



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-535
State Line – S. Chicago Properties 138 KV
85 MW Capacity / 85 MW Energy**

January 2021

Table of Contents

1	Introduction.....	4
2	Preface.....	4
3	General	4
4	Point of Interconnection.....	5
4.1	Primary.....	5
4.2	Secondary.....	5
5	Cost Summary	5
6	Transmission Owner Scope of Work.....	6
6.1	Attachment Facilities.....	6
6.2	Direct Connection Network Upgrades	6
6.3	Non-Direct Connection Cost Estimate.....	7
6.4	Notes on Cost Estimate:.....	7
7	Schedule.....	8
8	Transmission Owner Analysis.....	8
9	Interconnection Customer Requirements.....	8
10	Revenue Metering and SCADA Requirements	8
10.1	PJM Requirements	8
10.2	Interconnected Transmission Owner Requirements.....	8
11	Summer Peak - Load Flow Analysis - Primary POI	8
11.1	Generation Deliverability	9
11.2	Multiple Facility Contingency	9
11.3	Contribution to Previously Identified Overloads.....	9
11.4	Potential Congestion due to Local Energy Deliverability.....	9
11.5	System Reinforcements - Summer Peak Load Flow - Primary POI.....	11
11.6	Flow Gate Details - Primary POI	12
11.6.1	Index 1	13
11.7	Queue Dependencies	16
11.8	Contingency Descriptions - Primary POI.....	18
12	Short Circuit Analysis - Primary POI.....	18
13	Summer Peak - Load Flow Analysis - Secondary POI	18
13.1	Generation Deliverability	18

13.2	Multiple Facility Contingency	18
13.3	Contribution to Previously Identified Overloads.....	19
13.4	Potential Congestion due to Local Energy Deliverability.....	20
13.5	Flow Gate Details - Secondary POI.....	21
13.5.1	Index 1	22
13.5.2	Index 2	24
13.5.3	Index 3	29
13.5.4	Index 4	33
13.5.5	Index 5	36
13.5.6	Index 6	40
13.5.7	Index 7	43
13.5.8	Index 8	46
13.5.9	Index 9	50
13.5.10	Index 10.....	52
13.5.11	Index 11.....	56
13.6	Contingency Descriptions - Secondary POI.....	59
14	Affected Systems	61
Attachment 1: One Line Diagram.....		62

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 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 Storage generating facility located in Cook County, Illinois. The installed facilities will have a total capability of 85 MW with 85 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-535
Project Name	STATE LINE-S. CHICAGO PROPERTIES 138 KV
State	Illinois
County	Cook
Transmission Owner	ComEd
MFO	85
MWE	85
MWC	85
Fuel	Storage
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

AG1-535 has proposed a primary Point of Interconnection to the ComEd transmission system tapping line L0704 between Station 7 State Line and ESS Z715 S. Chicago Properties substations.

4.2 Secondary

AG1-535 has proposed a secondary Point of Interconnection to the ComEd transmission system at the TSS 131 W. Chicago 138kV substation.

5 Cost Summary

The AG1-535 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 21,000,000
Total System Network Upgrade Costs	\$ 19,200,000
Total Costs	\$ 30,200,000

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 two generator leads for AG1-535 will interconnect to the new proposed 138 kV substation, on 138kV transmission L0704 between ComEd's Station 7 State Line and ESS Z715 S. Chicago Properties substations (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 AG1-535, a new 138 kV Interconnection Substation would need to be built looping in the 138 kV line L0704 between ComEd's Station 7 State Line and ESS Z715 S. Chicago Properties substations, as shown in the one-line diagram below.

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 138 kV L0704 between ComEd's Station 7 State Line and ESS Z715 S. Chicago Properties substations, 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).

ComEd would design, engineer and construct the tie in of the Interconnection Substation to 138 kV Line 0704. 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 Station 7 State Line	\$1,000,000
Relay/communications/SCADA upgrades at ESS Z715 S. Chicago Properties	\$1,000,000
Total Cost Estimate (see notes below on cost estimate)	\$2,000,000

6.4 Notes on Cost Estimate:

- 1) These estimates are Order-of-Magnitude estimates of the costs that ComEd would bill to the customer for this interconnection. These estimates are based on a one-line electrical diagram of the project and the information provided by the 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.

- 5) These cost estimates do not include cost of acquiring right-of-way for the transmission line and purchasing any additional land, if needed, for the line terminations. The need and cost for acquiring property and associated legal costs will be investigation during Facilities Study for this project.

7 Schedule

See Sections 6 and 11.

8 Transmission Owner Analysis

See Sections 6 and 11.

9 Interconnection Customer Requirements

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

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

10.2 Interconnected Transmission Owner Requirements

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

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

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-535 was evaluated as an 85.0 MW (Capacity 85.0 MW) injection tapping the State Line to ESS Z715 S. Chicago Properties 138 kV line in the ComEd area. Project AG1-535 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-535 was studied with a commercial probability of 53%. Potential network impacts were as follows:

11.1 Generation Deliverability

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

None

11.2 Multiple Facility Contingency

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

None

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
168577167	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215__S	single	1409.0	177.84	177.85	DC	16.73
168577168	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P1-2_#695_1681	single	1409.0	177.84	177.85	DC	16.73

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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
168280499	246999	05SORENS	765.0	AEP	958430	AF2-137 TAP	765.0	AEP	1	AEP_P1-2_#709_546	operation	4142.0	99.97	100.09	DC	20.42
168577165	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215__S	operation	1409.0	163.7	163.76	DC	16.73
168577166	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P1-2_#695_1681	operation	1409.0	163.7	163.76	DC	16.73
168577511	270677	BURNHAM ;OR	345.0	CE	255109	17MUNSTER	345.0	NIPS	1	AEP_P1-2_#695_1681	operation	1441.0	100.26	100.29	DC	14.88

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 PROJECTIONS LOADING %	POST PROJECTIONS LOADING %	AC/D C	MW IMPACT
168577512	270677	BURNHAM;OR	345.0	CE	255109	17MUNSTER	345.0	NIPS	1	COMED_P1-2_765-L11215__-S	operation	1441.0	100.26	100.29	DC	14.88

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
168577168,168577167	1	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	<u>AEP</u> n4790 (374) : PJM Network Upgrade n4790. Replace Dumont substation 2500A wavetrap. The network project had a projected in-service date of 06/01/2019 and an estimated cost of \$200,000. Project Type : FAC Cost : \$200,000 Time Estimate : N/A Months n5769.1 (377) : PJM Network Upgrade n5769.1. Perform engineering study for CT limits , and relay compliance trip limits at Dumont substation. The network project had an projected in-service date of 06/01/2021 and an estimated cost of \$25,000. Project Type : FAC Cost : \$0 Time Estimate : N/A Months n5769.2 (378) : PJM Network Upgrade n5769.2. Replace two Dumont 3000A Non-Oil breakers. The network project had a projected in-service date of 06/01/2021 and an estimated cost of \$2,000,000. Project Type : FAC Cost : \$0 Time Estimate : N/A Months n5769.3 (379) : PJM Network Upgrade n5769.3. Replace 11 jumpers/risers at Dumont substation. The network project had a projected in-service date of 06/01/2021 and an estimated cost of \$275,000. Project Type : FAC Cost : \$0 Time Estimate : N/A Months This Queue Project presently does not receive cost allocation for the Upgrades n4790, n5769.1, n5769.2, n5769.3 listed above. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc., this Queue Project could receive cost allocation. Note 2: Although this Queue Project may not have cost responsibility for this upgrade, the project may need this upgrade in-service to be deliverable to the PJM system. If this project comes into service prior to completion of the upgrade, this project will need an interim study. <u>AEP</u> AEPI0066a (442) : Rebuild/Reconductor 8.6 miles of ACSR ` 954 ` 45/7 ` RAIL conductor to mitigate the overload Project Type : FAC Cost : \$17,200,000 Time Estimate : 24 - Months <u>AEP</u> AEPI0066b (443) : Replace 4 Switches (3000A) at Dumont Project Type : FAC Cost : \$2,000,000 Time Estimate : 12-18 Months	\$19,200,000
			TOTAL COST	\$19,200,000

11.6 Flow Gate Details - Primary POI

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

11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
168577168	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695_1681	single	1409.0	177.84	177.85	DC	16.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.6636	Adder	3.13
274658	DRESDEN ;2U	117.0249	Adder	137.68
274659	DRESDEN ;3U	110.7281	Adder	130.27
274723	RIVER EC ;12	5.1187	80/20	5.1187
274724	RIVER EC ;11	5.0836	80/20	5.0836
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	7.5917	80/20	7.5917
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	7.6118	80/20	7.6118
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	7.7119	80/20	7.7119
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	7.7119	80/20	7.7119
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	7.6619	80/20	7.6619
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	7.6619	80/20	7.6619
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	7.6619	80/20	7.6619
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	7.6619	80/20	7.6619
274798	UNIV PARK;1U	1.4270	80/20	1.4270
274801	UNIV PARK;4U	1.4164	80/20	1.4164
274826	FISK ;BP	2.6660	80/20	2.6660
274827	FISK ;RP	1.8894	80/20	1.8894
276164	X3-005 C	0.0989	80/20	0.0989
276592	O-012 C	0.5653	80/20	0.5653
915011	Y3-013 1	3.7511	Adder	4.41
915021	Y3-013 2	3.7511	Adder	4.41
915031	Y3-013 3	3.7511	Adder	4.41
924472	AB2-096 CT1	19.0987	Adder	22.47
924473	AB2-096 CT2	19.0987	Adder	22.47
924474	AB2-096 CT3	19.0987	Adder	22.47
926331	AC1-110 1	1.9055	Adder	2.24
926341	AC1-110 2	1.9055	Adder	2.24

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
927451	AC1-142A 1	4.2296	Adder	4.98
927461	AC1-142A 2	4.2299	Adder	4.98
930482	AB1-089 CT	36.7090	Adder	43.19
930483	AB1-089 ST	29.1851	Adder	34.34
930501	AB1-091 CT	43.0585	Adder	50.66
930502	AB1-091 ST	34.2332	Adder	40.27
930761	AB1-122 CT1	69.1239	Adder	81.32
930771	AB1-122 CT2	74.4513	Adder	87.59
933411	AC2-154 C	2.6515	Adder	3.12
933431	AC2-156 C O1	0.9584	Adder	1.13
933911	AD1-013 C	1.8666	Adder	2.2
933931	AD1-016 C	0.9291	Adder	1.09
934101	AD1-039 1	6.7741	Adder	7.97
934111	AD1-039 2	7.2962	Adder	8.58
934701	AD1-098 C O1	6.9602	Adder	8.19
934721	AD1-100 C	19.6248	Adder	23.09
934871	AD1-116 C	0.9691	Adder	1.14
934971	AD1-129 C	0.9053	Adder	1.07
936291	AD2-038 C O1	2.4422	Adder	2.87
936371	AD2-047 C O1	4.7448	Adder	5.58
936461	AD2-060	2.7911	Adder	3.28
936511	AD2-066 C O1	8.4936	Adder	9.99
937001	AD2-134 C	2.7648	Adder	3.25
937401	AD2-194 1	7.8061	Adder	9.18
937411	AD2-194 2	7.8091	Adder	9.19
938511	AE1-070 1	9.1757	Adder	10.79
938521	AE1-070 2	8.3915	Adder	9.87
938851	AE1-113 C O1	8.1962	Adder	9.64
939321	AE1-163 C O1	6.1367	Adder	7.22
939351	AE1-166 C O1	5.4715	Adder	12.15
939631	AE1-193 C	9.0820	Adder	10.68
939641	AE1-194 C	9.0820	Adder	10.68
939651	AE1-195 C	9.0820	Adder	10.68
939681	AE1-198 C	26.9665	Adder	31.73
941131	AE2-107 C	6.6027	Adder	7.77
941551	AE2-152 C O1	6.3133	Adder	14.01
941561	AE2-153 C O1	4.7585	Adder	5.6
942421	AE2-255 C O1	3.1046	Adder	3.65
942651	AE2-281 C O1	0.8767	Adder	1.03
942991	AE2-321 C	8.1974	Adder	9.64
943121	AE2-341 C	12.7897	Adder	15.05
943591	AF1-030 C O1	8.5053	Adder	10.01
943801	AF1-048 C	3.8320	Adder	4.51
944041	AF1-072	2.1578	Adder	2.54
944911	AF1-156 C	12.1666	Adder	14.31
945351	AF1-200 FTIR	309.5845	Merchant Transmission	309.5845
946661	AF1-330 C	2.0074	Adder	2.36
946671	AF1-331	2.4242	Adder	2.85
957331	AF2-027 C	2.5007	Adder	2.94
957371	AF2-031 C O1	1.5912	80/20	1.5912
957401	AF2-034 C	1.4134	Adder	1.66
957471	AF2-041 C	21.5057	Adder	25.3

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958011	AF2-095 C O1	18.9804	Adder	22.33
958021	AF2-096 C	33.8845	Adder	39.86
958481	AF2-142 C	11.4758	Adder	13.5
958491	AF2-143 C	11.2715	Adder	13.26
959081	AF2-199 C	7.1686	Adder	8.43
959091	AF2-200 C O1	14.3371	Adder	16.87
959351	AF2-226 C	2.5981	Adder	3.06
960281	AF2-319 C	2.5981	Adder	3.06
960381	AF2-329	6.6364	Adder	7.81
960581	AF2-349 C	21.8132	Adder	25.66
960591	AF2-350 C O1	8.3737	Adder	9.85
960601	AF2-351 C O1	1.1165	Adder	1.31
960721	AF2-363 C O1	5.9311	Adder	6.98
960731	AF2-364 C O1	6.1532	Adder	7.24
960751	AF2-366 C	6.9970	Adder	8.23
961501	AF2-441 C O1	15.1784	80/20	15.1784
962691	AG1-118 C O1	12.1538	Adder	26.98
962701	AG1-119 C	11.6113	Adder	25.77
962711	AG1-120 C O1	4.5813	Adder	10.17
962781	AG1-127 C	4.1056	Adder	9.11
962791	AG1-128 C O1	3.3146	Adder	7.36
963681	AG1-220 C O1	5.8462	Adder	12.98
964361	AG1-298 O1	94.1500	80/20	94.1500
964461	AG1-309 FTIR	266.0962	Merchant Transmission	266.0962
965061	AG1-371	1.8997	Adder	4.22
965071	AG1-372	1.2664	Adder	2.81
965081	AG1-373	0.6332	Adder	1.41
965141	AG1-379 C	9.0302	Adder	20.04
965551	AG1-423 C O1	8.0047	Adder	17.77
966081	AG1-477 C	1.0615	Adder	2.36
966091	AG1-478 C	1.1215	Adder	2.49
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.0615	Adder	2.36
966441	AG1-513 C	0.2700	Adder	0.6
966651	AG1-535 O1	16.7271	80/20	16.7271
WEC	WEC	4.4191	Confirmed LTF	4.4191
CBM-W2	CBM-W2	27.8029	Confirmed LTF	27.8029
NY	NY	1.2636	Confirmed LTF	1.2636
TVA	TVA	2.1686	Confirmed LTF	2.1686
SIGE	SIGE	0.2780	Confirmed LTF	0.2780
CBM-S1	CBM-S1	0.4245	Confirmed LTF	0.4245
HAMLET	HAMLET	0.5088	Confirmed LTF	0.5088
MEC	MEC	15.8026	Confirmed LTF	15.8026
BLUEG	BLUEG	1.5659	Confirmed LTF	1.5659
TRIMBLE	TRIMBLE	0.5543	Confirmed LTF	0.5543
LAGN	LAGN	5.1870	Confirmed LTF	5.1870
CATAWBA	CATAWBA	0.2489	Confirmed LTF	0.2489
CBM-W1	CBM-W1	102.7245	Confirmed LTF	102.7245

11.7 Queue Dependencies

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

Queue Number	Project Name	Status
AB1-089	Byron-Wayne 345kV #1	Active
AB1-091	Davis Creek 345kV	Active
AB1-122	Kendall-Tazewell & Dresden-Mole Creek	Engineering and Procurement
AB2-096	Silver Lake-Cherry Valley	Active
AC1-110	Aurora 138kV	Active
AC1-142A	Joliet	In Service
AC2-154	Davis Creek 138kV	Active
AC2-156	Sandwich 34.5kV	Active
AD1-013	Twombly Road 138kV	Active
AD1-016	Marengo	Active
AD1-039	Kendall-Tazewell & Dresden-Mole Creek	Active
AD1-098	Dixon-McGirr	Active
AD1-100	Loretto-Wilton & Braidwood-Davis Creek	Active
AD1-116	Nevada 345 kV	Active
AD1-129	Belvidere 34 kV	Active
AD2-038	Powerton	Active
AD2-047	Davis Creek 138 kV	Active
AD2-060	Davis Creek 138kV	Active
AD2-066	Mazon-Crescent Ridge	Active
AD2-134	Shady Oaks	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
AE1-166	Loretto-Wilton & Braidwood-Davis Creek	Active
AE1-193	Crete 345 kV	Active
AE1-194	Crete 345 kV	Active
AE1-195	Crete 345 kV	Active
AE1-198	Crete 345 kV	Active
AE2-107	Haumesser Road 138 kV	Active
AE2-152	Loretto-Wilton & Braidwood-Davis Creek	Active
AE2-153	Braidwood-Davis Creek	Active
AE2-255	Molecreek 345 kV	Active
AE2-281	Powerton-Nevada 345 kV	Active
AE2-321	Belvidere-Marengo 138 kV	Active
AE2-341	Sandwich-Plano	Active
AF1-030	Plano-R 138 kV	Active
AF1-048	Belvidere-Marengo	Active
AF1-072	Rocky Road	Active

Queue Number	Project Name	Status
AF1-156	Braidwood-Davis Creek	Active
AF1-200	Plano 345 kV	Active
AF1-330	Marengo	Active
AF1-331	Twombly Road	Active
AF2-027	Zion Energy Center 345 kV	Active
AF2-031	River E.C.	Active
AF2-034	Kendall	Active
AF2-041	Nelson-Electric Junction 345 kV	Active
AF2-095	Wilmington-Davis Creek	Active
AF2-096	Braidwood-East Frankfort 345 kV	Active
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-199	Nelson-Electric Junction 345 kV	Active
AF2-200	Nelson-Electric Junction 345 kV	Active
AF2-226	Katydid Road 345 kV	Active
AF2-319	Katydid Road 345 kV	Active
AF2-329	Sandwich-Plano 138 kV	Active
AF2-349	Garden Prairie-Silver Lake 345 kV	Active
AF2-350	Kensington 138 kV	Active
AF2-351	Kensington 138 kV	Active
AF2-363	Glidden 138 kV	Active
AF2-364	Wayne Red 138 kV	Active
AF2-366	Glidden-Waterman 138 kV	Active
AF2-441	Burnham 138kV	Active
AG1-118	Sugar Grove 138 kV	Active
AG1-119	Wayne-Byron 345 kV	Active
AG1-120	Glidden-Cherry Valley 138 kV	Active
AG1-127	Glidden-Waterman 138 kV	Active
AG1-128	Shady Oaks 138 kV	Active
AG1-220	West Dekalb 138 kV	Active
AG1-298	Calumet-Burnham 345 kV	Active
AG1-309	Byron 345 kV	Active
AG1-371	Nelson-Electric Junction 345 kV	Active
AG1-372	Nelson-Electric Junction 345 kV	Active
AG1-373	Nelson-Electric Junction 345 kV	Active
AG1-379	Minonk 345 kV	Active
AG1-423	Wayne 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
AG1-513	Aurora 138 kV	Active
AG1-535	Franklin Park 138 kV	Active
X3-005	Wildwood 12kV	In Service
Y3-013	Zion Energy Center	In Service

11.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
AEP_P1-2_#709_546	CONTINGENCY 'AEP_P1-2_#709_546' OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 END
AEP_P1-2_#695_1681	CONTINGENCY 'AEP_P1-2_#695_1681' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
COMED_P1-2_765-L11215__-S	CONTINGENCY 'COMED_P1-2_765-L11215__-S' / CONTINGENCY # 199 TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTON ; 765 05DUMONT 765 REMOVE SHUNT 1 FROM BUS 270644 / WILTON ; 765 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 AG1-535 was evaluated as an 85.0 MW (Capacity 85.0 MW) injection at the W Chicago 138 kV substation in the ComEd area. Project AG1-535 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-535 was studied with a commercial probability of 53%. Potential network impacts were as follows:

13.1 Generation Deliverability

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

None

13.2 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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
162280757	270916	WAYNE ; B	345.0	CE	270900	TOLLWAY ; B	345.0	CE	1	COMED_P7-1_345-L11119_R-N+_345-L11126_B-N	tower	1367.0	99.49	100.15	DC	9.07

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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
162280364	270730	ELECT JCT; B	345.0	CE	270846	PLANO ; B	345.0	CE	1	COMED_P2-2_111_EJ-345R_4	bus	1341.0	120.94	121.97	DC	13.89
162280365	270730	ELECT JCT; B	345.0	CE	270846	PLANO ; B	345.0	CE	1	COMED_P2-2_111_EJ-345R_3	bus	1341.0	121.83	122.7	DC	14.5
174564910	270730	ELECT JCT; B	345.0	CE	270846	PLANO ; B	345.0	CE	1	COMED_P4_111-45-L16703_	breaker	1341.0	129.56	130.5	DC	15.76
174564911	270730	ELECT JCT; B	345.0	CE	270846	PLANO ; B	345.0	CE	1	COMED_P4_111-45-L11120_	breaker	1341.0	121.77	122.64	DC	14.5
162280314	270743	ESS W407K;9T	345.0	CE	274749	AURORA EC;RP	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	128.0	128.5	DC	16.58
162280427	270743	ESS W407K;9T	345.0	CE	270751	ESS W407M;9T	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	109.49	110.94	DC	16.58
174507072	270743	ESS W407K;9T	345.0	CE	274749	AURORA EC;RP	345.0	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	140.9	141.42	DC	17.02
174507073	270743	ESS W407K;9T	345.0	CE	274749	AURORA EC;RP	345.0	CE	1	COMED_P4_111-45-L14321T	breaker	1479.0	128.02	128.53	DC	16.61
162280303	270751	ESS W407M;9T	345.0	CE	270743	ESS W407K;9T	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	128.96	129.46	DC	16.58
162280428	270751	ESS W407M;9T	345.0	CE	270917	WAYNE ; R	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	109.49	110.94	DC	16.58
174507064	270751	ESS W407M;9T	345.0	CE	270743	ESS W407K;9T	345.0	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	141.86	142.38	DC	17.02
174507065	270751	ESS W407M;9T	345.0	CE	270743	ESS W407K;9T	345.0	CE	1	COMED_P4_111-45-L14321T	breaker	1479.0	128.98	129.49	DC	16.61
162280244	270846	PLANO ; B	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P2-2_111_EJ-345R_3	bus	1341.0	149.87	152.14	DC	14.5
174564891	270846	PLANO ; B	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_111-45-L16703_	breaker	1341.0	159.1	161.61	DC	15.76
174564892	270846	PLANO ; B	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_111-45-L11120_	breaker	1341.0	149.93	152.2	DC	14.5
162280308	270917	WAYNE ; R	345.0	CE	270751	ESS W407M;9T	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	128.96	129.46	DC	16.58
174507062	270917	WAYNE ; R	345.0	CE	270751	ESS W407M;9T	345.0	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	141.87	142.39	DC	17.02
174507063	270917	WAYNE ; R	345.0	CE	270751	ESS W407M;9T	345.0	CE	1	COMED_P4_111-45-L14321T	breaker	1479.0	128.98	129.49	DC	16.61

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 PROJE T LOADIN G %	POST PROJE T LOADIN G %	AC D C	MW IMPAC T
162530103	272495	SPAULDIN G; R	138.0	CE	271403	ELGIN ;RT	138.0	CE	1	COMED_P4_144-45-BT6-9	breaker	449.0	102.7	103.17	DC	4.55
162280279	274749	AURORA EC;RP	345.0	CE	270731	ELECT JCT;4R	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	144.0	144.5	DC	16.43
162280426	274749	AURORA EC;RP	345.0	CE	270743	ESS W407K;9T	345.0	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	110.45	111.9	DC	16.58
168577334	274749	AURORA EC;RP	345.0	CE	270731	ELECT JCT;4R	345.0	CE	1	Base Case	single	1201.0	106.78	107.24	DC	12.29
174507042	274749	AURORA EC;RP	345.0	CE	270731	ELECT JCT;4R	345.0	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	147.71	148.22	DC	16.87
174507043	274749	AURORA EC;RP	345.0	CE	270731	ELECT JCT;4R	345.0	CE	1	COMED_P4_111-45-L14321T	breaker	1479.0	144.01	144.52	DC	16.46

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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE T LOADIN G %	POST PROJE T LOADIN G %	AC D C	MW IMPAC T
168577374	270730	ELECT JCT; B	345.0	CE	270846	PLANO ; B	345.0	CE	1	COMED_P1-2_345-L11119_R-N	operation	1341.0	118.93	119.95	DC	13.78
168577421	270743	ESS W407K;9T	345.0	CE	274749	AURORA EC;RP	345.0	CE	1	Base Case	operation	1201.0	118.32	118.79	DC	12.44
168577406	270751	ESS W407M;9T	345.0	CE	270743	ESS W407K;9T	345.0	CE	1	Base Case	operation	1201.0	119.5	119.97	DC	12.44
168577410	270917	WAYNE ; R	345.0	CE	270751	ESS W407M;9T	345.0	CE	1	Base Case	operation	1201.0	119.5	119.97	DC	12.44
168577332	274749	AURORA EC;RP	345.0	CE	270731	ELECT JCT;4R	345.0	CE	1	Base Case	operation	1201.0	129.8	130.27	DC	12.29

13.5 Flow Gate Details - Secondary POI

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

13.5.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
162280757	270916	WAYNE ;B	CE	270900	TOLLWAY ;B	CE	1	COMED_P7-1_345-L11119_R-N+_345-L11126_B-N	tower	1367.0	99.49	100.15	DC	9.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274656	BYRON ;1U	24.9578	50/50	24.9578
274657	BYRON ;2U	24.3271	50/50	24.3271
274818	ELGIN EC ;1P	2.2332	50/50	2.2332
274820	ELGIN EC ;2P	2.2332	50/50	2.2332
274859	EASYR;U1 E	7.6280	Adder	8.97
274860	EASYR;U2 E	7.6280	Adder	8.97
276167	Z1-106 E2	0.4386	Adder	0.52
276168	Z1-106 E1	0.4544	Adder	0.53
276591	L-013 2	1.2719	Adder	1.5
293516	O-009 E1	3.7119	Adder	4.37
293517	O-009 E2	1.8854	Adder	2.22
293518	O-009 E3	2.0763	Adder	2.44
293715	O-029 E	3.9685	Adder	4.67
293716	O-029 E	2.1759	Adder	2.56
293717	O-029 E	1.9999	Adder	2.35
294763	P-046 E	5.4937	Adder	6.46
295111	SUBLETTE E	1.2120	Adder	1.43
919581	AA2-030 C	8.8024	Adder	10.36
924472	AB2-096 CT1	8.2667	Adder	9.73
924473	AB2-096 CT2	8.2667	Adder	9.73
924474	AB2-096 CT3	8.2667	Adder	9.73
930482	AB1-089 CT	60.9675	50/50	60.9675
930483	AB1-089 ST	48.4715	50/50	48.4715
934971	AD1-129 C	0.3923	Adder	0.46
934972	AD1-129 E	0.2615	Adder	0.31
936791	AD2-102 C	9.6512	Adder	11.35
936792	AD2-102 E	6.4342	Adder	7.57
937311	AD2-172 C	1.4421	Adder	1.7
937312	AD2-172 E	1.9915	Adder	2.34
937531	AD2-214 C	1.9032	Adder	2.24
937532	AD2-214 E	1.2688	Adder	1.49
938861	AE1-114 C O1	2.1201	Adder	2.49
938862	AE1-114 E O1	7.2333	Adder	8.51
939051	AE1-134 1	0.6840	Adder	0.8
939061	AE1-134 2	0.6840	Adder	0.8
940501	AE2-035 C	1.4421	Adder	1.7
940502	AE2-035 E	1.9915	Adder	2.34
943411	AF1-012 C	5.0319	Adder	5.92
943412	AF1-012 E	3.3546	Adder	3.95
943921	AF1-060	0.7101	Adder	0.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946151	AF1-280 C O1	9.8994	Adder	11.65
946152	AF1-280 E O1	4.5523	Adder	5.36
946161	AF1-281 C O1	0.2168	Adder	0.26
946162	AF1-281 E O1	1.2284	Adder	1.45
946321	AF1-296 C O1	1.6018	Adder	1.88
946322	AF1-296 E O1	7.4990	Adder	8.82
946501	AF1-314 C	2.5623	Adder	3.01
946502	AF1-314 E	11.9961	Adder	14.11
952431	J760	2.0538	PJM External (MISO)	2.0538
958911	AF2-182 C	13.0065	Adder	15.3
958912	AF2-182 E	8.6710	Adder	10.2
958921	AF2-183 C	2.3123	Adder	2.72
958922	AF2-183 E	3.4684	Adder	4.08
959101	AF2-201 C O1	3.5297	Adder	4.15
959102	AF2-201 E O1	10.1359	Adder	11.92
960551	AF2-346 C	2.1565	Adder	2.54
960552	AF2-346 E	1.4377	Adder	1.69
960581	AF2-349 C	9.4416	Adder	11.11
960582	AF2-349 E	6.2944	Adder	7.41
960721	AF2-363 C O1	2.5656	Adder	3.02
960722	AF2-363 E O1	1.7104	Adder	2.01
961011	AF2-392 C O1	1.8844	Adder	2.22
961012	AF2-392 E O1	8.8222	Adder	10.38
961021	AF2-393 O1	3.2120	Adder	3.78
961031	AF2-394 O1	2.1413	Adder	2.52
962012	AG1-044 E	0.0152	Adder	0.03
963681	AG1-220 C O2	3.0717	Adder	6.82
963682	AG1-220 E O2	2.0478	Adder	4.55
964461	AG1-309 FTIR	275.1931	50/50	275.1931
965551	AG1-423 C O2	35.8128	50/50	35.8128
965552	AG1-423 E O2	23.8752	50/50	23.8752
965931	AG1-462 C O2	4.1242	Adder	9.15
965932	AG1-462 E O2	2.7495	Adder	6.1
966521	AG1-521 C O2	2.3076	Adder	5.12
966522	AG1-521 E O2	0.5769	Adder	1.28
966651	AG1-535 O2	9.0712	50/50	9.0712
CBM-W2	CBM-W2	3.6378	Confirmed LTF	3.6378
NY	NY	0.1399	Confirmed LTF	0.1399
TVA	TVA	0.3570	Confirmed LTF	0.3570
O-066	O-066	1.6623	Confirmed LTF	1.6623
SIGE	SIGE	0.0162	Confirmed LTF	0.0162
CBM-S1	CBM-S1	0.0669	Confirmed LTF	0.0669
G-007	G-007	0.2593	Confirmed LTF	0.2593
HAMLET	HAMLET	0.0404	Confirmed LTF	0.0404
MEC	MEC	4.0218	Confirmed LTF	4.0218
GIBSON	GIBSON	0.0677	Confirmed LTF	0.0677
BLUEG	BLUEG	0.3281	Confirmed LTF	0.3281
TRIMBLE	TRIMBLE	0.1102	Confirmed LTF	0.1102
LAGN	LAGN	0.9607	Confirmed LTF	0.9607
CATAWBA	CATAWBA	0.0172	Confirmed LTF	0.0172
CBM-W1	CBM-W1	12.4077	Confirmed LTF	12.4077

13.5.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174564910	270730	ELECT JCT; B	CE	270846	PLANO ; B	CE	1	COMED_P4_111-45-L16703_	breaker	1341.0	129.56	130.5	DC	15.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.1954	Adder	2.58
274658	DRESDEN ;2U	65.3207	Adder	76.85
274737	AURORA EC;1P	4.3885	50/50	4.3885
274738	AURORA EC;3P	4.6734	50/50	4.6734
274739	AURORA EC;2P	4.3885	50/50	4.3885
274740	AURORA EC;4P	4.6734	50/50	4.6734
274820	ELGIN EC ;2P	3.3870	50/50	3.3870
274859	EASYR;U1 E	11.7382	Adder	13.81
274860	EASYR;U2 E	11.7382	Adder	13.81
276167	Z1-106 E2	1.4469	Adder	1.7
276168	Z1-106 E1	1.4513	Adder	1.71
276170	Z1-108 E	2.6875	Adder	3.16
276591	L-013 2	4.1959	Adder	4.94
290051	GSG-6; E	8.7602	Adder	10.31
290108	LEEDK;1U E	19.1522	Adder	22.53
293516	O-009 E1	8.1324	Adder	9.57
293517	O-009 E2	4.1306	Adder	4.86
293518	O-009 E3	4.5489	Adder	5.35
293715	O-029 E	8.6944	Adder	10.23
293716	O-029 E	4.7670	Adder	5.61
293717	O-029 E	4.3814	Adder	5.15
294763	P-046 E	9.6132	Adder	11.31
295109	WESTBROOK E	4.6901	Adder	5.52
295111	SUBLETTE E	2.5430	Adder	2.99
915011	Y3-013 1	3.3775	Adder	3.97
915021	Y3-013 2	3.3775	Adder	3.97
915031	Y3-013 3	3.3775	Adder	3.97
916221	Z1-073 E	4.5501	Adder	5.35
919581	AA2-030 C	18.6963	Adder	22.0
920272	AA2-123 E	2.6168	Adder	3.08
924472	AB2-096 CT1	20.2615	Adder	23.84
924473	AB2-096 CT2	20.2615	Adder	23.84
924474	AB2-096 CT3	20.2615	Adder	23.84
926311	AC1-109 1	0.4331	50/50	0.4331
926321	AC1-109 2	0.4331	50/50	0.4331
926331	AC1-110 1	2.9232	50/50	2.9232
926341	AC1-110 2	2.9232	50/50	2.9232
930482	AB1-089 CT	40.5167	Adder	47.67
930483	AB1-089 ST	32.2123	Adder	37.9
930771	AB1-122 CT2	41.2212	Adder	48.5
933911	AD1-013 C	1.5357	Adder	1.81
933912	AD1-013 E	2.4532	Adder	2.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	0.9937	Adder	1.17
933932	AD1-016 E	1.6213	Adder	1.91
934111	AD1-039 2	4.0397	Adder	4.75
934432	AD1-067 E	0.4625	Adder	0.54
934701	AD1-098 C O1	5.8170	Adder	6.84
934702	AD1-098 E O1	4.2470	Adder	5.0
934971	AD1-129 C	0.9542	Adder	1.12
934972	AD1-129 E	0.6361	Adder	0.75
936791	AD2-102 C	14.6074	Adder	17.19
936792	AD2-102 E	9.7383	Adder	11.46
937001	AD2-134 C	2.2901	Adder	2.69
937002	AD2-134 E	9.4602	Adder	11.13
937311	AD2-172 C	2.5235	Adder	2.97
937312	AD2-172 E	3.4848	Adder	4.1
937531	AD2-214 C	4.2521	Adder	5.0
937532	AD2-214 E	2.8347	Adder	3.33
938861	AE1-114 C O1	3.9732	Adder	4.67
938862	AE1-114 E O1	13.5555	Adder	15.95
939051	AE1-134 1	1.4528	Adder	1.71
939061	AE1-134 2	1.4528	Adder	1.71
940501	AE2-035 C	2.5235	Adder	2.97
940502	AE2-035 E	3.4848	Adder	4.1
940752	AE2-062 E	0.0326	Adder	0.07
941131	AE2-107 C	5.1711	Adder	6.08
941132	AE2-107 E	3.4474	Adder	4.06
942991	AE2-321 C	8.7424	Adder	10.29
942992	AE2-321 E	4.3060	Adder	5.07
943411	AF1-012 C	13.9168	Adder	16.37
943412	AF1-012 E	9.2778	Adder	10.92
943801	AF1-048 C	4.0867	Adder	4.81
943802	AF1-048 E	2.7245	Adder	3.21
943921	AF1-060	1.2425	Adder	1.46
944041	AF1-072	2.4766	Adder	2.91
945352	AF1-200 NFTW	574.2450	50/50	574.2450
946151	AF1-280 C O1	16.6174	Adder	19.55
946152	AF1-280 E O1	7.6416	Adder	8.99
946161	AF1-281 C O1	0.3639	Adder	0.43
946162	AF1-281 E O1	2.0620	Adder	2.43
946321	AF1-296 C O1	3.7061	Adder	4.36
946322	AF1-296 E O1	17.3512	Adder	20.41
946501	AF1-314 C	4.4836	Adder	5.27
946502	AF1-314 E	20.9913	Adder	24.7
946661	AF1-330 C	2.1458	Adder	2.52
946662	AF1-330 E	0.4710	Adder	0.55
946671	AF1-331	1.9944	Adder	2.35
952381	J703	9.8086	PJM External (MISO)	9.8086
952391	J704	4.1949	PJM External (MISO)	4.1949
952431	J760	2.8383	PJM External (MISO)	2.8383
953151	J831	3.3608	PJM External (MISO)	3.3608
953331	J801	4.2809	PJM External (MISO)	4.2809
953491	J947	17.2860	PJM External (MISO)	17.2860
953681	J818	12.8214	PJM External (MISO)	12.8214

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953891	J849	9.5813	PJM External (MISO)	9.5813
953901	J850	22.5225	PJM External (MISO)	22.5225
953921	J855 C	1.1213	PJM External (MISO)	1.1213
953922	J855 E	6.0667	PJM External (MISO)	6.0667
954001	J864	3.7475	PJM External (MISO)	3.7475
954061	J870	14.8260	PJM External (MISO)	14.8260
954071	J871	7.4130	PJM External (MISO)	7.4130
954141	J878	17.6340	PJM External (MISO)	17.6340
954191	J886	11.8380	PJM External (MISO)	11.8380
954511	J926 C	0.9137	PJM External (MISO)	0.9137
954512	J926 E	4.9433	PJM External (MISO)	4.9433
954691	J732	34.0381	PJM External (MISO)	34.0381
954741	J928 C	0.9564	PJM External (MISO)	0.9564
954742	J928 E	5.1744	PJM External (MISO)	5.1744
954861	J959 C	0.3764	PJM External (MISO)	0.3764
954862	J959 E	2.0367	PJM External (MISO)	2.0367
955091	J986	10.7078	PJM External (MISO)	10.7078
955221	J1000	3.4515	PJM External (MISO)	3.4515
955241	J1002	7.5814	PJM External (MISO)	7.5814
955251	J1003	4.0990	PJM External (MISO)	4.0990
955582	J1042 E	16.0776	PJM External (MISO)	16.0776
955971	J1084	10.6920	PJM External (MISO)	10.6920
956051	J1092	5.6370	PJM External (MISO)	5.6370
956141	J1101	1.5784	PJM External (MISO)	1.5784
956411	J1131	5.7540	PJM External (MISO)	5.7540
956571	J1153	12.4365	PJM External (MISO)	12.4365
956581	J1154	6.4537	PJM External (MISO)	6.4537
956731	J1171	8.1870	PJM External (MISO)	8.1870
956852	J1183 E	0.1035	PJM External (MISO)	0.1035
956901	J1188	4.3570	PJM External (MISO)	4.3570
957331	AF2-027 C	2.2516	Adder	2.65
957332	AF2-027 E	3.3775	Adder	3.97
957401	AF2-034 C	0.7380	Adder	0.87
957402	AF2-034 E	0.6286	Adder	0.74
957471	AF2-041 C	33.5646	50/50	33.5646
957472	AF2-041 E	16.7823	50/50	16.7823
958911	AF2-182 C	21.8331	Adder	25.69
958912	AF2-182 E	14.5554	Adder	17.12
958921	AF2-183 C	3.8814	Adder	4.57
958922	AF2-183 E	5.8222	Adder	6.85
959081	AF2-199 C	11.1882	50/50	11.1882
959082	AF2-199 E	5.5941	50/50	5.5941
959091	AF2-200 C O1	22.3764	50/50	22.3764
959092	AF2-200 E O1	11.1882	50/50	11.1882
959101	AF2-201 C O1	6.1765	Adder	7.27
959102	AF2-201 E O1	17.7363	Adder	20.87
960551	AF2-346 C	5.9643	Adder	7.02
960552	AF2-346 E	3.9762	Adder	4.68
960581	AF2-349 C	23.1413	Adder	27.23
960582	AF2-349 E	15.4275	Adder	18.15
960721	AF2-363 C O1	5.3038	Adder	6.24
960722	AF2-363 E O1	3.5359	Adder	4.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960731	AF2-364 C O1	7.1454	Adder	8.41
960732	AF2-364 E O1	4.7636	Adder	5.6
960751	AF2-366 C	5.4788	Adder	6.45
960752	AF2-366 E	3.6525	Adder	4.3
961011	AF2-392 C O1	3.9844	Adder	4.69
961012	AF2-392 E O1	18.6545	Adder	21.95
961021	AF2-393 O1	6.7917	Adder	7.99
961031	AF2-394 O1	4.5278	Adder	5.33
962012	AG1-044 E	0.0326	Adder	0.07
962691	AG1-118 C O2	9.5970	Adder	21.3
962692	AG1-118 E O2	6.3980	Adder	14.2
962701	AG1-119 C O2	33.2694	50/50	33.2694
962702	AG1-119 E O2	22.1796	50/50	22.1796
962711	AG1-120 C O2	13.1525	50/50	13.1525
962712	AG1-120 E O2	8.7683	50/50	8.7683
962781	AG1-127 C O2	3.2158	Adder	7.14
962782	AG1-127 E O2	2.1439	Adder	4.76
962791	AG1-128 C O2	2.7455	Adder	6.09
962792	AG1-128 E O2	12.8475	Adder	28.52
963681	AG1-220 C O2	5.6167	Adder	12.47
963682	AG1-220 E O2	3.7445	Adder	8.31
964461	AG1-309 FTIR	304.3546	Merchant Transmission	304.3546
965061	AG1-371	5.5941	50/50	5.5941
965071	AG1-372	3.7294	50/50	3.7294
965081	AG1-373	1.8647	50/50	1.8647
965551	AG1-423 C O2	8.9167	Adder	19.79
965552	AG1-423 E O2	5.9444	Adder	13.2
965661	AG1-434 C O2	1.8656	Adder	4.14
965662	AG1-434 E O2	8.7346	Adder	19.39
965931	AG1-462 C O2	9.5338	Adder	21.16
965932	AG1-462 E O2	6.3558	Adder	14.11
966441	AG1-513 C	0.2430	Adder	0.54
966442	AG1-513 E	0.3645	Adder	0.81
966521	AG1-521 C O2	4.7638	Adder	10.57
966522	AG1-521 E O2	1.1909	Adder	2.64
966651	AG1-535 O2	15.7616	50/50	15.7616
966821	AG1-553 C O2	13.7533	Adder	30.53
966822	AG1-553 E O2	3.4383	Adder	7.63
WEC	WEC	4.0279	Confirmed LTF	4.0279
CBM-W2	CBM-W2	14.0582	Confirmed LTF	14.0582
NY	NY	0.4723	Confirmed LTF	0.4723
TVA	TVA	1.3426	Confirmed LTF	1.3426
O-066	O-066	5.6195	Confirmed LTF	5.6195
SIGE	SIGE	0.0754	Confirmed LTF	0.0754
CBM-S1	CBM-S1	0.2645	Confirmed LTF	0.2645
G-007	G-007	0.8757	Confirmed LTF	0.8757
HAMLET	HAMLET	0.1190	Confirmed LTF	0.1190
MEC	MEC	12.5038	Confirmed LTF	12.5038
GIBSON	GIBSON	0.1016	Confirmed LTF	0.1016
BLUEG	BLUEG	0.9374	Confirmed LTF	0.9374
TRIMBLE	TRIMBLE	0.3205	Confirmed LTF	0.3205
LAGN	LAGN	3.3845	Confirmed LTF	3.3845

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CATAWBA	CATAWBA	0.0448	Confirmed LTF	0.0448
CBM-W1	CBM-W1	78.4840	Confirmed LTF	78.4840

13.5.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174507072	270743	ESS W407K;9T	CE	274749	AURORA EC;RP	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	140.9	141.42	DC	17.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.2059	Adder	2.6
274693	ROCKY RD ;1P	4.9878	50/50	4.9878
274695	ROCKY RD ;2P	5.0374	50/50	5.0374
274697	ROCKY RD ;3P	1.3684	50/50	1.3684
274818	ELGIN EC ;1P	6.1779	50/50	6.1779
274819	ELGIN EC ;3P	5.9544	50/50	5.9544
274820	ELGIN EC ;2P	6.1779	50/50	6.1779
274821	ELGIN EC ;4P	5.9991	50/50	5.9991
274859	EASYR;U1 E	14.2425	Adder	16.76
274860	EASYR;U2 E	14.2425	Adder	16.76
276167	Z1-106 E2	1.4705	Adder	1.73
276168	Z1-106 E1	1.4783	Adder	1.74
276170	Z1-108 E	4.6675	Adder	5.49
276591	L-013 2	4.2644	Adder	5.02
290051	GSG-6; E	8.7423	Adder	10.29
290108	LEEDK;1U E	18.1458	Adder	21.35
293516	O-009 E1	7.9413	Adder	9.34
293517	O-009 E2	4.0336	Adder	4.75
293518	O-009 E3	4.4421	Adder	5.23
293715	O-029 E	8.4902	Adder	9.99
293716	O-029 E	4.6550	Adder	5.48
293717	O-029 E	4.2785	Adder	5.03
294763	P-046 E	13.2872	Adder	15.63
295109	WESTBROOK E	4.6805	Adder	5.51
295111	SUBLETTE E	2.7014	Adder	3.18
915011	Y3-013 1	3.9030	Adder	4.59
915021	Y3-013 2	3.9030	Adder	4.59
915031	Y3-013 3	3.9030	Adder	4.59
916221	Z1-073 E	4.5408	Adder	5.34
919581	AA2-030 C	18.4375	Adder	21.69
920272	AA2-123 E	4.3515	Adder	5.12
924472	AB2-096 CT1	32.8885	Adder	38.69
924473	AB2-096 CT2	32.8885	Adder	38.69
924474	AB2-096 CT3	32.8885	Adder	38.69
926331	AC1-110 1	1.2550	Adder	1.48
926341	AC1-110 2	1.2550	Adder	1.48
930482	AB1-089 CT	68.4671	Adder	80.55
930483	AB1-089 ST	54.4340	Adder	64.04
933911	AD1-013 C	1.5484	Adder	1.82
933912	AD1-013 E	2.4734	Adder	2.91
933931	AD1-016 C	1.6497	Adder	1.94
933932	AD1-016 E	2.6916	Adder	3.17

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934432	AD1-067 E	0.4616	Adder	0.54
934701	AD1-098 C O1	5.8278	Adder	6.86
934702	AD1-098 E O1	4.2549	Adder	5.01
934971	AD1-129 C	1.5109	Adder	1.78
934972	AD1-129 E	1.0073	Adder	1.19
936791	AD2-102 C	21.6250	Adder	25.44
936792	AD2-102 E	14.4167	Adder	16.96
937001	AD2-134 C	2.2854	Adder	2.69
937002	AD2-134 E	9.4409	Adder	11.11
937311	AD2-172 C	3.4879	Adder	4.1
937312	AD2-172 E	4.8166	Adder	5.67
937531	AD2-214 C	4.2341	Adder	4.98
937532	AD2-214 E	2.8227	Adder	3.32
938861	AE1-114 C O1	4.9737	Adder	5.85
938862	AE1-114 E O1	16.9691	Adder	19.96
939051	AE1-134 1	1.4327	Adder	1.69
939061	AE1-134 2	1.4327	Adder	1.69
940501	AE2-035 C	3.4879	Adder	4.1
940502	AE2-035 E	4.8166	Adder	5.67
941131	AE2-107 C	4.8994	Adder	5.76
941132	AE2-107 E	3.2662	Adder	3.84
942991	AE2-321 C	14.4790	Adder	17.03
942992	AE2-321 E	7.1314	Adder	8.39
943411	AF1-012 C	11.3794	Adder	13.39
943412	AF1-012 E	7.5862	Adder	8.92
943801	AF1-048 C	6.7684	Adder	7.96
943802	AF1-048 E	4.5123	Adder	5.31
943921	AF1-060	1.7174	Adder	2.02
944041	AF1-072	5.4053	50/50	5.4053
945352	AF1-200 NFTW	174.1740	Merchant Transmission	174.1740
946151	AF1-280 C O1	19.0198	Adder	22.38
946152	AF1-280 E O1	8.7463	Adder	10.29
946161	AF1-281 C O1	0.4165	Adder	0.49
946162	AF1-281 E O1	2.3601	Adder	2.78
946321	AF1-296 C O1	3.6776	Adder	4.33
946322	AF1-296 E O1	17.2175	Adder	20.26
946501	AF1-314 C	6.1972	Adder	7.29
946502	AF1-314 E	29.0139	Adder	34.13
946661	AF1-330 C	3.5682	Adder	4.2
946662	AF1-330 E	0.7833	Adder	0.92
946671	AF1-331	2.0109	Adder	2.37
952381	J703	12.2771	PJM External (MISO)	12.2771
952391	J704	5.2484	PJM External (MISO)	5.2484
952431	J760	4.4730	PJM External (MISO)	4.4730
953151	J831	4.1888	PJM External (MISO)	4.1888
953491	J947	21.0560	PJM External (MISO)	21.0560
953681	J818	18.0409	PJM External (MISO)	18.0409
953891	J849	11.9925	PJM External (MISO)	11.9925
953901	J850	32.1175	PJM External (MISO)	32.1175
953921	J855 C	1.3974	PJM External (MISO)	1.3974
953922	J855 E	7.5606	PJM External (MISO)	7.5606
954001	J864	4.8880	PJM External (MISO)	4.8880

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954061	J870	19.0080	PJM External (MISO)	19.0080
954071	J871	9.5040	PJM External (MISO)	9.5040
954141	J878	22.0320	PJM External (MISO)	22.0320
954191	J886	14.8170	PJM External (MISO)	14.8170
954741	J928 C	1.1973	PJM External (MISO)	1.1973
954742	J928 E	6.4775	PJM External (MISO)	6.4775
955091	J986	13.4095	PJM External (MISO)	13.4095
955221	J1000	4.1340	PJM External (MISO)	4.1340
955241	J1002	9.8525	PJM External (MISO)	9.8525
955251	J1003	5.4920	PJM External (MISO)	5.4920
955582	J1042 E	21.6846	PJM External (MISO)	21.6846
956141	J1101	1.9756	PJM External (MISO)	1.9756
956571	J1153	15.5265	PJM External (MISO)	15.5265
956581	J1154	9.0818	PJM External (MISO)	9.0818
956731	J1171	10.5520	PJM External (MISO)	10.5520
956852	J1183 E	0.1295	PJM External (MISO)	0.1295
956901	J1188	6.2940	PJM External (MISO)	6.2940
957331	AF2-027 C	2.6020	Adder	3.06
957332	AF2-027 E	3.9030	Adder	4.59
957471	AF2-041 C	16.3618	Adder	19.25
957472	AF2-041 E	8.1809	Adder	9.62
958911	AF2-182 C	24.9895	Adder	29.4
958912	AF2-182 E	16.6597	Adder	19.6
958921	AF2-183 C	4.4426	Adder	5.23
958922	AF2-183 E	6.6639	Adder	7.84
959081	AF2-199 C	5.4539	Adder	6.42
959082	AF2-199 E	2.7270	Adder	3.21
959091	AF2-200 C O1	10.9079	Adder	12.83
959092	AF2-200 E O1	5.4539	Adder	6.42
959101	AF2-201 C O1	8.5370	Adder	10.04
959102	AF2-201 E O1	24.5149	Adder	28.84
960551	AF2-346 C	4.8769	Adder	5.74
960552	AF2-346 E	3.2513	Adder	3.83
960581	AF2-349 C	37.5630	Adder	44.19
960582	AF2-349 E	25.0420	Adder	29.46
960721	AF2-363 C O1	6.6061	Adder	7.77
960722	AF2-363 E O1	4.4041	Adder	5.18
960731	AF2-364 C O1	12.9241	Adder	15.2
960732	AF2-364 E O1	8.6161	Adder	10.14
960751	AF2-366 C	5.3786	Adder	6.33
960752	AF2-366 E	3.5857	Adder	4.22
961011	AF2-392 C O1	4.1026	Adder	4.83
961012	AF2-392 E O1	19.2078	Adder	22.6
961021	AF2-393 O1	6.9931	Adder	8.23
961031	AF2-394 O1	4.6621	Adder	5.48
962012	AG1-044 E	0.0325	Adder	0.07
962691	AG1-118 C O2	7.8357	Adder	17.39
962692	AG1-118 E O2	5.2238	Adder	11.6
962701	AG1-119 C O2	77.4324	50/50	77.4324
962702	AG1-119 E O2	51.6216	50/50	51.6216
962711	AG1-120 C O2	30.6116	50/50	30.6116
962712	AG1-120 E O2	20.4077	50/50	20.4077

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962781	AG1-127 C O2	3.1570	Adder	7.01
962782	AG1-127 E O2	2.1047	Adder	4.67
962791	AG1-128 C O2	2.7399	Adder	6.08
962792	AG1-128 E O2	12.8213	Adder	28.46
963681	AG1-220 C O2	7.9310	Adder	17.6
963682	AG1-220 E O2	5.2873	Adder	11.74
964461	AG1-309 FTIR	467.8058	Merchant Transmission	467.8058
965061	AG1-371	1.4453	Adder	3.21
965071	AG1-372	0.9635	Adder	2.14
965081	AG1-373	0.4818	Adder	1.07
965551	AG1-423 C O2	37.7352	50/50	37.7352
965552	AG1-423 E O2	25.1568	50/50	25.1568
965661	AG1-434 C O2	1.8618	Adder	4.13
965662	AG1-434 E O2	8.7168	Adder	19.35
965931	AG1-462 C O2	9.3059	Adder	20.66
965932	AG1-462 E O2	6.2039	Adder	13.77
966521	AG1-521 C O2	5.2157	Adder	11.58
966522	AG1-521 E O2	1.3039	Adder	2.89
966651	AG1-535 O2	7.6677	Adder	17.02
966821	AG1-553 C O2	13.3882	Adder	29.72
966822	AG1-553 E O2	3.3470	Adder	7.43
WEC	WEC	4.7795	Confirmed LTF	4.7795
CBM-W2	CBM-W2	10.3757	Confirmed LTF	10.3757
NY	NY	0.4264	Confirmed LTF	0.4264
TVA	TVA	1.0234	Confirmed LTF	1.0234
O-066	O-066	5.0812	Confirmed LTF	5.0812
SIGE	SIGE	0.0426	Confirmed LTF	0.0426
CBM-S1	CBM-S1	0.1877	Confirmed LTF	0.1877
G-007	G-007	0.7928	Confirmed LTF	0.7928
HAMLET	HAMLET	0.1351	Confirmed LTF	0.1351
MEC	MEC	12.5865	Confirmed LTF	12.5865
GIBSON	GIBSON	0.2441	Confirmed LTF	0.2441
BLUEG	BLUEG	1.0659	Confirmed LTF	1.0659
TRIMBLE	TRIMBLE	0.3562	Confirmed LTF	0.3562
LAGN	LAGN	2.9470	Confirmed LTF	2.9470
CATAWBA	CATAWBA	0.0591	Confirmed LTF	0.0591
CBM-W1	CBM-W1	89.6018	Confirmed LTF	89.6018

13.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
162280427	270743	ESS W407K;9T	CE	270751	ESS W407M;9T	CE	1	COMED_P2-2_111_EJ-345B_2	bus	1479.0	109.49	110.94	DC	16.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	-1.9730	Adder	-2.32
274737	AURORA EC;1P	5.4415	50/50	5.4415
274739	AURORA EC;2P	5.4415	50/50	5.4415
276165	Z1-106 BAT2	1.6855	50/50	1.6855
276166	Z1-106 BAT1	1.6944	50/50	1.6944
276172	Z1-108 BAT	5.4402	50/50	5.4402
276591	L-013 2	-4.1548	Adder	-4.89
920273	AA2-123 BAT	5.0596	50/50	5.0596
926311	AC1-109 1	0.5371	50/50	0.5371
926321	AC1-109 2	0.5371	50/50	0.5371
943803	AF1-048 BAT	13.1106	50/50	13.1106
943922	AF1-060 BAT	1.9834	50/50	1.9834
945351	AF1-200 FTIR	155.7589	Merchant Transmission	155.7589
946163	AF1-281 BAT	3.2050	50/50	3.2050
950351	J466	1.7529	PJM External (MISO)	1.7529
950791	J201 C	0.2346	PJM External (MISO)	0.2346
950792	J201 E	0.9382	PJM External (MISO)	0.9382
950871	J246 C	0.0823	PJM External (MISO)	0.0823
950872	J246 E	0.3291	PJM External (MISO)	0.3291
950942	J325 E	0.2335	PJM External (MISO)	0.2335
951741	J474 C	1.1436	PJM External (MISO)	1.1436
951742	J474 E	6.1874	PJM External (MISO)	6.1874
952161	J571	0.3810	PJM External (MISO)	0.3810
952201	J589 C	1.8396	PJM External (MISO)	1.8396
952202	J589 E	9.9524	PJM External (MISO)	9.9524
952312	J646 E	0.0931	PJM External (MISO)	0.0931
952401	J752 C	0.9121	PJM External (MISO)	0.9121
952402	J752 E	4.9349	PJM External (MISO)	4.9349
952611	J717 C	1.8364	PJM External (MISO)	1.8364
952612	J717 E	9.9355	PJM External (MISO)	9.9355
952761	J728 C	1.7078	PJM External (MISO)	1.7078
952762	J728 E	9.2522	PJM External (MISO)	9.2522
952881	J758	11.8440	PJM External (MISO)	11.8440
952971	J793	76.9272	PJM External (MISO)	76.9272
953071	J794 C	0.1148	PJM External (MISO)	0.1148
953072	J794 E	0.6213	PJM External (MISO)	0.6213
953161	J837 C	1.8058	PJM External (MISO)	1.8058
953162	J837 E	9.7700	PJM External (MISO)	9.7700
953171	J838 C	0.9025	PJM External (MISO)	0.9025
953172	J838 E	4.8825	PJM External (MISO)	4.8825
953271	J701 C	0.4469	PJM External (MISO)	0.4469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953272	J701 E	2.4181	PJM External (MISO)	2.4181
953291	J796	14.0436	PJM External (MISO)	14.0436
953321	J799	10.9318	PJM External (MISO)	10.9318
953351	J805	10.6027	PJM External (MISO)	10.6027
953361	J806	8.7850	PJM External (MISO)	8.7850
953741	J826 C	0.8156	PJM External (MISO)	0.8156
953742	J826 E	4.4124	PJM External (MISO)	4.4124
953761	J829	12.7950	PJM External (MISO)	12.7950
953771	J832	5.9080	PJM External (MISO)	5.9080
953781	J833	5.7820	PJM External (MISO)	5.7820
953851	J845 C	0.9871	PJM External (MISO)	0.9871
953852	J845 E	5.3405	PJM External (MISO)	5.3405
953871	J847	5.3721	PJM External (MISO)	5.3721
953941	J857	7.3758	PJM External (MISO)	7.3758
954111	J875	8.7240	PJM External (MISO)	8.7240
954171	J883 C	0.7230	PJM External (MISO)	0.7230
954172	J883 E	3.9114	PJM External (MISO)	3.9114
954351	J903	5.3660	PJM External (MISO)	5.3660
954421	J913 C	9.2560	PJM External (MISO)	9.2560
954591	J937	31.9769	PJM External (MISO)	31.9769
954751	J351	43.0684	PJM External (MISO)	43.0684
954772	J515 E	21.1440	PJM External (MISO)	21.1440
954941	J968 C	1.8049	PJM External (MISO)	1.8049
954942	J968 E	9.7651	PJM External (MISO)	9.7651
955071	J984 C	1.8474	PJM External (MISO)	1.8474
955072	J984 E	9.9946	PJM External (MISO)	9.9946
955141	J992	11.6520	PJM External (MISO)	11.6520
955151	J993	10.7260	PJM External (MISO)	10.7260
955181	J996	4.6280	PJM External (MISO)	4.6280
955401	J1022 C	1.2234	PJM External (MISO)	1.2234
955402	J1022 E	6.6186	PJM External (MISO)	6.6186
955451	J1027	7.6035	PJM External (MISO)	7.6035
955461	J1028	7.5885	PJM External (MISO)	7.5885
955591	J1043 C	1.1886	PJM External (MISO)	1.1886
955592	J1043 E	21.0620	PJM External (MISO)	21.0620
955741	J1058	17.8530	PJM External (MISO)	17.8530
955781	J1062	8.6205	PJM External (MISO)	8.6205
955791	J1063	11.1920	PJM External (MISO)	11.1920
955821	J1067	14.0232	PJM External (MISO)	14.0232
955841	J1069 C	1.8049	PJM External (MISO)	1.8049
955842	J1069 E	9.7651	PJM External (MISO)	9.7651
955861	J1071	5.9580	PJM External (MISO)	5.9580
955891	J1074	10.0460	PJM External (MISO)	10.0460
956011	J1088	8.8125	PJM External (MISO)	8.8125
956021	J1089	9.9858	PJM External (MISO)	9.9858
956031	J1090	5.2758	PJM External (MISO)	5.2758
956251	J1112	8.9025	PJM External (MISO)	8.9025
956281	J1115 C	1.5999	PJM External (MISO)	1.5999
956282	J1115 E	8.6561	PJM External (MISO)	8.6561
956451	J1139	7.6770	PJM External (MISO)	7.6770
956561	J1152	10.6960	PJM External (MISO)	10.6960
956741	J1172	2.9300	PJM External (MISO)	2.9300

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
956801	J1178	3.8207	PJM External (MISO)	3.8207
956911	J1189	0.2531	PJM External (MISO)	0.2531
957333	AF2-027 BAT	7.5470	50/50	7.5470
958923	AF2-183 BAT	12.8200	50/50	12.8200
961022	AF2-393 BAT	7.9950	50/50	7.9950
961032	AF2-394 BAT	5.3300	50/50	5.3300
962013	AG1-044 BAT	0.0703	50/50	0.0703
964462	AG1-309 NFTW	476.3850	50/50	476.3850
965062	AG1-371 BAT	7.7670	50/50	7.7670
965072	AG1-372 BAT	5.1780	50/50	5.1780
965082	AG1-373 BAT	2.5890	50/50	2.5890
966523	AG1-521 BAT	7.0135	50/50	7.0135
966652	AG1-535 BAT	16.5835	50/50	16.5835
966823	AG1-553 BAT	18.1533	50/50	18.1533
LGEE	LGEE	0.3525	Confirmed LTF	0.3525
CPL	CPL	0.2000	Confirmed LTF	0.2000
G-007A	G-007A	1.7646	Confirmed LTF	1.7646
VFT	VFT	4.7536	Confirmed LTF	4.7536
CALDERWOOD	CALDERWOOD	0.0815	Confirmed LTF	0.0815
PRAIRIE	PRAIRIE	4.0114	Confirmed LTF	4.0114
CBM-S2	CBM-S2	1.5556	Confirmed LTF	1.5556
CHEOAH	CHEOAH	0.0776	Confirmed LTF	0.0776
CBM-N	CBM-N	0.8856	Confirmed LTF	0.8856
COTTONWOOD	COTTONWOOD	3.4482	Confirmed LTF	3.4482

13.5.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174507064	270751	ESS W407M;9T	CE	270743	ESS W407K;9T	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	141.86	142.38	DC	17.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.2059	Adder	2.6
274693	ROCKY RD ;1P	4.9878	50/50	4.9878
274695	ROCKY RD ;2P	5.0374	50/50	5.0374
274697	ROCKY RD ;3P	1.3684	50/50	1.3684
274818	ELGIN EC ;1P	6.1779	50/50	6.1779
274819	ELGIN EC ;3P	5.9544	50/50	5.9544
274820	ELGIN EC ;2P	6.1779	50/50	6.1779
274821	ELGIN EC ;4P	5.9991	50/50	5.9991
274859	EASYR;U1 E	14.2425	Adder	16.76
274860	EASYR;U2 E	14.2425	Adder	16.76
276167	Z1-106 E2	1.4705	Adder	1.73
276168	Z1-106 E1	1.4783	Adder	1.74
276170	Z1-108 E	4.6675	Adder	5.49
276591	L-013 2	4.2644	Adder	5.02
290051	GSG-6; E	8.7423	Adder	10.29
290108	LEEDK;1U E	18.1458	Adder	21.35
293516	O-009 E1	7.9413	Adder	9.34
293517	O-009 E2	4.0336	Adder	4.75
293518	O-009 E3	4.4421	Adder	5.23
293715	O-029 E	8.4902	Adder	9.99
293716	O-029 E	4.6550	Adder	5.48
293717	O-029 E	4.2785	Adder	5.03
294763	P-046 E	13.2872	Adder	15.63
295109	WESTBROOK E	4.6805	Adder	5.51
295111	SUBLETTE E	2.7014	Adder	3.18
915011	Y3-013 1	3.9030	Adder	4.59
915021	Y3-013 2	3.9030	Adder	4.59
915031	Y3-013 3	3.9030	Adder	4.59
916221	Z1-073 E	4.5408	Adder	5.34
919581	AA2-030 C	18.4375	Adder	21.69
920272	AA2-123 E	4.3515	Adder	5.12
924472	AB2-096 CT1	32.8885	Adder	38.69
924473	AB2-096 CT2	32.8885	Adder	38.69
924474	AB2-096 CT3	32.8885	Adder	38.69
926331	AC1-110 1	1.2550	Adder	1.48
926341	AC1-110 2	1.2550	Adder	1.48
930482	AB1-089 CT	68.4671	Adder	80.55
930483	AB1-089 ST	54.4340	Adder	64.04
933911	AD1-013 C	1.5484	Adder	1.82
933912	AD1-013 E	2.4734	Adder	2.91
933931	AD1-016 C	1.6497	Adder	1.94
933932	AD1-016 E	2.6916	Adder	3.17

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934432	AD1-067 E	0.4616	Adder	0.54
934701	AD1-098 C O1	5.8278	Adder	6.86
934702	AD1-098 E O1	4.2549	Adder	5.01
934971	AD1-129 C	1.5109	Adder	1.78
934972	AD1-129 E	1.0073	Adder	1.19
936791	AD2-102 C	21.6250	Adder	25.44
936792	AD2-102 E	14.4167	Adder	16.96
937001	AD2-134 C	2.2854	Adder	2.69
937002	AD2-134 E	9.4409	Adder	11.11
937311	AD2-172 C	3.4879	Adder	4.1
937312	AD2-172 E	4.8166	Adder	5.67
937531	AD2-214 C	4.2341	Adder	4.98
937532	AD2-214 E	2.8227	Adder	3.32
938861	AE1-114 C O1	4.9737	Adder	5.85
938862	AE1-114 E O1	16.9691	Adder	19.96
939051	AE1-134 1	1.4327	Adder	1.69
939061	AE1-134 2	1.4327	Adder	1.69
940501	AE2-035 C	3.4879	Adder	4.1
940502	AE2-035 E	4.8166	Adder	5.67
941131	AE2-107 C	4.8994	Adder	5.76
941132	AE2-107 E	3.2662	Adder	3.84
942991	AE2-321 C	14.4790	Adder	17.03
942992	AE2-321 E	7.1314	Adder	8.39
943411	AF1-012 C	11.3794	Adder	13.39
943412	AF1-012 E	7.5862	Adder	8.92
943801	AF1-048 C	6.7684	Adder	7.96
943802	AF1-048 E	4.5123	Adder	5.31
943921	AF1-060	1.7174	Adder	2.02
944041	AF1-072	5.4053	50/50	5.4053
945352	AF1-200 NFTW	174.1740	Merchant Transmission	174.1740
946151	AF1-280 C O1	19.0198	Adder	22.38
946152	AF1-280 E O1	8.7463	Adder	10.29
946161	AF1-281 C O1	0.4165	Adder	0.49
946162	AF1-281 E O1	2.3601	Adder	2.78
946321	AF1-296 C O1	3.6776	Adder	4.33
946322	AF1-296 E O1	17.2175	Adder	20.26
946501	AF1-314 C	6.1972	Adder	7.29
946502	AF1-314 E	29.0139	Adder	34.13
946661	AF1-330 C	3.5682	Adder	4.2
946662	AF1-330 E	0.7833	Adder	0.92
946671	AF1-331	2.0109	Adder	2.37
952381	J703	12.2771	PJM External (MISO)	12.2771
952391	J704	5.2484	PJM External (MISO)	5.2484
952431	J760	4.4730	PJM External (MISO)	4.4730
953151	J831	4.1888	PJM External (MISO)	4.1888
953491	J947	21.0560	PJM External (MISO)	21.0560
953681	J818	18.0409	PJM External (MISO)	18.0409
953891	J849	11.9925	PJM External (MISO)	11.9925
953901	J850	32.1175	PJM External (MISO)	32.1175
953921	J855 C	1.3974	PJM External (MISO)	1.3974
953922	J855 E	7.5606	PJM External (MISO)	7.5606
954001	J864	4.8880	PJM External (MISO)	4.8880

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954061	J870	19.0080	PJM External (MISO)	19.0080
954071	J871	9.5040	PJM External (MISO)	9.5040
954141	J878	22.0320	PJM External (MISO)	22.0320
954191	J886	14.8170	PJM External (MISO)	14.8170
954741	J928 C	1.1973	PJM External (MISO)	1.1973
954742	J928 E	6.4775	PJM External (MISO)	6.4775
955091	J986	13.4095	PJM External (MISO)	13.4095
955221	J1000	4.1340	PJM External (MISO)	4.1340
955241	J1002	9.8525	PJM External (MISO)	9.8525
955251	J1003	5.4920	PJM External (MISO)	5.4920
955582	J1042 E	21.6846	PJM External (MISO)	21.6846
956141	J1101	1.9756	PJM External (MISO)	1.9756
956571	J1153	15.5265	PJM External (MISO)	15.5265
956581	J1154	9.0818	PJM External (MISO)	9.0818
956731	J1171	10.5520	PJM External (MISO)	10.5520
956852	J1183 E	0.1295	PJM External (MISO)	0.1295
956901	J1188	6.2940	PJM External (MISO)	6.2940
957331	AF2-027 C	2.6020	Adder	3.06
957332	AF2-027 E	3.9030	Adder	4.59
957471	AF2-041 C	16.3618	Adder	19.25
957472	AF2-041 E	8.1809	Adder	9.62
958911	AF2-182 C	24.9895	Adder	29.4
958912	AF2-182 E	16.6597	Adder	19.6
958921	AF2-183 C	4.4426	Adder	5.23
958922	AF2-183 E	6.6639	Adder	7.84
959081	AF2-199 C	5.4539	Adder	6.42
959082	AF2-199 E	2.7270	Adder	3.21
959091	AF2-200 C O1	10.9079	Adder	12.83
959092	AF2-200 E O1	5.4539	Adder	6.42
959101	AF2-201 C O1	8.5370	Adder	10.04
959102	AF2-201 E O1	24.5149	Adder	28.84
960551	AF2-346 C	4.8769	Adder	5.74
960552	AF2-346 E	3.2513	Adder	3.83
960581	AF2-349 C	37.5630	Adder	44.19
960582	AF2-349 E	25.0420	Adder	29.46
960721	AF2-363 C O1	6.6061	Adder	7.77
960722	AF2-363 E O1	4.4041	Adder	5.18
960731	AF2-364 C O1	12.9241	Adder	15.2
960732	AF2-364 E O1	8.6161	Adder	10.14
960751	AF2-366 C	5.3786	Adder	6.33
960752	AF2-366 E	3.5857	Adder	4.22
961011	AF2-392 C O1	4.1026	Adder	4.83
961012	AF2-392 E O1	19.2078	Adder	22.6
961021	AF2-393 O1	6.9931	Adder	8.23
961031	AF2-394 O1	4.6621	Adder	5.48
962012	AG1-044 E	0.0325	Adder	0.07
962691	AG1-118 C O2	7.8357	Adder	17.39
962692	AG1-118 E O2	5.2238	Adder	11.6
962701	AG1-119 C O2	77.4324	50/50	77.4324
962702	AG1-119 E O2	51.6216	50/50	51.6216
962711	AG1-120 C O2	30.6116	50/50	30.6116
962712	AG1-120 E O2	20.4077	50/50	20.4077

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962781	AG1-127 C O2	3.1570	Adder	7.01
962782	AG1-127 E O2	2.1047	Adder	4.67
962791	AG1-128 C O2	2.7399	Adder	6.08
962792	AG1-128 E O2	12.8213	Adder	28.46
963681	AG1-220 C O2	7.9310	Adder	17.6
963682	AG1-220 E O2	5.2873	Adder	11.74
964461	AG1-309 FTIR	467.8058	Merchant Transmission	467.8058
965061	AG1-371	1.4453	Adder	3.21
965071	AG1-372	0.9635	Adder	2.14
965081	AG1-373	0.4818	Adder	1.07
965551	AG1-423 C O2	37.7352	50/50	37.7352
965552	AG1-423 E O2	25.1568	50/50	25.1568
965661	AG1-434 C O2	1.8618	Adder	4.13
965662	AG1-434 E O2	8.7168	Adder	19.35
965931	AG1-462 C O2	9.3059	Adder	20.66
965932	AG1-462 E O2	6.2039	Adder	13.77
966521	AG1-521 C O2	5.2157	Adder	11.58
966522	AG1-521 E O2	1.3039	Adder	2.89
966651	AG1-535 O2	7.6677	Adder	17.02
966821	AG1-553 C O2	13.3882	Adder	29.72
966822	AG1-553 E O2	3.3470	Adder	7.43
WEC	WEC	4.7795	Confirmed LTF	4.7795
CBM-W2	CBM-W2	10.3757	Confirmed LTF	10.3757
NY	NY	0.4264	Confirmed LTF	0.4264
TVA	TVA	1.0234	Confirmed LTF	1.0234
O-066	O-066	5.0812	Confirmed LTF	5.0812
SIGE	SIGE	0.0426	Confirmed LTF	0.0426
CBM-S1	CBM-S1	0.1877	Confirmed LTF	0.1877
G-007	G-007	0.7928	Confirmed LTF	0.7928
HAMLET	HAMLET	0.1351	Confirmed LTF	0.1351
MEC	MEC	12.5865	Confirmed LTF	12.5865
GIBSON	GIBSON	0.2441	Confirmed LTF	0.2441
BLUEG	BLUEG	1.0659	Confirmed LTF	1.0659
TRIMBLE	TRIMBLE	0.3562	Confirmed LTF	0.3562
LAGN	LAGN	2.9470	Confirmed LTF	2.9470
CATAWBA	CATAWBA	0.0591	Confirmed LTF	0.0591
CBM-W1	CBM-W1	89.6018	Confirmed LTF	89.6018

13.5.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
162280428	270751	ESS W407M;9T	CE	270917	WAYNE ; R	CE	1	COMED_P2-2_111_EJ-345B__2	bus	1479.0	109.49	110.94	DC	16.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	-1.9730	Adder	-2.32
274737	AURORA EC;1P	5.4415	50/50	5.4415
274739	AURORA EC;2P	5.4415	50/50	5.4415
276165	Z1-106 BAT2	1.6855	50/50	1.6855
276166	Z1-106 BAT1	1.6944	50/50	1.6944
276172	Z1-108 BAT	5.4402	50/50	5.4402
276591	L-013 2	-4.1548	Adder	-4.89
920273	AA2-123 BAT	5.0596	50/50	5.0596
926311	AC1-109 1	0.5371	50/50	0.5371
926321	AC1-109 2	0.5371	50/50	0.5371
943803	AF1-048 BAT	13.1106	50/50	13.1106
943922	AF1-060 BAT	1.9834	50/50	1.9834
945351	AF1-200 FTIR	155.7589	Merchant Transmission	155.7589
946163	AF1-281 BAT	3.2050	50/50	3.2050
950351	J466	1.7529	PJM External (MISO)	1.7529
950791	J201 C	0.2346	PJM External (MISO)	0.2346
950792	J201 E	0.9382	PJM External (MISO)	0.9382
950871	J246 C	0.0823	PJM External (MISO)	0.0823
950872	J246 E	0.3291	PJM External (MISO)	0.3291
950942	J325 E	0.2335	PJM External (MISO)	0.2335
951741	J474 C	1.1436	PJM External (MISO)	1.1436
951742	J474 E	6.1874	PJM External (MISO)	6.1874
952161	J571	0.3810	PJM External (MISO)	0.3810
952201	J589 C	1.8396	PJM External (MISO)	1.8396
952202	J589 E	9.9524	PJM External (MISO)	9.9524
952312	J646 E	0.0931	PJM External (MISO)	0.0931
952401	J752 C	0.9121	PJM External (MISO)	0.9121
952402	J752 E	4.9349	PJM External (MISO)	4.9349
952611	J717 C	1.8364	PJM External (MISO)	1.8364
952612	J717 E	9.9355	PJM External (MISO)	9.9355
952761	J728 C	1.7078	PJM External (MISO)	1.7078
952762	J728 E	9.2522	PJM External (MISO)	9.2522
952881	J758	11.8440	PJM External (MISO)	11.8440
952971	J793	76.9272	PJM External (MISO)	76.9272
953071	J794 C	0.1148	PJM External (MISO)	0.1148
953072	J794 E	0.6213	PJM External (MISO)	0.6213
953161	J837 C	1.8058	PJM External (MISO)	1.8058
953162	J837 E	9.7700	PJM External (MISO)	9.7700
953171	J838 C	0.9025	PJM External (MISO)	0.9025
953172	J838 E	4.8825	PJM External (MISO)	4.8825
953271	J701 C	0.4469	PJM External (MISO)	0.4469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953272	J701 E	2.4181	PJM External (MISO)	2.4181
953291	J796	14.0436	PJM External (MISO)	14.0436
953321	J799	10.9318	PJM External (MISO)	10.9318
953351	J805	10.6027	PJM External (MISO)	10.6027
953361	J806	8.7850	PJM External (MISO)	8.7850
953741	J826 C	0.8156	PJM External (MISO)	0.8156
953742	J826 E	4.4124	PJM External (MISO)	4.4124
953761	J829	12.7950	PJM External (MISO)	12.7950
953771	J832	5.9080	PJM External (MISO)	5.9080
953781	J833	5.7820	PJM External (MISO)	5.7820
953851	J845 C	0.9871	PJM External (MISO)	0.9871
953852	J845 E	5.3405	PJM External (MISO)	5.3405
953871	J847	5.3721	PJM External (MISO)	5.3721
953941	J857	7.3758	PJM External (MISO)	7.3758
954111	J875	8.7240	PJM External (MISO)	8.7240
954171	J883 C	0.7230	PJM External (MISO)	0.7230
954172	J883 E	3.9114	PJM External (MISO)	3.9114
954351	J903	5.3660	PJM External (MISO)	5.3660
954421	J913 C	9.2560	PJM External (MISO)	9.2560
954591	J937	31.9769	PJM External (MISO)	31.9769
954751	J351	43.0684	PJM External (MISO)	43.0684
954772	J515 E	21.1440	PJM External (MISO)	21.1440
954941	J968 C	1.8049	PJM External (MISO)	1.8049
954942	J968 E	9.7651	PJM External (MISO)	9.7651
955071	J984 C	1.8474	PJM External (MISO)	1.8474
955072	J984 E	9.9946	PJM External (MISO)	9.9946
955141	J992	11.6520	PJM External (MISO)	11.6520
955151	J993	10.7260	PJM External (MISO)	10.7260
955181	J996	4.6280	PJM External (MISO)	4.6280
955401	J1022 C	1.2234	PJM External (MISO)	1.2234
955402	J1022 E	6.6186	PJM External (MISO)	6.6186
955451	J1027	7.6035	PJM External (MISO)	7.6035
955461	J1028	7.5885	PJM External (MISO)	7.5885
955591	J1043 C	1.1886	PJM External (MISO)	1.1886
955592	J1043 E	21.0620	PJM External (MISO)	21.0620
955741	J1058	17.8530	PJM External (MISO)	17.8530
955781	J1062	8.6205	PJM External (MISO)	8.6205
955791	J1063	11.1920	PJM External (MISO)	11.1920
955821	J1067	14.0232	PJM External (MISO)	14.0232
955841	J1069 C	1.8049	PJM External (MISO)	1.8049
955842	J1069 E	9.7651	PJM External (MISO)	9.7651
955861	J1071	5.9580	PJM External (MISO)	5.9580
955891	J1074	10.0460	PJM External (MISO)	10.0460
956011	J1088	8.8125	PJM External (MISO)	8.8125
956021	J1089	9.9858	PJM External (MISO)	9.9858
956031	J1090	5.2758	PJM External (MISO)	5.2758
956251	J1112	8.9025	PJM External (MISO)	8.9025
956281	J1115 C	1.5999	PJM External (MISO)	1.5999
956282	J1115 E	8.6561	PJM External (MISO)	8.6561
956451	J1139	7.6770	PJM External (MISO)	7.6770
956561	J1152	10.6960	PJM External (MISO)	10.6960
956741	J1172	2.9300	PJM External (MISO)	2.9300

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
956801	J1178	3.8207	PJM External (MISO)	3.8207
956911	J1189	0.2531	PJM External (MISO)	0.2531
957333	AF2-027 BAT	7.5470	50/50	7.5470
958923	AF2-183 BAT	12.8200	50/50	12.8200
961022	AF2-393 BAT	7.9950	50/50	7.9950
961032	AF2-394 BAT	5.3300	50/50	5.3300
962013	AG1-044 BAT	0.0703	50/50	0.0703
964462	AG1-309 NFTW	476.3850	50/50	476.3850
965062	AG1-371 BAT	7.7670	50/50	7.7670
965072	AG1-372 BAT	5.1780	50/50	5.1780
965082	AG1-373 BAT	2.5890	50/50	2.5890
966523	AG1-521 BAT	7.0135	50/50	7.0135
966652	AG1-535 BAT	16.5835	50/50	16.5835
966823	AG1-553 BAT	18.1533	50/50	18.1533
LGEE	LGEE	0.3525	Confirmed LTF	0.3525
CPL	CPL	0.2000	Confirmed LTF	0.2000
G-007A	G-007A	1.7646	Confirmed LTF	1.7646
VFT	VFT	4.7536	Confirmed LTF	4.7536
CALDERWOOD	CALDERWOOD	0.0815	Confirmed LTF	0.0815
PRAIRIE	PRAIRIE	4.0114	Confirmed LTF	4.0114
CBM-S2	CBM-S2	1.5556	Confirmed LTF	1.5556
CHEOAH	CHEOAH	0.0776	Confirmed LTF	0.0776
CBM-N	CBM-N	0.8856	Confirmed LTF	0.8856
COTTONWOOD	COTTONWOOD	3.4482	Confirmed LTF	3.4482

13.5.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174564891	270846	PLANO ; B	CE	270730	ELECT JCT; B	CE	1	COMED_P4_111-45-L16703_	breaker	1341.0	159.1	161.61	DC	15.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	-2.1954	Adder	-2.58
274660	LASCO STA;1U	22.9172	50/50	22.9172
274661	LASCO STA;2U	23.0267	50/50	23.0267
276165	Z1-106 BAT2	1.7022	50/50	1.7022
276166	Z1-106 BAT1	1.7074	50/50	1.7074
276172	Z1-108 BAT	3.1618	50/50	3.1618
276591	L-013 2	-4.1959	Adder	-4.94
293061	N-015 E	8.9944	Adder	10.58
294392	P-010 E	11.4228	Adder	13.44
920273	AA2-123 BAT	3.0786	50/50	3.0786
943803	AF1-048 BAT	8.0132	50/50	8.0132
943922	AF1-060 BAT	1.4618	50/50	1.4618
945351	AF1-200 FTIR	556.4707	50/50	556.4707
946163	AF1-281 BAT	2.8540	50/50	2.8540
950351	J466	1.7166	PJM External (MISO)	1.7166
950791	J201 C	0.2298	PJM External (MISO)	0.2298
950792	J201 E	0.9192	PJM External (MISO)	0.9192
950871	J246 C	0.0806	PJM External (MISO)	0.0806
950872	J246 E	0.3224	PJM External (MISO)	0.3224
950942	J325 E	0.2286	PJM External (MISO)	0.2286
952161	J571	0.3731	PJM External (MISO)	0.3731
952201	J589 C	1.8034	PJM External (MISO)	1.8034
952202	J589 E	9.7566	PJM External (MISO)	9.7566
952312	J646 E	0.0911	PJM External (MISO)	0.0911
952401	J752 C	0.8934	PJM External (MISO)	0.8934
952402	J752 E	4.8336	PJM External (MISO)	4.8336
952611	J717 C	1.7996	PJM External (MISO)	1.7996
952612	J717 E	9.7362	PJM External (MISO)	9.7362
952761	J728 C	1.6736	PJM External (MISO)	1.6736
952762	J728 E	9.0666	PJM External (MISO)	9.0666
952881	J758	11.5980	PJM External (MISO)	11.5980
952971	J793	75.3011	PJM External (MISO)	75.3011
953071	J794 C	0.1126	PJM External (MISO)	0.1126
953072	J794 E	0.6089	PJM External (MISO)	0.6089
953161	J837 C	1.6847	PJM External (MISO)	1.6847
953162	J837 E	9.1147	PJM External (MISO)	9.1147
953171	J838 C	0.8419	PJM External (MISO)	0.8419
953172	J838 E	4.5551	PJM External (MISO)	4.5551
953271	J701 C	0.4378	PJM External (MISO)	0.4378
953272	J701 E	2.3685	PJM External (MISO)	2.3685
953291	J796	13.7616	PJM External (MISO)	13.7616
953321	J799	10.6955	PJM External (MISO)	10.6955

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953361	J806	8.6018	PJM External (MISO)	8.6018
953771	J832	5.7920	PJM External (MISO)	5.7920
953781	J833	5.6560	PJM External (MISO)	5.6560
953941	J857	7.2221	PJM External (MISO)	7.2221
954111	J875	8.5365	PJM External (MISO)	8.5365
954171	J883 C	0.6582	PJM External (MISO)	0.6582
954172	J883 E	3.5610	PJM External (MISO)	3.5610
954421	J913 C	8.6352	PJM External (MISO)	8.6352
954591	J937	31.3456	PJM External (MISO)	31.3456
954751	J351	39.6562	PJM External (MISO)	39.6562
954941	J968 C	1.6839	PJM External (MISO)	1.6839
954942	J968 E	9.1101	PJM External (MISO)	9.1101
955071	J984 C	1.8118	PJM External (MISO)	1.8118
955072	J984 E	9.8022	PJM External (MISO)	9.8022
955141	J992	11.2020	PJM External (MISO)	11.2020
955181	J996	4.5264	PJM External (MISO)	4.5264
955591	J1043 C	1.1662	PJM External (MISO)	1.1662
955592	J1043 E	20.6651	PJM External (MISO)	20.6651
955781	J1062	8.4300	PJM External (MISO)	8.4300
955791	J1063	10.4860	PJM External (MISO)	10.4860
955821	J1067	12.7776	PJM External (MISO)	12.7776
955841	J1069 C	1.6839	PJM External (MISO)	1.6839
955842	J1069 E	9.1101	PJM External (MISO)	9.1101
955861	J1071	5.8450	PJM External (MISO)	5.8450
956011	J1088	8.6355	PJM External (MISO)	8.6355
956021	J1089	9.7835	PJM External (MISO)	9.7835
956031	J1090	5.1651	PJM External (MISO)	5.1651
956251	J1112	8.3625	PJM External (MISO)	8.3625
956741	J1172	2.8705	PJM External (MISO)	2.8705
956801	J1178	3.7414	PJM External (MISO)	3.7414
957333	AF2-027 BAT	6.6225	50/50	6.6225
957403	AF2-034 BAT	1.6078	Merchant Transmission	1.6078
958923	AF2-183 BAT	11.4160	50/50	11.4160
961022	AF2-393 BAT	7.9902	50/50	7.9902
961032	AF2-394 BAT	5.3268	50/50	5.3268
962013	AG1-044 BAT	0.0723	50/50	0.0723
964462	AG1-309 NFTW	314.0760	50/50	314.0760
965062	AG1-371 BAT	13.9853	50/50	13.9853
965072	AG1-372 BAT	9.3235	50/50	9.3235
965082	AG1-373 BAT	4.6618	50/50	4.6618
966443	AG1-513 BAT	1.3484	50/50	1.3484
966523	AG1-521 BAT	6.6090	50/50	6.6090
966652	AG1-535 BAT	15.7616	50/50	15.7616
966823	AG1-553 BAT	19.0806	50/50	19.0806
990901	L-005 E	-6.2418	Adder	-7.34
LGEE	LGEE	0.3091	Confirmed LTF	0.3091
CPL	CPL	0.1945	Confirmed LTF	0.1945
G-007A	G-007A	1.9995	Confirmed LTF	1.9995
VFT	VFT	5.3793	Confirmed LTF	5.3793
CALDERWOOD	CALDERWOOD	0.1451	Confirmed LTF	0.1451
PRAIRIE	PRAIRIE	5.7911	Confirmed LTF	5.7911
CBM-S2	CBM-S2	1.1275	Confirmed LTF	1.1275

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CHEOAH	CHEOAH	0.1406	Confirmed LTF	0.1406
CBM-N	CBM-N	1.0032	Confirmed LTF	1.0032
COTTONWOOD	COTTONWOOD	4.0614	Confirmed LTF	4.0614

13.5.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174507062	270917	WAYNE ; R	CE	270751	ESS W407M;9T	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	141.87	142.39	DC	17.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.2059	Adder	2.6
274693	ROCKY RD ;1P	4.9878	50/50	4.9878
274695	ROCKY RD ;2P	5.0374	50/50	5.0374
274697	ROCKY RD ;3P	1.3684	50/50	1.3684
274818	ELGIN EC ;1P	6.1779	50/50	6.1779
274819	ELGIN EC ;3P	5.9544	50/50	5.9544
274820	ELGIN EC ;2P	6.1779	50/50	6.1779
274821	ELGIN EC ;4P	5.9991	50/50	5.9991
274859	EASYR;U1 E	14.2425	Adder	16.76
274860	EASYR;U2 E	14.2425	Adder	16.76
276167	Z1-106 E2	1.4705	Adder	1.73
276168	Z1-106 E1	1.4783	Adder	1.74
276170	Z1-108 E	4.6675	Adder	5.49
276591	L-013 2	4.2644	Adder	5.02
290051	GSG-6; E	8.7423	Adder	10.29
290108	LEEDK;1U E	18.1458	Adder	21.35
293516	O-009 E1	7.9413	Adder	9.34
293517	O-009 E2	4.0336	Adder	4.75
293518	O-009 E3	4.4421	Adder	5.23
293715	O-029 E	8.4902	Adder	9.99
293716	O-029 E	4.6550	Adder	5.48
293717	O-029 E	4.2785	Adder	5.03
294763	P-046 E	13.2872	Adder	15.63
295109	WESTBROOK E	4.6805	Adder	5.51
295111	SUBLETTE E	2.7014	Adder	3.18
915011	Y3-013 1	3.9030	Adder	4.59
915021	Y3-013 2	3.9030	Adder	4.59
915031	Y3-013 3	3.9030	Adder	4.59
916221	Z1-073 E	4.5408	Adder	5.34
919581	AA2-030 C	18.4375	Adder	21.69
920272	AA2-123 E	4.3515	Adder	5.12
924472	AB2-096 CT1	32.8885	Adder	38.69
924473	AB2-096 CT2	32.8885	Adder	38.69
924474	AB2-096 CT3	32.8885	Adder	38.69
926331	AC1-110 1	1.2550	Adder	1.48
926341	AC1-110 2	1.2550	Adder	1.48
930482	AB1-089 CT	68.4671	Adder	80.55
930483	AB1-089 ST	54.4340	Adder	64.04
933911	AD1-013 C	1.5484	Adder	1.82
933912	AD1-013 E	2.4734	Adder	2.91
933931	AD1-016 C	1.6497	Adder	1.94
933932	AD1-016 E	2.6916	Adder	3.17

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934432	AD1-067 E	0.4616	Adder	0.54
934701	AD1-098 C O1	5.8278	Adder	6.86
934702	AD1-098 E O1	4.2549	Adder	5.01
934971	AD1-129 C	1.5109	Adder	1.78
934972	AD1-129 E	1.0073	Adder	1.19
936791	AD2-102 C	21.6250	Adder	25.44
936792	AD2-102 E	14.4167	Adder	16.96
937001	AD2-134 C	2.2854	Adder	2.69
937002	AD2-134 E	9.4409	Adder	11.11
937311	AD2-172 C	3.4879	Adder	4.1
937312	AD2-172 E	4.8166	Adder	5.67
937531	AD2-214 C	4.2341	Adder	4.98
937532	AD2-214 E	2.8227	Adder	3.32
938861	AE1-114 C O1	4.9737	Adder	5.85
938862	AE1-114 E O1	16.9691	Adder	19.96
939051	AE1-134 1	1.4327	Adder	1.69
939061	AE1-134 2	1.4327	Adder	1.69
940501	AE2-035 C	3.4879	Adder	4.1
940502	AE2-035 E	4.8166	Adder	5.67
941131	AE2-107 C	4.8994	Adder	5.76
941132	AE2-107 E	3.2662	Adder	3.84
942991	AE2-321 C	14.4790	Adder	17.03
942992	AE2-321 E	7.1314	Adder	8.39
943411	AF1-012 C	11.3794	Adder	13.39
943412	AF1-012 E	7.5862	Adder	8.92
943801	AF1-048 C	6.7684	Adder	7.96
943802	AF1-048 E	4.5123	Adder	5.31
943921	AF1-060	1.7174	Adder	2.02
944041	AF1-072	5.4053	50/50	5.4053
945352	AF1-200 NFTW	174.1740	Merchant Transmission	174.1740
946151	AF1-280 C O1	19.0198	Adder	22.38
946152	AF1-280 E O1	8.7463	Adder	10.29
946161	AF1-281 C O1	0.4165	Adder	0.49
946162	AF1-281 E O1	2.3601	Adder	2.78
946321	AF1-296 C O1	3.6776	Adder	4.33
946322	AF1-296 E O1	17.2175	Adder	20.26
946501	AF1-314 C	6.1972	Adder	7.29
946502	AF1-314 E	29.0139	Adder	34.13
946661	AF1-330 C	3.5682	Adder	4.2
946662	AF1-330 E	0.7833	Adder	0.92
946671	AF1-331	2.0109	Adder	2.37
952381	J703	12.2771	PJM External (MISO)	12.2771
952391	J704	5.2484	PJM External (MISO)	5.2484
952431	J760	4.4730	PJM External (MISO)	4.4730
953151	J831	4.1888	PJM External (MISO)	4.1888
953491	J947	21.0560	PJM External (MISO)	21.0560
953681	J818	18.0409	PJM External (MISO)	18.0409
953891	J849	11.9925	PJM External (MISO)	11.9925
953901	J850	32.1175	PJM External (MISO)	32.1175
953921	J855 C	1.3974	PJM External (MISO)	1.3974
953922	J855 E	7.5606	PJM External (MISO)	7.5606
954001	J864	4.8880	PJM External (MISO)	4.8880

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954061	J870	19.0080	PJM External (MISO)	19.0080
954071	J871	9.5040	PJM External (MISO)	9.5040
954141	J878	22.0320	PJM External (MISO)	22.0320
954191	J886	14.8170	PJM External (MISO)	14.8170
954741	J928 C	1.1973	PJM External (MISO)	1.1973
954742	J928 E	6.4775	PJM External (MISO)	6.4775
955091	J986	13.4095	PJM External (MISO)	13.4095
955221	J1000	4.1340	PJM External (MISO)	4.1340
955241	J1002	9.8525	PJM External (MISO)	9.8525
955251	J1003	5.4920	PJM External (MISO)	5.4920
955582	J1042 E	21.6846	PJM External (MISO)	21.6846
956141	J1101	1.9756	PJM External (MISO)	1.9756
956571	J1153	15.5265	PJM External (MISO)	15.5265
956581	J1154	9.0818	PJM External (MISO)	9.0818
956731	J1171	10.5520	PJM External (MISO)	10.5520
956852	J1183 E	0.1295	PJM External (MISO)	0.1295
956901	J1188	6.2940	PJM External (MISO)	6.2940
957331	AF2-027 C	2.6020	Adder	3.06
957332	AF2-027 E	3.9030	Adder	4.59
957471	AF2-041 C	16.3618	Adder	19.25
957472	AF2-041 E	8.1809	Adder	9.62
958911	AF2-182 C	24.9895	Adder	29.4
958912	AF2-182 E	16.6597	Adder	19.6
958921	AF2-183 C	4.4426	Adder	5.23
958922	AF2-183 E	6.6639	Adder	7.84
959081	AF2-199 C	5.4539	Adder	6.42
959082	AF2-199 E	2.7270	Adder	3.21
959091	AF2-200 C O1	10.9079	Adder	12.83
959092	AF2-200 E O1	5.4539	Adder	6.42
959101	AF2-201 C O1	8.5370	Adder	10.04
959102	AF2-201 E O1	24.5149	Adder	28.84
960551	AF2-346 C	4.8769	Adder	5.74
960552	AF2-346 E	3.2513	Adder	3.83
960581	AF2-349 C	37.5630	Adder	44.19
960582	AF2-349 E	25.0420	Adder	29.46
960721	AF2-363 C O1	6.6061	Adder	7.77
960722	AF2-363 E O1	4.4041	Adder	5.18
960731	AF2-364 C O1	12.9241	Adder	15.2
960732	AF2-364 E O1	8.6161	Adder	10.14
960751	AF2-366 C	5.3786	Adder	6.33
960752	AF2-366 E	3.5857	Adder	4.22
961011	AF2-392 C O1	4.1026	Adder	4.83
961012	AF2-392 E O1	19.2078	Adder	22.6
961021	AF2-393 O1	6.9931	Adder	8.23
961031	AF2-394 O1	4.6621	Adder	5.48
962012	AG1-044 E	0.0325	Adder	0.07
962691	AG1-118 C O2	7.8357	Adder	17.39
962692	AG1-118 E O2	5.2238	Adder	11.6
962701	AG1-119 C O2	77.4324	50/50	77.4324
962702	AG1-119 E O2	51.6216	50/50	51.6216
962711	AG1-120 C O2	30.6116	50/50	30.6116
962712	AG1-120 E O2	20.4077	50/50	20.4077

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962781	AG1-127 C O2	3.1570	Adder	7.01
962782	AG1-127 E O2	2.1047	Adder	4.67
962791	AG1-128 C O2	2.7399	Adder	6.08
962792	AG1-128 E O2	12.8213	Adder	28.46
963681	AG1-220 C O2	7.9310	Adder	17.6
963682	AG1-220 E O2	5.2873	Adder	11.74
964461	AG1-309 FTIR	467.8058	Merchant Transmission	467.8058
965061	AG1-371	1.4453	Adder	3.21
965071	AG1-372	0.9635	Adder	2.14
965081	AG1-373	0.4818	Adder	1.07
965551	AG1-423 C O2	37.7352	50/50	37.7352
965552	AG1-423 E O2	25.1568	50/50	25.1568
965661	AG1-434 C O2	1.8618	Adder	4.13
965662	AG1-434 E O2	8.7168	Adder	19.35
965931	AG1-462 C O2	9.3059	Adder	20.66
965932	AG1-462 E O2	6.2039	Adder	13.77
966521	AG1-521 C O2	5.2157	Adder	11.58
966522	AG1-521 E O2	1.3039	Adder	2.89
966651	AG1-535 O2	7.6677	Adder	17.02
966821	AG1-553 C O2	13.3882	Adder	29.72
966822	AG1-553 E O2	3.3470	Adder	7.43
WEC	WEC	4.7795	Confirmed LTF	4.7795
CBM-W2	CBM-W2	10.3757	Confirmed LTF	10.3757
NY	NY	0.4264	Confirmed LTF	0.4264
TVA	TVA	1.0234	Confirmed LTF	1.0234
O-066	O-066	5.0812	Confirmed LTF	5.0812
SIGE	SIGE	0.0426	Confirmed LTF	0.0426
CBM-S1	CBM-S1	0.1877	Confirmed LTF	0.1877
G-007	G-007	0.7928	Confirmed LTF	0.7928
HAMLET	HAMLET	0.1351	Confirmed LTF	0.1351
MEC	MEC	12.5865	Confirmed LTF	12.5865
GIBSON	GIBSON	0.2441	Confirmed LTF	0.2441
BLUEG	BLUEG	1.0659	Confirmed LTF	1.0659
TRIMBLE	TRIMBLE	0.3562	Confirmed LTF	0.3562
LAGN	LAGN	2.9470	Confirmed LTF	2.9470
CATAWBA	CATAWBA	0.0591	Confirmed LTF	0.0591
CBM-W1	CBM-W1	89.6018	Confirmed LTF	89.6018

13.5.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
162530103	272495	SPAULDING; R	CE	271403	ELGIN ;RT	CE	1	COMED_P4_144-45-BT6-9	breaker	449.0	102.7	103.17	DC	4.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274693	ROCKY RD ;1P	3.7882	50/50	3.7882
274695	ROCKY RD ;2P	3.8259	50/50	3.8259
274696	ROCKY RD ;4P	3.8618	50/50	3.8618
274697	ROCKY RD ;3P	1.0393	50/50	1.0393
274819	ELGIN EC ;3P	10.1088	50/50	10.1088
274820	ELGIN EC ;2P	3.2602	50/50	3.2602
274821	ELGIN EC ;4P	10.1846	50/50	10.1846
274859	EASYR;U1 E	4.3991	Adder	5.18
274860	EASYR;U2 E	4.3991	Adder	5.18
276165	Z1-106 BAT2	0.8072	Merchant Transmission	0.8072
276166	Z1-106 BAT1	0.7620	Merchant Transmission	0.7620
276170	Z1-108 E	2.2756	Adder	2.68
276591	L-013 2	-1.9897	Adder	-2.34
294763	P-046 E	4.4547	Adder	5.24
915011	Y3-013 1	1.3732	Adder	1.62
915021	Y3-013 2	1.3732	Adder	1.62
915031	Y3-013 3	1.3732	Adder	1.62
920272	AA2-123 E	1.9346	Adder	2.28
924472	AB2-096 CT1	11.4067	Adder	13.42
924473	AB2-096 CT2	11.4067	Adder	13.42
924474	AB2-096 CT3	11.4067	Adder	13.42
930482	AB1-089 CT	21.9343	Adder	25.81
930483	AB1-089 ST	17.4386	Adder	20.52
933931	AD1-016 C	0.7282	Adder	0.86
933932	AD1-016 E	1.1881	Adder	1.4
934971	AD1-129 C	0.5933	Adder	0.7
934972	AD1-129 E	0.3955	Adder	0.47
936791	AD2-102 C	7.2379	Adder	8.52
936792	AD2-102 E	4.8253	Adder	5.68
937311	AD2-172 C	1.1694	Adder	1.38
937312	AD2-172 E	1.6148	Adder	1.9
938861	AE1-114 C O1	1.6011	Adder	1.88
938862	AE1-114 E O1	5.4624	Adder	6.43
940501	AE2-035 C	1.1694	Adder	1.38
940502	AE2-035 E	1.6148	Adder	1.9
942991	AE2-321 C	6.4023	Adder	7.53
942992	AE2-321 E	3.1534	Adder	3.71
943801	AF1-048 C	2.9928	Adder	3.52
943802	AF1-048 E	1.9952	Adder	2.35
943921	AF1-060	0.5758	Adder	0.68
944041	AF1-072	4.1053	50/50	4.1053
946501	AF1-314 C	2.0777	Adder	2.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946502	AF1-314 E	9.7272	Adder	11.44
946661	AF1-330 C	1.5864	Adder	1.87
946662	AF1-330 E	0.3482	Adder	0.41
952431	J760	1.5234	PJM External (MISO)	1.5234
957331	AF2-027 C	0.9154	Adder	1.08
957332	AF2-027 E	1.3732	Adder	1.62
959101	AF2-201 C O1	2.8621	Adder	3.37
959102	AF2-201 E O1	8.2189	Adder	9.67
960581	AF2-349 C	13.0280	Adder	15.33
960582	AF2-349 E	8.6853	Adder	10.22
963681	AG1-220 C O2	2.6229	Adder	5.82
963682	AG1-220 E O2	1.7486	Adder	3.88
964461	AG1-309 FTIR	152.6657	Merchant Transmission	152.6657
965551	AG1-423 C O2	5.3309	Adder	11.83
965552	AG1-423 E O2	3.5539	Adder	7.89
966443	AG1-513 BAT	0.4919	Merchant Transmission	0.4919
966651	AG1-535 O2	2.0479	Adder	4.55
WEC	WEC	1.6484	Confirmed LTF	1.6484
CALDERWOOD	CALDERWOOD	0.0129	Confirmed LTF	0.0129
CBM-W2	CBM-W2	2.4819	Confirmed LTF	2.4819
NY	NY	0.1759	Confirmed LTF	0.1759
TVA	TVA	0.2072	Confirmed LTF	0.2072
O-066	O-066	2.1065	Confirmed LTF	2.1065
SIGE	SIGE	0.0125	Confirmed LTF	0.0125
CHEOAH	CHEOAH	0.0145	Confirmed LTF	0.0145
CBM-S1	CBM-S1	0.0281	Confirmed LTF	0.0281
G-007	G-007	0.3276	Confirmed LTF	0.3276
HAMLET	HAMLET	0.0872	Confirmed LTF	0.0872
MEC	MEC	3.8629	Confirmed LTF	3.8629
GIBSON	GIBSON	0.1234	Confirmed LTF	0.1234
BLUEG	BLUEG	0.4739	Confirmed LTF	0.4739
TRIMBLE	TRIMBLE	0.1564	Confirmed LTF	0.1564
LAGN	LAGN	0.7875	Confirmed LTF	0.7875
CATAWBA	CATAWBA	0.0458	Confirmed LTF	0.0458
CBM-W1	CBM-W1	28.9092	Confirmed LTF	28.9092

13.5.10 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
174507042	274749	AURORA EC;RP	CE	270731	ELECT JCT;4R	CE	1	COMED_P4_111-45-L16704T	breaker	1479.0	147.71	148.22	DC	16.87

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.1729	Adder	2.56
274693	ROCKY RD ;1P	4.9600	50/50	4.9600
274695	ROCKY RD ;2P	5.0093	50/50	5.0093
274697	ROCKY RD ;3P	1.3608	50/50	1.3608
274737	AURORA EC;1P	18.5238	50/50	18.5238
274739	AURORA EC;2P	18.5238	50/50	18.5238
274818	ELGIN EC ;1P	6.1443	50/50	6.1443
274820	ELGIN EC ;2P	6.1443	50/50	6.1443
274859	EASYR;U1 E	14.0988	Adder	16.59
274860	EASYR;U2 E	14.0988	Adder	16.59
276167	Z1-106 E2	1.4556	Adder	1.71
276168	Z1-106 E1	1.4634	Adder	1.72
276170	Z1-108 E	4.6378	Adder	5.46
276591	L-013 2	4.2213	Adder	4.97
290051	GSG-6; E	8.6113	Adder	10.13
290108	LEEDK;1U E	17.8466	Adder	21.0
293516	O-009 E1	7.8186	Adder	9.2
293517	O-009 E2	3.9712	Adder	4.67
293518	O-009 E3	4.3734	Adder	5.15
293715	O-029 E	8.3589	Adder	9.83
293716	O-029 E	4.5831	Adder	5.39
293717	O-029 E	4.2123	Adder	4.96
294763	P-046 E	13.1682	Adder	15.49
295109	WESTBROOK E	4.6104	Adder	5.42
295111	SUBLETTE E	2.6673	Adder	3.14
915011	Y3-013 1	3.8582	Adder	4.54
915021	Y3-013 2	3.8582	Adder	4.54
915031	Y3-013 3	3.8582	Adder	4.54
916221	Z1-073 E	4.4728	Adder	5.26
919581	AA2-030 C	18.2039	Adder	21.42
920272	AA2-123 E	4.3216	Adder	5.08
924472	AB2-096 CT1	32.6528	Adder	38.42
924473	AB2-096 CT2	32.6528	Adder	38.42
924474	AB2-096 CT3	32.6528	Adder	38.42
926311	AC1-109 1	1.8282	50/50	1.8282
926321	AC1-109 2	1.8282	50/50	1.8282
926331	AC1-110 1	1.2325	Adder	1.45
926341	AC1-110 2	1.2325	Adder	1.45
930482	AB1-089 CT	68.0087	Adder	80.01
930483	AB1-089 ST	54.0696	Adder	63.61
933911	AD1-013 C	1.5254	Adder	1.79
933912	AD1-013 E	2.4366	Adder	2.87

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933931	AD1-016 C	1.6383	Adder	1.93
933932	AD1-016 E	2.6730	Adder	3.14
934432	AD1-067 E	0.4546	Adder	0.53
934701	AD1-098 C O1	5.7413	Adder	6.75
934702	AD1-098 E O1	4.1918	Adder	4.93
934971	AD1-129 C	1.4998	Adder	1.76
934972	AD1-129 E	0.9999	Adder	1.18
936791	AD2-102 C	21.4455	Adder	25.23
936792	AD2-102 E	14.2970	Adder	16.82
937001	AD2-134 C	2.2511	Adder	2.65
937002	AD2-134 E	9.2994	Adder	10.94
937311	AD2-172 C	3.4567	Adder	4.07
937312	AD2-172 E	4.7735	Adder	5.62
937531	AD2-214 C	4.1730	Adder	4.91
937532	AD2-214 E	2.7820	Adder	3.27
938861	AE1-114 C O1	4.9228	Adder	5.79
938862	AE1-114 E O1	16.7955	Adder	19.76
939051	AE1-134 1	1.4146	Adder	1.66
939061	AE1-134 2	1.4146	Adder	1.66
940501	AE2-035 C	3.4567	Adder	4.07
940502	AE2-035 E	4.7735	Adder	5.62
941131	AE2-107 C	4.8186	Adder	5.67
941132	AE2-107 E	3.2124	Adder	3.78
942991	AE2-321 C	14.3793	Adder	16.92
942992	AE2-321 E	7.0823	Adder	8.33
943411	AF1-012 C	11.2223	Adder	13.2
943412	AF1-012 E	7.4815	Adder	8.8
943801	AF1-048 C	6.7218	Adder	7.91
943802	AF1-048 E	4.4812	Adder	5.27
943921	AF1-060	1.7020	Adder	2.0
944041	AF1-072	5.3752	50/50	5.3752
946151	AF1-280 C O1	18.8160	Adder	22.14
946152	AF1-280 E O1	8.6526	Adder	10.18
946161	AF1-281 C O1	0.4120	Adder	0.48
946162	AF1-281 E O1	2.3348	Adder	2.75
946321	AF1-296 C O1	3.6217	Adder	4.26
946322	AF1-296 E O1	16.9560	Adder	19.95
946501	AF1-314 C	6.1416	Adder	7.23
946502	AF1-314 E	28.7541	Adder	33.83
946661	AF1-330 C	3.5437	Adder	4.17
946662	AF1-330 E	0.7779	Adder	0.92
946671	AF1-331	1.9810	Adder	2.33
952381	J703	12.2771	PJM External (MISO)	12.2771
952391	J704	5.2484	PJM External (MISO)	5.2484
952431	J760	4.4730	PJM External (MISO)	4.4730
953151	J831	4.1888	PJM External (MISO)	4.1888
953491	J947	21.0560	PJM External (MISO)	21.0560
953681	J818	18.0409	PJM External (MISO)	18.0409
953891	J849	11.9925	PJM External (MISO)	11.9925
953901	J850	32.1175	PJM External (MISO)	32.1175
954001	J864	4.8880	PJM External (MISO)	4.8880
954061	J870	19.0080	PJM External (MISO)	19.0080

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
954071	J871	9.5040	PJM External (MISO)	9.5040
954141	J878	22.0320	PJM External (MISO)	22.0320
954191	J886	14.8170	PJM External (MISO)	14.8170
954741	J928 C	1.1973	PJM External (MISO)	1.1973
954742	J928 E	6.4775	PJM External (MISO)	6.4775
955241	J1002	9.8525	PJM External (MISO)	9.8525
955251	J1003	5.4920	PJM External (MISO)	5.4920
955582	J1042 E	21.6846	PJM External (MISO)	21.6846
956141	J1101	1.9756	PJM External (MISO)	1.9756
956571	J1153	15.5265	PJM External (MISO)	15.5265
956581	J1154	9.0818	PJM External (MISO)	9.0818
956731	J1171	10.5520	PJM External (MISO)	10.5520
956852	J1183 E	0.1295	PJM External (MISO)	0.1295
956901	J1188	6.2940	PJM External (MISO)	6.2940
957331	AF2-027 C	2.5721	Adder	3.03
957332	AF2-027 E	3.8582	Adder	4.54
957471	AF2-041 C	16.0925	Adder	18.93
957472	AF2-041 E	8.0463	Adder	9.47
958911	AF2-182 C	24.7217	Adder	29.08
958912	AF2-182 E	16.4812	Adder	19.39
958921	AF2-183 C	4.3950	Adder	5.17
958922	AF2-183 E	6.5925	Adder	7.76
959081	AF2-199 C	5.3642	Adder	6.31
959082	AF2-199 E	2.6821	Adder	3.16
959091	AF2-200 C O1	10.7284	Adder	12.62
959092	AF2-200 E O1	5.3642	Adder	6.31
959101	AF2-201 C O1	8.4606	Adder	9.95
959102	AF2-201 E O1	24.2953	Adder	28.58
960551	AF2-346 C	4.8096	Adder	5.66
960552	AF2-346 E	3.2064	Adder	3.77
960581	AF2-349 C	37.2938	Adder	43.88
960582	AF2-349 E	24.8625	Adder	29.25
960721	AF2-363 C O1	6.5331	Adder	7.69
960722	AF2-363 E O1	4.3554	Adder	5.12
960731	AF2-364 C O1	12.8511	Adder	15.12
960732	AF2-364 E O1	8.5674	Adder	10.08
960751	AF2-366 C	5.2934	Adder	6.23
960752	AF2-366 E	3.5289	Adder	4.15
961011	AF2-392 C O1	4.0500	Adder	4.76
961012	AF2-392 E O1	18.9612	Adder	22.31
961021	AF2-393 O1	6.9034	Adder	8.12
961031	AF2-394 O1	4.6022	Adder	5.41
962012	AG1-044 E	0.0321	Adder	0.07
962691	AG1-118 C O2	7.6930	Adder	17.08
962692	AG1-118 E O2	5.1287	Adder	11.38
962701	AG1-119 C O2	77.1156	50/50	77.1156
962702	AG1-119 E O2	51.4104	50/50	51.4104
962711	AG1-120 C O2	30.4864	50/50	30.4864
962712	AG1-120 E O2	20.3242	50/50	20.3242
962781	AG1-127 C O2	3.1070	Adder	6.9
962782	AG1-127 E O2	2.0714	Adder	4.6
962791	AG1-128 C O2	2.6988	Adder	5.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
962792	AG1-128 E O2	12.6291	Adder	28.03
963681	AG1-220 C O2	7.8596	Adder	17.45
963682	AG1-220 E O2	5.2398	Adder	11.63
964461	AG1-309 FTIR	464.2242	Merchant Transmission	464.2242
965061	AG1-371	1.4215	Adder	3.16
965071	AG1-372	0.9477	Adder	2.1
965081	AG1-373	0.4738	Adder	1.05
965551	AG1-423 C O2	37.5240	50/50	37.5240
965552	AG1-423 E O2	25.0160	50/50	25.0160
965661	AG1-434 C O2	1.8339	Adder	4.07
965662	AG1-434 E O2	8.5861	Adder	19.06
965931	AG1-462 C O2	9.1632	Adder	20.34
965932	AG1-462 E O2	6.1088	Adder	13.56
966521	AG1-521 C O2	5.1523	Adder	11.44
966522	AG1-521 E O2	1.2881	Adder	2.86
966651	AG1-535 O2	7.6003	Adder	16.87
966821	AG1-553 C O2	13.1800	Adder	29.26
966822	AG1-553 E O2	3.2950	Adder	7.31
WEC	WEC	4.7241	Confirmed LTF	4.7241
CALDERWOOD	CALDERWOOD	0.0025	Confirmed LTF	0.0025
CBM-W2	CBM-W2	8.7987	Confirmed LTF	8.7987
NY	NY	0.5237	Confirmed LTF	0.5237
TVA	TVA	0.7770	Confirmed LTF	0.7770
O-066	O-066	6.2656	Confirmed LTF	6.2656
SIGE	SIGE	0.0426	Confirmed LTF	0.0426
CHEOAH	CHEOAH	0.0070	Confirmed LTF	0.0070
CBM-S1	CBM-S1	0.1208	Confirmed LTF	0.1208
G-007	G-007	0.9775	Confirmed LTF	0.9775
HAMLET	HAMLET	0.2368	Confirmed LTF	0.2368
MEC	MEC	12.3068	Confirmed LTF	12.3068
GIBSON	GIBSON	0.3402	Confirmed LTF	0.3402
BLUEG	BLUEG	1.3714	Confirmed LTF	1.3714
TRIMBLE	TRIMBLE	0.4541	Confirmed LTF	0.4541
LAGN	LAGN	2.6390	Confirmed LTF	2.6390
CATAWBA	CATAWBA	0.1207	Confirmed LTF	0.1207
CBM-W1	CBM-W1	87.1343	Confirmed LTF	87.1343

13.5.11 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
162280426	274749	AURORA EC;RP	CE	270743	ESS W407K;9T	CE	1	COMED_P2-2_111_EJ-345B__2	bus	1479.0	110.45	111.9	DC	16.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	-1.9730	Adder	-2.32
274737	AURORA EC;1P	5.4415	50/50	5.4415
274739	AURORA EC;2P	5.4415	50/50	5.4415
276165	Z1-106 BAT2	1.6855	50/50	1.6855
276166	Z1-106 BAT1	1.6944	50/50	1.6944
276172	Z1-108 BAT	5.4402	50/50	5.4402
276591	L-013 2	-4.1548	Adder	-4.89
920273	AA2-123 BAT	5.0596	50/50	5.0596
926311	AC1-109 1	0.5371	50/50	0.5371
926321	AC1-109 2	0.5371	50/50	0.5371
943803	AF1-048 BAT	13.1106	50/50	13.1106
943922	AF1-060 BAT	1.9834	50/50	1.9834
945351	AF1-200 FTIR	155.7589	Merchant Transmission	155.7589
946163	AF1-281 BAT	3.2050	50/50	3.2050
950351	J466	1.7529	PJM External (MISO)	1.7529
950791	J201 C	0.2346	PJM External (MISO)	0.2346
950792	J201 E	0.9382	PJM External (MISO)	0.9382
950871	J246 C	0.0823	PJM External (MISO)	0.0823
950872	J246 E	0.3291	PJM External (MISO)	0.3291
950942	J325 E	0.2335	PJM External (MISO)	0.2335
951741	J474 C	1.1436	PJM External (MISO)	1.1436
951742	J474 E	6.1874	PJM External (MISO)	6.1874
952161	J571	0.3810	PJM External (MISO)	0.3810
952201	J589 C	1.8396	PJM External (MISO)	1.8396
952202	J589 E	9.9524	PJM External (MISO)	9.9524
952312	J646 E	0.0931	PJM External (MISO)	0.0931
952401	J752 C	0.9121	PJM External (MISO)	0.9121
952402	J752 E	4.9349	PJM External (MISO)	4.9349
952611	J717 C	1.8364	PJM External (MISO)	1.8364
952612	J717 E	9.9355	PJM External (MISO)	9.9355
952761	J728 C	1.7078	PJM External (MISO)	1.7078
952762	J728 E	9.2522	PJM External (MISO)	9.2522
952881	J758	11.8440	PJM External (MISO)	11.8440
952971	J793	76.9272	PJM External (MISO)	76.9272
953071	J794 C	0.1148	PJM External (MISO)	0.1148
953072	J794 E	0.6213	PJM External (MISO)	0.6213
953161	J837 C	1.8058	PJM External (MISO)	1.8058
953162	J837 E	9.7700	PJM External (MISO)	9.7700
953171	J838 C	0.9025	PJM External (MISO)	0.9025
953172	J838 E	4.8825	PJM External (MISO)	4.8825
953271	J701 C	0.4469	PJM External (MISO)	0.4469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
953272	J701 E	2.4181	PJM External (MISO)	2.4181
953291	J796	14.0436	PJM External (MISO)	14.0436
953321	J799	10.9318	PJM External (MISO)	10.9318
953351	J805	10.6027	PJM External (MISO)	10.6027
953361	J806	8.7850	PJM External (MISO)	8.7850
953741	J826 C	0.8156	PJM External (MISO)	0.8156
953742	J826 E	4.4124	PJM External (MISO)	4.4124
953761	J829	12.7950	PJM External (MISO)	12.7950
953771	J832	5.9080	PJM External (MISO)	5.9080
953781	J833	5.7820	PJM External (MISO)	5.7820
953851	J845 C	0.9871	PJM External (MISO)	0.9871
953852	J845 E	5.3405	PJM External (MISO)	5.3405
953871	J847	5.3721	PJM External (MISO)	5.3721
953941	J857	7.3758	PJM External (MISO)	7.3758
954111	J875	8.7240	PJM External (MISO)	8.7240
954171	J883 C	0.7230	PJM External (MISO)	0.7230
954172	J883 E	3.9114	PJM External (MISO)	3.9114
954351	J903	5.3660	PJM External (MISO)	5.3660
954421	J913 C	9.2560	PJM External (MISO)	9.2560
954591	J937	31.9769	PJM External (MISO)	31.9769
954751	J351	43.0684	PJM External (MISO)	43.0684
954772	J515 E	21.1440	PJM External (MISO)	21.1440
954941	J968 C	1.8049	PJM External (MISO)	1.8049
954942	J968 E	9.7651	PJM External (MISO)	9.7651
955071	J984 C	1.8474	PJM External (MISO)	1.8474
955072	J984 E	9.9946	PJM External (MISO)	9.9946
955141	J992	11.6520	PJM External (MISO)	11.6520
955151	J993	10.7260	PJM External (MISO)	10.7260
955181	J996	4.6280	PJM External (MISO)	4.6280
955401	J1022 C	1.2234	PJM External (MISO)	1.2234
955402	J1022 E	6.6186	PJM External (MISO)	6.6186
955451	J1027	7.6035	PJM External (MISO)	7.6035
955461	J1028	7.5885	PJM External (MISO)	7.5885
955591	J1043 C	1.1886	PJM External (MISO)	1.1886
955592	J1043 E	21.0620	PJM External (MISO)	21.0620
955741	J1058	17.8530	PJM External (MISO)	17.8530
955781	J1062	8.6205	PJM External (MISO)	8.6205
955791	J1063	11.1920	PJM External (MISO)	11.1920
955821	J1067	14.0232	PJM External (MISO)	14.0232
955841	J1069 C	1.8049	PJM External (MISO)	1.8049
955842	J1069 E	9.7651	PJM External (MISO)	9.7651
955861	J1071	5.9580	PJM External (MISO)	5.9580
955891	J1074	10.0460	PJM External (MISO)	10.0460
956011	J1088	8.8125	PJM External (MISO)	8.8125
956021	J1089	9.9858	PJM External (MISO)	9.9858
956031	J1090	5.2758	PJM External (MISO)	5.2758
956251	J1112	8.9025	PJM External (MISO)	8.9025
956281	J1115 C	1.5999	PJM External (MISO)	1.5999
956282	J1115 E	8.6561	PJM External (MISO)	8.6561
956451	J1139	7.6770	PJM External (MISO)	7.6770
956561	J1152	10.6960	PJM External (MISO)	10.6960
956741	J1172	2.9300	PJM External (MISO)	2.9300

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
956801	J1178	3.8207	PJM External (MISO)	3.8207
956911	J1189	0.2531	PJM External (MISO)	0.2531
957333	AF2-027 BAT	7.5470	50/50	7.5470
958923	AF2-183 BAT	12.8200	50/50	12.8200
961022	AF2-393 BAT	7.9950	50/50	7.9950
961032	AF2-394 BAT	5.3300	50/50	5.3300
962013	AG1-044 BAT	0.0703	50/50	0.0703
964462	AG1-309 NFTW	476.3850	50/50	476.3850
965062	AG1-371 BAT	7.7670	50/50	7.7670
965072	AG1-372 BAT	5.1780	50/50	5.1780
965082	AG1-373 BAT	2.5890	50/50	2.5890
966523	AG1-521 BAT	7.0135	50/50	7.0135
966652	AG1-535 BAT	16.5835	50/50	16.5835
966823	AG1-553 BAT	18.1533	50/50	18.1533
LGEE	LGEE	0.3525	Confirmed LTF	0.3525
CPL	CPL	0.2000	Confirmed LTF	0.2000
G-007A	G-007A	1.7646	Confirmed LTF	1.7646
VFT	VFT	4.7536	Confirmed LTF	4.7536
CALDERWOOD	CALDERWOOD	0.0815	Confirmed LTF	0.0815
PRAIRIE	PRAIRIE	4.0114	Confirmed LTF	4.0114
CBM-S2	CBM-S2	1.5556	Confirmed LTF	1.5556
CHEOAH	CHEOAH	0.0776	Confirmed LTF	0.0776
CBM-N	CBM-N	0.8856	Confirmed LTF	0.8856
COTTONWOOD	COTTONWOOD	3.4482	Confirmed LTF	3.4482

13.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
COMED_P4_111-45-L14321T	CONTINGENCY 'COMED_P4_111-45-L14321T' / 2454 OPEN BRANCH FROM BUS 270730 TO BUS 270928 CKT 1 / 270730 ELECT JCT; B 345 270928 WOLFS ; B 345 1 OPEN THREEWINDING AT BUS 270928 TO BUS 272794 TO BUS 275334 CKT 1/ OPEN THREEWINDING AT BUS 272794 TO BUS 270928 TO BUS 275334 CKT 1/ OPEN THREEWINDING AT BUS 275334 TO BUS 270928 TO BUS 272794 CKT 1/ OPEN BRANCH FROM BUS 270730 TO BUS 270846 CKT 1 / 270730 ELECT JCT; B 345 270846 PLANO ; B 345 1 OPEN BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / 270730 ELECT JCT; B 345 270916 WAYNE ; B 345 1 OPEN BRANCH FROM BUS 270730 TO BUS 275239 CKT 1 / 270730 ELECT JCT; B 345 275239 ELECT JCT;2M 138 1 OPEN BRANCH FROM BUS 275239 TO BUS 271390 CKT 1 / 275239 ELECT JCT;2M 138 271390 ELECT JCT; B 138 1 OPEN BRANCH FROM BUS 275339 TO BUS 275239 CKT 1 / 275339 ELECT JCT;2C 34.5 275239 ELECT JCT;2M 138 1 END
COMED_P4_111-45-L11120_	CONTINGENCY 'COMED_P4_111-45-L11120_' / 1799 OPEN BRANCH FROM BUS 270733 TO BUS 270747 CKT 1 / 270733 ELECT JCT;3R 345 270747 ESS W407K;0T 345 1 OPEN BRANCH FROM BUS 270747 TO BUS 270753 CKT 1 / 270747 ESS W407K;0T 345 270753 ESS W407M;0T 345 1 OPEN BRANCH FROM BUS 270749 TO BUS 270753 CKT 1 / 270749 ESS W407M; R 345 270753 ESS W407M;0T 345 1 OPEN BRANCH FROM BUS 270753 TO BUS 270813 CKT 1 / 270753 ESS W407M;0T 345 270813 LOMBARD ; R 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 270733 CKT 1 / 270731 ELECT JCT;4R 345 270733 ELECT JCT;3R 345 1 OPEN BRANCH FROM BUS 270733 TO BUS 270847 CKT 1 / 270733 ELECT JCT;3R 345 270847 PLANO ; R 345 1 OPEN BRANCH FROM BUS 270733 TO BUS 275183 CKT 1 / 270733 ELECT JCT;3R 345 275183 ELECT JCT;3M 138 1 OPEN BRANCH FROM BUS 275183 TO BUS 271391 CKT 1 / 275183 ELECT JCT;3M 138 271391 ELECT JCT;3R 138 1 OPEN BRANCH FROM BUS 275283 TO BUS 275183 CKT 1 / 275283 ELECT JCT;3C 34.5 275183 ELECT JCT;3M 138 1 MOVE 100.00 PERCENT LOAD FROM BUS 270749 TO BUS 270751 / FROM 270749 ESS W407M; R 345 TO 270751 ESS W407M;9T 345 . LOAD=18.00 END

Contingency Name	Contingency Definition
COMED_P4_111-45-L16704T	CONTINGENCY 'COMED_P4_111-45-L16704T' / 1647 OPEN BRANCH FROM BUS 270730 TO BUS 270846 CKT 1 / 270730 ELECT JCT; B 345 270846 PLANO ; B 345 1 OPEN BRANCH FROM BUS 272250 TO BUS 272278 CKT 2 / 272250 PLANO ; B 138 272278 PLANO;1I 138 2 OPEN THREEWINDING AT BUS 270846 TO BUS 272278 TO BUS 275354 CKT 1/ OPEN THREEWINDING AT BUS 272278 TO BUS 270846 TO BUS 275354 CKT 1/ OPEN THREEWINDING AT BUS 275354 TO BUS 270846 TO BUS 272278 CKT 1/ OPEN BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / 270730 ELECT JCT; B 345 270916 WAYNE ; B 345 1 OPEN BRANCH FROM BUS 270730 TO BUS 270928 CKT 1 / 270730 ELECT JCT; B 345 270928 WOLFS ; B 345 1 OPEN THREEWINDING AT BUS 270928 TO BUS 272794 TO BUS 275334 CKT 1/ OPEN THREEWINDING AT BUS 272794 TO BUS 270928 TO BUS 275334 CKT 1/ OPEN THREEWINDING AT BUS 275334 TO BUS 270928 TO BUS 272794 CKT 1/ OPEN BRANCH FROM BUS 270730 TO BUS 275239 CKT 1 / 270730 ELECT JCT; B 345 275239 ELECT JCT;2M 138 1 OPEN BRANCH FROM BUS 275239 TO BUS 271390 CKT 1 / 275239 ELECT JCT;2M 138 271390 ELECT JCT; B 138 1 OPEN BRANCH FROM BUS 275339 TO BUS 275239 CKT 1 / 275339 ELECT JCT;2C 34.5 275239 ELECT JCT;2M 138 1 END
COMED_P4_111-45-L16703_	CONTINGENCY 'COMED_P4_111-45-L16703_' / 3238 OPEN BRANCH FROM BUS 270846 TO BUS 270847 CKT 1 / 270846 PLANO ; B 345 270847 PLANO ; R 345 1 OPEN BRANCH FROM BUS 270733 TO BUS 270847 CKT 1 / 270733 ELECT JCT;3R 345 270847 PLANO ; R 345 1 OPEN BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / 270717 DRESDEN ; R 345 270731 ELECT JCT;4R 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 270733 CKT 1 / 270731 ELECT JCT;4R 345 270733 ELECT JCT;3R 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 274749 CKT 1 / 270731 ELECT JCT;4R 345 274749 AURORA EC;RP 345 1 OPEN BRANCH FROM BUS 270731 TO BUS 275184 CKT 1 / 270731 ELECT JCT;4R 345 275184 ELECT JCT;4M 138 1 OPEN BRANCH FROM BUS 275184 TO BUS 271393 CKT 1 / 275184 ELECT JCT;4M 138 271393 ELECT JCT;4R 138 1 OPEN BRANCH FROM BUS 275284 TO BUS 275184 CKT 1 / 275284 ELECT JCT;4C 34.5 275184 ELECT JCT;4M 138 1 END
COMED_P2-2_111_EJ-345R__3	CONTINGENCY 'COMED_P2-2_111_EJ-345R__3' / CONTINGENCY # 103 DISCONNECT BUS 270733 / ELECT JCT;3R 345 DISCONNECT BUS 275183 / ELECT JCT;3M 138 END
COMED_P2-2_111_EJ-345R__4	CONTINGENCY 'COMED_P2-2_111_EJ-345R__4' / CONTINGENCY # 104 DISCONNECT BUS 270731 / ELECT JCT;4R 345 DISCONNECT BUS 275184 / ELECT JCT;4M 138 END

Contingency Name	Contingency Definition
COMED_P4_144-45-BT6-9__	CONTINGENCY 'COMED_P4_144-45-BT6-9__' / 2258 OPEN BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / 270730 ELECT JCT; B 345 270916 WAYNE ; B 345 1 OPEN BRANCH FROM BUS 270916 TO BUS 270917 CKT 1 / 270916 WAYNE ; B 345 270917 WAYNE ; R 345 1 OPEN BRANCH FROM BUS 270883 TO BUS 270917 CKT 1 / 270883 SILVER LK; R 345 270917 WAYNE ; R 345 1 END
COMED_P7-1_345-L11119_R-N+_345-L11126_B-N	CONTINGENCY 'COMED_P7-1_345-L11119_R-N+_345-L11126_B-N' / CONTINGENCY # 61 TRIP BRANCH FROM BUS 270731 TO BUS 274749 CKT 1 / ELECT JCT;4R 345 AURORA EC;RP 345 TRIP BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / ELECT JCT; B 345 WAYNE ; B 345 TRIP BRANCH FROM BUS 270916 TO BUS 270917 CKT 1 / WAYNE ; B 345 WAYNE ; R 345 END
Base Case	
COMED_P2-2_111_EJ-345B__2	CONTINGENCY 'COMED_P2-2_111_EJ-345B__2' / CONTINGENCY # 102 TRIP BRANCH FROM BUS 270730 TO BUS 270846 CKT 1 / ELECT JCT; B 345 PLANO ; B 345 TRIP BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / ELECT JCT; B 345 WAYNE ; B 345 TRIP BRANCH FROM BUS 270730 TO BUS 270928 CKT 1 / ELECT JCT; B 345 WOLFS ; B 345 TRIP BRANCH FROM BUS 270928 TO BUS 272794 TO BUS 275334 CKT 1 / WOLFS ; B 345 WOLFS ; B 138 WOLFS ;1C 34.5 DISCONNECT BUS 275239 / ELECT JCT;2M 138 END
COMED_P1-2_345-L11119_R-N	CONTINGENCY 'COMED_P1-2_345-L11119_R-N' / 2697 OPEN BRANCH FROM BUS 270731 TO BUS 274749 CKT 1 / 270731 ELECT JCT;4R 345 274749 AURORA EC;RP 345 1 END

14 Affected Systems

None

Attachment 1: One Line Diagram