	0.0503

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
PRAIRIE	PRAIRIE	0.2170	Confirmed LTF	0.2170
O-066	O-066	0.6057	Confirmed LTF	0.6057
CHEOAH	CHEOAH	0.0310	Confirmed LTF	0.0310
G-007	G-007	0.0945	Confirmed LTF	0.0945
HAMLET	HAMLET	0.0422	Confirmed LTF	0.0422
MEC	MEC	1.5239	Confirmed LTF	1.5239
GIBSON	GIBSON	0.1016	Confirmed LTF	0.1016
BLUEG	BLUEG	0.2344	Confirmed LTF	0.2344
TRIMBLE	TRIMBLE	0.0746	Confirmed LTF	0.0746
LAGN	LAGN	0.1050	Confirmed LTF	0.1050
CATAWBA	CATAWBA	0.0248	Confirmed LTF	0.0248
CBM-W1	CBM-W1	7.6409	Confirmed LTF	7.6409

11.6.8 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
161979276	348935	4CORBIN	AMIL	936510	AD2-066 TAP	CE	1	COMED_P2-2_001_LA-138B__1	bus	223.0	85.16	106.6	DC	47.81

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274847	GR RIDGE ;BU	0.7408	50/50	0.7408
274849	CRESCENT ;1U	0.1976	50/50	0.1976
274851	PROVIDENC;RU	0.2035	50/50	0.2035
274871	GR RIDGE ;2U	0.2758	50/50	0.2758
276173	Z2-081	0.3501	50/50	0.3501
293061	N-015 E	20.5644	50/50	20.5644
293771	O-035 E	7.4130	50/50	7.4130
294392	P-010 E	26.1168	50/50	26.1168
294401	BSHIL;1U E	5.5155	Adder	6.49
294410	BSHIL;2U E	5.5155	Adder	6.49
916211	Z1-072 E	5.6099	50/50	5.6099
925581	AC1-033 C	0.9035	Adder	1.06
925582	AC1-033 E	6.0486	Adder	7.12
926821	AC1-168 C O1	1.6237	50/50	1.6237
926822	AC1-168 E O1	10.8966	50/50	10.8966
927201	AC1-214 C O1	0.3754	50/50	0.3754
927202	AC1-214 E O1	7.5633	50/50	7.5633
934051	AD1-031 C O1	1.8339	Adder	2.16
934052	AD1-031 E O1	2.9921	Adder	3.52
946541	AF1-318 C O1	9.8626	50/50	9.8626
946542	AF1-318 E O1	46.1748	50/50	46.1748
953201	J715 C	3.2780	PJM External (MISO)	3.2780
953202	J715 E	17.7350	PJM External (MISO)	17.7350
957751	AF2-069 C	0.2755	50/50	0.2755
957752	AF2-069 E	0.8891	50/50	0.8891
957761	AF2-070 C	0.3882	50/50	0.3882
957762	AF2-070 E	1.8846	50/50	1.8846
958341	AF2-128 C O1	2.7915	50/50	2.7915
958342	AF2-128 E O1	13.0695	50/50	13.0695
961651	AG1-005 C O1	28.6830	50/50	28.6830
961652	AG1-005 E O1	19.1220	50/50	19.1220
962721	AG1-121 C O1	6.1828	50/50	6.1828
962722	AG1-121 E O1	28.9248	50/50	28.9248
965671	AG1-435 C O1	3.6861	50/50	3.6861
965672	AG1-435 E O1	17.2579	50/50	17.2579
966083	AG1-477 BAT	1.5350	50/50	1.5350
966103	AG1-479 BAT (Withdrawn : 12/03/2020)	1.5350	50/50	1.5350
990901	L-005 E	7.4507	Adder	8.77
LGEE	LGEE	0.0591	Confirmed LTF	0.0591
CPL	CPL	0.0621	Confirmed LTF	0.0621
G-007A	G-007A	0.0432	Confirmed LTF	0.0432

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
VFT	VFT	0.1161	Confirmed LTF	0.1161
CBM-W2	CBM-W2	3.2256	Confirmed LTF	3.2256
TVA	TVA	0.3486	Confirmed LTF	0.3486
SIGE	SIGE	0.0156	Confirmed LTF	0.0156
CBM-S2	CBM-S2	1.1797	Confirmed LTF	1.1797
CBM-S1	CBM-S1	0.0840	Confirmed LTF	0.0840
CBM-N	CBM-N	0.0216	Confirmed LTF	0.0216
MEC	MEC	1.1457	Confirmed LTF	1.1457
LAGN	LAGN	0.5775	Confirmed LTF	0.5775
CBM-W1	CBM-W1	3.0564	Confirmed LTF	3.0564

11.6.9 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
162949860	936510	AD2-066 TAP	CE	271987	MAZON ; R	CE	1	COMED_P7-1_138-L6101__S+_138-L7413__R-S-A	tower	230.0	107.16	131.35	DC	55.62

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274849	CRESCENT ;1U	0.3510	50/50	0.3510
274851	PROVIDENC;RU	0.3616	50/50	0.3616
293771	O-035 E	13.1720	50/50	13.1720
294401	BSHIL;1U E	4.2731	Adder	5.03
294410	BSHIL;2U E	4.2731	Adder	5.03
916211	Z1-072 E	9.9680	50/50	9.9680
925581	AC1-033 C	0.6989	Adder	0.82
925582	AC1-033 E	4.6792	Adder	5.5
926821	AC1-168 C O1	1.5889	50/50	1.5889
926822	AC1-168 E O1	10.6625	50/50	10.6625
927201	AC1-214 C O1	0.6671	50/50	0.6671
927202	AC1-214 E O1	13.4390	50/50	13.4390
934051	AD1-031 C O1	1.4219	Adder	1.67
934052	AD1-031 E O1	2.3200	Adder	2.73
936511	AD2-066 C O1	44.7653	50/50	44.7653
936512	AD2-066 E O1	29.8436	50/50	29.8436
946541	AF1-318 C O1	11.7464	50/50	11.7464
946542	AF1-318 E O1	54.9940	50/50	54.9940
953201	J715 C	3.4350	PJM External (MISO)	3.4350
953202	J715 E	18.5840	PJM External (MISO)	18.5840
957751	AF2-069 C	0.4895	50/50	0.4895
957752	AF2-069 E	1.5798	50/50	1.5798
957761	AF2-070 C	0.6897	50/50	0.6897
957762	AF2-070 E	3.3486	50/50	3.3486
958341	AF2-128 C O1	3.1131	50/50	3.1131
958342	AF2-128 E O1	14.5749	50/50	14.5749
961651	AG1-005 C O1	33.3735	50/50	33.3735
961652	AG1-005 E O1	22.2490	50/50	22.2490
962721	AG1-121 C O1	5.6747	50/50	5.6747
962722	AG1-121 E O1	26.5478	50/50	26.5478
965671	AG1-435 C O1	1.4546	Adder	3.23
965672	AG1-435 E O1	6.8103	Adder	15.12
966083	AG1-477 BAT	1.4011	50/50	1.4011
966103	AG1-479 BAT (Withdrawn : 12/03/2020)	1.4011	50/50	1.4011
990901	L-005 E	5.8096	Adder	6.83
LGEE	LGEE	0.0591	Confirmed LTF	0.0591
CPLE	CPLE	0.0587	Confirmed LTF	0.0587
G-007A	G-007A	0.0551	Confirmed LTF	0.0551

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
VFT	VFT	0.1484	Confirmed LTF	0.1484
CBM-W2	CBM-W2	2.8941	Confirmed LTF	2.8941
TVA	TVA	0.3122	Confirmed LTF	0.3122
SIGE	SIGE	0.0145	Confirmed LTF	0.0145
CBM-S2	CBM-S2	1.1066	Confirmed LTF	1.1066
CBM-S1	CBM-S1	0.0760	Confirmed LTF	0.0760
CBM-N	CBM-N	0.0276	Confirmed LTF	0.0276
MEC	MEC	0.9216	Confirmed LTF	0.9216
LAGN	LAGN	0.5040	Confirmed LTF	0.5040
CBM-W1	CBM-W1	2.2292	Confirmed LTF	2.2292

11.6.10 Index 10

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
161979487	271838	KEWANEE ;13	CE	348923	4KEWANEE N	AMIL	1	COMED_P7-1_138-L6101__-S+_138-L98105_R-S-D	tower	449.0	127.7	147.9	DC	90.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274848	CAMPGROVE;RU	1.2514	50/50	1.2514
274849	CRESCENT ;1U	0.5723	50/50	0.5723
274851	PROVIDENC;RU	0.5895	50/50	0.5895
274877	BISHOP HL;1U	1.1450	50/50	1.1450
274878	BISHOP HL;2U	1.1450	50/50	1.1450
276156	O-029 C	0.2054	50/50	0.2054
276157	O-029 C	0.2220	50/50	0.2220
276158	O-029 C	0.4052	50/50	0.4052
293513	O-009 C1	0.3793	50/50	0.3793
293514	O-009 C2	0.1924	50/50	0.1924
293515	O-009 C3	0.2128	50/50	0.2128
293516	O-009 E1	9.6200	50/50	9.6200
293517	O-009 E2	4.8862	50/50	4.8862
293518	O-009 E3	5.3811	50/50	5.3811
293715	O-029 E	10.2849	50/50	10.2849
293716	O-029 E	5.6390	50/50	5.6390
293717	O-029 E	5.1829	50/50	5.1829
293771	O-035 E	21.4748	50/50	21.4748
294401	BSHIL;1U E	29.0296	50/50	29.0296
294410	BSHIL;2U E	29.0296	50/50	29.0296
916211	Z1-072 E	16.2512	50/50	16.2512
925581	AC1-033 C	4.7546	50/50	4.7546
925582	AC1-033 E	31.8307	50/50	31.8307
926841	AC1-171 C O1	0.7880	Adder	0.93
926842	AC1-171 E O1	5.2632	Adder	6.19
927201	AC1-214 C O1	1.0875	50/50	1.0875
927202	AC1-214 E O1	21.9101	50/50	21.9101
934051	AD1-031 C O1	9.6359	50/50	9.6359
934052	AD1-031 E O1	15.7217	50/50	15.7217
946541	AF1-318 C O1	19.1503	50/50	19.1503
946542	AF1-318 E O1	89.6578	50/50	89.6578
957751	AF2-069 C	0.7981	50/50	0.7981
957752	AF2-069 E	2.5755	50/50	2.5755
957761	AF2-070 C	1.1245	50/50	1.1245
957762	AF2-070 E	5.4594	50/50	5.4594
958341	AF2-128 C O1	5.0753	50/50	5.0753
958342	AF2-128 E O1	23.7617	50/50	23.7617
961651	AG1-005 C O1	54.4095	50/50	54.4095
961652	AG1-005 E O1	36.2730	50/50	36.2730

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962012	AG1-044 E	0.0149	Adder	0.03
962721	AG1-121 C O1	18.8003	50/50	18.8003
962722	AG1-121 E O1	87.9519	50/50	87.9519
965671	AG1-435 C O1	12.7508	50/50	12.7508
965672	AG1-435 E O1	59.6972	50/50	59.6972
990901	L-005 E	37.8299	50/50	37.8299
WEC	WEC	0.1521	Confirmed LTF	0.1521
CALDERWOOD	CALDERWOOD	0.0651	Confirmed LTF	0.0651
NY	NY	0.0470	Confirmed LTF	0.0470
PRAIRIE	PRAIRIE	0.6018	Confirmed LTF	0.6018
O-066	O-066	0.5788	Confirmed LTF	0.5788
CHEOAH	CHEOAH	0.0656	Confirmed LTF	0.0656
COTTONWOOD	COTTONWOOD	0.3738	Confirmed LTF	0.3738
G-007	G-007	0.0903	Confirmed LTF	0.0903
HAMLET	HAMLET	0.0641	Confirmed LTF	0.0641
GIBSON	GIBSON	0.0699	Confirmed LTF	0.0699
BLUEG	BLUEG	0.1823	Confirmed LTF	0.1823
TRIMBLE	TRIMBLE	0.0579	Confirmed LTF	0.0579
CATAWBA	CATAWBA	0.0399	Confirmed LTF	0.0399
CBM-W1	CBM-W1	0.6589	Confirmed LTF	0.6589

11.6.11 Index 11

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
161979482	272269	POWERTON	CE	349600	4TOWERLINE	AMIL	1	COMED_P7-1_138-L6101__-S+_138-L98105_R-S-D	tower	214.0	148.21	170.96	DC	48.69

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274848	CAMPGROVE;RU	1.3210	50/50	1.3210
274849	CRESCENT ;1U	0.3073	50/50	0.3073
274851	PROVIDENC;RU	0.3165	50/50	0.3165
274877	BISHOP HL;1U	0.6170	50/50	0.6170
274878	BISHOP HL;2U	0.6170	50/50	0.6170
293516	O-009 E1	4.9539	Adder	5.83
293517	O-009 E2	2.5162	Adder	2.96
293518	O-009 E3	2.7710	Adder	3.26
293715	O-029 E	5.2963	Adder	6.23
293716	O-029 E	2.9039	Adder	3.42
293717	O-029 E	2.6690	Adder	3.14
293771	O-035 E	11.5316	50/50	11.5316
294401	BSHIL;1U E	15.6424	50/50	15.6424
294410	BSHIL;2U E	15.6424	50/50	15.6424
916211	Z1-072 E	8.7266	50/50	8.7266
925581	AC1-033 C	2.5533	50/50	2.5533
925582	AC1-033 E	17.0936	50/50	17.0936
926841	AC1-171 C O1	8.1877	50/50	8.1877
926842	AC1-171 E O1	54.6905	50/50	54.6905
927201	AC1-214 C O1	0.5840	50/50	0.5840
927202	AC1-214 E O1	11.7653	50/50	11.7653
934051	AD1-031 C O1	5.2099	50/50	5.2099
934052	AD1-031 E O1	8.5003	50/50	8.5003
946541	AF1-318 C O1	10.2829	50/50	10.2829
946542	AF1-318 E O1	48.1423	50/50	48.1423
957751	AF2-069 C	0.4285	50/50	0.4285
957752	AF2-069 E	1.3830	50/50	1.3830
957761	AF2-070 C	0.6038	50/50	0.6038
957762	AF2-070 E	2.9316	50/50	2.9316
958341	AF2-128 C O1	2.7251	50/50	2.7251
958342	AF2-128 E O1	12.7583	50/50	12.7583
961651	AG1-005 C O1	29.2155	50/50	29.2155
961652	AG1-005 E O1	19.4770	50/50	19.4770
962721	AG1-121 C O1	10.1641	50/50	10.1641
962722	AG1-121 E O1	47.5500	50/50	47.5500
965671	AG1-435 C O1	6.8939	50/50	6.8939
965672	AG1-435 E O1	32.2761	50/50	32.2761
990901	L-005 E	39.9342	50/50	39.9342
WEC	WEC	0.2419	Confirmed LTF	0.2419

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CALDERWOOD	CALDERWOOD	0.0308	Confirmed LTF	0.0308
NY	NY	0.0503	Confirmed LTF	0.0503
PRAIRIE	PRAIRIE	0.2170	Confirmed LTF	0.2170
O-066	O-066	0.6057	Confirmed LTF	0.6057
CHEOAH	CHEOAH	0.0310	Confirmed LTF	0.0310
G-007	G-007	0.0945	Confirmed LTF	0.0945
HAMLET	HAMLET	0.0422	Confirmed LTF	0.0422
MEC	MEC	1.5239	Confirmed LTF	1.5239
GIBSON	GIBSON	0.1016	Confirmed LTF	0.1016
BLUEG	BLUEG	0.2344	Confirmed LTF	0.2344
TRIMBLE	TRIMBLE	0.0746	Confirmed LTF	0.0746
LAGN	LAGN	0.1050	Confirmed LTF	0.1050
CATAWBA	CATAWBA	0.0248	Confirmed LTF	0.0248
CBM-W1	CBM-W1	7.6409	Confirmed LTF	7.6409

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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
161979491	349662	7TAZEWELL	AMIL	930760	AB1-122 TAP1	CE	1	COMED_P7-1_345-L9806_R-S_+345-L19601_B-S	tower	1479.0	171.77	174.33	DC	37.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274677	POWERTON ;5U	59.5206	50/50	59.5206
274678	POWERTON ;6U	59.6905	50/50	59.6905
274848	CAMPGROVE;RU	0.9151	50/50	0.9151
274849	CRESCENT ;1U	0.2820	50/50	0.2820
274851	PROVIDENC;RU	0.2905	50/50	0.2905
274861	TOP CROP ;1U	1.4232	50/50	1.4232
274862	TOP CROP ;2U	2.7150	50/50	2.7150
274877	BISHOP HL;1U	0.6239	50/50	0.6239
274878	BISHOP HL;2U	0.6239	50/50	0.6239
274879	MINONK ;1U	1.6816	50/50	1.6816
274891	OTTER CRK;1U	1.5126	50/50	1.5126
290021	O50 E	42.6352	50/50	42.6352
293516	O-009 E1	6.6087	Adder	7.77
293517	O-009 E2	3.3567	Adder	3.95
293518	O-009 E3	3.6966	Adder	4.35
293644	O22 E1	40.0060	50/50	40.0060
293645	O22 E2	77.6588	50/50	77.6588
293715	O-029 E	7.0654	Adder	8.31
293716	O-029 E	3.8739	Adder	4.56
293717	O-029 E	3.5605	Adder	4.19
293771	O-035 E	10.5832	50/50	10.5832
294401	BSHIL;1U E	15.8184	50/50	15.8184
294410	BSHIL;2U E	15.8184	50/50	15.8184
916211	Z1-072 E	8.0089	50/50	8.0089
918052	AA1-018 E OP	64.1629	50/50	64.1629
925581	AC1-033 C	2.5901	50/50	2.5901
925582	AC1-033 E	17.3400	50/50	17.3400
926821	AC1-168 C O1	1.4830	50/50	1.4830
926822	AC1-168 E O1	9.9519	50/50	9.9519
926841	AC1-171 C O1	3.2764	50/50	3.2764
926842	AC1-171 E O1	21.8853	50/50	21.8853
927201	AC1-214 C O1	0.5359	50/50	0.5359
927202	AC1-214 E O1	10.7977	50/50	10.7977
934051	AD1-031 C O1	5.2572	50/50	5.2572
934052	AD1-031 E O1	8.5776	50/50	8.5776
934871	AD1-116 C	3.7367	50/50	3.7367
934872	AD1-116 E	6.0967	50/50	6.0967
936291	AD2-038 C O1	9.5893	50/50	9.5893
936292	AD2-038 E O1	64.1747	50/50	64.1747
937531	AD2-214 C	2.8538	Adder	3.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
937532	AD2-214 E	1.9025	Adder	2.24
938851	AE1-113 C O1	17.5870	50/50	17.5870
938852	AE1-113 E O1	62.3540	50/50	62.3540
939321	AE1-163 C O1	24.0962	50/50	24.0962
939322	AE1-163 E O1	148.0198	50/50	148.0198
942421	AE2-255 C O1	6.6617	50/50	6.6617
942422	AE2-255 E O1	19.9852	50/50	19.9852
942651	AE2-281 C O1	3.4423	50/50	3.4423
942652	AE2-281 E O1	21.1457	50/50	21.1457
946321	AF1-296 C O1	2.9008	Adder	3.41
946322	AF1-296 E O1	13.5809	Adder	15.98
946541	AF1-318 C O1	8.0475	50/50	8.0475
946542	AF1-318 E O1	37.6769	50/50	37.6769
951631	J456 C	4.2649	PJM External (MISO)	4.2649
951632	J456 E	23.0741	PJM External (MISO)	23.0741
951821	J541 C	5.0157	PJM External (MISO)	5.0157
951822	J541 E	27.1363	PJM External (MISO)	27.1363
952651	J756 C	3.9462	PJM External (MISO)	3.9462
952652	J756 E	21.3498	PJM External (MISO)	21.3498
952871	J757 C	5.0345	PJM External (MISO)	5.0345
952872	J757 E	27.2381	PJM External (MISO)	27.2381
953201	J715 C	1.6953	PJM External (MISO)	1.6953
953202	J715 E	9.1717	PJM External (MISO)	9.1717
953951	J859	25.6712	PJM External (MISO)	25.6712
954702	J844 E	29.2589	PJM External (MISO)	29.2589
954792	J952 E	4.6597	PJM External (MISO)	4.6597
954901	J963	0.7214	PJM External (MISO)	0.7214
954981	J974 C	16.6308	PJM External (MISO)	16.6308
954982	J974 E	89.9767	PJM External (MISO)	89.9767
955051	J981 C	2.8467	PJM External (MISO)	2.8467
955052	J981 E	15.4013	PJM External (MISO)	15.4013
955431	J1025 C	4.1638	PJM External (MISO)	4.1638
955432	J1025 E	22.5272	PJM External (MISO)	22.5272
955441	J1026 C	5.0613	PJM External (MISO)	5.0613
955442	J1026 E	27.3827	PJM External (MISO)	27.3827
955711	J1055 C	4.8810	PJM External (MISO)	4.8810
955712	J1055 E	26.4073	PJM External (MISO)	26.4073
956151	J1102	6.9972	PJM External (MISO)	6.9972
956411	J1131	8.7360	PJM External (MISO)	8.7360
956431	J1135	5.4335	PJM External (MISO)	5.4335
956841	J1182	20.8350	PJM External (MISO)	20.8350
957751	AF2-069 C	0.3933	50/50	0.3933
957752	AF2-069 E	1.2693	50/50	1.2693
957761	AF2-070 C	0.5542	50/50	0.5542
957762	AF2-070 E	2.6905	50/50	2.6905
958341	AF2-128 C O1	2.0568	50/50	2.0568
958342	AF2-128 E O1	9.6297	50/50	9.6297
958481	AF2-142 C	44.2503	50/50	44.2503
958482	AF2-142 E	29.5002	50/50	29.5002
958491	AF2-143 C	44.2584	50/50	44.2584
958492	AF2-143 E	29.5056	50/50	29.5056
959351	AF2-226 C	9.8054	50/50	9.8054

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959352	AF2-226 E	14.7081	50/50	14.7081
960281	AF2-319 C	9.8054	50/50	9.8054
960282	AF2-319 E	14.7081	50/50	14.7081
961651	AG1-005 C O1	22.5810	50/50	22.5810
961652	AG1-005 E O1	15.0540	50/50	15.0540
962721	AG1-121 C O1	9.5091	50/50	9.5091
962722	AG1-121 E O1	44.4858	50/50	44.4858
965141	AG1-379 C	36.5597	50/50	36.5597
965142	AG1-379 E	16.7343	50/50	16.7343
965671	AG1-435 C O1	6.6419	50/50	6.6419
965672	AG1-435 E O1	31.0961	50/50	31.0961
965931	AG1-462 C O1	8.0368	Adder	17.84
965932	AG1-462 E O1	5.3579	Adder	11.89
966821	AG1-553 C O1	11.7873	Adder	26.16
966822	AG1-553 E O1	2.9468	Adder	6.54
990901	L-005 E	27.6619	50/50	27.6619
LGEE	LGEE	0.3085	Confirmed LTF	0.3085
CPL	CPL	0.4900	Confirmed LTF	0.4900
CBM-W2	CBM-W2	37.6589	Confirmed LTF	37.6589
NY	NY	0.1427	Confirmed LTF	0.1427
TVA	TVA	3.9592	Confirmed LTF	3.9592
O-066	O-066	1.4941	Confirmed LTF	1.4941
SIGE	SIGE	0.1520	Confirmed LTF	0.1520
CBM-S2	CBM-S2	10.5757	Confirmed LTF	10.5757
CBM-S1	CBM-S1	0.9131	Confirmed LTF	0.9131
G-007	G-007	0.2310	Confirmed LTF	0.2310
MEC	MEC	14.5584	Confirmed LTF	14.5584
LAGN	LAGN	7.0735	Confirmed LTF	7.0735
CBM-W1	CBM-W1	36.3679	Confirmed LTF	36.3679

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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
161979506	930760	AB1-122 TAP1	CE	270717	DRESDEN ;R	CE	1	COMED_P7-1_345-L9806_R-S+_345-L19601_B-S	tower	1768.0	162.96	165.1	DC	37.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274677	POWERTON ;5U	59.5206	50/50	59.5206
274678	POWERTON ;6U	59.6905	50/50	59.6905
274848	CAMPGROVE;RU	0.9151	50/50	0.9151
274849	CRESCENT ;1U	0.2820	50/50	0.2820
274851	PROVIDENC;RU	0.2905	50/50	0.2905
274861	TOP CROP ;1U	1.4232	50/50	1.4232
274862	TOP CROP ;2U	2.7150	50/50	2.7150
274877	BISHOP HL;1U	0.6239	50/50	0.6239
274878	BISHOP HL;2U	0.6239	50/50	0.6239
274879	MINONK ;1U	1.6816	50/50	1.6816
274891	OTTER CRK;1U	1.5126	50/50	1.5126
290021	O50 E	42.6352	50/50	42.6352
293516	O-009 E1	6.6087	Adder	7.77
293517	O-009 E2	3.3567	Adder	3.95
293518	O-009 E3	3.6966	Adder	4.35
293644	O22 E1	40.0060	50/50	40.0060
293645	O22 E2	77.6588	50/50	77.6588
293715	O-029 E	7.0654	Adder	8.31
293716	O-029 E	3.8739	Adder	4.56
293717	O-029 E	3.5605	Adder	4.19
293771	O-035 E	10.5832	50/50	10.5832
294401	BSHIL;1U E	15.8184	50/50	15.8184
294410	BSHIL;2U E	15.8184	50/50	15.8184
916211	Z1-072 E	8.0089	50/50	8.0089
918052	AA1-018 E OP	64.1629	50/50	64.1629
925581	AC1-033 C	2.5901	50/50	2.5901
925582	AC1-033 E	17.3400	50/50	17.3400
926821	AC1-168 C O1	1.4830	50/50	1.4830
926822	AC1-168 E O1	9.9519	50/50	9.9519
926841	AC1-171 C O1	3.2764	50/50	3.2764
926842	AC1-171 E O1	21.8853	50/50	21.8853
927201	AC1-214 C O1	0.5359	50/50	0.5359
927202	AC1-214 E O1	10.7977	50/50	10.7977
930761	AB1-122 CT1	394.5247	50/50	394.5247
934051	AD1-031 C O1	5.2572	50/50	5.2572
934052	AD1-031 E O1	8.5776	50/50	8.5776
934101	AD1-039 1	38.6634	50/50	38.6634
934871	AD1-116 C	3.7367	50/50	3.7367
934872	AD1-116 E	6.0967	50/50	6.0967
936291	AD2-038 C O1	9.5893	50/50	9.5893

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936292	AD2-038 E O1	64.1747	50/50	64.1747
938851	AE1-113 C O1	17.5870	50/50	17.5870
938852	AE1-113 E O1	62.3540	50/50	62.3540
939321	AE1-163 C O1	24.0962	50/50	24.0962
939322	AE1-163 E O1	148.0198	50/50	148.0198
942421	AE2-255 C O1	6.6617	50/50	6.6617
942422	AE2-255 E O1	19.9852	50/50	19.9852
942651	AE2-281 C O1	3.4423	50/50	3.4423
942652	AE2-281 E O1	21.1457	50/50	21.1457
946321	AF1-296 C O1	2.9008	Adder	3.41
946322	AF1-296 E O1	13.5809	Adder	15.98
946541	AF1-318 C O1	8.0475	50/50	8.0475
946542	AF1-318 E O1	37.6769	50/50	37.6769
951631	J456 C	4.2649	PJM External (MISO)	4.2649
951632	J456 E	23.0741	PJM External (MISO)	23.0741
952651	J756 C	3.9462	PJM External (MISO)	3.9462
952652	J756 E	21.3498	PJM External (MISO)	21.3498
952871	J757 C	5.0345	PJM External (MISO)	5.0345
952872	J757 E	27.2381	PJM External (MISO)	27.2381
953201	J715 C	1.6953	PJM External (MISO)	1.6953
953202	J715 E	9.1717	PJM External (MISO)	9.1717
953951	J859	25.6712	PJM External (MISO)	25.6712
954702	J844 E	29.2589	PJM External (MISO)	29.2589
954792	J952 E	4.6597	PJM External (MISO)	4.6597
954981	J974 C	16.6308	PJM External (MISO)	16.6308
954982	J974 E	89.9767	PJM External (MISO)	89.9767
955051	J981 C	2.8467	PJM External (MISO)	2.8467
955052	J981 E	15.4013	PJM External (MISO)	15.4013
955431	J1025 C	4.1638	PJM External (MISO)	4.1638
955432	J1025 E	22.5272	PJM External (MISO)	22.5272
955711	J1055 C	4.8810	PJM External (MISO)	4.8810
955712	J1055 E	26.4073	PJM External (MISO)	26.4073
956151	J1102	6.9972	PJM External (MISO)	6.9972
956411	J1131	8.7360	PJM External (MISO)	8.7360
956431	J1135	5.4335	PJM External (MISO)	5.4335
957751	AF2-069 C	0.3933	50/50	0.3933
957752	AF2-069 E	1.2693	50/50	1.2693
957761	AF2-070 C	0.5542	50/50	0.5542
957762	AF2-070 E	2.6905	50/50	2.6905
958341	AF2-128 C O1	2.0568	50/50	2.0568
958342	AF2-128 E O1	9.6297	50/50	9.6297
958481	AF2-142 C	44.2503	50/50	44.2503
958482	AF2-142 E	29.5002	50/50	29.5002
958491	AF2-143 C	44.2584	50/50	44.2584
958492	AF2-143 E	29.5056	50/50	29.5056
959351	AF2-226 C	9.8054	50/50	9.8054
959352	AF2-226 E	14.7081	50/50	14.7081
960281	AF2-319 C	9.8054	50/50	9.8054
960282	AF2-319 E	14.7081	50/50	14.7081
961651	AG1-005 C O1	22.5810	50/50	22.5810
961652	AG1-005 E O1	15.0540	50/50	15.0540
962721	AG1-121 C O1	9.5091	50/50	9.5091

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962722	AG1-121 E O1	44.4858	50/50	44.4858
965141	AG1-379 C	36.5597	50/50	36.5597
965142	AG1-379 E	16.7343	50/50	16.7343
965671	AG1-435 C O1	6.6419	50/50	6.6419
965672	AG1-435 E O1	31.0961	50/50	31.0961
965931	AG1-462 C O1	8.0368	Adder	17.84
965932	AG1-462 E O1	5.3579	Adder	11.89
966821	AG1-553 C O1	11.7873	Adder	26.16
966822	AG1-553 E O1	2.9468	Adder	6.54
990901	L-005 E	27.6619	50/50	27.6619
LGEE	LGEE	0.3085	Confirmed LTF	0.3085
CPL	CPL	0.4900	Confirmed LTF	0.4900
CBM-W2	CBM-W2	37.6589	Confirmed LTF	37.6589
NY	NY	0.1427	Confirmed LTF	0.1427
TVA	TVA	3.9592	Confirmed LTF	3.9592
O-066	O-066	1.4941	Confirmed LTF	1.4941
SIGE	SIGE	0.1520	Confirmed LTF	0.1520
CBM-S2	CBM-S2	10.5757	Confirmed LTF	10.5757
CBM-S1	CBM-S1	0.9131	Confirmed LTF	0.9131
G-007	G-007	0.2310	Confirmed LTF	0.2310
MEC	MEC	14.5584	Confirmed LTF	14.5584
LAGN	LAGN	7.0735	Confirmed LTF	7.0735
CBM-W1	CBM-W1	36.3679	Confirmed LTF	36.3679

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
AB1-122	Kendall-Tazewell & Dresden-Mole Creek	Engineering and Procurement
AC1-033	Kewanee	Active
AC1-168	Kewanee-Streator	Active
AC1-171	Powerton	Active
AC1-214	Crescent Ridge	In Service
AD1-031	Kewanee 138 kV	Active
AD1-039	Kendall-Tazewell & Dresden-Mole Creek	Active
AD1-116	Nevada 345 kV	Active
AD2-038	Powerton	Active
AD2-066	Mazon-Crescent Ridge	Active
AD2-214	Rock Falls-Garden Plains	Active
AE1-113	Mole Creek 345 kV	Active
AE1-163	Powerton-Nevada 345 kV	Active
AE2-255	Molecreek 345 kV	Active
AE2-281	Powerton-Nevada 345 kV	Active
AF1-296	Garden Plain 138 kV	Active
AF1-318	Crescent Ridge-Corbin	Active
AF2-069	Crescent Ridge 138 kV	Active
AF2-070	Crescent Ridge 138 kV	Active
AF2-128	Crescent Ridge-Corbin 138 kV	Active
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-226	Katydid Road 345 kV	Active
AF2-319	Katydid Road 345 kV	Active
AG1-005	Corbin-Crescent Ridge 138 kV	Active
AG1-044	Whiteside County	Active
AG1-121	Crescent Ridge 138 kV	Active
AG1-379	Minonk 345 kV	Active
AG1-435	Kewanee-Hennepin 138 kV	Active
AG1-462	Quad Cities-Sterling Steel 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
AG1-553	Cordova 345 kV	Active
Z1-072	Crescent Ridge	In Service
Z2-081	Streator 34.5kV	In Service
J1025	MISO	MISO
J1026	MISO	MISO

Queue Number	Project Name	Status
J1055	MISO	MISO
J1102	MISO	MISO
J1131	MISO	MISO
J1135	MISO	MISO
J1182	MISO	MISO
J456	MISO	MISO
J541	MISO	MISO
J715	MISO	MISO
J756	MISO	MISO
J757	MISO	MISO
J844	MISO	MISO
J859	MISO	MISO
J952	MISO	MISO
J963	MISO	MISO
J974	MISO	MISO
J981	MISO	MISO

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
COMED_P2-2_001_LA-138B__1	CONTINGENCY 'COMED_P2-2_001_LA-138B__1' / CONTINGENCY # 1 DISCONNECT BUS 271908 / LASCO STA; B 138 END
COMED_P1-2_138-L6101__-S-B	CONTINGENCY 'COMED_P1-2_138-L6101__-S-B' / CONTINGENCY # 505 TRIP BRANCH FROM BUS 271655 TO BUS 962720 CKT 1 / HENNEEPIN; T 138 AG1- 121 TAP 138 TRIP BRANCH FROM BUS 271655 TO BUS 348918 CKT 1 / HENNEEPIN; T 138 4HENNEEPIN S 138 TRIP BRANCH FROM BUS 926820 TO BUS 271655 CKT 1 / AC1-168 TAP 138 HENNEEPIN; T 138 END
COMED_P1-2_138-L98105_R-S-D	CONTINGENCY 'COMED_P1-2_138-L98105_R-S-D' / CONTINGENCY # 576 TRIP BRANCH FROM BUS 958340 TO BUS 348935 CKT 1 / AF2-128 TA ; 4CORBIN 138 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-L0301__B-S+_345-L0303__R-S-B	CONTINGENCY 'COMED_P7-1_345-L0301__B-S+_345-L0303__R-S-B' / CONTINGENCY # 4 TRIP BRANCH FROM BUS 270854 TO BUS 270790 CKT 1 / POWERTON ; B 345 KATYDID ; B 345 TRIP BRANCH FROM BUS 936290 TO BUS 270827 CKT 1 / AD2-038 TAP 345 NEVADA ; 345 REMOVE SWSHUNT FROM BUS 270827 / NEVADA ; 345 END
COMED_P2-1_074-L6101__-C	CONTINGENCY 'COMED_P2-1_074-L6101__-C' / CONTINGENCY # 83 TRIP BRANCH FROM BUS 962720 TO BUS 271655 CKT 1 / AG1-121 TAP 138 HENNEEPIN; T 138 END
COMED_P1-3_TR81_LASCO_B-S	CONTINGENCY 'COMED_P1-3_TR81_LASCO_B-S' / CONTINGENCY # 591 TRIP BRANCH FROM BUS 270802 TO BUS 270803 CKT 1 / LASCO STA; B 345 LASCO STA; R 345 TRIP BRANCH FROM BUS 270802 TO BUS 271908 CKT 1 / LASCO STA; B 345 LASCO STA; B 138 END

Contingency Name	Contingency Definition
EXT_P12:138:AMIL::MCCLEANCOU NTY:OGLESBY:1382	CONTINGENCY 'EXT_P12:138:AMIL::MCCLEANCOUNTY:OGLESBY:1382' / 10351 OPEN BRANCH FROM BUS 272017 TO BUS 348881 CKT 1 / 272017 MINONK ; 138 348881 4MINONK TAP 138 1 OPEN BRANCH FROM BUS 348880 TO BUS 348881 CKT 1 / 348880 4EL PASO 138 348881 4MINONK TAP 138 1 OPEN BRANCH FROM BUS 348881 TO BUS 348935 CKT 1 / 348881 4MINONK TAP 138 348935 4CORBIN 138 1 OPEN BRANCH FROM BUS 348854 TO BUS 348880 CKT 1 / 348854 4MCLEAN CO 138 348880 4EL PASO 138 1 OPEN BRANCH FROM BUS 349373 TO BUS 348880 CKT 1 / 349373 1EL PASO 34.5 348880 4EL PASO 138 1 OPEN BRANCH FROM BUS 349380 TO BUS 348880 CKT 1 / 349380 2EL PASO 69.0 348880 4EL PASO 138 1 END
COMED_P2-2_074_KE-138__1	CONTINGENCY 'COMED_P2-2_074_KE-138__1' / CONTINGENCY # 55 DISCONNECT BUS 271836 / KEWANEE ;11 138 DISCONNECT BUS 271837 / KEWANEE ;12 138 DISCONNECT BUS 271838 / KEWANEE ;13 138 END
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_P4_074-38-L7413__	CONTINGENCY 'COMED_P4_074-38-L7413__' / CONTINGENCY # 251 TRIP BRANCH FROM BUS 271836 TO BUS 271241 CKT 1 / KEWANEE ;11 138 CRESCENT ; R 138 DISCONNECT BUS 271836 / KEWANEE ;11 138 DISCONNECT BUS 271837 / KEWANEE ;12 138 DISCONNECT BUS 271838 / KEWANEE ;13 138 END
EXT_P21:138:AMIL::EKEWANEE:PRI NCETONTAP	CONTINGENCY 'EXT_P21:138:AMIL::EKEWANEE:PRINCETONTAP' / 10430 OPEN BRANCH FROM BUS 348921 TO BUS 348923 CKT 1 / 348921 4BUREAU 138 348923 4KEWANEE N 138 1 END

Contingency Name	Contingency Definition
COMED_P7-1_138-L6101___-S+_138-L98105_R-S-B	CONTINGENCY 'COMED_P7-1_138-L6101___-S+_138-L98105_R-S-B' / CONTINGENCY # 208 TRIP BRANCH FROM BUS 271655 TO BUS 962720 CKT 1 / HENNEEPIN; T 138 AG1-121 TAP 138 TRIP BRANCH FROM BUS 271655 TO BUS 348918 CKT 1 / HENNEEPIN; T 138 4HENNEPIN S 138 TRIP BRANCH FROM BUS 272521 TO BUS 926820 CKT 1 / STREATOR ; 138 AC1-168 TAP 138 TRIP BRANCH FROM BUS 958340 TO BUS 348935 CKT 1 / AF2-128 TAP 138 4OGLESBY MN 138 END
COMED_P7-1_138-L6101___-S+_138-L98105_R-S-D	CONTINGENCY 'COMED_P7-1_138-L6101___-S+_138-L98105_R-S-D' / CONTINGENCY # 208 TRIP BRANCH FROM BUS 271655 TO BUS 962720 CKT 1 / HENNEEPIN; T 138 AG1-121 TAP 138 TRIP BRANCH FROM BUS 271655 TO BUS 348918 CKT 1 / HENNEEPIN; T 138 4HENNEPIN S 138 TRIP BRANCH FROM BUS 926820 TO BUS 271655 CKT 1 / AC1-168 TAP ; 138 HENNEEPIN; T 138 TRIP BRANCH FROM BUS 958340 TO BUS 348935 CKT 1 / AF2-128 TAP 138 4OGLESBY MN 138 END
EXT_348923 4KEWANEE N 138 348974 4KEWANEE S 138 Z	CONTINGENCY 'EXT_348923 4KEWANEE N 138 348974 4KEWANEE S 138 Z' OPEN BRANCH FROM BUS 348923 TO BUS 348974 CKT Z END
Base Case	
COMED_P7-1_345-L9806__R-S+_345-L19601_B-S	CONTINGENCY 'COMED_P7-1_345-L9806__R-S+_345-L19601_B-S' / CONTINGENCY # 238 TRIP BRANCH FROM BUS 270827 TO BUS 270769 CKT 1 / NEVADA ; 345 GOODINGS ;2R 345 TRIP BRANCH FROM BUS 270790 TO BUS 270770 CKT 1 / KATYDID ; B 345 GOODINGS ;4B 345 END
COMED_P7-1_138-L6101___-S+_138-L7413__R-S-A	CONTINGENCY 'COMED_P7-1_138-L6101___-S+_138-L7413__R-S-A' / CONTINGENCY # 207 TRIP BRANCH FROM BUS 272521 TO BUS 926820 CKT 1 / STREATOR ; 138 AC1-168 TAP 138 TRIP BRANCH FROM BUS 271836 TO BUS 271241 CKT 1 / KEWANEE ;11 138 CRESCENT ; R 138 END

Contingency Name	Contingency Definition
COMED_P1-2_138-L0112__B-S	CONTINGENCY 'COMED_P1-2_138-L0112__B-S' / CONTINGENCY # 127 TRIP BRANCH FROM BUS 271844 TO BUS 271908 CKT 1 / KICKAPOO ; B 138 LASCO STA; B 138 END
COMED_P7-1_138-L6101__S+_138-L7413__R-S-B	CONTINGENCY 'COMED_P7-1_138-L6101__S+_138-L7413__R-S-B' / CONTINGENCY # 207 TRIP BRANCH FROM BUS 965670 TO BUS 271835 CKT 1 / AG1-435 TAP 138 KEWANEE ;23 138 TRIP BRANCH FROM BUS 271836 TO BUS 271241 CKT 1 / KEWANEE ;11 138 CRESCENT ; R 138 END
COMED_P1-2_345-L1202__B-S	CONTINGENCY 'COMED_P1-2_345-L1202__B-S' / CONTINGENCY # 254 TRIP BRANCH FROM BUS 270716 TO BUS 930770 CKT 1 / DRESDEN ; B 345 AB1-122 345 END
COMED_P4_074-38-L15508_	CONTINGENCY 'COMED_P4_074-38-L15508_' / CONTINGENCY # 248 TRIP BRANCH FROM BUS 271331 TO BUS 271333 CKT 1 / DIXON ;8R 138 DIXON ; R 138 TRIP BRANCH FROM BUS 272097 TO BUS 271331 CKT 1 / NELSON ;RT 138 DIXON ;8R 138 TRIP BRANCH FROM BUS 272097 TO BUS 272095 CKT 1 / NELSON ;RT 138 NELSON ; R 138 TRIP BRANCH FROM BUS 272505 TO BUS 272097 CKT 1 / SCHAUFF R; R 138 NELSON ;RT 138 MOVE 100 PERCENT LOAD FROM BUS 271331 TO BUS 271330 / DIXON ;8R 138 DIXON ;7B 138 DISCONNECT BUS 271836 / KEWANEE ;11 138 DISCONNECT BUS 271837 / KEWANEE ;12 138 DISCONNECT BUS 271838 / KEWANEE ;13 138 END

12 Short Circuit Analysis

No breakers were identified as overdutied as part of this analysis.

13 Affected Systems

13.1 MISO

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