



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-298
CALUMET-BURNHAM 345 KV
500 MW Capacity / 500 MW Energy**

January 2021

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1 Introduction

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

2 Preface

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Storage generating facility located in Cook County, Illinois. The installed facilities will have a total capability of 500 MW with 500 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	AG1-298
Project Name	CALUMET-BURNHAM 345 KV
State	Illinois
County	Cook
Transmission Owner	ComEd
MFO	500
MWE	500
MWC	500
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

AG1-298 proposed a Point of Interconnection with the ComEd transmission system tapping the TSS 150 Calumet to TSS 177 Burnham 345 kV line L17724.

5 Cost Summary

The AG1-298 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 27,000,000
Total System Network Upgrade Costs	\$ 64,379,676
Total Costs	\$ 91,379,676

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 AG1-298 will interconnect to the new proposed 345 kV substation, on 345kV transmission L17724, between ComEd's TSS 177 Burnham and TSS 150 Calumet substations (see details in Direct Connection section below). The required Attachment Facilities are one 345 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 345 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 AG1-298, a new 345 kV Interconnection Substation would need to be built looping in the 345kV transmission L17724, between ComEd's TSS 177 Burnham and TSS 150 Calumet substations, as shown in the one-line diagram below.

The scope of work includes installation of three 345 kV circuit breakers in "breaker-and-a-half" bus configuration and tie in the Interconnection Substation to the 345 kV L17724 between ComEd's TSS 177 Burnham and TSS 150 Calumet 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 345 kV Line 17724. 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 345 kV substation as described above	N/A
Transmission line tie in work (foundations, structures, conductors)	\$4,000,000
ComEd oversight and testing	\$2,000,000
Total Cost Estimate (see notes below on cost estimate)	\$6,000,000

For ComEd building the interconnecting substation cost estimates:

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

Normally it takes about 24-months to engineer, design, procure material and construct 345 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 TSS 177 Burnham	\$1,000,000
Relay/communications/SCADA upgrades at TSS 150 Calumet	\$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 Meteorological Data Reporting Requirements

10.3 Interconnected Transmission Owner Requirements

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

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

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-298 was evaluated as a 500.0 MW (Capacity 500.0 MW) injection tapping the Calumet to Burnham 345 kV line in the ComEd area. Project AG1-298 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-298 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 PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
164490199	242865	05JEFRSO	345.0	AEP	248000	06CLIFTY	345.0	OVCE	Z1	AEP_P1-2_#709_546	single	1868.0	140.89	141.31	DC	51.93
161676212	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P7-1_#11046	tower	4142.0	104.85	104.93	DC	108.96
167374070	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P4_#6189_05HANG	breaker	4142.0	104.81	104.86	DC	109.66
168178782	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P1-2_#709_546	single	4142.0	101.37	101.44	DC	109.86
168446799	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215_-S	single	1409.0	177.55	177.62	DC	94.15
168446800	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P1-2_#695_1681	single	1409.0	177.55	177.62	DC	94.15
164490895	264612	19MON12	345.0	ITCT	241901	02LALLENDRF	345.0	ATSI	1	ATSI-P7-1-TE-138-02ST	tower	1702.0	131.94	132.8	DC	32.1
162141026	270736	ELWOOD; B	345.0	CE	270770	GOODINGS; 4B	345.0	CE	1	COMED_P2-2_116_GG-345R_2	bus	1528.0	123.5	124.6	DC	31.22
168446989	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P1-2_#695_1681	single	971.0	102.63	103.59	DC	46.79
168446990	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_765-L11215_-S	single	971.0	102.63	103.59	DC	46.79
167132631	958430	AF2-137TAP	765.0	AEP	242928	05MARYSV	765.0	AEP	1	AEP_P4_#6189_05HANG	breaker	4142.0	107.88	108.46	DC	119.38
167132632	958430	AF2-137TAP	765.0	AEP	242928	05MARYSV	765.0	AEP	1	AEP_P4_#1760_05JEFRSO	breaker	4142.0	106.33	106.87	DC	127.38

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
168178780	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P1-2_#709_546	operation	4142.0	103.86	103.91	DC	109.86
168178669	243215	05COOK	345.0	AEP	243229	05OLIVE	345.0	AEP	1	AEP_P1-2_#358_1684	operation	1409.0	116.15	117.23	DC	29.47
168447088	255104	17GREEN_AC RE	345.0	NIPS	270771	GREENAC RE; T	345.0	CE	1	AEP_P1-2_#695_1681	operation	1091.0	109.61	109.76	DC	46.79
168447089	255104	17GREEN_AC RE	345.0	NIPS	270771	GREENAC RE; T	345.0	CE	1	COMED_P1-2_765-L11215_-S	operation	1091.0	109.61	109.76	DC	46.79
168446797	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215_-S	operation	1409.0	163.08	163.43	DC	94.15
168446798	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P1-2_#695_1681	operation	1409.0	163.08	163.43	DC	94.15
168446801	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	Base Case	operation	1409.0	104.33	104.73	DC	66.26
168447004	270728	E FRANKFO; B	345.0	CE	270766	GOODING S;3B	345.0	CE	1	COMED_P1-2_345-L2002_-B-S-A	operation	1917.0	112.74	113.71	DC	36.29
168447005	270728	E FRANKFO; B	345.0	CE	270766	GOODING S;3B	345.0	CE	1	Base Case	operation	1660.0	103.22	104.28	DC	33.47
168447072	270736	ELWOOD ; B	345.0	CE	270770	GOODING S;4B	345.0	CE	1	COMED_P1-2_345-L11622_-R-S	operation	1528.0	110.63	111.63	DC	29.02
168446969	270770	GOODINGS ;4B	345.0	CE	270766	GOODING S;3B	345.0	CE	1	COMED_P2-1_076-L11613A_	operation	1802.0	121.27	121.81	DC	48.09
168446987	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_765-L11215_-S	operation	971.0	123.12	123.28	DC	46.79
168446988	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P1-2_#695_1681	operation	971.0	123.12	123.28	DC	46.79
168447129	270927	WILTON ; R	345.0	CE	275233	WILTON ;4M	345.0	CE	1	COMED_P1-2_765-L11216_-S	operation	1379.0	101.18	101.25	DC	51.23
168447127	275233	WILTON ;4M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P1-2_765-L11216_-S	operation	1379.0	101.18	101.25	DC	51.23
169964003	958430	AF2-137 TAP	765.0	AEP	242928	05MARYS V	765.0	AEP	1	AEP_P1-2_#709_546	operation	4142.0	106.64	107.22	DC	119.63

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
164490895	4	19MON12 345.0 kV - 02LALLENDORF 345.0 kV Ckt 1	<u>ATSI</u> TE-014 (1120) : Reconductor the Lallendorf-Monroe 345 kV line and the line drop at Lallendorf with OPGW. Replace the wave trap. Replace the substation conductor at Lallendorf. Replace the bitronics meter. Change relay settings at Lallendorf to meet a Summer Normal rating of 3171 MVA and Summer emergency rating of 3171 MVA. ITC would need to replace their section of limiting conductor and provide estimates for their replacement. Project Type : FAC Cost : \$23,077,116 Time Estimate : 30.0 Months <u>ITCT</u> NonPJMArea (1180) : The external (i.e. Non-PJM) Transmission Owner, ITCT, will not evaluate this violation until the impact study phase. Project Type : FAC	\$23,077,116
162141026	5	ELWOOD ; B 345.0 kV - GOODINGS ;4B 345.0 kV Ckt 1	<u>ComEd</u> CE_NUN_L11620 (655) : Re-conductor a portion of the line, upgrade 1-345kV circuit breaker and upgrade station conductor at both line terminals. A preliminary estimate for the upgrades is \$5M with an estimated construction timeline of 24-30 months. Upon completion the limiting ratings will be 1448/1863/1975/2232 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$5,000,000 Time Estimate : 30.0 Months	\$5,000,000

ID	Idx	Facility	Upgrade Description	Cost
164490199	1	05JEFRSO 345.0 kV - 06CLIFTY 345.0 kV Ckt Z1	<u>AEP</u> AEPI0045a (240) : Replace 4 Clifty Switches(3000A) Project Type : FAC Cost : \$2,000,000 Time Estimate : 12-18 Months AEPI0045b (241) : A Sag Study will be required on the 0.75 mile section of ACSR ~ 2156 ~ 64/19 ~ BLUEBIRD line to mitigate the overload . New Rating after the Sag Study : S/N: 2354 MVA S/E: 3212 MVA. Depending on the sag study results, cost for this upgrade is expected to be between \$20,000 (No remediations required just sag study) and 1.96 million (complete line reconductor/rebuild required). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$20,000 Time Estimate : 6-12 Months AEPI0045d (242) : Rebuild 0.75 miles of ACSR ~ 2156 ~ 64/19 ~ BLUEBIRD conductor to mitigate the overload. Project Type : FAC Cost : \$1,960,000 Time Estimate : 24-36 Months n4106 (252) : Perform a sag study on the 345 kV line between Jefferson and Clifty Creek. The 345 kV line between Jefferson and Clifty Creek can be sag studied to increase the emergency rating from 2354 to 3212. The cost of a sag study to identify any mitigation requirements should cost around \$3,680. If remediation can only be reached through a rebuild, wed expect that to cost around \$1,960,000. Note that the transformer will still be limited to 2919 MVA emergency. Project Type : FAC Cost : \$1,960,000 Time Estimate : Varies based upon final required scope	\$5,940,000

ID	Idx	Facility	Upgrade Description	Cost
168446989,168 446990	6	GREENACRE; T 345.0 kV - 05OLIVE 345.0 kV Ckt 1	<u>AEP</u> AEPI0042a (7) : A Sag Study will be required on the 40.64 miles of conductor to mitigate the overload. The new ratings after sag study will be: S/N: 971 MVA, S/E: 1419 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between \$162,560 (no remediation required, just sag study) and \$81.28 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$162,560 Time Estimate : 6-12 Months <u>NEXTERA</u> Facility owned by NEXTERA (701) : Facility owned by NEXTERA. NEXTERA will not evaluate this violation until the impact study phase. Project Type : FAC	\$162,560
167374070,168 178782,161676 212	2	05DUMONT 765.0 kV - 05SORENS 765.0 kV Ckt 1	<u>AEP</u> AEPI0048a (398) : Replace the 2 3000A 765kV CB's at Dumont station Project Type : FAC Cost : \$6,000,000 Time Estimate : 12-18 Months AEPI0064a (425) : Replace the Dumont 765 kV Dumont 3000 A circuit breaker. Project Type : FAC Cost : \$3,000,000 Time Estimate : 18-24 Months	\$9,000,000
167132631,167 132632	7	AF2-137 TAP 765.0 kV - 05MARYSV 765.0 kV Ckt 1	<u>AEP</u> AEPO0047a (431) : Replace one Marysville 765kV CB Project Type : FAC Cost : \$2,000,000 Time Estimate : 12-18 Months	\$2,000,000

ID	Idx	Facility	Upgrade Description	Cost
168446800,168446799	3	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	AEP 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 a 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. AEPI0066a (442) : Rebuild/Recondutor 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 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	\$64,379,676

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
164490199	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P1-2_#709_546	single	1868.0	140.89	141.31	DC	51.93

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243441	05CKG2	20.0137	80/20	20.0137
243442	05RKG1	67.8175	80/20	67.8175
243443	05RKG2	65.0167	80/20	65.0167
243859	05FR-11G C	0.5517	80/20	0.5517
243862	05FR-12G C	0.2683	80/20	0.2683
243864	05FR-21G C	0.2791	80/20	0.2791
243866	05FR-22G C	0.2791	80/20	0.2791
243870	05FR-3G C	0.2683	80/20	0.2683
243873	05FR-4G C	0.6247	80/20	0.6247
244415	05OLIV SLR C	0.2212	Adder	0.26
246909	05MDL-1G C	0.5695	80/20	0.5695
246910	05MDL-2G C	0.3342	80/20	0.3342
246976	05MDL-3G C	0.3364	80/20	0.3364
246979	05MDL-4G C	0.2595	80/20	0.2595
247556	05MDL-5G	0.4442	80/20	0.4442
270100	X2-052 CT1	3.9721	80/20	3.9721
270101	X2-052 CT2	3.9721	80/20	3.9721
270102	X2-052 ST	4.2974	80/20	4.2974
274751	CRETE EC ;1U	1.2415	80/20	1.2415
274752	CRETE EC ;2U	1.2415	80/20	1.2415
274753	CRETE EC ;3U	1.2415	80/20	1.2415
274754	CRETE EC ;4U	1.2415	80/20	1.2415
274770	LINCOLN ;1U	1.2751	80/20	1.2751
274771	LINCOLN ;2U	1.2751	80/20	1.2751
274772	LINCOLN ;3U	1.2751	80/20	1.2751
274773	LINCOLN ;4U	1.2751	80/20	1.2751
274774	LINCOLN ;5U	1.2751	80/20	1.2751
274775	LINCOLN ;6U	1.2751	80/20	1.2751
274776	LINCOLN ;7U	1.2751	80/20	1.2751
274777	LINCOLN ;8U	1.2751	80/20	1.2751
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	3.3549	Adder	3.95
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	3.3637	Adder	3.96
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	3.4080	Adder	4.01
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	3.4080	Adder	4.01

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
927451	AC1-142A 1	2.7872	Adder	3.28
927461	AC1-142A 2	2.7872	Adder	3.28
930041	AB1-006 C	0.5717	80/20	0.5717
930461	AB1-087 CT1	53.1389	80/20	53.1389
930462	AB1-087 ST1	42.2475	80/20	42.2475
930471	AB1-088 CT1	53.1389	80/20	53.1389
930472	AB1-088 ST1	42.2475	80/20	42.2475
930501	AB1-091 CT	26.9868	Adder	31.75
930502	AB1-091 ST	21.4556	Adder	25.24
932601	AC2-080 C O1	3.5136	80/20	3.5136
932661	AC2-088 C O1	-3.3867	Adder	-3.98
933281	AC2-140 C	0.6626	80/20	0.6626
933411	AC2-154 C	1.6717	Adder	1.97
933446	AC2-157 1C	6.5903	80/20	6.5903
933447	AC2-157 2C	6.5903	80/20	6.5903
934721	AD1-100 C	13.2116	Adder	15.54
935031	AD1-136 C	-0.4763	Adder	-0.56
936371	AD2-047 C O1	2.9914	Adder	3.52
936461	AD2-060	1.7597	Adder	2.07
937041	AD2-138 C	4.7569	80/20	4.7569
937401	AD2-194 1	0.1319	Adder	0.16
937411	AD2-194 2	0.1319	Adder	0.16
938511	AE1-070 1	6.1363	Adder	7.22
938521	AE1-070 2	5.6141	Adder	6.6
939351	AE1-166 C O1	3.6400	Adder	8.08
939401	AE1-172 C O1	3.9108	Adder	4.6
939631	AE1-193 C	6.8016	80/20	6.8016
939641	AE1-194 C	6.8016	80/20	6.8016
939651	AE1-195 C	6.8016	80/20	6.8016
939681	AE1-198 C	20.1955	80/20	20.1955
940101	AE1-252 C O1	7.8566	Adder	9.24
940581	AE2-045 C O1	11.3896	80/20	11.3896
941341	AE2-130 C	152.1600	80/20	152.1600
941551	AE2-152 C O1	4.2001	Adder	9.32
941561	AE2-153 C O1	3.0988	Adder	3.65
941571	AE2-154 C	4.5295	80/20	4.5295
942601	AE2-276	8.6715	80/20	8.6715
944201	AF1-088 FTIR	173.4300	80/20	173.4300
944911	AF1-156 C	7.9231	Adder	9.32
944931	AF1-158 C O1	7.9078	Adder	9.3
945351	AF1-200 FTIR	210.1137	Merchant Transmission	210.1137

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945391	AF1-204 C O1	6.8805	80/20	6.8805
945421	AF1-207 C O1	4.7801	80/20	4.7801
945501	AF1-215 C O1	22.5270	80/20	22.5270
946581	AF1-322 C	11.7071	80/20	11.7071
957141	AF2-008 FTIR	86.7150	80/20	86.7150
957371	AF2-031 C O1	0.7079	Adder	0.83
957841	AF2-078 C O1	16.8708	80/20	16.8708
958011	AF2-095 C O1	11.9658	Adder	14.08
958021	AF2-096 C	22.4445	Adder	26.41
958381	AF2-132 C O1	23.2884	80/20	23.2884
958391	AF2-133 C O1	23.6826	80/20	23.6826
958401	AF2-134 C O1	7.5090	80/20	7.5090
958971	AF2-188 C O1	9.4597	80/20	9.4597
958981	AF2-189 C O1	13.7295	80/20	13.7295
959001	AF2-191 C O1	5.8193	Adder	6.85
959141	AF2-205 C	15.9780	80/20	15.9780
960591	AF2-350 C O1	5.2790	Adder	6.21
960601	AF2-351 C O1	0.7039	Adder	0.83
960681	AF2-359 C	8.1112	80/20	8.1112
961501	AF2-441 C O1	7.0672	Adder	8.31
963741	AG1-226 C O1	41.4209	80/20	41.4209
963841	AG1-237 C O1	3.4502	80/20	3.4502
963851	AG1-238 C	9.5553	80/20	9.5553
964361	AG1-298 O1	23.3945	Adder	51.93
964401	AG1-302 C O1	23.2884	80/20	23.2884
964861	AG1-349 C O1	20.2784	80/20	20.2784
965681	AG1-436 C	8.1112	80/20	8.1112
965791	AG1-447	5.9482	80/20	5.9482
965801	AG1-448	5.9482	80/20	5.9482
966091	AG1-478 C	0.7349	Adder	1.63
966431	AG1-512 C	0.7493	Adder	1.66
966531	AG1-522 C	42.4710	80/20	42.4710
966541	AG1-523 C	42.4710	80/20	42.4710
966551	AG1-524 C	42.4710	80/20	42.4710
966561	AG1-525 C	42.4710	80/20	42.4710
966651	AG1-535 O1	3.9889	Adder	8.85
966841	AG1-555 C	12.0286	80/20	12.0286
WEC	WEC	3.0527	Confirmed LTF	3.0527
CALDERWOOD	CALDERWOOD	0.8767	Confirmed LTF	0.8767
LGE-0012019	LGE-0012019	6.4405	LTF	6.4405
CBM-W2	CBM-W2	29.3619	Confirmed LTF	29.3619
NY	NY	0.9628	Confirmed LTF	0.9628
TVA	TVA	0.0056	Confirmed LTF	0.0056
SIGE	SIGE	0.0643	Confirmed LTF	0.0643
CHEOAH	CHEOAH	0.8819	Confirmed LTF	0.8819
HAMLET	HAMLET	1.1030	Confirmed LTF	1.1030
MEC	MEC	12.4562	Confirmed LTF	12.4562
BLUEG	BLUEG	29.4252	Confirmed LTF	29.4252
TRIMBLE	TRIMBLE	10.2474	Confirmed LTF	10.2474
LAGN	LAGN	3.2042	Confirmed LTF	3.2042
CATAWBA	CATAWBA	0.6650	Confirmed LTF	0.6650
CBM-W1	CBM-W1	98.1400	Confirmed LTF	98.1400

11.6.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
167374070	243206	05DUMONT	AEP	246999	05SORENS	AEP	1	AEP_P4_#6189_05HANG	breaker	4142.0	104.81	104.86	DC	109.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243441	05CKG2	52.1768	50/50	52.1768
274658	DRESDEN ;2U	166.5045	Adder	195.89
274659	DRESDEN ;3U	163.8505	Adder	192.77
274771	LINCOLN ;2U	2.8389	50/50	2.8389
274772	LINCOLN ;3U	2.8389	50/50	2.8389
274773	LINCOLN ;4U	2.8389	50/50	2.8389
274774	LINCOLN ;5U	2.8389	50/50	2.8389
274775	LINCOLN ;6U	2.8389	50/50	2.8389
274776	LINCOLN ;7U	2.8389	50/50	2.8389
274777	LINCOLN ;8U	2.8389	50/50	2.8389
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	7.0290	Adder	8.27
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	7.0475	Adder	8.29
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	7.1403	Adder	8.4
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	7.1403	Adder	8.4
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	7.1308	Adder	8.39
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	7.1308	Adder	8.39
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	7.1308	Adder	8.39
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	7.1308	Adder	8.39
275149	KELLYCK ;1E	26.1479	Adder	30.76
276167	Z1-106 E2	1.8454	Adder	2.17
276168	Z1-106 E1	1.8454	Adder	2.17
276169	Z1-107 E	3.7075	Adder	4.36
276170	Z1-108 E	3.6363	Adder	4.28
276591	L-013 2	5.3518	Adder	6.3
293061	N-015 E	22.4053	Adder	26.36
293644	O22 E1	14.8708	Adder	17.5
293645	O22 E2	28.8668	Adder	33.96

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
293799	PILOT HIL;1E	26.1479	Adder	30.76
294392	P-010 E	28.4548	Adder	33.48
910542	X3-005 E	1.0455	Adder	1.23
915011	Y3-013 1	5.4386	Adder	6.4
915021	Y3-013 2	5.4386	Adder	6.4
915031	Y3-013 3	5.4386	Adder	6.4
918052	AA1-018 E OP	23.8123	Adder	28.01
926331	AC1-110 1	2.7747	Adder	3.26
926341	AC1-110 2	2.7747	Adder	3.26
927451	AC1-142A 1	5.9511	Adder	7.0
927461	AC1-142A 2	5.9508	Adder	7.0
930501	AB1-091 CT	57.2968	Adder	67.41
930502	AB1-091 ST	45.5532	Adder	53.59
930771	AB1-122 CT2	106.0050	Adder	124.71
933281	AC2-140 C	1.7273	50/50	1.7273
933282	AC2-140 E	0.5762	50/50	0.5762
933411	AC2-154 C	3.5486	Adder	4.17
933412	AC2-154 E	5.7899	Adder	6.81
933431	AC2-156 C O1	1.4090	Adder	1.66
933432	AC2-156 E O1	2.2989	Adder	2.7
934111	AD1-039 2	10.3885	Adder	12.22
934721	AD1-100 C	28.1265	Adder	33.09
934722	AD1-100 E	131.2570	Adder	154.42
934871	AD1-116 C	1.3868	Adder	1.63
934872	AD1-116 E	2.2626	Adder	2.66
936371	AD2-047 C O1	6.3502	Adder	7.47
936372	AD2-047 E O1	31.0039	Adder	36.48
936461	AD2-060	3.7354	Adder	4.39
937401	AD2-194 1	11.0849	Adder	13.04
937411	AD2-194 2	11.0854	Adder	13.04
938511	AE1-070 1	13.0253	Adder	15.32
938521	AE1-070 2	11.9162	Adder	14.02
939321	AE1-163 C O1	8.4230	Adder	9.91
939322	AE1-163 E O1	51.7412	Adder	60.87
939351	AE1-166 C O1	7.7517	Adder	17.21
939352	AE1-166 E O1	7.1554	Adder	15.88
939631	AE1-193 C	11.7920	Adder	13.87
939632	AE1-193 E	78.9157	Adder	92.84
939641	AE1-194 C	11.7920	Adder	13.87
939642	AE1-194 E	78.9157	Adder	92.84
939651	AE1-195 C	11.7920	Adder	13.87
939652	AE1-195 E	78.9157	Adder	92.84
939681	AE1-198 C	35.0132	Adder	41.19
939682	AE1-198 E	29.7521	Adder	35.0
940752	AE2-062 E	0.0985	Adder	0.22
941551	AE2-152 C O1	8.9442	Adder	19.85
941552	AE2-152 E O1	5.9628	Adder	13.24
941561	AE2-153 C O1	6.5977	Adder	7.76
941562	AE2-153 E O1	30.8890	Adder	36.34
942651	AE2-281 C O1	1.2663	Adder	1.49
942652	AE2-281 E O1	7.7786	Adder	9.15
943121	AE2-341 C	18.7865	Adder	22.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943122	AE2-341 E	9.2252	Adder	10.85
943591	AF1-030 C O1	12.4932	Adder	14.7
943592	AF1-030 E O1	6.1813	Adder	7.27
944041	AF1-072	3.1470	Adder	3.7
944911	AF1-156 C	16.8690	Adder	19.85
944912	AF1-156 E	11.2460	Adder	13.23
945351	AF1-200 FTIR	464.4887	Merchant Transmission	464.4887
957331	AF2-027 C	3.6258	Adder	4.27
957332	AF2-027 E	5.4386	Adder	6.4
957371	AF2-031 C O1	1.4845	Adder	1.75
957372	AF2-031 E O1	2.2268	Adder	2.62
957401	AF2-034 C	1.9967	Adder	2.35
957402	AF2-034 E	1.7008	Adder	2.0
958011	AF2-095 C O1	25.4008	Adder	29.88
958012	AF2-095 E O1	11.9533	Adder	14.06
958021	AF2-096 C	47.7825	Adder	56.21
958022	AF2-096 E	22.4859	Adder	26.45
958481	AF2-142 C	16.4223	Adder	19.32
958482	AF2-142 E	10.9482	Adder	12.88
958491	AF2-143 C	16.2807	Adder	19.15
958492	AF2-143 E	10.8538	Adder	12.77
959351	AF2-226 C	3.6448	Adder	4.29
959352	AF2-226 E	5.4672	Adder	6.43
960281	AF2-319 C	3.6448	Adder	4.29
960282	AF2-319 E	5.4672	Adder	6.43
960381	AF2-329	9.7481	Adder	11.47
960591	AF2-350 C O1	11.2062	Adder	13.18
960592	AF2-350 E O1	7.4708	Adder	8.79
960601	AF2-351 C O1	1.4942	Adder	1.76
960602	AF2-351 E O1	2.2412	Adder	2.64
960681	AF2-359 C	13.8497	Adder	16.29
960682	AF2-359 E	9.2331	Adder	10.86
960731	AF2-364 C O1	8.9770	Adder	10.56
960732	AF2-364 E O1	5.9847	Adder	7.04
960751	AF2-366 C	10.3153	Adder	12.14
960752	AF2-366 E	6.8769	Adder	8.09
961501	AF2-441 C O1	14.9008	Adder	17.53
961502	AF2-441 E O1	22.3513	Adder	26.3
962691	AG1-118 C O1	17.7165	Adder	39.33
962692	AG1-118 E O1	11.8110	Adder	26.22
962781	AG1-127 C	6.0530	Adder	13.44
962782	AG1-127 E	4.0353	Adder	8.96
963851	AG1-238 C	21.5586	50/50	21.5586
963852	AG1-238 E	14.3724	50/50	14.3724
964361	AG1-298 O1	49.4018	Adder	109.66
965551	AG1-423 C O1	11.6845	Adder	25.94
965552	AG1-423 E O1	7.7897	Adder	17.29
965681	AG1-436 C	7.3403	Adder	16.29
965682	AG1-436 E	4.8936	Adder	10.86
965791	AG1-447	5.3829	Adder	11.95
965801	AG1-448	5.3829	Adder	11.95
966081	AG1-477 C	1.5415	Adder	3.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966082	AG1-477 E	0.3878	Adder	0.86
966091	AG1-478 C	1.5593	Adder	3.46
966092	AG1-478 E	0.3923	Adder	0.87
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.5415	Adder	3.42
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.3878	Adder	0.86
966431	AG1-512 C	1.5814	Adder	3.51
966432	AG1-512 E	2.3722	Adder	5.27
966441	AG1-513 C	0.3935	Adder	0.87
966442	AG1-513 E	0.5903	Adder	1.31
966651	AG1-535 O1	8.3527	Adder	18.54
WEC	WEC	6.5029	Confirmed LTF	6.5029
LGEE	LGEE	3.3865	Confirmed LTF	3.3865
CBM-W2	CBM-W2	76.5722	Confirmed LTF	76.5722
NY	NY	2.8126	Confirmed LTF	2.8126
TVA	TVA	6.5310	Confirmed LTF	6.5310
O-066	O-066	34.2826	Confirmed LTF	34.2826
SIGE	SIGE	1.3357	Confirmed LTF	1.3357
CBM-S1	CBM-S1	1.8229	Confirmed LTF	1.8229
G-007	G-007	5.3466	Confirmed LTF	5.3466
HAMLET	HAMLET	1.0291	Confirmed LTF	1.0291
MEC	MEC	25.9770	Confirmed LTF	25.9770
LAGN	LAGN	11.7863	Confirmed LTF	11.7863
CATAWBA	CATAWBA	0.4613	Confirmed LTF	0.4613
CBM-W1	CBM-W1	207.8745	Confirmed LTF	207.8745

11.6.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
168446800	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695_1681	single	1409.0	177.55	177.62	DC	94.15

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
164490895	264612	19MON12	ITCT	241901	02LALLENDORF	ATSI	1	ATSI-P7-1-TE-138-025T	tower	1702.0	131.94	132.8	DC	32.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
238979	02NAPMUN	-2.5547	Adder	-3.01
240968	02BG2 GEN	-0.6126	Adder	-0.72
240969	02BG4 G1	-0.1577	Adder	-0.19
240973	02BG6 AMPO	-2.4316	Adder	-2.86
240975	02PGE GEN	-3.1937	Adder	-3.76
244357	05GRANGER EL	-0.1877	Adder	-0.22
244412	05WTRV SLR C	0.0378	50/50	0.0378
244415	05OLIV SLR C	0.1691	Adder	0.2
247528	05COVRT1	4.8622	50/50	4.8622
247529	05COVRT2	4.8622	50/50	4.8622
247530	05COVRT3	4.8622	50/50	4.8622
247531	05COVRT4	2.9244	50/50	2.9244
247532	05COVRT5	2.9023	50/50	2.9023
247533	05COVRT6	2.9244	50/50	2.9244
247604	X1-042	0.0503	50/50	0.0503
247966	05WTRV SLR E	0.2395	50/50	0.2395
247967	05OLIV SLR E	0.1691	Adder	0.2
247969	Z2-116 E	0.0906	Adder	0.11
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	2.0956	Adder	2.47
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	2.1011	Adder	2.47
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	2.1288	Adder	2.5
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	2.1288	Adder	2.5
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	2.1327	Adder	2.51
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	2.1327	Adder	2.51
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	2.1327	Adder	2.51

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	2.1327	Adder	2.51
932791	AC2-103 C	-3.7204	Adder	-4.38
933282	AC2-140 E	0.1244	Adder	0.15
936141	AD2-020 C O1	4.9821	Adder	5.86
936142	AD2-020 E O1	3.0665	Adder	3.61
936601	AD2-075	20.3305	50/50	20.3305
936631	AD2-079 C O1	0.8348	Adder	0.98
936632	AD2-079 E O1	0.5565	Adder	0.65
938261	AE1-039	0.0134	50/50	0.0134
939395	AE1-170 C	4.8340	Adder	5.69
939396	AE1-170 E	6.6755	Adder	7.85
939631	AE1-193 C	3.6355	Adder	4.28
939632	AE1-193 E	24.3296	Adder	28.62
939641	AE1-194 C	3.6355	Adder	4.28
939642	AE1-194 E	24.3296	Adder	28.62
939651	AE1-195 C	3.6355	Adder	4.28
939652	AE1-195 E	24.3296	Adder	28.62
939681	AE1-198 C	10.7945	Adder	12.7
939682	AE1-198 E	9.1725	Adder	10.79
943001	AE2-323 C	3.8658	Adder	4.55
943002	AE2-323 E	1.8955	Adder	2.23
943021	AE2-325 C	2.5208	Adder	2.97
943022	AE2-325 E	1.6806	Adder	1.98
943781	AF1-046 C	1.8044	Adder	2.12
943782	AF1-046 E	1.2030	Adder	1.42
944161	AF1-084 C	4.5038	Adder	5.3
944162	AF1-084 E	2.5724	Adder	3.03
944931	AF1-158 C O1	6.1246	Adder	7.21
944932	AF1-158 E O1	4.0831	Adder	4.8
944961	AF1-161 C	2.0122	Adder	2.37
944962	AF1-161 E	2.0122	Adder	2.37
945111	AF1-176 C O1	11.6875	Adder	13.75
945112	AF1-176 E O1	10.8341	Adder	12.75
945501	AF1-215 C O1	10.3367	Adder	12.16
945502	AF1-215 E O1	6.8911	Adder	8.11
950351	J466	7.3392	PJM External (MISO)	7.3392
950791	J201 C	0.8679	PJM External (MISO)	0.8679
950792	J201 E	3.4717	PJM External (MISO)	3.4717
950871	J246 C	0.2823	PJM External (MISO)	0.2823
950872	J246 E	1.1291	PJM External (MISO)	1.1291
950942	J325 E	1.0118	PJM External (MISO)	1.0118
952161	J571	0.4976	PJM External (MISO)	0.4976
952201	J589 C	5.5205	PJM External (MISO)	5.5205
952202	J589 E	29.8675	PJM External (MISO)	29.8675
952312	J646 E	0.4433	PJM External (MISO)	0.4433
952401	J752 C	3.7292	PJM External (MISO)	3.7292
952402	J752 E	20.1758	PJM External (MISO)	20.1758
952611	J717 C	6.0633	PJM External (MISO)	6.0633
952612	J717 E	32.8041	PJM External (MISO)	32.8041
952761	J728 C	5.6388	PJM External (MISO)	5.6388
952762	J728 E	30.5481	PJM External (MISO)	30.5481

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
952881	J758	20.5500	PJM External (MISO)	20.5500
952971	J793	365.5727	PJM External (MISO)	365.5727
953071	J794 C	0.3628	PJM External (MISO)	0.3628
953072	J794 E	1.9626	PJM External (MISO)	1.9626
953271	J701 C	1.8273	PJM External (MISO)	1.8273
953272	J701 E	9.8862	PJM External (MISO)	9.8862
953291	J796	48.1872	PJM External (MISO)	48.1872
953321	J799	53.4927	PJM External (MISO)	53.4927
953361	J806	18.1780	PJM External (MISO)	18.1780
953771	J832	16.3110	PJM External (MISO)	16.3110
953781	J833	27.4410	PJM External (MISO)	27.4410
953941	J857	13.5883	PJM External (MISO)	13.5883
954111	J875	14.1915	PJM External (MISO)	14.1915
954591	J937	34.7964	PJM External (MISO)	34.7964
955071	J984 C	4.6223	PJM External (MISO)	4.6223
955072	J984 E	25.0077	PJM External (MISO)	25.0077
955591	J1043 C	2.4524	PJM External (MISO)	2.4524
955592	J1043 E	43.4565	PJM External (MISO)	43.4565
955781	J1062	37.9350	PJM External (MISO)	37.9350
955861	J1071	10.0900	PJM External (MISO)	10.0900
956011	J1088	29.4420	PJM External (MISO)	29.4420
956021	J1089	33.9473	PJM External (MISO)	33.9473
956031	J1090	14.9454	PJM External (MISO)	14.9454
956741	J1172	11.0040	PJM External (MISO)	11.0040
956801	J1178	10.8179	PJM External (MISO)	10.8179
957371	AF2-031 C O1	0.4417	Adder	0.52
957372	AF2-031 E O1	0.6626	Adder	0.78
957891	AF2-083 C O1	7.5319	Adder	8.86
957892	AF2-083 E O1	3.7659	Adder	4.43
958381	AF2-132 C O1	9.9955	Adder	11.76
958382	AF2-132 E O1	6.6637	Adder	7.84
958401	AF2-134 C O1	3.4456	Adder	4.05
958402	AF2-134 E O1	2.2970	Adder	2.7
959001	AF2-191 C O1	4.4689	Adder	5.26
959002	AF2-191 E O1	2.9793	Adder	3.51
960681	AF2-359 C	4.7889	Adder	5.63
960682	AF2-359 E	3.1926	Adder	3.76
960981	AF2-389 C	2.2598	Adder	2.66
960982	AF2-389 E	1.5065	Adder	1.77
961051	AF2-396 O1	15.6859	Adder	18.45
961501	AF2-441 C O1	4.3785	Adder	5.15
961502	AF2-441 E O1	6.5678	Adder	7.73
962601	AG1-109	1.0664	Adder	2.37
963701	AG1-222 C	2.5313	Adder	5.62
963702	AG1-222 E	2.0489	Adder	4.55
963851	AG1-238 C	2.9622	Adder	6.58
963852	AG1-238 E	1.9748	Adder	4.38
964361	AG1-298 O1	14.4633	Adder	32.1
964401	AG1-302 C O1	5.2976	Adder	11.76
964402	AG1-302 E O1	3.5317	Adder	7.84
964861	AG1-349 C O1	4.5688	Adder	10.14
964862	AG1-349 E O1	3.0458	Adder	6.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965681	AG1-436 C	2.5381	Adder	5.63
965682	AG1-436 E	1.6921	Adder	3.76
965791	AG1-447	1.8613	Adder	4.13
965801	AG1-448	1.8613	Adder	4.13
965841	AG1-453 C O1	2.4658	Adder	5.47
965842	AG1-453 E O1	1.6439	Adder	3.65
965851	AG1-454 O1	1.4677	Adder	3.26
966431	AG1-512 C	0.4664	Adder	1.04
966432	AG1-512 E	0.6995	Adder	1.55
966651	AG1-535 O1	2.4894	Adder	5.53
WEC	WEC	1.8572	Confirmed LTF	1.8572
LGEE	LGEE	1.6078	Confirmed LTF	1.6078
CPL	CPL	0.3146	Confirmed LTF	0.3146
CBM-W2	CBM-W2	29.8010	Confirmed LTF	29.8010
NY	NY	1.0369	Confirmed LTF	1.0369
TVA	TVA	3.3418	Confirmed LTF	3.3418
O-066	O-066	10.8959	Confirmed LTF	10.8959
SIGE	SIGE	0.5133	Confirmed LTF	0.5133
CBM-S2	CBM-S2	8.5921	Confirmed LTF	8.5921
CBM-S1	CBM-S1	0.9188	Confirmed LTF	0.9188
G-007	G-007	1.6895	Confirmed LTF	1.6895
MEC	MEC	7.8926	Confirmed LTF	7.8926
LAGN	LAGN	4.9525	Confirmed LTF	4.9525
CBM-W1	CBM-W1	199.5186	Confirmed LTF	199.5186

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
162141026	270736	ELWOOD ; B	CE	270770	GOODINGS ; 4B	CE	1	COMED_P2-2_116_GG-345R__2	bus	1528.0	123.5	124.6	DC	31.22

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	105.3416	Adder	123.93
274659	DRESDEN ;3U	96.2277	Adder	113.21
274728	ELWOOD EC;5P	7.5393	50/50	7.5393
274730	ELWOOD EC;6P	7.5393	50/50	7.5393
274732	ELWOOD EC;7P	7.5393	50/50	7.5393
274733	ELWOOD EC;3P	7.4849	50/50	7.4849
274734	ELWOOD EC;8P	7.5393	50/50	7.5393
274735	ELWOOD EC;4P	7.4849	50/50	7.4849
274736	ELWOOD EC;9P	7.5393	50/50	7.5393
290021	O50 E	13.8720	Adder	16.32
293771	O-035 E	2.5703	Adder	3.02
294401	BSHIL;1U E	3.4333	Adder	4.04
294410	BSHIL;2U E	3.4333	Adder	4.04
916211	Z1-072 E	1.9451	Adder	2.29
918052	AA1-018 E OP	8.1352	Adder	9.57
925581	AC1-033 C	0.5622	Adder	0.66
925582	AC1-033 E	3.7638	Adder	4.43
926841	AC1-171 C O1	0.5359	Adder	0.63
926842	AC1-171 E O1	3.5796	Adder	4.21
927091	AC1-204 GEN1	27.8413	50/50	27.8413
927093	AC1-204 GEN2	28.0438	50/50	28.0438
927202	AC1-214 E O1	2.6224	Adder	3.09
930761	AB1-122 CT1	51.4849	Adder	60.57
930771	AB1-122 CT2	66.5238	Adder	78.26
934051	AD1-031 C O1	1.1414	Adder	1.34
934052	AD1-031 E O1	1.8622	Adder	2.19
934101	AD1-039 1	5.0455	Adder	5.94
934111	AD1-039 2	6.5193	Adder	7.67
934871	AD1-116 C	0.4738	Adder	0.56
934872	AD1-116 E	0.7730	Adder	0.91
935001	AD1-133 C O1	13.1825	Adder	15.51
935002	AD1-133 E O1	8.7883	Adder	10.34
936291	AD2-038 C O1	1.2224	Adder	1.44
936292	AD2-038 E O1	8.1807	Adder	9.62
936511	AD2-066 C O1	4.3861	Adder	5.16
936512	AD2-066 E O1	2.9241	Adder	3.44
937401	AD2-194 1	16.1303	Adder	18.98
937411	AD2-194 2	19.1148	50/50	19.1148
938511	AE1-070 1	22.4599	50/50	22.4599
938521	AE1-070 2	17.3401	Adder	20.4
938851	AE1-113 C O1	5.7222	Adder	6.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938852	AE1-113 E O1	20.2878	Adder	23.87
939321	AE1-163 C O1	3.0717	Adder	3.61
939322	AE1-163 E O1	18.8689	Adder	22.2
939683	AE1-198 BAT	6.5655	Merchant Transmission	6.5655
942421	AE2-255 C O1	2.1675	Adder	2.55
942422	AE2-255 E O1	6.5025	Adder	7.65
942651	AE2-281 C O1	0.4388	Adder	0.52
942652	AE2-281 E O1	2.6956	Adder	3.17
946541	AF1-318 C O1	2.3295	Adder	2.74
946542	AF1-318 E O1	10.9062	Adder	12.83
954981	J974 C	2.5600	PJM External (MISO)	2.5600
954982	J974 E	13.8500	PJM External (MISO)	13.8500
957373	AF2-031 BAT	1.1230	Merchant Transmission	1.1230
957401	AF2-034 C	0.6912	Adder	0.81
957402	AF2-034 E	0.5888	Adder	0.69
957751	AF2-069 C	0.0955	Adder	0.11
957752	AF2-069 E	0.3083	Adder	0.36
957761	AF2-070 C	0.1346	Adder	0.16
957762	AF2-070 E	0.6534	Adder	0.77
958341	AF2-128 C O1	0.6195	Adder	0.73
958342	AF2-128 E O1	2.9005	Adder	3.41
958481	AF2-142 C	5.6105	Adder	6.6
958482	AF2-142 E	3.7403	Adder	4.4
958491	AF2-143 C	5.6419	Adder	6.64
958492	AF2-143 E	3.7613	Adder	4.43
961503	AF2-441 BAT	11.6080	Merchant Transmission	11.6080
961651	AG1-005 C O1	3.5119	Adder	7.8
961652	AG1-005 E O1	2.3412	Adder	5.2
962721	AG1-121 C O1	1.1807	Adder	2.62
962722	AG1-121 E O1	5.5238	Adder	12.26
964362	AG1-298 BAT	16.5492	Merchant Transmission	16.5492
964581	AG1-321 C O1	3.1256	Adder	6.94
964582	AG1-321 E O1	1.8200	Adder	4.04
965141	AG1-379 C	6.3045	Adder	13.99
965142	AG1-379 E	2.8857	Adder	6.41
965671	AG1-435 C O1	0.8007	Adder	1.78
965672	AG1-435 E O1	3.7485	Adder	8.32
966081	AG1-477 C	0.4586	Adder	1.02
966082	AG1-477 E	0.1154	Adder	0.26
966091	AG1-478 C	0.3958	Adder	0.88
966092	AG1-478 E	0.0996	Adder	0.22
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.4586	Adder	1.02
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.1154	Adder	0.26
990901	L-005 E	5.5588	Adder	6.54
WEC	WEC	0.5245	Confirmed LTF	0.5245
CBM-W2	CBM-W2	8.9510	Confirmed LTF	8.9510
NY	NY	0.3661	Confirmed LTF	0.3661
TVA	TVA	0.7098	Confirmed LTF	0.7098
O-066	O-066	4.3476	Confirmed LTF	4.3476
SIGE	SIGE	0.0707	Confirmed LTF	0.0707
CBM-S1	CBM-S1	0.1364	Confirmed LTF	0.1364

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007	G-007	0.6773	Confirmed LTF	0.6773
HAMLET	HAMLET	0.1346	Confirmed LTF	0.1346
MEC	MEC	4.4921	Confirmed LTF	4.4921
BLUEG	BLUEG	0.5729	Confirmed LTF	0.5729
TRIMBLE	TRIMBLE	0.1987	Confirmed LTF	0.1987
LAGN	LAGN	1.6327	Confirmed LTF	1.6327
CATAWBA	CATAWBA	0.0637	Confirmed LTF	0.0637
CBM-W1	CBM-W1	11.6787	Confirmed LTF	11.6787

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
168446990	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	COMED_P1-2_765-L11215__-S	single	971.0	102.63	103.59	DC	46.79

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	1.5177	Adder	1.79
274658	DRESDEN ;2U	67.3996	Adder	79.29
274659	DRESDEN ;3U	63.0101	Adder	74.13
274723	RIVER EC ;12	2.4999	80/20	2.4999
274724	RIVER EC ;11	2.4311	80/20	2.4311
274751	CRETE EC ;1U	2.0076	80/20	2.0076
274752	CRETE EC ;2U	2.0076	80/20	2.0076
274753	CRETE EC ;3U	2.0076	80/20	2.0076
274754	CRETE EC ;4U	2.0076	80/20	2.0076
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	3.6119	80/20	3.6119
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	3.6214	80/20	3.6214
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	3.6690	80/20	3.6690
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	3.6690	80/20	3.6690
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274826	FSK ;BP	1.4626	80/20	1.4626
274827	FSK ;RP	1.0366	80/20	1.0366
276164	X3-005 C	0.0505	80/20	0.0505
915011	Y3-013 1	2.1446	Adder	2.52
915021	Y3-013 2	2.1446	Adder	2.52
915031	Y3-013 3	2.1446	Adder	2.52
924472	AB2-096 CT1	10.8963	Adder	12.82
924473	AB2-096 CT2	10.8963	Adder	12.82
924474	AB2-096 CT3	10.8963	Adder	12.82
926331	AC1-110 1	1.0881	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
926341	AC1-110 2	1.0881	Adder	1.28
927451	AC1-142A 1	2.4325	Adder	2.86
927461	AC1-142A 2	2.4330	Adder	2.86
930482	AB1-089 CT	20.9316	Adder	24.63
930483	AB1-089 ST	16.6414	Adder	19.58
930501	AB1-091 CT	23.5933	Adder	27.76
930502	AB1-091 ST	18.7576	Adder	22.07
930761	AB1-122 CT1	39.3395	Adder	46.28
930771	AB1-122 CT2	42.8731	Adder	50.44
933411	AC2-154 C	1.4499	Adder	1.71
933431	AC2-156 C O1	0.5463	Adder	0.64
933911	AD1-013 C	1.0636	Adder	1.25
933931	AD1-016 C	0.5303	Adder	0.62
934101	AD1-039 1	3.8553	Adder	4.54
934111	AD1-039 2	4.2016	Adder	4.94
934701	AD1-098 C O1	3.9648	Adder	4.66
934721	AD1-100 C	11.1333	Adder	13.1
934871	AD1-116 C	0.5410	Adder	0.64
934971	AD1-129 C	0.5163	Adder	0.61
936291	AD2-038 C O1	1.3722	Adder	1.61
936371	AD2-047 C O1	2.5946	Adder	3.05
936461	AD2-060	1.5263	Adder	1.8
936511	AD2-066 C O1	4.8180	Adder	5.67
937001	AD2-134 C	1.5753	Adder	1.85
937401	AD2-194 1	4.4931	Adder	5.29
937411	AD2-194 2	4.4967	Adder	5.29
938511	AE1-070 1	5.2836	Adder	6.22
938521	AE1-070 2	4.8301	Adder	5.68
938851	AE1-113 C O1	4.7001	Adder	5.53
939321	AE1-163 C O1	3.4482	Adder	4.06
939351	AE1-166 C O1	3.1189	Adder	6.92
939631	AE1-193 C	10.9987	80/20	10.9987
939641	AE1-194 C	10.9987	80/20	10.9987
939651	AE1-195 C	10.9987	80/20	10.9987
939681	AE1-198 C	32.6575	80/20	32.6575
941131	AE2-107 C	3.7629	Adder	4.43
941551	AE2-152 C O1	3.5988	Adder	7.99
941561	AE2-153 C O1	2.7108	Adder	3.19
942421	AE2-255 C O1	1.7803	Adder	2.09
942651	AE2-281 C O1	0.4926	Adder	0.58
942991	AE2-321 C	4.6784	Adder	5.5
943121	AE2-341 C	7.2897	Adder	8.58
943591	AF1-030 C O1	4.8477	Adder	5.7
943801	AF1-048 C	2.1870	Adder	2.57
944041	AF1-072	1.2326	Adder	1.45
944911	AF1-156 C	6.9309	Adder	8.15
945351	AF1-200 FTIR	176.7398	Merchant Transmission	176.7398
946661	AF1-330 C	1.1456	Adder	1.35
946671	AF1-331	1.3812	Adder	1.62
957331	AF2-027 C	1.4297	Adder	1.68
957371	AF2-031 C O1	0.7610	80/20	0.7610
957401	AF2-034 C	0.8189	Adder	0.96

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957471	AF2-041 C	12.2630	Adder	14.43
958011	AF2-095 C O1	10.3786	Adder	12.21
958021	AF2-096 C	23.8298	80/20	23.8298
958481	AF2-142 C	6.4061	Adder	7.54
958491	AF2-143 C	6.3334	Adder	7.45
959081	AF2-199 C	4.0877	Adder	4.81
959091	AF2-200 C O1	8.1753	Adder	9.62
959351	AF2-226 C	1.5467	Adder	1.82
960281	AF2-319 C	1.5467	Adder	1.82
960381	AF2-329	3.7825	Adder	4.45
960581	AF2-349 C	12.4450	Adder	14.64
960591	AF2-350 C O1	4.5788	Adder	5.39
960601	AF2-351 C O1	0.6105	Adder	0.72
960721	AF2-363 C O1	3.3809	Adder	3.98
960731	AF2-364 C O1	3.5142	Adder	4.13
960751	AF2-366 C	3.9886	Adder	4.69
961501	AF2-441 C O1	7.5088	80/20	7.5088
962691	AG1-118 C O1	6.9332	Adder	15.39
962701	AG1-119 C	6.6251	Adder	14.71
962711	AG1-120 C O1	2.6117	Adder	5.8
962781	AG1-127 C	2.3403	Adder	5.19
962791	AG1-128 C O1	1.8886	Adder	4.19
963681	AG1-220 C O1	3.3320	Adder	7.4
964361	AG1-298 O1	46.7900	80/20	46.7900
964461	AG1-309 FTIR	140.8860	Merchant Transmission	140.8860
965061	AG1-371	1.0832	Adder	2.4
965071	AG1-372	0.7222	Adder	1.6
965081	AG1-373	0.3611	Adder	0.8
965141	AG1-379 C	5.1783	Adder	11.49
965551	AG1-423 C O1	4.5729	Adder	10.15
966081	AG1-477 C	0.6036	Adder	1.34
966091	AG1-478 C	0.6284	Adder	1.39
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.6036	Adder	1.34
966441	AG1-513 C	0.1540	Adder	0.34
966651	AG1-535 O1	8.1932	80/20	8.1932
WEC	WEC	2.5213	Confirmed LTF	2.5213
CBM-W2	CBM-W2	14.1568	Confirmed LTF	14.1568
NY	NY	0.6890	Confirmed LTF	0.6890
TVA	TVA	1.0934	Confirmed LTF	1.0934
SIGE	SIGE	0.1256	Confirmed LTF	0.1256
CBM-S1	CBM-S1	0.2018	Confirmed LTF	0.2018
HAMLET	HAMLET	0.2876	Confirmed LTF	0.2876
MEC	MEC	8.8730	Confirmed LTF	8.8730
GIBSON	GIBSON	0.0109	Confirmed LTF	0.0109
BLUEG	BLUEG	1.1093	Confirmed LTF	1.1093
TRIMBLE	TRIMBLE	0.3818	Confirmed LTF	0.3818
LAGN	LAGN	2.7633	Confirmed LTF	2.7633
CATAWBA	CATAWBA	0.1431	Confirmed LTF	0.1431
CBM-W1	CBM-W1	50.2617	Confirmed LTF	50.2617

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPAC T
167132631	958430	AF2-137 TAP	AEP	242928	05MARYS V	AEP	1	AEP_P4_#6189_05HANG	breaker	4142.0	107.88	108.46	DC	119.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243440	05CKG1	39.7902	50/50	39.7902
243441	05CKG2	49.5470	50/50	49.5470
244415	05OLIV SLR C	0.6183	50/50	0.6183
246397	05ELKHART HY	0.1005	50/50	0.1005
246416	05TWIN BRCH1	0.1520	50/50	0.1520
246422	05MAYFLWER	0.2247	50/50	0.2247
246431	05BUCHANAN	0.1083	50/50	0.1083
247620	Y3-023	0.1725	50/50	0.1725
247643	Z2-116 C	0.0508	50/50	0.0508
247966	05WTRV SLR E	0.4670	Adder	0.55
247967	05OLIV SLR E	0.6183	50/50	0.6183
247969	Z2-116 E	0.3219	50/50	0.3219
270100	X2-052 CT1	9.1481	50/50	9.1481
270101	X2-052 CT2	9.1481	50/50	9.1481
270102	X2-052 ST	9.8972	50/50	9.8972
270142	AA2-116_CT1	14.7259	50/50	14.7259
270143	AA2-116_CT2	14.7259	50/50	14.7259
270144	AA2-116_ST	13.0418	50/50	13.0418
274774	LINCOLN ;5U	2.9492	50/50	2.9492
274775	LINCOLN ;6U	2.9492	50/50	2.9492
274776	LINCOLN ;7U	2.9492	50/50	2.9492
274777	LINCOLN ;8U	2.9492	50/50	2.9492
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	7.7235	Adder	9.09
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	7.7439	Adder	9.11
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	7.8458	Adder	9.23
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	7.8458	Adder	9.23
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	7.8494	Adder	9.23
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	7.8494	Adder	9.23
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	7.8494	Adder	9.23

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	7.8494	Adder	9.23
275149	KELLYCK ;1E	28.1733	Adder	33.15
276169	Z1-107 E	3.9838	Adder	4.69
293799	PILOT HIL;1E	28.1733	Adder	33.15
294392	P-010 E	15.1842	Adder	17.86
910542	X3-005 E	1.1367	Adder	1.34
927451	AC1-142A 1	6.3847	Adder	7.51
927461	AC1-142A 2	6.3847	Adder	7.51
930501	AB1-091 CT	61.7243	Adder	72.62
930502	AB1-091 ST	49.0732	Adder	57.73
933281	AC2-140 C	1.6403	50/50	1.6403
933282	AC2-140 E	0.5471	50/50	0.5471
933411	AC2-154 C	3.8235	Adder	4.5
933412	AC2-154 E	6.2384	Adder	7.34
934721	AD1-100 C	30.0530	Adder	35.36
934722	AD1-100 E	140.2474	Adder	165.0
936141	AD2-020 C O1	12.7607	Adder	15.01
936142	AD2-020 E O1	7.8543	Adder	9.24
936371	AD2-047 C O1	6.8421	Adder	8.05
936372	AD2-047 E O1	33.4054	Adder	39.3
936461	AD2-060	4.0248	Adder	4.74
936631	AD2-079 C O1	2.9633	50/50	2.9633
936632	AD2-079 E O1	1.9755	50/50	1.9755
939351	AE1-166 C O1	8.2977	Adder	18.42
939352	AE1-166 E O1	7.6594	Adder	17.0
939395	AE1-170 C	15.4659	50/50	15.4659
939396	AE1-170 E	21.3576	50/50	21.3576
939631	AE1-193 C	13.2125	Adder	15.54
939632	AE1-193 E	88.4220	Adder	104.03
939641	AE1-194 C	13.2125	Adder	15.54
939642	AE1-194 E	88.4220	Adder	104.03
939651	AE1-195 C	13.2125	Adder	15.54
939652	AE1-195 E	88.4220	Adder	104.03
939681	AE1-198 C	39.2309	Adder	46.15
939682	AE1-198 E	33.3361	Adder	39.22
940752	AE2-062 E	0.1057	Adder	0.23
941551	AE2-152 C O1	9.5743	Adder	21.25
941552	AE2-152 E O1	6.3829	Adder	14.17
941561	AE2-153 C O1	7.0839	Adder	8.33
941562	AE2-153 E O1	33.1653	Adder	39.02
942241	AE2-236 C O1	9.6970	50/50	9.6970
942242	AE2-236 E O1	4.1559	50/50	4.1559
943001	AE2-323 C	13.7169	Adder	16.14
943002	AE2-323 E	6.7256	Adder	7.91
943021	AE2-325 C	6.4566	Adder	7.6
943022	AE2-325 E	4.3044	Adder	5.06
943781	AF1-046 C	6.4026	Adder	7.53
943782	AF1-046 E	4.2684	Adder	5.02
944161	AF1-084 C	11.0907	Adder	13.05
944162	AF1-084 E	6.3346	Adder	7.45
944241	AF1-092 C O1	28.3015	50/50	28.3015

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944242	AF1-092 E O1	8.6135	50/50	8.6135
944531	AF1-118 C O1	53.7333	Adder	63.22
944532	AF1-118 E O1	16.2059	Adder	19.07
944911	AF1-156 C	18.1121	Adder	21.31
944912	AF1-156 E	12.0748	Adder	14.21
944931	AF1-158 C O1	22.2777	50/50	22.2777
944932	AF1-158 E O1	14.8518	50/50	14.8518
944961	AF1-161 C	5.1538	Adder	6.06
944962	AF1-161 E	5.1538	Adder	6.06
945111	AF1-176 C O1	37.8468	50/50	37.8468
945112	AF1-176 E O1	35.0832	50/50	35.0832
945351	AF1-200 FTIR	485.1033	Merchant Transmission	485.1033
945501	AF1-215 C O1	36.0300	Adder	42.39
945502	AF1-215 E O1	24.0200	Adder	28.26
957371	AF2-031 C O1	1.6296	Adder	1.92
957372	AF2-031 E O1	2.4444	Adder	2.88
957891	AF2-083 C O1	24.4550	50/50	24.4550
957892	AF2-083 E O1	12.2275	50/50	12.2275
958001	AF2-094 C	6.4970	50/50	6.4970
958002	AF2-094 E	3.3470	50/50	3.3470
958011	AF2-095 C O1	27.3683	Adder	32.2
958012	AF2-095 E O1	12.8792	Adder	15.15
958021	AF2-096 C	51.3004	Adder	60.35
958022	AF2-096 E	24.1414	Adder	28.4
958401	AF2-134 C O1	12.0100	Adder	14.13
958402	AF2-134 E O1	8.0067	Adder	9.42
958431	AF2-137 C	146.6766	50/50	146.6766
958432	AF2-137 E	202.5534	50/50	202.5534
959001	AF2-191 C O1	16.3000	50/50	16.3000
959002	AF2-191 E O1	10.8667	50/50	10.8667
960591	AF2-350 C O1	12.0743	Adder	14.21
960592	AF2-350 E O1	8.0495	Adder	9.47
960601	AF2-351 C O1	1.6099	Adder	1.89
960602	AF2-351 E O1	2.4149	Adder	2.84
960681	AF2-359 C	18.6203	50/50	18.6203
960682	AF2-359 E	12.4135	50/50	12.4135
960981	AF2-389 C	7.3392	50/50	7.3392
960982	AF2-389 E	4.8928	50/50	4.8928
961051	AF2-396 O1	41.2607	Adder	48.54
961501	AF2-441 C O1	16.2513	Adder	19.12
961502	AF2-441 E O1	24.3770	Adder	28.68
961631	AG1-003 C	157.8520	50/50	157.8520
961632	AG1-003 E	121.5320	50/50	121.5320
961641	AG1-004	139.6920	50/50	139.6920
962601	AG1-109	2.7315	Adder	6.06
963701	AG1-222 C	8.9818	Adder	19.94
963702	AG1-222 E	7.2700	Adder	16.14
963851	AG1-238 C	23.7357	50/50	23.7357
963852	AG1-238 E	15.8238	50/50	15.8238
964361	AG1-298 O1	53.7829	Adder	119.38
965501	AG1-418 C O1	7.5726	50/50	7.5726
965502	AG1-418 E O1	5.0484	50/50	5.0484

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965681	AG1-436 C	18.6203	50/50	18.6203
965682	AG1-436 E	12.4135	50/50	12.4135
965791	AG1-447	13.6549	50/50	13.6549
965801	AG1-448	13.6549	50/50	13.6549
965841	AG1-453 C O1	9.0484	Adder	20.09
965842	AG1-453 E O1	6.0323	Adder	13.39
965851	AG1-454 O1	5.3860	Adder	11.96
966431	AG1-512 C	1.7164	Adder	3.81
966432	AG1-512 E	2.5747	Adder	5.72
966651	AG1-535 O1	9.1783	Adder	20.37
WEC	WEC	7.0128	Confirmed LTF	7.0128
LGEE	LGEE	6.0782	Confirmed LTF	6.0782
CBM-W2	CBM-W2	102.3949	Confirmed LTF	102.3949
NY	NY	3.3904	Confirmed LTF	3.3904
TVA	TVA	8.9768	Confirmed LTF	8.9768
O-066	O-066	41.7260	Confirmed LTF	41.7260
SIGE	SIGE	1.9802	Confirmed LTF	1.9802
CBM-S1	CBM-S1	2.6619	Confirmed LTF	2.6619
G-007	G-007	6.5090	Confirmed LTF	6.5090
HAMLET	HAMLET	1.1446	Confirmed LTF	1.1446
MEC	MEC	29.2011	Confirmed LTF	29.2011
LAGN	LAGN	14.9397	Confirmed LTF	14.9397
CATAWBA	CATAWBA	0.4785	Confirmed LTF	0.4785
CBM-W1	CBM-W1	249.8785	Confirmed LTF	249.8785

11.7 Queue Dependencies

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

Queue Number	Project Name	Status
AA1-018	Powerton-Goodings Grove	In Service
AA2-116	Cook-East Elkhart 345kV	Under Construction
AB1-006	Meadow Lake 345kV	In Service
AB1-087	Sullivan 345kV #1	Active
AB1-088	Sullivan 345kV #2	Active
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
AC1-033	Kewanee	Active
AC1-110	Aurora 138kV	Active
AC1-142A	Joliet	In Service

Queue Number	Project Name	Status
AC1-171	Powerton	Active
AC1-204	Elwood	Under Construction
AC1-214	Crescent Ridge	In Service
AC2-080	Olive-Reynolds 345kV	Active
AC2-088	S. Bethel-Brown 69kV	Engineering and Procurement
AC2-103	Beaver-Davis Besse 345 kV I	Engineering and Procurement
AC2-140	DC Cook Unit 2	In Service
AC2-154	Davis Creek 138kV	Active
AC2-156	Sandwich 34.5kV	Active
AC2-157	Sullivan 345 kV	Active
AD1-013	Twombly Road 138kV	Active
AD1-016	Marengo	Active
AD1-031	Kewanee 138 kV	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
AD1-133	Pontiac MidPoint-Dresden	Active
AD1-136	South Bethel-Brown 69 kV	Engineering and Procurement
AD2-020	Valley 138 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
AD2-075	Segreto 345kV	Active
AD2-079	Capitol Ave 34.5kV	Under Construction
AD2-134	Shady Oaks	Active
AD2-138	Olive-Reynolds 345kV	Active
AD2-194	Elwood	Active
AE1-039	West Street (Orchard Hills) 12.47 kV	In Service
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
AE1-170	Kenzie Creek-Colby 138 kV	Active
AE1-172	Loretto-Wilton Center	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
AE1-252	Loretto-Wilton Center	Active
AE2-045	Olive-Reynolds 345 kV	Active
AE2-062	Romeoville 12 kV	Engineering and Procurement
AE2-107	Haumesser Road 138 kV	Active
AE2-130	Rockport 765 kV	Active
AE2-152	Loretto-Wilton & Braidwood-Davis Creek	Active
AE2-153	Braidwood-Davis Creek	Active
AE2-154	Meadow Lake 345 kV (MLV VIII)	Active
AE2-236	Columbia-Northeast 138 kV	Active
AE2-255	Molecreek 345 kV	Active
AE2-276	Sullivan 345kV	Active

Queue Number	Project Name	Status
AE2-281	Powerton-Nevada 345 kV	Active
AE2-321	Belvidere-Marengo 138 kV	Active
AE2-323	Twin Branch-Guardian 138 kV	Active
AE2-325	Valley 138 kV	Active
AE2-341	Sandwich-Plano	Active
AF1-030	Plano-R 138 kV	Active
AF1-046	Twin Branch-Guardian 138 kV	Active
AF1-048	Belvidere-Marengo	Active
AF1-072	Rocky Road	Active
AF1-084	East Hartford-Murch 69 kV	Active
AF1-088	Sullivan 345 kV	Active
AF1-092	Huntington Jct. 138 kV	Active
AF1-118	Sorenson-Desoto 345 kV	Active
AF1-156	Braidwood-Davis Creek	Active
AF1-158	Edison-Gravel Pit 138 kV	Active
AF1-161	Valley 138 kV	Active
AF1-176	Corey 138 kV	Active
AF1-200	Plano 345 kV	Active
AF1-204	Eugene 345 kV	Active
AF1-207	Reynolds-Olive #1 345 kV	Active
AF1-215	Reynolds-Olive 345 kV	Active
AF1-318	Crescent Ridge-Corbin	Active
AF1-322	Meadow Lake 345 kV	Active
AF1-330	Marengo	Active
AF1-331	Twombly Road	Active
AF2-008	Sullivan 345 kV	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
AF2-069	Crescent Ridge 138 kV	Active
AF2-070	Crescent Ridge 138 kV	Active
AF2-078	Reynolds-Olive #1 345 kV	Active
AF2-083	Ed Lowe-Kenzie Creek 138 kV	Active
AF2-094	Huntington Jct. 138 kV	Active
AF2-095	Wilmington-Davis Creek	Active
AF2-096	Braidwood-East Frankfort 345 kV	Active
AF2-128	Crescent Ridge-Corbin 138 kV	Active
AF2-132	Reynolds-Olive #1 345 kV	Active
AF2-133	Reynolds-Olive #2 345 kV	Active
AF2-134	Reynolds-Olive #2 345 kV	Active
AF2-137	Marysville-Sorenson 765 kV	Active
AF2-142	Nevada 345 kV	Active
AF2-143	Powerton-Nevada 345 kV	Active
AF2-188	Reynolds-Meadow Lake #1 345 kV	Active
AF2-189	Greentown 138 kV	Active
AF2-191	New Carlisle 138 kV	Active
AF2-199	Nelson-Electric Junction 345 kV	Active
AF2-200	Nelson-Electric Junction 345 kV	Active
AF2-205	Olive-Reynolds #2 345 kV	Active
AF2-226	Katydid Road 345 kV	Active
AF2-319	Katydid Road 345 kV	Active

Queue Number	Project Name	Status
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
AF2-359	Olive-University Park 345 kV	Active
AF2-363	Glidden 138 kV	Active
AF2-364	Wayne Red 138 kV	Active
AF2-366	Glidden-Waterman 138 kV	Active
AF2-389	Pokagon-Corey 69 kV	Active
AF2-396	Stinger 138 kV	Active
AF2-441	Burnham 138kV	Active
AG1-003	Marysville-Sorenson 765 kV	Active
AG1-004	Marysville-Sorenson 765 kV	Active
AG1-005	Corbin-Crescent Ridge 138 kV	Active
AG1-109	Valley 138 kV	Active
AG1-118	Sugar Grove 138 kV	Active
AG1-119	Wayne-Byron 345 kV	Active
AG1-120	Glidden-Cherry Valley 138 kV	Active
AG1-121	Crescent Ridge 138 kV	Active
AG1-127	Glidden-Waterman 138 kV	Active
AG1-128	Shady Oaks 138 kV	Active
AG1-220	West Dekalb 138 kV	Active
AG1-222	Guardian-Twin Branch 138 kV	Active
AG1-226	Eugene-Dequine 345 kV	Active
AG1-237	Dequine-Eugene 345 kV	Active
AG1-238	Dumont 345 kV	Active
AG1-298	Calumet-Burnham 345 kV	Active
AG1-302	Reynolds-Olive 345 kV	Active
AG1-309	Byron 345 kV	Active
AG1-321	Dresden-Pontiac Midpoint 345 kV	Active
AG1-349	Olive-Reynolds #2 345 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
AG1-418	Columbia City 138 kV	Active
AG1-423	Wayne 345 kV	Active
AG1-435	Kewanee-Hennepin 138 kV	Active
AG1-436	Olive-University Park 345 kV	Active
AG1-447	Olive-University Park 345 kV	Active
AG1-448	Olive-University Park 345 kV	Active
AG1-453	Guardian 138 kV	Active
AG1-454	Guardian 138 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
AG1-512	University Park North 345 kV	Active
AG1-513	Aurora 138 kV	Active
AG1-522	Sullivan-Rockport 765 kV	Active
AG1-523	Sullivan-Rockport 765 kV	Active
AG1-524	Sullivan-Rockport 765 kV	Active
AG1-525	Sullivan-Rockport 765 kV	Active

Queue Number	Project Name	Status
AG1-535	State Line-S. Chicago Properties 138 kV	Active
AG1-555	Dequaine 345 kV	Active
X1-042	Watervliet	In Service
X2-052	Dumont-Olive 345kV	In Service
X3-005	Wildwood 12kV	In Service
Y3-013	Zion Energy Center	In Service
Y3-023	Country Side 12kV	In Service
Z1-072	Crescent Ridge	In Service
Z1-106	West Chicago 34kV	In Service
Z1-107	Joliet 34kV	In Service
Z1-108	McHenry 34kV	In Service
Z2-116	Twin Branch 12.47kV	In Service
J1043	MISO	MISO
J1062	MISO	MISO
J1071	MISO	MISO
J1088	MISO	MISO
J1089	MISO	MISO
J1090	MISO	MISO
J1172	MISO	MISO
J1178	MISO	MISO
J201	MISO	MISO
J246	MISO	MISO
J325	MISO	MISO
J466	MISO	MISO
J571	MISO	MISO
J589	MISO	MISO
J646	MISO	MISO
J701	MISO	MISO
J717	MISO	MISO
J728	MISO	MISO
J752	MISO	MISO
J758	MISO	MISO
J793	MISO	MISO
J794	MISO	MISO
J796	MISO	MISO
J799	MISO	MISO
J806	MISO	MISO
J832	MISO	MISO
J833	MISO	MISO
J857	MISO	MISO
J875	MISO	MISO
J937	MISO	MISO
J974	MISO	MISO
J984	MISO	MISO

11.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
Base Case	
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
AEP_P4_#1760_05JEFRSO	CONTINGENCY "'AEP_P4_#1760_05JEFRSO' 765_A" / 1455 OPEN BRANCH FROM BUS 243207 TO BUS 243208 CKT 1 / 243207 05GRNTWN 765 243208 05JEFRSO 765 1 OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 END
COMED_P2-1_076-L11613A_	CONTINGENCY 'COMED_P2-1_076-L11613A_' / CONTINGENCY # 85 TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / BLUE ISL ;BT 345 BLUE ISL ; B 345 TRIP BRANCH FROM BUS 275181 TO BUS 270664 CKT 1 / BLUE ISL ;4M 138 BLUE ISL ; B 345 TRIP BRANCH FROM BUS 275181 TO BUS 271100 CKT 1 / BLUE ISL ;4M 138 BLUE ISL ; B 138 TRIP BRANCH FROM BUS 275181 TO BUS 275281 CKT 1 / BLUE ISL ;4M 138 BLUE ISLA;4C 34.5 END
AEP_P4_#6189_05HANG	CONTINGENCY "'AEP_P4_#6189_05HANG' R 765_D1" / 1717 OPEN BRANCH FROM BUS 242921 TO BUS 242924 CKT 1 / 242921 05CORNNU 765 242924 05HANG R 765 1 OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 OPEN BRANCH FROM BUS 242921 TO BUS 242934 CKT 1 / 242921 05CORNNU 765 242934 05CORNNU 345 1 REMOVE MACHINE 1A FROM BUS 247245 /* 247245 05HRKG1A 18.0 DEFAULT DISPATCH REMOVE MACHINE 1B FROM BUS 247246 /* 247246 05HRKG1B 18.0 DEFAULT DISPATCH REMOVE MACHINE 1S FROM BUS 247247 /* 247247 05HRKG1S 18.0 DEFAULT DISPATCH REMOVE MACHINE 2A FROM BUS 247248 /* 247248 05HRKG2A 18.0 DEFAULT DISPATCH REMOVE MACHINE 2B FROM BUS 247249 /* 247249 05HRKG2B 18.0 DEFAULT DISPATCH REMOVE MACHINE 2S FROM BUS 247250 /* 247250 05HRKG2S 18.0 DEFAULT DISPATCH END

Contingency Name	Contingency Definition
COMED_P1-2_345-L2002__B-S-A	CONTINGENCY 'COMED_P1-2_345-L2002__B-S-A' / CONTINGENCY # 436 TRIP BRANCH FROM BUS 270670 TO BUS 270671 CKT 1 / BRAIDWOOD; B 345 BRAIDWOOD; R 345 TRIP BRANCH FROM BUS 270670 TO BUS 934730 CKT 1 / BRAIDWOOD; B 345 AD1- 100 TAP 345 END
ATSI-P7-1-TE-138-025T	CONTINGENCY 'ATSI-P7-1-TE-138-025T' /* ALLEN-MAJ-MONROE & LEMO- MAJESTIC 345KV DISCONNECT BRANCH FROM BUS 264594 TO BUS 256583 CKT 1 /* 19LULU 345 18LENAAWEE 345 DISCONNECT BRANCH FROM BUS 264594 TO BUS 264839 CKT 1 /* 19LULU 345 19MILAN 345 DISCONNECT BRANCH FROM BUS 264594 TO BUS 264613 CKT 1 /* 19LULU 345 19MON34 345 DISCONNECT BRANCH FROM BUS 238889 TO BUS 955780 CKT 1 /* 02LEMOYN 345 J1062 TAP 345 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
COMED_P2-2_116_GG-345R__2	CONTINGENCY 'COMED_P2-2_116_GG-345R__2' / CONTINGENCY # 118 DISCONNECT BUS 270769 / GOODINGS ;2R 345 END
COMED_P1-2_765-L11216__S	CONTINGENCY 'COMED_P1-2_765-L11216__S' / CONTINGENCY # 200 TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTON ; 765 COLLINS ; 765 END
AEP_P1-2_#358_1684	CONTINGENCY 'AEP_P1-2_#358_1684' OPEN BRANCH FROM BUS 243205 TO BUS 243206 CKT 1 / 243205 05COOK 765 243206 05DUMONT 765 1 END
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

Contingency Name	Contingency Definition
AEP_P7-1_#11046	CONTINGENCY 'AEP_P7-1_#11046' OPEN BRANCH FROM BUS 243219 TO BUS 246955 CKT 1 / 243219 05DUMONT 345 246955 05OLIVE_BP 345 1 OPEN BRANCH FROM BUS 243228 TO BUS 243234 CKT 1 / 243228 05MERIDN 345 243234 05TWIN B 345 1 OPEN BRANCH FROM BUS 243232 TO BUS 246955 CKT 1 / 243232 05SORENS 345 246955 05OLIVE_BP 345 1 END
COMED_P1-2_345-L11622_R-S	CONTINGENCY 'COMED_P1-2_345-L11622_R-S' / CONTINGENCY # 231 TRIP BRANCH FROM BUS 270737 TO BUS 270769 CKT 1 / ELWOOD ; R 345 GOODINGS ;2R 345 END

12 Short Circuit Analysis - Primary POI

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

13 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AG1-298 was evaluated as a 500.0 MW (Capacity 500.0 MW) injection at the Calumet 345 kV substation in the ComEd area. Project AG1-298 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-298 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 IMPACT
161676228	958430	AF2-137 TAP	765.0	AEP	242928	05MARYS V	765.0	AEP	1	AEP_P7-1_#11087-A	tower	4142.0	99.72	100.27	DC	109.25
161676229	958430	AF2-137 TAP	765.0	AEP	242928	05MARYS V	765.0	AEP	1	AEP_P7-1_#11010	tower	4142.0	99.67	100.2	DC	112.61

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 IMPACT
164490199	242865	05JEFRSO	345.0	AEP	248000	06CLIFTY	345.0	OVOC	Z1	AEP_P1-2_#709_546	single	1868.0	141.03	141.46	DC	51.9
161676212	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P7-1_#11046	tower	4142.0	104.88	104.95	DC	108.88
161676213	243206	05DUMONT	765.0	AEP	246999	05SORENS	765.0	AEP	1	AEP_P7-1_#11001	tower	4142.0	102.29	102.36	DC	108.88
174542275	243215	05COOK	345.0	AEP	243229	05OLIVE	345.0	AEP	1	AEP_P4_#7443_05DUMONT 765_A	breaker	1409.0	123.0	124.27	DC	35.94
174542321	246999	05SORENS	765.0	AEP	958430	AF2-137 TAP	765.0	AEP	1	AEP_P4_#7334_05JEFRSO 765_A2	breaker	4142.0	107.74	108.43	DC	129.43
174542323	255104	17GREEN_A CRE	345.0	NIPS	270771	GREENACRE; T	345.0	CE	1	COMED_P4_112-65-BT3-4_	breaker	1091.0	109.63	109.74	DC	46.76
174542324	255104	17GREEN_A CRE	345.0	NIPS	270771	GREENACRE; T	345.0	CE	1	COMED_P4_112-65-BT4-5_	breaker	1091.0	109.63	109.73	DC	46.76
168446799	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215_-S	single	1409.0	177.54	177.61	DC	92.8
175881958	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P1-2_#8810	single	1409.0	132.65	132.7	DC	67.65

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 CT LOADIN G %	POST PROJE CT LOADIN G %	AC DC	MW IMPACT
162141093	270728	E FRANKFO; B	345.0	CE	270766	GOODIN GS;3B	345.0	CE	1	COMED_P2-2_116_GG-345R_1	bus	1917.0	101.2	102.36	DC	42.06
174248742	270728	E FRANKFO; B	345.0	CE	270766	GOODIN GS;3B	345.0	CE	1	COMED_P4_020-45-BT7-11_	breaker	1917.0	116.5	117.57	DC	40.18
162141026	270736	ELWOOD ; B	345.0	CE	270770	GOODIN GS;4B	345.0	CE	1	COMED_P2-2_116_GG-345R_2	bus	1528.0	123.5	124.62	DC	31.84
162141031	270737	ELWOOD ; R	345.0	CE	270769	GOODIN GS;2R	345.0	CE	1	COMED_P2-2_116_GG-345B_4	bus	1528.0	122.87	123.83	DC	27.16
174248736	270737	ELWOOD ; R	345.0	CE	270769	GOODIN GS;2R	345.0	CE	1	COMED_P4_116-45-L11613_	breaker	1528.0	123.6	124.61	DC	28.8
168446990	270771	GREENACRE ; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_765-L11215_-S	single	971.0	102.61	103.56	DC	46.74
174436251	270926	WILTON ; B	345.0	CE	275232	WILTON ;3M	345.0	CE	1	COMED_P4_112-65-BT5-6_	breaker	1379.0	153.65	153.76	DC	78.03
174436244	270927	WILTON ; R	345.0	CE	275233	WILTON ;4M	345.0	CE	1	COMED_P4_112-65-BT2-3_	breaker	1379.0	156.89	157.0	DC	79.68
174436250	275232	WILTON ;3M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT5-6_	breaker	1379.0	153.65	153.76	DC	78.03
174436245	275233	WILTON ;4M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT2-3_	breaker	1379.0	156.89	157.0	DC	79.68

13.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC DC	MW IMPACT
168178669	243215	05COOK	345.0	AEP	243229	05OLIVE	345.0	AEP	1	AEP_P1-2_#358_1684	operation	1409.0	116.15	117.25	DC	29.55
168446797	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_765-L11215_-S	operation	1409.0	163.12	163.41	DC	92.8
168446801	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	Base Case	operation	1409.0	104.25	104.58	DC	64.63
168447005	270728	E FRANKFO; B	345.0	CE	270766	GOODIN GS;3B	345.0	CE	1	Base Case	operation	1660.0	103.22	104.37	DC	36.19
168447072	270736	ELWOOD ; B	345.0	CE	270770	GOODIN GS;4B	345.0	CE	1	COMED_P1-2_345-L11622_R-S	operation	1528.0	110.62	111.62	DC	29.22
168446987	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_765-L11215_-S	operation	971.0	123.18	123.3	DC	46.74

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
161676229	958430	AF2-137 TAP	AEP	242928	05MARYSV	AEP	1	AEP_P7-1_#11010	tower	4142.0	99.67	100.2	DC	112.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243071	05BERRINSP G	0.2201	50/50	0.2201
243440	05CKG1	38.0456	50/50	38.0456
243441	05CKG2	47.3174	50/50	47.3174
244415	05OLIV SLR C	0.5902	50/50	0.5902
246397	05ELKHART HY	0.0974	50/50	0.0974
246416	05TWIN BRCH1	0.1470	50/50	0.1470
246422	05MAYFLWER	0.2157	50/50	0.2157
246431	05BUCHANAN	0.1039	50/50	0.1039
246536	05MOTTVILL	0.0553	50/50	0.0553
247295	05KEY G4	2.1671	50/50	2.1671
247620	Y3-023	0.1682	50/50	0.1682
247643	Z2-116 C	0.0491	50/50	0.0491
247966	05WTRV SLR E	0.4471	Adder	0.53
247967	05OLIV SLR E	0.5902	50/50	0.5902
247969	Z2-116 E	0.3110	50/50	0.3110
270100	X2-052 CT1	8.6953	50/50	8.6953
270101	X2-052 CT2	8.6953	50/50	8.6953
270102	X2-052 ST	9.4074	50/50	9.4074
270142	AA2-116_CT1	14.1665	50/50	14.1665
270143	AA2-116_CT2	14.1665	50/50	14.1665
270144	AA2-116_ST	12.5464	50/50	12.5464
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	7.3012	Adder	8.59
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	7.3205	Adder	8.61
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	7.4168	Adder	8.73
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	7.4168	Adder	8.73
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	7.4207	Adder	8.73
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	7.4207	Adder	8.73
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	7.4207	Adder	8.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	7.4207	Adder	8.73
275149	KELLYCK ;1E	26.5572	Adder	31.24
293799	PILOT HIL;1E	26.5572	Adder	31.24
910542	X3-005 E	1.0735	Adder	1.26
930501	AB1-091 CT	58.1875	Adder	68.46
930502	AB1-091 ST	46.2613	Adder	54.43
933281	AC2-140 C	1.5664	50/50	1.5664
933282	AC2-140 E	0.5225	50/50	0.5225
933411	AC2-154 C	3.6042	Adder	4.24
933412	AC2-154 E	5.8805	Adder	6.92
934721	AD1-100 C	18.4367	Adder	21.69
934722	AD1-100 E	86.0378	Adder	101.22
936141	AD2-020 C O1	14.4301	50/50	14.4301
936142	AD2-020 E O1	8.8819	50/50	8.8819
936371	AD2-047 C O1	6.4496	Adder	7.59
936372	AD2-047 E O1	31.4893	Adder	37.05
936461	AD2-060	3.7939	Adder	4.46
936631	AD2-079 C O1	2.8654	50/50	2.8654
936632	AD2-079 E O1	1.9102	50/50	1.9102
939351	AE1-166 C O1	7.8135	Adder	17.34
939352	AE1-166 E O1	7.2125	Adder	16.01
939395	AE1-170 C	14.8743	50/50	14.8743
939396	AE1-170 E	20.5407	50/50	20.5407
939631	AE1-193 C	12.4926	Adder	14.7
939632	AE1-193 E	83.6042	Adder	98.36
939641	AE1-194 C	12.4926	Adder	14.7
939642	AE1-194 E	83.6042	Adder	98.36
939651	AE1-195 C	12.4926	Adder	14.7
939652	AE1-195 E	83.6042	Adder	98.36
939681	AE1-198 C	37.0933	Adder	43.64
939682	AE1-198 E	31.5197	Adder	37.08
941551	AE2-152 C O1	9.0156	Adder	20.01
941552	AE2-152 E O1	6.0104	Adder	13.34
941561	AE2-153 C O1	6.6758	Adder	7.85
941562	AE2-153 E O1	31.2547	Adder	36.77
942241	AE2-236 C O1	9.7886	50/50	9.7886
942242	AE2-236 E O1	4.1951	50/50	4.1951
943001	AE2-323 C	15.9987	50/50	15.9987
943002	AE2-323 E	7.8443	50/50	7.8443
943021	AE2-325 C	7.3013	50/50	7.3013
943022	AE2-325 E	4.8675	50/50	4.8675
943781	AF1-046 C	7.4676	50/50	7.4676
943782	AF1-046 E	4.9784	50/50	4.9784
944161	AF1-084 C	12.5247	50/50	12.5247
944162	AF1-084 E	7.1537	50/50	7.1537
944241	AF1-092 C O1	28.1014	50/50	28.1014
944242	AF1-092 E O1	8.5526	50/50	8.5526
944531	AF1-118 C O1	63.5061	50/50	63.5061
944532	AF1-118 E O1	19.1534	50/50	19.1534
944761	AF1-141 C O1	14.7090	50/50	14.7090
944762	AF1-141 E O1	7.7761	50/50	7.7761

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944831	AF1-148 C O1	22.0937	50/50	22.0937
944832	AF1-148 E O1	14.7291	50/50	14.7291
944911	AF1-156 C	17.0687	Adder	20.08
944912	AF1-156 E	11.3791	Adder	13.39
944931	AF1-158 C O1	21.2886	50/50	21.2886
944932	AF1-158 E O1	14.1924	50/50	14.1924
944961	AF1-161 C	5.8280	50/50	5.8280
944962	AF1-161 E	5.8280	50/50	5.8280
945111	AF1-176 C O1	36.5593	50/50	36.5593
945112	AF1-176 E O1	33.8897	50/50	33.8897
945351	AF1-200 FTIR	457.3866	Merchant Transmission	457.3866
957371	AF2-031 C O1	1.5403	Adder	1.81
957372	AF2-031 E O1	2.3105	Adder	2.72
957891	AF2-083 C O1	23.5550	50/50	23.5550
957892	AF2-083 E O1	11.7775	50/50	11.7775
958001	AF2-094 C	6.4511	50/50	6.4511
958002	AF2-094 E	3.3233	50/50	3.3233
958011	AF2-095 C O1	25.7985	Adder	30.35
958012	AF2-095 E O1	12.1404	Adder	14.28
958021	AF2-096 C	48.3439	Adder	56.88
958022	AF2-096 E	22.7501	Adder	26.76
958311	AF2-125 C	8.3148	50/50	8.3148
958312	AF2-125 E	4.3331	50/50	4.3331
958431	AF2-137 C	146.3364	50/50	146.3364
958432	AF2-137 E	202.0836	50/50	202.0836
959001	AF2-191 C O1	15.5615	50/50	15.5615
959002	AF2-191 E O1	10.3743	50/50	10.3743
959331	AF2-224 C O1	10.1060	50/50	10.1060
959332	AF2-224 E O1	13.9560	50/50	13.9560
960591	AF2-350 C O1	11.3817	Adder	13.39
960592	AF2-350 E O1	7.5878	Adder	8.93
960601	AF2-351 C O1	1.5176	Adder	1.79
960602	AF2-351 E O1	2.2763	Adder	2.68
960681	AF2-359 C	17.6813	50/50	17.6813
960682	AF2-359 E	11.7875	50/50	11.7875
960981	AF2-389 C	7.0680	50/50	7.0680
960982	AF2-389 E	4.7120	50/50	4.7120
961051	AF2-396 O1	46.7480	50/50	46.7480
961501	AF2-441 C O1	15.3503	Adder	18.06
961502	AF2-441 E O1	23.0255	Adder	27.09
961631	AG1-003 C	157.4858	50/50	157.4858
961632	AG1-003 E	121.2502	50/50	121.2502
961641	AG1-004	139.3680	50/50	139.3680
962601	AG1-109	5.8280	50/50	5.8280
963701	AG1-222 C	19.7658	50/50	19.7658
963702	AG1-222 E	15.9987	50/50	15.9987
963851	AG1-238 C	22.7394	50/50	22.7394
963852	AG1-238 E	15.1596	50/50	15.1596
964361	AG1-298 O2	50.7308	Adder	112.61
965011	AG1-365 C	14.4372	50/50	14.4372
965012	AG1-365 E	9.6248	50/50	9.6248
965021	AG1-366 C	4.8124	50/50	4.8124

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965022	AG1-366 E	7.2186	50/50	7.2186
965491	AG1-417 C O2	7.6557	50/50	7.6557
965492	AG1-417 E O2	5.1038	50/50	5.1038
965681	AG1-436 C	17.6813	50/50	17.6813
965682	AG1-436 E	11.7875	50/50	11.7875
965791	AG1-447	12.9663	50/50	12.9663
965801	AG1-448	12.9663	50/50	12.9663
965841	AG1-453 C O2	19.6711	50/50	19.6711
965842	AG1-453 E O2	13.1141	50/50	13.1141
965851	AG1-454 O2	11.7090	50/50	11.7090
966431	AG1-512 C	1.6198	Adder	3.6
966432	AG1-512 E	2.4297	Adder	5.39
WEC	WEC	6.5838	Confirmed LTF	6.5838
LGEE	LGEE	4.6438	Confirmed LTF	4.6438
CBM-W2	CBM-W2	92.3686	Confirmed LTF	92.3686
NY	NY	3.1106	Confirmed LTF	3.1106
TVA	TVA	8.3860	Confirmed LTF	8.3860
O-066	O-066	37.8832	Confirmed LTF	37.8832
SIGE	SIGE	1.7095	Confirmed LTF	1.7095
CBM-S1	CBM-S1	2.3727	Confirmed LTF	2.3727
G-007	G-007	5.9073	Confirmed LTF	5.9073
HAMLET	HAMLET	0.6809	Confirmed LTF	0.6809
MEC	MEC	27.1036	Confirmed LTF	27.1036
LAGN	LAGN	13.8897	Confirmed LTF	13.8897
CATAWBA	CATAWBA	0.2044	Confirmed LTF	0.2044
CBM-W1	CBM-W1	230.2364	Confirmed LTF	230.2364

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
164490199	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P1-2_#709_546	single	1868.0	141.03	141.46	DC	51.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243441	05CKG2	20.0137	80/20	20.0137
243442	05RKG1	67.8175	80/20	67.8175
243443	05RKG2	65.0167	80/20	65.0167
243859	05FR-11G C	0.5517	80/20	0.5517
243862	05FR-12G C	0.2683	80/20	0.2683
243864	05FR-21G C	0.2791	80/20	0.2791
243866	05FR-22G C	0.2791	80/20	0.2791
243870	05FR-3G C	0.2683	80/20	0.2683
243873	05FR-4G C	0.6247	80/20	0.6247
244415	05OLIV SLR C	0.2212	Adder	0.26
246909	05MDL-1G C	0.5695	80/20	0.5695
246910	05MDL-2G C	0.3342	80/20	0.3342
246976	05MDL-3G C	0.3364	80/20	0.3364
246979	05MDL-4G C	0.2595	80/20	0.2595
247556	05MDL-5G	0.4442	80/20	0.4442
270100	X2-052 CT1	3.9721	80/20	3.9721
270101	X2-052 CT2	3.9721	80/20	3.9721
270102	X2-052 ST	4.2974	80/20	4.2974
274751	CRETE EC ;1U	1.2415	80/20	1.2415
274752	CRETE EC ;2U	1.2415	80/20	1.2415
274753	CRETE EC ;3U	1.2415	80/20	1.2415
274754	CRETE EC ;4U	1.2415	80/20	1.2415
274770	LINCOLN ;1U	1.2751	80/20	1.2751
274771	LINCOLN ;2U	1.2751	80/20	1.2751
274772	LINCOLN ;3U	1.2751	80/20	1.2751
274773	LINCOLN ;4U	1.2751	80/20	1.2751
274774	LINCOLN ;5U	1.2751	80/20	1.2751
274775	LINCOLN ;6U	1.2751	80/20	1.2751
274776	LINCOLN ;7U	1.2751	80/20	1.2751
274777	LINCOLN ;8U	1.2751	80/20	1.2751
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	3.3549	Adder	3.95
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	3.3637	Adder	3.96
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	3.4080	Adder	4.01
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	3.4080	Adder	4.01

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	3.4106	Adder	4.01
927451	AC1-142A 1	2.7875	Adder	3.28
927461	AC1-142A 2	2.7872	Adder	3.28
930041	AB1-006 C	0.5717	80/20	0.5717
930461	AB1-087 CT1	53.1389	80/20	53.1389
930462	AB1-087 ST1	42.2475	80/20	42.2475
930471	AB1-088 CT1	53.1389	80/20	53.1389
930472	AB1-088 ST1	42.2475	80/20	42.2475
930501	AB1-091 CT	26.9894	Adder	31.75
930502	AB1-091 ST	21.4576	Adder	25.24
932601	AC2-080 C O1	3.5136	80/20	3.5136
932661	AC2-088 C O1	-3.3867	Adder	-3.98
933281	AC2-140 C	0.6626	80/20	0.6626
933411	AC2-154 C	1.6717	Adder	1.97
933446	AC2-157 1C	6.5903	80/20	6.5903
933447	AC2-157 2C	6.5903	80/20	6.5903
934721	AD1-100 C	13.2116	Adder	15.54
935031	AD1-136 C	-0.4763	Adder	-0.56
936371	AD2-047 C O1	2.9914	Adder	3.52
936461	AD2-060	1.7597	Adder	2.07
937041	AD2-138 C	4.7569	80/20	4.7569
937401	AD2-194 1	2.0925	Adder	2.46
937411	AD2-194 2	2.0925	Adder	2.46
938511	AE1-070 1	6.1363	Adder	7.22
938521	AE1-070 2	5.6141	Adder	6.6
939351	AE1-166 C O1	3.6400	Adder	8.08
939401	AE1-172 C O1	3.9108	Adder	4.6
939631	AE1-193 C	6.8016	80/20	6.8016
939641	AE1-194 C	6.8016	80/20	6.8016
939651	AE1-195 C	6.8016	80/20	6.8016
939681	AE1-198 C	20.1955	80/20	20.1955
940101	AE1-252 C O1	7.8566	Adder	9.24
940581	AE2-045 C O1	11.3896	80/20	11.3896
941341	AE2-130 C	152.1600	80/20	152.1600
941551	AE2-152 C O1	4.2001	Adder	9.32
941561	AE2-153 C O1	3.0988	Adder	3.65
941571	AE2-154 C	4.5295	80/20	4.5295
942601	AE2-276	8.6715	80/20	8.6715
944201	AF1-088 FTIR	173.4300	80/20	173.4300
944911	AF1-156 C	7.9231	Adder	9.32
944931	AF1-158 C O1	7.9078	Adder	9.3
945351	AF1-200 FTIR	210.1137	Merchant Transmission	210.1137

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945391	AF1-204 C O1	6.8805	80/20	6.8805
945421	AF1-207 C O1	4.7801	80/20	4.7801
945501	AF1-215 C O1	22.5270	80/20	22.5270
946581	AF1-322 C	11.7071	80/20	11.7071
957141	AF2-008 FTIR	86.7150	80/20	86.7150
957371	AF2-031 C O1	0.7079	Adder	0.83
957841	AF2-078 C O1	16.8708	80/20	16.8708
958011	AF2-095 C O1	11.9658	Adder	14.08
958021	AF2-096 C	22.4445	Adder	26.41
958381	AF2-132 C O1	23.2884	80/20	23.2884
958391	AF2-133 C O1	23.6826	80/20	23.6826
958401	AF2-134 C O1	7.5090	80/20	7.5090
958971	AF2-188 C O1	9.4597	80/20	9.4597
958981	AF2-189 C O1	13.7295	80/20	13.7295
959001	AF2-191 C O1	5.8193	Adder	6.85
959141	AF2-205 C	15.9792	80/20	15.9792
960591	AF2-350 C O1	5.2790	Adder	6.21
960601	AF2-351 C O1	0.7039	Adder	0.83
960681	AF2-359 C	8.1112	80/20	8.1112
961501	AF2-441 C O1	7.0672	Adder	8.31
963741	AG1-226 C O2	47.1294	80/20	47.1294
963841	AG1-237 C O2	3.2388	80/20	3.2388
963851	AG1-238 C	9.5553	80/20	9.5553
964361	AG1-298 O2	23.3787	Adder	51.9
964401	AG1-302 C O2	23.2470	80/20	23.2470
964861	AG1-349 C O2	20.2925	80/20	20.2925
965681	AG1-436 C	8.1112	80/20	8.1112
965791	AG1-447	5.9482	80/20	5.9482
965801	AG1-448	5.9482	80/20	5.9482
966091	AG1-478 C	0.7350	Adder	1.63
966431	AG1-512 C	0.7493	Adder	1.66
966531	AG1-522 C	42.4710	80/20	42.4710
966541	AG1-523 C	42.4710	80/20	42.4710
966551	AG1-524 C	42.4710	80/20	42.4710
966561	AG1-525 C	42.4710	80/20	42.4710
966841	AG1-555 C O2	11.0429	80/20	11.0429
WEC	WEC	3.0527	Confirmed LTF	3.0527
CALDERWOOD	CALDERWOOD	0.8767	Confirmed LTF	0.8767
LGE-0012019	LGE-0012019	6.4405	LTF	6.4405
CBM-W2	CBM-W2	29.3619	Confirmed LTF	29.3619
NY	NY	0.9628	Confirmed LTF	0.9628
TVA	TVA	0.0056	Confirmed LTF	0.0056
SIGE	SIGE	0.0643	Confirmed LTF	0.0643
CHEOAH	CHEOAH	0.8819	Confirmed LTF	0.8819
HAMLET	HAMLET	1.1030	Confirmed LTF	1.1030
MEC	MEC	12.4562	Confirmed LTF	12.4562
BLUEG	BLUEG	29.4252	Confirmed LTF	29.4252
TRIMBLE	TRIMBLE	10.2474	Confirmed LTF	10.2474
LAGN	LAGN	3.2042	Confirmed LTF	3.2042
CATAWBA	CATAWBA	0.6650	Confirmed LTF	0.6650
CBM-W1	CBM-W1	98.1400	Confirmed LTF	98.1400

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
161676212	243206	05DUMONT	AEP	246999	05SORENS	AEP	1	AEP_P7-1_#11046	tower	4142.0	104.88	104.95	DC	108.88

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243441	05CKG2	52.1732	50/50	52.1732
244415	05OLIV SLR C	0.4494	Adder	0.53
247967	05OLIV SLR E	0.4494	Adder	0.53
274658	DRESDEN ;2U	164.0190	Adder	192.96
274659	DRESDEN ;3U	160.7297	Adder	189.09
274771	LINCOLN ;2U	2.8045	50/50	2.8045
274772	LINCOLN ;3U	2.8045	50/50	2.8045
274773	LINCOLN ;4U	2.8045	50/50	2.8045
274774	LINCOLN ;5U	2.8045	50/50	2.8045
274775	LINCOLN ;6U	2.8045	50/50	2.8045
274776	LINCOLN ;7U	2.8045	50/50	2.8045
274777	LINCOLN ;8U	2.8045	50/50	2.8045
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	7.0039	Adder	8.24
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	7.0223	Adder	8.26
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	7.1147	Adder	8.37
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	7.1147	Adder	8.37
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	7.1056	Adder	8.36
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	7.1056	Adder	8.36
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	7.1056	Adder	8.36
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	7.1056	Adder	8.36
275149	KELLYCK ;1E	25.8539	Adder	30.42
276167	Z1-106 E2	1.8156	Adder	2.14
276168	Z1-106 E1	1.8155	Adder	2.14
276169	Z1-107 E	3.6575	Adder	4.3
276170	Z1-108 E	3.5734	Adder	4.2
276591	L-013 2	5.2652	Adder	6.19
293061	N-015 E	22.0575	Adder	25.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
293644	O22 E1	14.6384	Adder	17.22
293645	O22 E2	28.4158	Adder	33.43
293799	PILOT HIL;1E	25.8539	Adder	30.42
294392	P-010 E	28.0130	Adder	32.96
910542	X3-005 E	1.0383	Adder	1.22
915011	Y3-013 1	5.3461	Adder	6.29
915021	Y3-013 2	5.3461	Adder	6.29
915031	Y3-013 3	5.3461	Adder	6.29
918052	AA1-018 E OP	23.4418	Adder	27.58
926331	AC1-110 1	2.7307	Adder	3.21
926341	AC1-110 2	2.7307	Adder	3.21
927451	AC1-142A 1	5.8730	Adder	6.91
927461	AC1-142A 2	5.8728	Adder	6.91
930501	AB1-091 CT	56.6561	Adder	66.65
930502	AB1-091 ST	45.0438	Adder	52.99
930771	AB1-122 CT2	104.4068	Adder	122.83
933281	AC2-140 C	1.7272	50/50	1.7272
933282	AC2-140 E	0.5761	50/50	0.5761
933411	AC2-154 C	3.5087	Adder	4.13
933412	AC2-154 E	5.7248	Adder	6.74
933431	AC2-156 C O1	1.3865	Adder	1.63
933432	AC2-156 E O1	2.2622	Adder	2.66
934111	AD1-039 2	10.2319	Adder	12.04
934721	AD1-100 C	27.7007	Adder	32.59
934722	AD1-100 E	129.2697	Adder	152.08
934871	AD1-116 C	1.3652	Adder	1.61
934872	AD1-116 E	2.2274	Adder	2.62
936371	AD2-047 C O1	6.2788	Adder	7.39
936372	AD2-047 E O1	30.6554	Adder	36.07
936461	AD2-060	3.6934	Adder	4.35
937401	AD2-194 1	10.9222	Adder	12.85
937411	AD2-194 2	10.9227	Adder	12.85
938511	AE1-070 1	12.8341	Adder	15.1
938521	AE1-070 2	11.7413	Adder	13.81
939321	AE1-163 C O1	5.1162	Adder	6.02
939322	AE1-163 E O1	31.4282	Adder	36.97
939351	AE1-166 C O1	7.6434	Adder	16.97
939352	AE1-166 E O1	7.0555	Adder	15.66
939631	AE1-193 C	11.7296	Adder	13.8
939632	AE1-193 E	78.4979	Adder	92.35
939641	AE1-194 C	11.7296	Adder	13.8
939642	AE1-194 E	78.4979	Adder	92.35
939651	AE1-195 C	11.7296	Adder	13.8
939652	AE1-195 E	78.4979	Adder	92.35
939681	AE1-198 C	34.8278	Adder	40.97
939682	AE1-198 E	29.5946	Adder	34.82
940752	AE2-062 E	0.0972	Adder	0.22
941551	AE2-152 C O1	8.8193	Adder	19.58
941552	AE2-152 E O1	5.8796	Adder	13.05
941561	AE2-153 C O1	6.5178	Adder	7.67
941562	AE2-153 E O1	30.5150	Adder	35.9
942651	AE2-281 C O1	1.2443	Adder	1.46

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942652	AE2-281 E O1	7.6433	Adder	8.99
943121	AE2-341 C	18.4950	Adder	21.76
943122	AE2-341 E	9.0820	Adder	10.68
943591	AF1-030 C O1	12.2993	Adder	14.47
943592	AF1-030 E O1	6.0853	Adder	7.16
944041	AF1-072	3.0940	Adder	3.64
944911	AF1-156 C	16.6648	Adder	19.61
944912	AF1-156 E	11.1098	Adder	13.07
944931	AF1-158 C O1	16.0466	Adder	18.88
944932	AF1-158 E O1	10.6978	Adder	12.59
945351	AF1-200 FTIR	457.9157	Merchant Transmission	457.9157
957331	AF2-027 C	3.5640	Adder	4.19
957332	AF2-027 E	5.3461	Adder	6.29
957371	AF2-031 C O1	1.4787	Adder	1.74
957372	AF2-031 E O1	2.2181	Adder	2.61
957401	AF2-034 C	1.9682	Adder	2.32
957402	AF2-034 E	1.6766	Adder	1.97
958011	AF2-095 C O1	25.1153	Adder	29.55
958012	AF2-095 E O1	11.8189	Adder	13.9
958021	AF2-096 C	47.1930	Adder	55.52
958022	AF2-096 E	22.2085	Adder	26.13
958481	AF2-142 C	16.1667	Adder	19.02
958482	AF2-142 E	10.7778	Adder	12.68
958491	AF2-143 C	15.9977	Adder	18.82
958492	AF2-143 E	10.6651	Adder	12.55
959001	AF2-191 C O1	11.7945	Adder	13.88
959002	AF2-191 E O1	7.8630	Adder	9.25
959351	AF2-226 C	3.5879	Adder	4.22
959352	AF2-226 E	5.3818	Adder	6.33
960281	AF2-319 C	3.5879	Adder	4.22
960282	AF2-319 E	5.3818	Adder	6.33
960381	AF2-329	9.5968	Adder	11.29
960591	AF2-350 C O1	11.0803	Adder	13.04
960592	AF2-350 E O1	7.3868	Adder	8.69
960601	AF2-351 C O1	1.4774	Adder	1.74
960602	AF2-351 E O1	2.2161	Adder	2.61
960681	AF2-359 C	14.2570	Adder	16.77
960682	AF2-359 E	9.5047	Adder	11.18
960731	AF2-364 C O1	8.8284	Adder	10.39
960732	AF2-364 E O1	5.8856	Adder	6.92
961501	AF2-441 C O1	14.8131	Adder	17.43
961502	AF2-441 E O1	22.2197	Adder	26.14
962691	AG1-118 C O2	17.0581	Adder	37.86
962692	AG1-118 E O2	11.3721	Adder	25.24
962701	AG1-119 C O2	17.2357	Adder	38.26
962702	AG1-119 E O2	11.4905	Adder	25.51
962711	AG1-120 C O2	6.8138	Adder	15.12
962712	AG1-120 E O2	4.5426	Adder	10.08
963851	AG1-238 C	23.1534	50/50	23.1534
963852	AG1-238 E	15.4356	50/50	15.4356
964361	AG1-298 O2	49.0527	Adder	108.89
965681	AG1-436 C	7.5562	Adder	16.77

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965682	AG1-436 E	5.0375	Adder	11.18
965791	AG1-447	5.5412	Adder	12.3
965801	AG1-448	5.5412	Adder	12.3
966081	AG1-477 C	1.5147	Adder	3.36
966082	AG1-477 E	0.3811	Adder	0.85
966091	AG1-478 C	1.5379	Adder	3.41
966092	AG1-478 E	0.3869	Adder	0.86
966101	AG1-479 C (Withdrawn : 12/03/2020)	1.5147	Adder	3.36
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.3811	Adder	0.85
966431	AG1-512 C	1.5730	Adder	3.49
966432	AG1-512 E	2.3595	Adder	5.24
966441	AG1-513 C	0.3873	Adder	0.86
966442	AG1-513 E	0.5810	Adder	1.29
966651	AG1-535 O2	8.1732	Adder	18.14
WEC	WEC	6.3718	Confirmed LTF	6.3718
LGEE	LGEE	1.8196	Confirmed LTF	1.8196
CBM-W2	CBM-W2	66.2413	Confirmed LTF	66.2413
NY	NY	2.6511	Confirmed LTF	2.6511
TVA	TVA	5.6784	Confirmed LTF	5.6784
O-066	O-066	32.1223	Confirmed LTF	32.1223
SIGE	SIGE	1.0604	Confirmed LTF	1.0604
CBM-S1	CBM-S1	1.4615	Confirmed LTF	1.4615
G-007	G-007	5.0085	Confirmed LTF	5.0085
HAMLET	HAMLET	0.8149	Confirmed LTF	0.8149
MEC	MEC	24.8456	Confirmed LTF	24.8456
LAGN	LAGN	10.6610	Confirmed LTF	10.6610
CATAWBA	CATAWBA	0.3402	Confirmed LTF	0.3402
CBM-W1	CBM-W1	201.5375	Confirmed LTF	201.5375

13.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	ACID C	MW IMPACT
174542275	243215	05COOK	AEP	243229	05OLIVE	AEP	1	AEP_P4_#7443_05DUMONT 765_A	breaker	1409.0	123.0	124.27	DC	35.94

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243440	05CKG1	46.1524	50/50	46.1524
243441	05CKG2	52.0899	50/50	52.0899
244412	05WTRV SLR C	0.0502	50/50	0.0502
244415	05OLIV SLR C	-0.1746	Adder	-0.21
247528	05COVRT1	7.0701	50/50	7.0701
247529	05COVRT2	7.0701	50/50	7.0701
247530	05COVRT3	7.0701	50/50	7.0701
247531	05COVRT4	4.2523	50/50	4.2523
247532	05COVRT5	4.2202	50/50	4.2202
247533	05COVRT6	4.2523	50/50	4.2523
247604	X1-042	0.0677	50/50	0.0677
247966	05WTRV SLR E	0.3179	50/50	0.3179
270142	AA2-116_CT1	10.0882	50/50	10.0882
270143	AA2-116_CT2	10.0882	50/50	10.0882
270144	AA2-116_ST	8.9345	50/50	8.9345
272364	ESS H440N ;R	-1.2462	Adder	-1.47
276165	Z1-106 BAT2	0.6862	Merchant Transmission	0.6862
276166	Z1-106 BAT1	0.6862	Merchant Transmission	0.6862
276171	Z1-107 BAT	1.4296	Merchant Transmission	1.4296
276172	Z1-108 BAT	1.3620	Merchant Transmission	1.3620
276591	L-013 2	-1.6915	Adder	-1.99
920273	AA2-123 BAT	1.3458	Merchant Transmission	1.3458
933281	AC2-140 C	1.7244	50/50	1.7244
933282	AC2-140 E	0.5752	50/50	0.5752
936141	AD2-020 C O1	7.3389	50/50	7.3389
936142	AD2-020 E O1	4.5171	50/50	4.5171
936601	AD2-075	29.5626	50/50	29.5626
938261	AE1-039	0.0181	50/50	0.0181
939395	AE1-170 C	7.2771	50/50	7.2771
939396	AE1-170 E	10.0494	50/50	10.0494
939683	AE1-198 BAT	7.2571	Merchant Transmission	7.2571
943021	AE2-325 C	3.7133	50/50	3.7133
943022	AE2-325 E	2.4755	50/50	2.4755
943803	AF1-048 BAT	3.5115	Merchant Transmission	3.5115
943922	AF1-060 BAT	0.6782	Merchant Transmission	0.6782
944161	AF1-084 C	6.7268	50/50	6.7268
944162	AF1-084 E	3.8421	50/50	3.8421
944961	AF1-161 C	2.9640	50/50	2.9640
944962	AF1-161 E	2.9640	50/50	2.9640
945111	AF1-176 C O1	13.0121	Adder	15.31
945112	AF1-176 E O1	12.0620	Adder	14.19
945352	AF1-200 NFTW	142.8420	Merchant Transmission	142.8420

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946163	AF1-281 BAT	1.2928	Merchant Transmission	1.2928
950351	J466	3.5100	PJM External (MISO)	3.5100
950791	J201 C	0.4973	PJM External (MISO)	0.4973
950792	J201 E	1.9893	PJM External (MISO)	1.9893
950871	J246 C	0.1808	PJM External (MISO)	0.1808
950872	J246 E	0.7230	PJM External (MISO)	0.7230
950942	J325 E	0.4586	PJM External (MISO)	0.4586
952161	J571	0.8961	PJM External (MISO)	0.8961
952201	J589 C	4.2526	PJM External (MISO)	4.2526
952202	J589 E	23.0074	PJM External (MISO)	23.0074
952312	J646 E	0.1732	PJM External (MISO)	0.1732
952401	J752 C	1.8498	PJM External (MISO)	1.8498
952402	J752 E	10.0082	PJM External (MISO)	10.0082
952611	J717 C	4.0955	PJM External (MISO)	4.0955
952612	J717 E	22.1576	PJM External (MISO)	22.1576
952761	J728 C	3.8087	PJM External (MISO)	3.8087
952762	J728 E	20.6338	PJM External (MISO)	20.6338
952881	J758	26.3540	PJM External (MISO)	26.3540
952971	J793	143.1329	PJM External (MISO)	143.1329
953071	J794 C	0.2606	PJM External (MISO)	0.2606
953072	J794 E	1.4100	PJM External (MISO)	1.4100
953271	J701 C	0.9064	PJM External (MISO)	0.9064
953272	J701 E	4.9040	PJM External (MISO)	4.9040
953291	J796	30.8573	PJM External (MISO)	30.8573
953321	J799	18.0325	PJM External (MISO)	18.0325
953361	J806	18.6652	PJM External (MISO)	18.6652
953771	J832	13.9870	PJM External (MISO)	13.9870
953781	J833	9.4660	PJM External (MISO)	9.4660
953941	J857	15.8349	PJM External (MISO)	15.8349
954111	J875	15.4785	PJM External (MISO)	15.4785
954591	J937	79.4796	PJM External (MISO)	79.4796
955071	J984 C	4.5524	PJM External (MISO)	4.5524
955072	J984 E	24.6296	PJM External (MISO)	24.6296
955181	J996	7.5064	PJM External (MISO)	7.5064
955591	J1043 C	3.1018	PJM External (MISO)	3.1018
955592	J1043 E	54.9639	PJM External (MISO)	54.9639
955781	J1062	12.6120	PJM External (MISO)	12.6120
955861	J1071	15.7240	PJM External (MISO)	15.7240
956011	J1088	19.1415	PJM External (MISO)	19.1415
956021	J1089	21.6206	PJM External (MISO)	21.6206
956031	J1090	10.5543	PJM External (MISO)	10.5543
956741	J1172	6.1520	PJM External (MISO)	6.1520
956801	J1178	7.9352	PJM External (MISO)	7.9352
957333	AF2-027 BAT	3.4205	Merchant Transmission	3.4205
957373	AF2-031 BAT	1.4326	Merchant Transmission	1.4326
957403	AF2-034 BAT	1.4168	Merchant Transmission	1.4168
957843	AF2-078 BAT	1.4682	Merchant Transmission	1.4682
957891	AF2-083 C O1	7.8361	Adder	9.22
957892	AF2-083 E O1	3.9181	Adder	4.61
958013	AF2-095 BAT	2.8940	Merchant Transmission	2.8940
958023	AF2-096 BAT	5.4712	Merchant Transmission	5.4712
958923	AF2-183 BAT	5.1712	Merchant Transmission	5.1712

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959353	AF2-226 BAT	3.5170	Merchant Transmission	3.5170
960283	AF2-319 BAT	3.5170	Merchant Transmission	3.5170
960382	AF2-329 BAT	3.5705	Merchant Transmission	3.5705
960603	AF2-351 BAT	1.4470	Merchant Transmission	1.4470
960981	AF2-389 C	2.3442	Adder	2.76
960982	AF2-389 E	1.5628	Adder	1.84
961022	AF2-393 BAT	3.8652	Merchant Transmission	3.8652
961032	AF2-394 BAT	2.5768	Merchant Transmission	2.5768
961051	AF2-396 O1	22.1480	50/50	22.1480
961503	AF2-441 BAT	14.3680	Merchant Transmission	14.3680
962013	AG1-044 BAT	0.0190	Merchant Transmission	0.0190
962601	AG1-109	2.9640	50/50	2.9640
963501	AG1-199	8.6537	Adder	19.21
964362	AG1-298 BAT	19.0482	Merchant Transmission	19.0482
964462	AG1-309 NFTW	138.4740	Merchant Transmission	138.4740
965062	AG1-371 BAT	2.6311	Merchant Transmission	2.6311
965072	AG1-372 BAT	1.7540	Merchant Transmission	1.7540
965082	AG1-373 BAT	0.8770	Merchant Transmission	0.8770
965792	AG1-447 BAT	10.8839	50/50	10.8839
965802	AG1-448 BAT	10.8839	50/50	10.8839
966083	AG1-477 BAT	0.3670	Merchant Transmission	0.3670
966093	AG1-478 BAT	0.3776	Merchant Transmission	0.3776
966103	AG1-479 BAT (Withdrawn : 12/03/2020)	0.3670	Merchant Transmission	0.3670
966433	AG1-512 BAT	1.9576	Merchant Transmission	1.9576
966443	AG1-513 BAT	0.3649	Merchant Transmission	0.3649
966523	AG1-521 BAT	1.7175	Merchant Transmission	1.7175
966652	AG1-535 BAT	3.0909	Merchant Transmission	3.0909
990901	L-005 E	-6.6918	Adder	-7.87
G-007A	G-007A	1.7406	Confirmed LTF	1.7406
VFT	VFT	4.7021	Confirmed LTF	4.7021
CALDERWOOD	CALDERWOOD	0.7117	Confirmed LTF	0.7117
PRAIRIE	PRAIRIE	9.9807	Confirmed LTF	9.9807
CHEOAH	CHEOAH	0.7062	Confirmed LTF	0.7062
CBM-N	CBM-N	0.8832	Confirmed LTF	0.8832
COTTONWOOD	COTTONWOOD	5.7225	Confirmed LTF	5.7225
HAMLET	HAMLET	0.3598	Confirmed LTF	0.3598
GIBSON	GIBSON	1.4616	Confirmed LTF	1.4616
BLUEG	BLUEG	3.1144	Confirmed LTF	3.1144
TRIMBLE	TRIMBLE	0.9822	Confirmed LTF	0.9822
CATAWBA	CATAWBA	0.2691	Confirmed LTF	0.2691

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
174542321	246999	05SORENS	AEP	958430	AF2-137 TAP	AEP	1	AEP_P4_#7334_05JEFRSO 765_A2	breaker	4142.0	107.74	108.43	DC	129.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
243440	05CKG1	42.9497	50/50	42.9497
243441	05CKG2	53.4646	50/50	53.4646
244415	05OLIV SLR C	0.6694	50/50	0.6694
246397	05ELKHART HY	0.1081	50/50	0.1081
246416	05TWIN BRCH1	0.1637	50/50	0.1637
246422	05MAYFLWER	0.2425	50/50	0.2425
246431	05BUCHANAN	0.1170	50/50	0.1170
247643	Z2-116 C	0.0547	50/50	0.0547
247966	05WTRV SLR E	0.5039	Adder	0.59
247967	05OLIV SLR E	0.6694	50/50	0.6694
247969	Z2-116 E	0.3466	50/50	0.3466
270100	X2-052 CT1	9.9262	50/50	9.9262
270101	X2-052 CT2	9.9262	50/50	9.9262
270102	X2-052 ST	10.7391	50/50	10.7391
270142	AA2-116_CT1	15.8708	50/50	15.8708
270143	AA2-116_CT2	15.8708	50/50	15.8708
270144	AA2-116_ST	14.0558	50/50	14.0558
274658	DRESDEN ;2U	29.0404	Adder	34.17
274773	LINCOLN ;4U	3.1992	50/50	3.1992
274774	LINCOLN ;5U	3.1992	50/50	3.1992
274775	LINCOLN ;6U	3.1992	50/50	3.1992
274776	LINCOLN ;7U	3.1992	50/50	3.1992
274777	LINCOLN ;8U	3.1992	50/50	3.1992
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	8.3814	Adder	9.86
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	8.4035	Adder	9.89
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	8.5141	Adder	10.02
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	8.5141	Adder	10.02
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	8.5180	Adder	10.02
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	8.5180	Adder	10.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	8.5180	Adder	10.02
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	8.5180	Adder	10.02
275149	KELLYCK ;1E	30.5890	Adder	35.99
276169	Z1-107 E	4.3256	Adder	5.09
293061	N-015 E	25.9498	Adder	30.53
293799	PILOT HIL;1E	30.5890	Adder	35.99
294392	P-010 E	32.9563	Adder	38.77
910542	X3-005 E	1.2337	Adder	1.45
927451	AC1-142A 1	6.9314	Adder	8.15
927461	AC1-142A 2	6.9314	Adder	8.15
930501	AB1-091 CT	67.0164	Adder	78.84
930502	AB1-091 ST	53.2807	Adder	62.68
932601	AC2-080 C O1	5.6008	Adder	6.59
932602	AC2-080 E O1	37.4823	Adder	44.1
933281	AC2-140 C	1.7699	50/50	1.7699
933282	AC2-140 E	0.5904	50/50	0.5904
933411	AC2-154 C	4.1514	Adder	4.88
933412	AC2-154 E	6.7733	Adder	7.97
934721	AD1-100 C	32.6426	Adder	38.4
934722	AD1-100 E	152.3319	Adder	179.21
936141	AD2-020 C O1	13.7557	Adder	16.18
936142	AD2-020 E O1	8.4667	Adder	9.96
936371	AD2-047 C O1	7.4287	Adder	8.74
936372	AD2-047 E O1	36.2698	Adder	42.67
936461	AD2-060	4.3699	Adder	5.14
936631	AD2-079 C O1	3.1902	50/50	3.1902
936632	AD2-079 E O1	2.1268	50/50	2.1268
937041	AD2-138 C	7.5826	Adder	8.92
937042	AD2-138 E	35.5005	Adder	41.77
937401	AD2-194 1	12.9372	Adder	15.22
937411	AD2-194 2	12.9382	Adder	15.22
938511	AE1-070 1	15.2024	Adder	17.89
938521	AE1-070 2	13.9075	Adder	16.36
939351	AE1-166 C O1	9.0114	Adder	20.0
939352	AE1-166 E O1	8.3182	Adder	18.46
939395	AE1-170 C	16.6704	50/50	16.6704
939396	AE1-170 E	23.0211	50/50	23.0211
939631	AE1-193 C	14.3457	Adder	16.88
939632	AE1-193 E	96.0056	Adder	112.95
939641	AE1-194 C	14.3457	Adder	16.88
939642	AE1-194 E	96.0056	Adder	112.95
939651	AE1-195 C	14.3457	Adder	16.88
939652	AE1-195 E	96.0056	Adder	112.95
939681	AE1-198 C	42.5956	Adder	50.11
939682	AE1-198 E	36.1952	Adder	42.58
940581	AE2-045 C O1	18.1552	Adder	21.36
940582	AE2-045 E O1	24.9279	Adder	29.33
940752	AE2-062 E	0.1147	Adder	0.25
941551	AE2-152 C O1	10.3978	Adder	23.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941552	AE2-152 E O1	6.9318	Adder	15.39
941561	AE2-153 C O1	7.6915	Adder	9.05
941562	AE2-153 E O1	36.0104	Adder	42.37
942241	AE2-236 C O1	10.2464	50/50	10.2464
942242	AE2-236 E O1	4.3913	50/50	4.3913
943001	AE2-323 C	14.6477	Adder	17.23
943002	AE2-323 E	7.1820	Adder	8.45
943021	AE2-325 C	6.9601	Adder	8.19
943022	AE2-325 E	4.6400	Adder	5.46
943781	AF1-046 C	6.8371	Adder	8.04
943782	AF1-046 E	4.5580	Adder	5.36
944161	AF1-084 C	11.9584	Adder	14.07
944162	AF1-084 E	6.8302	Adder	8.04
944241	AF1-092 C O1	25.6662	Adder	30.2
944242	AF1-092 E O1	7.8115	Adder	9.19
944911	AF1-156 C	19.6659	Adder	23.14
944912	AF1-156 E	13.1106	Adder	15.42
944931	AF1-158 C O1	24.1020	50/50	24.1020
944932	AF1-158 E O1	16.0680	50/50	16.0680
944961	AF1-161 C	5.5556	Adder	6.54
944962	AF1-161 E	5.5556	Adder	6.54
945111	AF1-176 C O1	34.6404	Adder	40.75
945112	AF1-176 E O1	32.1110	Adder	37.78
945351	AF1-200 FTIR	526.3121	Merchant Transmission	526.3121
945501	AF1-215 C O1	39.7678	Adder	46.79
945502	AF1-215 E O1	26.5118	Adder	31.19
957371	AF2-031 C O1	1.7684	Adder	2.08
957372	AF2-031 E O1	2.6526	Adder	3.12
957401	AF2-034 C	2.3285	Adder	2.74
957402	AF2-034 E	1.9835	Adder	2.33
957891	AF2-083 C O1	26.3540	50/50	26.3540
957892	AF2-083 E O1	13.1770	50/50	13.1770
958001	AF2-094 C	5.8921	Adder	6.93
958002	AF2-094 E	3.0353	Adder	3.57
958011	AF2-095 C O1	29.7150	Adder	34.96
958012	AF2-095 E O1	13.9835	Adder	16.45
958021	AF2-096 C	55.7026	Adder	65.53
958022	AF2-096 E	26.2130	Adder	30.84
958381	AF2-132 C O1	39.3470	Adder	46.29
958382	AF2-132 E O1	26.2313	Adder	30.86
958391	AF2-133 C O1	39.1298	Adder	46.04
958392	AF2-133 E O1	26.0865	Adder	30.69
958401	AF2-134 C O1	13.2559	Adder	15.6
958402	AF2-134 E O1	8.8373	Adder	10.4
959001	AF2-191 C O1	17.6425	50/50	17.6425
959002	AF2-191 E O1	11.7616	50/50	11.7616
959141	AF2-205 C	25.9814	Adder	30.57
959142	AF2-205 E	17.3210	Adder	20.38
960591	AF2-350 C O1	13.1096	Adder	15.42
960592	AF2-350 E O1	8.7397	Adder	10.28
960601	AF2-351 C O1	1.7479	Adder	2.06
960602	AF2-351 E O1	2.6219	Adder	3.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960681	AF2-359 C	20.2095	50/50	20.2095
960682	AF2-359 E	13.4730	50/50	13.4730
960981	AF2-389 C	7.9098	50/50	7.9098
960982	AF2-389 E	5.2732	50/50	5.2732
961051	AF2-396 O1	44.4601	Adder	52.31
961501	AF2-441 C O1	17.6372	Adder	20.75
961502	AF2-441 E O1	26.4557	Adder	31.12
961633	AG1-003 BAT	29.7750	50/50	29.7750
961642	AG1-004 BAT	59.5500	50/50	59.5500
962601	AG1-109	2.9445	Adder	6.54
963701	AG1-222 C	9.5913	Adder	21.29
963702	AG1-222 E	7.7633	Adder	17.23
963851	AG1-238 C	25.6086	50/50	25.6086
963852	AG1-238 E	17.0724	50/50	17.0724
964361	AG1-298 O2	58.3082	Adder	129.43
964401	AG1-302 C O2	20.8661	Adder	46.32
964402	AG1-302 E O2	13.9107	Adder	30.88
964861	AG1-349 C O2	18.0418	Adder	40.05
964862	AG1-349 E O2	12.0278	Adder	26.7
965491	AG1-417 C O2	7.9950	50/50	7.9950
965492	AG1-417 E O2	5.3300	50/50	5.3300
965681	AG1-436 C	20.2095	50/50	20.2095
965682	AG1-436 E	13.4730	50/50	13.4730
965791	AG1-447	14.8203	50/50	14.8203
965801	AG1-448	14.8203	50/50	14.8203
966091	AG1-478 C	1.8220	Adder	4.04
966092	AG1-478 E	0.4584	Adder	1.02
966431	AG1-512 C	1.8634	Adder	4.14
966432	AG1-512 E	2.7951	Adder	6.2
WEC	WEC	7.6123	Confirmed LTF	7.6123
LGEE	LGEE	4.4232	Confirmed LTF	4.4232
CBM-W2	CBM-W2	108.4518	Confirmed LTF	108.4518
NY	NY	3.5475	Confirmed LTF	3.5475
TVA	TVA	9.0468	Confirmed LTF	9.0468
O-066	O-066	43.7248	Confirmed LTF	43.7248
SIGE	SIGE	1.9925	Confirmed LTF	1.9925
CBM-S1	CBM-S1	2.4955	Confirmed LTF	2.4955
G-007	G-007	6.8208	Confirmed LTF	6.8208
HAMLET	HAMLET	1.3271	Confirmed LTF	1.3271
MEC	MEC	31.6624	Confirmed LTF	31.6624
LAGN	LAGN	15.6397	Confirmed LTF	15.6397
CATAWBA	CATAWBA	0.5883	Confirmed LTF	0.5883
CBM-W1	CBM-W1	269.3382	Confirmed LTF	269.3382

13.5.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	ACID C	MW IMPACT
174542324	255104	17GREEN_ACR E	NIPS	270771	GREENACRE ;T	CE	1	COMED_P4_112 -65-BT4-5__	breaker	1091.0	109.63	109.73	DC	46.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	67.3766	Adder	79.27
274659	DRESDEN ;3U	48.9410	Adder	57.58
274751	CRETE EC ;1U	2.0078	50/50	2.0078
274752	CRETE EC ;2U	2.0078	50/50	2.0078
274753	CRETE EC ;3U	2.0078	50/50	2.0078
274754	CRETE EC ;4U	2.0078	50/50	2.0078
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	3.0714	Adder	3.61
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	3.0795	Adder	3.62
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	3.1200	Adder	3.67
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	3.1200	Adder	3.67
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	3.1691	Adder	3.73
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	3.1691	Adder	3.73
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	3.1691	Adder	3.73
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	3.1691	Adder	3.73
275149	KELLYCK ;1E	10.6862	Adder	12.57
276167	Z1-106 E2	0.7222	Adder	0.85
276168	Z1-106 E1	0.7222	Adder	0.85
276169	Z1-107 E	1.4737	Adder	1.73
276170	Z1-108 E	1.4226	Adder	1.67
276591	L-013 2	2.0943	Adder	2.46
290021	O50 E	11.3900	Adder	13.4
293061	N-015 E	8.8240	Adder	10.38
293644	O22 E1	6.3097	Adder	7.42
293645	O22 E2	12.2482	Adder	14.41
293799	PILOT HIL;1E	10.6862	Adder	12.57
294392	P-010 E	11.2065	Adder	13.18
910542	X3-005 E	0.4480	Adder	0.53

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
915011	Y3-013 1	2.1430	Adder	2.52
915021	Y3-013 2	2.1430	Adder	2.52
915031	Y3-013 3	2.1430	Adder	2.52
918052	AA1-018 E OP	9.2866	Adder	10.93
926331	AC1-110 1	1.0873	Adder	1.28
926341	AC1-110 2	1.0873	Adder	1.28
927451	AC1-142A 1	2.4317	Adder	2.86
927461	AC1-142A 2	2.4325	Adder	2.86
930501	AB1-091 CT	23.6011	Adder	27.77
930502	AB1-091 ST	18.7638	Adder	22.08
930771	AB1-122 CT2	42.8585	Adder	50.42
933411	AC2-154 C	1.4503	Adder	1.71
933412	AC2-154 E	2.3662	Adder	2.78
933431	AC2-156 C O1	0.5460	Adder	0.64
933432	AC2-156 E O1	0.8908	Adder	1.05
934111	AD1-039 2	4.2001	Adder	4.94
934721	AD1-100 C	11.1409	Adder	13.11
934722	AD1-100 E	51.9911	Adder	61.17
934871	AD1-116 C	0.5408	Adder	0.64
934872	AD1-116 E	0.8824	Adder	1.04
936291	AD2-038 C O1	1.3719	Adder	1.61
936292	AD2-038 E O1	9.1813	Adder	10.8
936371	AD2-047 C O1	2.5952	Adder	3.05
936372	AD2-047 E O1	12.6708	Adder	14.91
936461	AD2-060	1.5266	Adder	1.8
937401	AD2-194 1	4.4916	Adder	5.28
937411	AD2-194 2	4.4957	Adder	5.29
938511	AE1-070 1	5.2824	Adder	6.21
938521	AE1-070 2	4.8284	Adder	5.68
938851	AE1-113 C O1	4.6984	Adder	5.53
938852	AE1-113 E O1	16.6579	Adder	19.6
939321	AE1-163 C O1	3.4474	Adder	4.06
939322	AE1-163 E O1	21.1767	Adder	24.91
939351	AE1-166 C O1	3.1203	Adder	6.93
939352	AE1-166 E O1	2.8803	Adder	6.39
939631	AE1-193 C	10.9999	50/50	10.9999
939632	AE1-193 E	73.6150	50/50	73.6150
939641	AE1-194 C	10.9999	50/50	10.9999
939642	AE1-194 E	73.6150	50/50	73.6150
939651	AE1-195 C	10.9999	50/50	10.9999
939652	AE1-195 E	73.6150	50/50	73.6150
939681	AE1-198 C	32.6614	50/50	32.6614
939682	AE1-198 E	27.7537	50/50	27.7537
940752	AE2-062 E	0.0395	Adder	0.09
941551	AE2-152 C O1	3.6004	Adder	7.99
941552	AE2-152 E O1	2.4003	Adder	5.33
941561	AE2-153 C O1	2.7111	Adder	3.19
941562	AE2-153 E O1	12.6926	Adder	14.93
942421	AE2-255 C O1	1.7797	Adder	2.09
942422	AE2-255 E O1	5.3391	Adder	6.28
942651	AE2-281 C O1	0.4925	Adder	0.58
942652	AE2-281 E O1	3.0252	Adder	3.56

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943121	AE2-341 C	7.2837	Adder	8.57
943122	AE2-341 E	3.5767	Adder	4.21
943591	AF1-030 C O1	4.8438	Adder	5.7
943592	AF1-030 E O1	2.3965	Adder	2.82
944041	AF1-072	1.2316	Adder	1.45
944911	AF1-156 C	6.9317	Adder	8.15
944912	AF1-156 E	4.6211	Adder	5.44
945351	AF1-200 FTIR	176.4345	Merchant Transmission	176.4345
957331	AF2-027 C	1.4287	Adder	1.68
957332	AF2-027 E	2.1430	Adder	2.52
957371	AF2-031 C O1	0.6470	Adder	0.76
957372	AF2-031 E O1	0.9705	Adder	1.14
957401	AF2-034 C	0.8188	Adder	0.96
957402	AF2-034 E	0.6975	Adder	0.82
958011	AF2-095 C O1	10.3809	Adder	12.21
958012	AF2-095 E O1	4.8851	Adder	5.75
958021	AF2-096 C	20.2575	Adder	23.83
958022	AF2-096 E	9.5329	Adder	11.22
958481	AF2-142 C	6.4046	Adder	7.53
958482	AF2-142 E	4.2697	Adder	5.02
958491	AF2-143 C	6.3319	Adder	7.45
958492	AF2-143 E	4.2213	Adder	4.97
959351	AF2-226 C	1.5465	Adder	1.82
959352	AF2-226 E	2.3197	Adder	2.73
960281	AF2-319 C	1.5465	Adder	1.82
960282	AF2-319 E	2.3197	Adder	2.73
960381	AF2-329	3.7794	Adder	4.45
960591	AF2-350 C O1	4.5798	Adder	5.39
960592	AF2-350 E O1	3.0532	Adder	3.59
960601	AF2-351 C O1	0.6106	Adder	0.72
960602	AF2-351 E O1	0.9160	Adder	1.08
960731	AF2-364 C O1	3.5113	Adder	4.13
960732	AF2-364 E O1	2.3408	Adder	2.75
961501	AF2-441 C O1	6.3845	Adder	7.51
961502	AF2-441 E O1	9.5768	Adder	11.27
962691	AG1-118 C O2	6.7232	Adder	14.92
962692	AG1-118 E O2	4.4821	Adder	9.95
962701	AG1-119 C O2	6.8537	Adder	15.21
962702	AG1-119 E O2	4.5692	Adder	10.14
962711	AG1-120 C O2	2.7095	Adder	6.01
962712	AG1-120 E O2	1.8063	Adder	4.01
964361	AG1-298 O2	21.0654	Adder	46.76
965141	AG1-379 C	5.1765	Adder	11.49
965142	AG1-379 E	2.3694	Adder	5.26
966081	AG1-477 C	0.6033	Adder	1.34
966082	AG1-477 E	0.1518	Adder	0.34
966091	AG1-478 C	0.6283	Adder	1.39
966092	AG1-478 E	0.1581	Adder	0.35
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.6033	Adder	1.34
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.1518	Adder	0.34
966441	AG1-513 C	0.1539	Adder	0.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966442	AG1-513 E	0.2308	Adder	0.51
966651	AG1-535 O2	3.2529	Adder	7.22
WEC	WEC	2.5197	Confirmed LTF	2.5197
CBM-W2	CBM-W2	14.1568	Confirmed LTF	14.1568
NY	NY	0.6885	Confirmed LTF	0.6885
TVA	TVA	1.0934	Confirmed LTF	1.0934
O-066	O-066	8.1971	Confirmed LTF	8.1971
SIGE	SIGE	0.1256	Confirmed LTF	0.1256
CBM-S1	CBM-S1	0.2018	Confirmed LTF	0.2018
G-007	G-007	1.2768	Confirmed LTF	1.2768
HAMLET	HAMLET	0.2876	Confirmed LTF	0.2876
MEC	MEC	8.8682	Confirmed LTF	8.8682
GIBSON	GIBSON	0.0104	Confirmed LTF	0.0104
BLUEG	BLUEG	1.1076	Confirmed LTF	1.1076
TRIMBLE	TRIMBLE	0.3812	Confirmed LTF	0.3812
LAGN	LAGN	2.7633	Confirmed LTF	2.7633
CATAWBA	CATAWBA	0.1428	Confirmed LTF	0.1428
CBM-W1	CBM-W1	50.2337	Confirmed LTF	50.2337

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
168446799	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	COMED_P1-2_765-L11215__-S	single	1409.0	177.54	177.61	DC	92.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	2.6616	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	1.4271	80/20	1.4271
274800	UNIV PARK;3U	1.4165	80/20	1.4165
274801	UNIV PARK;4U	1.4165	80/20	1.4165
274826	FSK ;BP	2.6662	80/20	2.6662
274827	FSK ;RP	1.8895	80/20	1.8895
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	19.0960	Adder	22.47
924473	AB2-096 CT2	19.0960	Adder	22.47
924474	AB2-096 CT3	19.0960	Adder	22.47
926331	AC1-110 1	1.9057	Adder	2.24

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
926341	AC1-110 2	1.9057	Adder	2.24
927451	AC1-142A 1	4.2296	Adder	4.98
927461	AC1-142A 2	4.2299	Adder	4.98
930482	AB1-089 CT	36.7038	Adder	43.18
930483	AB1-089 ST	29.1810	Adder	34.33
930501	AB1-091 CT	43.0585	Adder	50.66
930502	AB1-091 ST	34.2332	Adder	40.27
930761	AB1-122 CT1	69.1288	Adder	81.33
930771	AB1-122 CT2	74.4513	Adder	87.59
933411	AC2-154 C	2.6517	Adder	3.12
933431	AC2-156 C O1	0.9589	Adder	1.13
933911	AD1-013 C	1.8649	Adder	2.19
933931	AD1-016 C	0.9290	Adder	1.09
934101	AD1-039 1	6.7746	Adder	7.97
934111	AD1-039 2	7.2962	Adder	8.58
934701	AD1-098 C O1	6.9573	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	0.9050	Adder	1.06
936291	AD2-038 C O1	2.4422	Adder	2.87
936371	AD2-047 C O1	4.7451	Adder	5.58
936461	AD2-060	2.7912	Adder	3.28
936511	AD2-066 C O1	8.4936	Adder	9.99
937001	AD2-134 C	2.7638	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	6.6055	Adder	7.77
941551	AE2-152 C O1	6.3133	Adder	14.01
941561	AE2-153 C O1	4.7588	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	8.1957	Adder	9.64
943121	AE2-341 C	12.7940	Adder	15.05
943591	AF1-030 C O1	8.5081	Adder	10.01
943801	AF1-048 C	3.8312	Adder	4.51
944041	AF1-072	2.1576	Adder	2.54
944911	AF1-156 C	12.1673	Adder	14.31
945351	AF1-200 FTIR	309.5845	Merchant Transmission	309.5845
946661	AF1-330 C	2.0071	Adder	2.36
946671	AF1-331	2.4220	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

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957471	AF2-041 C	21.5057	Adder	25.3
958011	AF2-095 C O1	18.9815	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	6.6386	Adder	7.81
960581	AF2-349 C	21.8102	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	5.9187	Adder	6.96
960731	AF2-364 C O1	6.1532	Adder	7.24
960751	AF2-366 C	6.9903	Adder	8.22
961501	AF2-441 C O1	15.1784	80/20	15.1784
962691	AG1-118 C O2	11.8018	Adder	26.2
962701	AG1-119 C O2	12.0070	Adder	26.65
962711	AG1-120 C O2	4.7468	Adder	10.54
962781	AG1-127 C O2	4.1030	Adder	9.11
962791	AG1-128 C O2	3.3135	Adder	7.36
963681	AG1-220 C O2	5.7339	Adder	12.73
964361	AG1-298 O2	92.8000	80/20	92.8000
964461	AG1-309 FTIR	268.7046	Merchant Transmission	268.7046
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 O2	7.7403	Adder	17.18
965661	AG1-434 C O2	2.2516	Adder	5.0
966081	AG1-477 C	1.0615	Adder	2.36
966091	AG1-478 C	1.1216	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 O2	5.7010	Adder	12.65
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	15.8010	Confirmed LTF	15.8010
BLUEG	BLUEG	1.5641	Confirmed LTF	1.5641
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

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
174248742	270728	E FRANKFO; B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_020-45-BT7-11_	breaker	1917.0	116.5	117.57	DC	40.18

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274654	BRAIDWOOD;1U	57.1029	50/50	57.1029
274751	CRETE EC ;1U	4.9314	50/50	4.9314
274752	CRETE EC ;2U	4.9314	50/50	4.9314
274753	CRETE EC ;3U	4.9314	50/50	4.9314
274754	CRETE EC ;4U	4.9314	50/50	4.9314
276165	Z1-106 BAT2	0.6649	Merchant Transmission	0.6649
276166	Z1-106 BAT1	0.6650	Merchant Transmission	0.6650
276171	Z1-107 BAT	1.4950	Merchant Transmission	1.4950
276172	Z1-108 BAT	1.4362	Merchant Transmission	1.4362
276591	L-013 2	-1.6390	Adder	-1.93
920273	AA2-123 BAT	1.3922	Merchant Transmission	1.3922
939631	AE1-193 C	27.0173	50/50	27.0173
939632	AE1-193 E	180.8078	50/50	180.8078
939641	AE1-194 C	27.0173	50/50	27.0173
939642	AE1-194 E	180.8078	50/50	180.8078
939651	AE1-195 C	27.0173	50/50	27.0173
939652	AE1-195 E	180.8078	50/50	180.8078
939681	AE1-198 C	80.2205	50/50	80.2205
939682	AE1-198 E	68.1666	50/50	68.1666
943803	AF1-048 BAT	3.6274	Merchant Transmission	3.6274
943922	AF1-060 BAT	0.6804	Merchant Transmission	0.6804
946163	AF1-281 BAT	1.2774	Merchant Transmission	1.2774
953871	J847	10.2825	PJM External (MISO)	10.2825
955741	J1058	60.0300	PJM External (MISO)	60.0300
957333	AF2-027 BAT	3.9565	Merchant Transmission	3.9565
957403	AF2-034 BAT	2.1782	50/50	2.1782
958021	AF2-096 C	84.6778	50/50	84.6778
958022	AF2-096 E	39.8484	50/50	39.8484
958923	AF2-183 BAT	5.1096	Merchant Transmission	5.1096
959353	AF2-226 BAT	7.0840	50/50	7.0840
960283	AF2-319 BAT	7.0840	50/50	7.0840
961503	AF2-441 BAT	13.5860	Merchant Transmission	13.5860
964362	AG1-298 BAT	21.2954	Merchant Transmission	21.2954
964462	AG1-309 NFTW	139.6920	Merchant Transmission	139.6920
965062	AG1-371 BAT	2.5460	Merchant Transmission	2.5460
965072	AG1-372 BAT	1.6973	Merchant Transmission	1.6973
965082	AG1-373 BAT	0.8487	Merchant Transmission	0.8487
966093	AG1-478 BAT	0.4132	Merchant Transmission	0.4132
966443	AG1-513 BAT	0.3413	Merchant Transmission	0.3413
966523	AG1-521 BAT	1.6666	Merchant Transmission	1.6666
966652	AG1-535 BAT	3.0080	Merchant Transmission	3.0080

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LGEE	LGEE	0.0540	Confirmed LTF	0.0540
G-007A	G-007A	1.1244	Confirmed LTF	1.1244
VFT	VFT	3.0315	Confirmed LTF	3.0315
CALDERWOOD	CALDERWOOD	0.2550	Confirmed LTF	0.2550
PRAIRIE	PRAIRIE	6.2612	Confirmed LTF	6.2612
CHEOAH	CHEOAH	0.2518	Confirmed LTF	0.2518
CBM-N	CBM-N	0.5652	Confirmed LTF	0.5652
COTTONWOOD	COTTONWOOD	3.6162	Confirmed LTF	3.6162
HAMLET	HAMLET	0.0485	Confirmed LTF	0.0485
GIBSON	GIBSON	0.1458	Confirmed LTF	0.1458
CATAWBA	CATAWBA	0.0532	Confirmed LTF	0.0532

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
162141026	270736	ELWOOD ; B	CE	270770	GOODINGS ; 4B	CE	1	COMED_P2-2_116_GG-345R__2	bus	1528.0	123.5	124.62	DC	31.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	105.3416	Adder	123.93
274659	DRESDEN ;3U	96.2277	Adder	113.21
274728	ELWOOD EC;5P	7.5393	50/50	7.5393
274730	ELWOOD EC;6P	7.5393	50/50	7.5393
274732	ELWOOD EC;7P	7.5393	50/50	7.5393
274733	ELWOOD EC;3P	7.4849	50/50	7.4849
274734	ELWOOD EC;8P	7.5393	50/50	7.5393
274735	ELWOOD EC;4P	7.4849	50/50	7.4849
274736	ELWOOD EC;9P	7.5393	50/50	7.5393
290021	O50 E	13.8720	Adder	16.32
293771	O-035 E	2.5703	Adder	3.02
294401	BSHIL;1U E	3.4333	Adder	4.04
294410	BSHIL;2U E	3.4333	Adder	4.04
916211	Z1-072 E	1.9451	Adder	2.29
918052	AA1-018 E OP	8.1352	Adder	9.57
925581	AC1-033 C	0.5622	Adder	0.66
925582	AC1-033 E	3.7638	Adder	4.43
926841	AC1-171 C O1	0.5359	Adder	0.63
926842	AC1-171 E O1	3.5796	Adder	4.21
927091	AC1-204 GEN1	27.8413	50/50	27.8413
927093	AC1-204 GEN2	28.0438	50/50	28.0438
927202	AC1-214 E O1	2.6224	Adder	3.09
930761	AB1-122 CT1	51.4849	Adder	60.57
930771	AB1-122 CT2	66.5238	Adder	78.26
934051	AD1-031 C O1	1.1411	Adder	1.34
934052	AD1-031 E O1	1.8618	Adder	2.19
934101	AD1-039 1	5.0455	Adder	5.94
934111	AD1-039 2	6.5193	Adder	7.67
934871	AD1-116 C	0.4738	Adder	0.56
934872	AD1-116 E	0.7730	Adder	0.91
935001	AD1-133 C O1	13.1825	Adder	15.51
935002	AD1-133 E O1	8.7883	Adder	10.34
936291	AD2-038 C O1	1.2224	Adder	1.44
936292	AD2-038 E O1	8.1807	Adder	9.62
936511	AD2-066 C O1	4.3861	Adder	5.16
936512	AD2-066 E O1	2.9241	Adder	3.44
937401	AD2-194 1	16.1303	Adder	18.98
937411	AD2-194 2	19.1148	50/50	19.1148
938511	AE1-070 1	22.4599	50/50	22.4599
938521	AE1-070 2	17.3401	Adder	20.4
938851	AE1-113 C O1	5.7222	Adder	6.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938852	AE1-113 E O1	20.2878	Adder	23.87
939321	AE1-163 C O1	3.0717	Adder	3.61
939322	AE1-163 E O1	18.8689	Adder	22.2
939683	AE1-198 BAT	6.5655	Merchant Transmission	6.5655
942421	AE2-255 C O1	2.1675	Adder	2.55
942422	AE2-255 E O1	6.5025	Adder	7.65
942651	AE2-281 C O1	0.4388	Adder	0.52
942652	AE2-281 E O1	2.6956	Adder	3.17
946541	AF1-318 C O1	2.3295	Adder	2.74
946542	AF1-318 E O1	10.9062	Adder	12.83
954981	J974 C	2.5604	PJM External (MISO)	2.5604
954982	J974 E	13.8521	PJM External (MISO)	13.8521
957373	AF2-031 BAT	1.1230	Merchant Transmission	1.1230
957401	AF2-034 C	0.6912	Adder	0.81
957402	AF2-034 E	0.5888	Adder	0.69
957751	AF2-069 C	0.0955	Adder	0.11
957752	AF2-069 E	0.3083	Adder	0.36
957761	AF2-070 C	0.1346	Adder	0.16
957762	AF2-070 E	0.6534	Adder	0.77
958341	AF2-128 C O1	0.6195	Adder	0.73
958342	AF2-128 E O1	2.9005	Adder	3.41
958481	AF2-142 C	5.6105	Adder	6.6
958482	AF2-142 E	3.7403	Adder	4.4
958491	AF2-143 C	5.6419	Adder	6.64
958492	AF2-143 E	3.7613	Adder	4.43
961503	AF2-441 BAT	11.6080	Merchant Transmission	11.6080
961651	AG1-005 C O1	3.5119	Adder	7.8
961652	AG1-005 E O1	2.3412	Adder	5.2
962721	AG1-121 C O2	1.1943	Adder	2.65
962722	AG1-121 E O2	5.5872	Adder	12.4
964362	AG1-298 BAT	16.8752	Merchant Transmission	16.8752
965141	AG1-379 C	6.3045	Adder	13.99
965142	AG1-379 E	2.8857	Adder	6.41
965671	AG1-435 C O2	0.8100	Adder	1.8
965672	AG1-435 E O2	3.7923	Adder	8.42
966081	AG1-477 C	0.4586	Adder	1.02
966082	AG1-477 E	0.1154	Adder	0.26
966091	AG1-478 C	0.3958	Adder	0.88
966092	AG1-478 E	0.0996	Adder	0.22
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.4586	Adder	1.02
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.1154	Adder	0.26
990901	L-005 E	5.5588	Adder	6.54
WEC	WEC	0.5245	Confirmed LTF	0.5245
CBM-W2	CBM-W2	8.9510	Confirmed LTF	8.9510
NY	NY	0.3661	Confirmed LTF	0.3661
TVA	TVA	0.7098	Confirmed LTF	0.7098
O-066	O-066	4.3476	Confirmed LTF	4.3476
SIGE	SIGE	0.0707	Confirmed LTF	0.0707
CBM-S1	CBM-S1	0.1364	Confirmed LTF	0.1364
G-007	G-007	0.6773	Confirmed LTF	0.6773
HAMLET	HAMLET	0.1346	Confirmed LTF	0.1346

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MEC	MEC	4.4921	Confirmed LTF	4.4921
BLUEG	BLUEG	0.5729	Confirmed LTF	0.5729
TRIMBLE	TRIMBLE	0.1987	Confirmed LTF	0.1987
LAGN	LAGN	1.6327	Confirmed LTF	1.6327
CATAWBA	CATAWBA	0.0637	Confirmed LTF	0.0637
CBM-W1	CBM-W1	11.6787	Confirmed LTF	11.6787

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
174248736	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P4_116-45-L11613_	breaker	1528.0	123.6	124.61	DC	28.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
274658	DRESDEN ;2U	120.3772	Adder	141.62
274659	DRESDEN ;3U	99.4095	Adder	116.95
274729	ELWOOD EC;1P	7.7367	50/50	7.7367
274731	ELWOOD EC;2P	7.7367	50/50	7.7367
274732	ELWOOD EC;7P	7.6901	50/50	7.6901
274733	ELWOOD EC;3P	7.7367	50/50	7.7367
274734	ELWOOD EC;8P	7.6901	50/50	7.6901
274735	ELWOOD EC;4P	7.7367	50/50	7.7367
274736	ELWOOD EC;9P	7.6901	50/50	7.6901
290021	O50 E	15.7243	Adder	18.5
293644	O22 E1	5.6723	Adder	6.67
293645	O22 E2	11.0109	Adder	12.95
293771	O-035 E	2.8587	Adder	3.36
294401	BSHIL;1U E	3.8406	Adder	4.52
294410	BSHIL;2U E	3.8406	Adder	4.52
916211	Z1-072 E	2.1633	Adder	2.55
925581	AC1-033 C	0.6289	Adder	0.74
925582	AC1-033 E	4.2103	Adder	4.95
926841	AC1-171 C O1	0.5835	Adder	0.69
926842	AC1-171 E O1	3.8977	Adder	4.59
927091	AC1-204 GEN1	28.7779	50/50	28.7779
927093	AC1-204 GEN2	28.6045	50/50	28.6045
927202	AC1-214 E O1	2.9166	Adder	3.43
930761	AB1-122 CT1	54.1388	Adder	63.69
930771	AB1-122 CT2	76.0006	Adder	89.41
934051	AD1-031 C O1	1.2768	Adder	1.5
934052	AD1-031 E O1	2.0832	Adder	2.45
934101	AD1-039 1	5.3056	Adder	6.24
934111	AD1-039 2	7.4481	Adder	8.76
935001	AD1-133 C O1	13.6002	Adder	16.0
935002	AD1-133 E O1	9.0668	Adder	10.67
936511	AD2-066 C O1	4.8227	Adder	5.67
936512	AD2-066 E O1	3.2151	Adder	3.78
937401	AD2-194 1	19.6152	50/50	19.6152
937411	AD2-194 2	16.5725	Adder	19.5
938511	AE1-070 1	19.4726	Adder	22.91
938521	AE1-070 2	21.0863	50/50	21.0863
938851	AE1-113 C O1	6.4863	Adder	7.63
938852	AE1-113 E O1	22.9968	Adder	27.06
942421	AE2-255 C O1	2.4569	Adder	2.89
942422	AE2-255 E O1	7.3708	Adder	8.67
946541	AF1-318 C O1	2.5705	Adder	3.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946542	AF1-318 E O1	12.0345	Adder	14.16
954981	J974 C	2.6867	PJM External (MISO)	2.6867
954982	J974 E	14.5358	PJM External (MISO)	14.5358
957401	AF2-034 C	0.9967	Adder	1.17
957402	AF2-034 E	0.8490	Adder	1.0
957751	AF2-069 C	0.1062	Adder	0.12
957752	AF2-069 E	0.3428	Adder	0.4
957761	AF2-070 C	0.1497	Adder	0.18
957762	AF2-070 E	0.7267	Adder	0.85
958341	AF2-128 C O1	0.6824	Adder	0.8
958342	AF2-128 E O1	3.1950	Adder	3.76
959351	AF2-226 C	1.3903	Adder	1.64
959352	AF2-226 E	2.0854	Adder	2.45
960281	AF2-319 C	1.3903	Adder	1.64
960282	AF2-319 E	2.0854	Adder	2.45
961651	AG1-005 C O1	3.8734	Adder	8.6
961652	AG1-005 E O1	2.5823	Adder	5.73
962721	AG1-121 C O2	1.3283	Adder	2.95
962722	AG1-121 E O2	6.2140	Adder	13.79
964362	AG1-298 BAT	15.2613	Merchant Transmission	15.2613
965141	AG1-379 C	7.1463	Adder	15.86
965142	AG1-379 E	3.2711	Adder	7.26
965671	AG1-435 C O2	0.9009	Adder	2.0
965672	AG1-435 E O2	4.2177	Adder	9.36
966081	AG1-477 C	0.4911	Adder	1.09
966082	AG1-477 E	0.1235	Adder	0.27
966091	AG1-478 C	0.4261	Adder	0.95
966092	AG1-478 E	0.1072	Adder	0.24
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.4911	Adder	1.09
966102	AG1-479 E (Withdrawn : 12/03/2020)	0.1235	Adder	0.27
966433	AG1-512 BAT	1.8281	Merchant Transmission	1.8281
990901	L-005 E	6.1785	Adder	7.27
WEC	WEC	0.8266	Confirmed LTF	0.8266
CBM-W2	CBM-W2	10.0979	Confirmed LTF	10.0979
NY	NY	0.4037	Confirmed LTF	0.4037
TVA	TVA	0.8162	Confirmed LTF	0.8162
O-066	O-066	4.7985	Confirmed LTF	4.7985
SIGE	SIGE	0.0774	Confirmed LTF	0.0774
CBM-S1	CBM-S1	0.1581	Confirmed LTF	0.1581
G-007	G-007	0.7476	Confirmed LTF	0.7476
HAMLET	HAMLET	0.1432	Confirmed LTF	0.1432
MEC	MEC	5.3661	Confirmed LTF	5.3661
BLUEG	BLUEG	0.6388	Confirmed LTF	0.6388
TRIMBLE	TRIMBLE	0.2215	Confirmed LTF	0.2215
LAGN	LAGN	1.8900	Confirmed LTF	1.8900
CATAWBA	CATAWBA	0.0668	Confirmed LTF	0.0668
CBM-W1	CBM-W1	17.0623	Confirmed LTF	17.0623

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
168446990	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	COMED_P1-2_765-L11215__-S	single	971.0	102.61	103.56	DC	46.74

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
272364	ESS H440N ;R	1.5166	Adder	1.78
274658	DRESDEN ;2U	67.3996	Adder	79.29
274659	DRESDEN ;3U	63.0101	Adder	74.13
274723	RIVER EC ;12	2.5002	80/20	2.5002
274724	RIVER EC ;11	2.4311	80/20	2.4311
274751	CRETE EC ;1U	2.0076	80/20	2.0076
274752	CRETE EC ;2U	2.0076	80/20	2.0076
274753	CRETE EC ;3U	2.0076	80/20	2.0076
274754	CRETE EC ;4U	2.0076	80/20	2.0076
274788	SE CHICAG;5U (Deactivation : 01/06/2020)	3.6119	80/20	3.6119
274789	SE CHICAG;6U (Deactivation : 01/06/2020)	3.6214	80/20	3.6214
274790	SE CHICAG;7U (Deactivation : 01/06/2020)	3.6690	80/20	3.6690
274791	SE CHICAG;8U (Deactivation : 01/06/2020)	3.6690	80/20	3.6690
274792	SE CHICAG;9U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274793	SE CHICAG;0U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274794	SE CHICAG;1U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274795	SE CHICAG;2U (Deactivation : 01/06/2020)	3.7272	80/20	3.7272
274826	FSK ;BP	1.4628	80/20	1.4628
274827	FSK ;RP	1.0367	80/20	1.0367
276164	X3-005 C	0.0505	80/20	0.0505
915011	Y3-013 1	2.1443	Adder	2.52
915021	Y3-013 2	2.1443	Adder	2.52
915031	Y3-013 3	2.1443	Adder	2.52
924472	AB2-096 CT1	10.8936	Adder	12.82
924473	AB2-096 CT2	10.8936	Adder	12.82
924474	AB2-096 CT3	10.8936	Adder	12.82
926331	AC1-110 1	1.0882	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
926341	AC1-110 2	1.0882	Adder	1.28
927451	AC1-142A 1	2.4325	Adder	2.86
927461	AC1-142A 2	2.4333	Adder	2.86
930482	AB1-089 CT	20.9264	Adder	24.62
930483	AB1-089 ST	16.6373	Adder	19.57
930501	AB1-091 CT	23.5933	Adder	27.76
930502	AB1-091 ST	18.7576	Adder	22.07
930761	AB1-122 CT1	39.3395	Adder	46.28
930771	AB1-122 CT2	42.8731	Adder	50.44
933411	AC2-154 C	1.4499	Adder	1.71
933431	AC2-156 C O1	0.5465	Adder	0.64
933911	AD1-013 C	1.0626	Adder	1.25
933931	AD1-016 C	0.5302	Adder	0.62
934101	AD1-039 1	3.8553	Adder	4.54
934111	AD1-039 2	4.2016	Adder	4.94
934701	AD1-098 C O1	3.9633	Adder	4.66
934721	AD1-100 C	11.1333	Adder	13.1
934871	AD1-116 C	0.5410	Adder	0.64
934971	AD1-129 C	0.5162	Adder	0.61
936291	AD2-038 C O1	1.3722	Adder	1.61
936371	AD2-047 C O1	2.5946	Adder	3.05
936461	AD2-060	1.5263	Adder	1.8
936511	AD2-066 C O1	4.8180	Adder	5.67
937001	AD2-134 C	1.5745	Adder	1.85
937401	AD2-194 1	4.4931	Adder	5.29
937411	AD2-194 2	4.4972	Adder	5.29
938511	AE1-070 1	5.2842	Adder	6.22
938521	AE1-070 2	4.8301	Adder	5.68
938851	AE1-113 C O1	4.7001	Adder	5.53
939321	AE1-163 C O1	3.4482	Adder	4.06
939351	AE1-166 C O1	3.1189	Adder	6.92
939631	AE1-193 C	10.9987	80/20	10.9987
939641	AE1-194 C	10.9987	80/20	10.9987
939651	AE1-195 C	10.9987	80/20	10.9987
939681	AE1-198 C	32.6575	80/20	32.6575
941131	AE2-107 C	3.7647	Adder	4.43
941551	AE2-152 C O1	3.5988	Adder	7.99
941561	AE2-153 C O1	2.7108	Adder	3.19
942421	AE2-255 C O1	1.7803	Adder	2.09
942651	AE2-281 C O1	0.4926	Adder	0.58
942991	AE2-321 C	4.6773	Adder	5.5
943121	AE2-341 C	7.2914	Adder	8.58
943591	AF1-030 C O1	4.8489	Adder	5.7
943801	AF1-048 C	2.1865	Adder	2.57
944041	AF1-072	1.2325	Adder	1.45
944911	AF1-156 C	6.9309	Adder	8.15
945351	AF1-200 FTIR	176.7398	Merchant Transmission	176.7398
946661	AF1-330 C	1.1454	Adder	1.35
946671	AF1-331	1.3801	Adder	1.62
957331	AF2-027 C	1.4295	Adder	1.68
957371	AF2-031 C O1	0.7610	80/20	0.7610
957401	AF2-034 C	0.8189	Adder	0.96

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957471	AF2-041 C	12.2630	Adder	14.43
958011	AF2-095 C O1	10.3786	Adder	12.21
958021	AF2-096 C	23.8298	80/20	23.8298
958481	AF2-142 C	6.4061	Adder	7.54
958491	AF2-143 C	6.3334	Adder	7.45
959081	AF2-199 C	4.0877	Adder	4.81
959091	AF2-200 C O1	8.1753	Adder	9.62
959351	AF2-226 C	1.5467	Adder	1.82
960281	AF2-319 C	1.5467	Adder	1.82
960381	AF2-329	3.7834	Adder	4.45
960581	AF2-349 C	12.4420	Adder	14.64
960591	AF2-350 C O1	4.5788	Adder	5.39
960601	AF2-351 C O1	0.6105	Adder	0.72
960721	AF2-363 C O1	3.3738	Adder	3.97
960731	AF2-364 C O1	3.5142	Adder	4.13
960751	AF2-366 C	3.9847	Adder	4.69
961501	AF2-441 C O1	7.5088	80/20	7.5088
962691	AG1-118 C O2	6.7288	Adder	14.94
962701	AG1-119 C O2	6.8594	Adder	15.23
962711	AG1-120 C O2	2.7118	Adder	6.02
962781	AG1-127 C O2	2.3389	Adder	5.19
962791	AG1-128 C O2	1.8876	Adder	4.19
963681	AG1-220 C O2	3.2687	Adder	7.26
964361	AG1-298 O2	46.7450	80/20	46.7450
964461	AG1-309 FTIR	143.3208	Merchant Transmission	143.3208
965061	AG1-371	1.0832	Adder	2.4
965071	AG1-372	0.7222	Adder	1.6
965081	AG1-373	0.3611	Adder	0.8
965141	AG1-379 C	5.1783	Adder	11.49
965551	AG1-423 C O2	4.4162	Adder	9.8
965661	AG1-434 C O2	1.2827	Adder	2.85
966081	AG1-477 C	0.6036	Adder	1.34
966091	AG1-478 C	0.6284	Adder	1.39
966101	AG1-479 C (Withdrawn : 12/03/2020)	0.6036	Adder	1.34
966441	AG1-513 C	0.1540	Adder	0.34
966651	AG1-535 O2	3.2556	Adder	7.23
WEC	WEC	2.5213	Confirmed LTF	2.5213
CBM-W2	CBM-W2	14.1568	Confirmed LTF	14.1568
NY	NY	0.6890	Confirmed LTF	0.6890
TVA	TVA	1.0934	Confirmed LTF	1.0934
SIGE	SIGE	0.1257	Confirmed LTF	0.1257
CBM-S1	CBM-S1	0.2018	Confirmed LTF	0.2018
HAMLET	HAMLET	0.2876	Confirmed LTF	0.2876
MEC	MEC	8.8730	Confirmed LTF	8.8730
GIBSON	GIBSON	0.0109	Confirmed LTF	0.0109
BLUEG	BLUEG	1.1093	Confirmed LTF	1.1093
TRIMBLE	TRIMBLE	0.3818	Confirmed LTF	0.3818
LAGN	LAGN	2.7633	Confirmed LTF	2.7633
CATAWBA	CATAWBA	0.1431	Confirmed LTF	0.1431
CBM-W1	CBM-W1	50.2617	Confirmed LTF	50.2617

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174436251	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.65	153.76	DC	78.03

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174436244	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	156.89	157.0	DC	79.68

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174436250	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	153.65	153.76	DC	78.03

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
174436245	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	156.89	157.0	DC	79.68

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

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

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

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

13.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
Base Case	
COMED_P1-2_345-L11622_R-S	CONTINGENCY 'COMED_P1-2_345-L11622_R-S' / 2188 OPEN BRANCH FROM BUS 270737 TO BUS 270769 CKT 1 / 270737 ELWOOD ; R 345 270769 GOODINGS ;2R 345 1 END
COMED_P4_116-45-L11613_	CONTINGENCY 'COMED_P4_116-45-L11613_' / 1064 OPEN BRANCH FROM BUS 270664 TO BUS 270666 CKT 1 / 270664 BLUE ISL ; B 345 270666 BLUE ISL ;BT 345 1 OPEN BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / 270666 BLUE ISL ;BT 345 270926 WILTON ; B 345 1 OPEN BRANCH FROM BUS 270666 TO BUS 270770 CKT 1 / 270666 BLUE ISL ;BT 345 270770 GOODINGS ;4B 345 1 OPEN BRANCH FROM BUS 270736 TO BUS 270770 CKT 1 / 270736 ELWOOD ; B 345 270770 GOODINGS ;4B 345 1 OPEN BRANCH FROM BUS 270766 TO BUS 270770 CKT 1 / 270766 GOODINGS ;3B 345 270770 GOODINGS ;4B 345 1 OPEN BRANCH FROM BUS 270770 TO BUS 270790 CKT 1 / 270770 GOODINGS ;4B 345 270790 KATYDID ; B 345 1 OPEN BRANCH FROM BUS 270770 TO BUS 270810 CKT 1 / 270770 GOODINGS ;4B 345 270810 LOCKPORT ; B 345 1 OPEN THREEWINDING AT BUS 270770 TO BUS 271564 TO BUS 275368 CKT 1/ END

Contingency Name	Contingency Definition
AEP_P1-2_#358_1684	CONTINGENCY 'AEP_P1-2_#358_1684' / 1854 OPEN BRANCH FROM BUS 243205 TO BUS 243206 CKT 1 / 243205 05COOK 765 243206 05DUMONT 765 1 END
COMED_P4_112-65-BT5-6__	CONTINGENCY 'COMED_P4_112-65-BT5-6__' / 2675 OPEN BRANCH FROM BUS 270607 TO BUS 270644 CKT 1 / 270607 COLLINS ; 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275233 CKT 1 / 270644 WILTON ; 765 275233 WILTON ;4M 345 1 OPEN BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / 275233 WILTON ;4M 345 270927 WILTON ; R 345 1 OPEN BRANCH FROM BUS 275333 TO BUS 275233 CKT 1 / 275333 WILTON ;4C 33.0 275233 WILTON ;4M 345 1 END
COMED_P4_020-45-BT7-11_	CONTINGENCY 'COMED_P4_020-45-BT7-11_' / 889 OPEN BRANCH FROM BUS 270670 TO BUS 270671 CKT 1 / 270670 BRAIDWOOD; B 345 270671 BRAIDWOOD; R 345 1 OPEN BRANCH FROM BUS 270670 TO BUS 934730 CKT 1 / 270670 BRAIDWOOD; B 345 934730 AD1-100 TAP 345 1 OPEN BRANCH FROM BUS 270671 TO BUS 941560 CKT 1 / 270671 BRAIDWOOD; R 345 941560 AE2-153 TAP 345 1 END
AEP_P7-1_#11087-A	CONTINGENCY 'AEP_P7-1_#11087-A' OPEN BRANCH FROM BUS 243218 TO BUS 945370 CKT 1 / 243218 05DESOTO 345 945370 AF1-202 TAP 345 1 OPEN BRANCH FROM BUS 243218 TO BUS 958860 CKT 2 / 243218 05DESOTO 345 958860 AF2-177 TAP 345 2 END
COMED_P4_112-65-BT2-3__	CONTINGENCY 'COMED_P4_112-65-BT2-3__' / 2653 OPEN BRANCH FROM BUS 270607 TO BUS 270644 CKT 1 / 270607 COLLINS ; 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275232 CKT 1 / 270644 WILTON ; 765 275232 WILTON ;3M 345 1 OPEN BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / 275232 WILTON ;3M 345 270926 WILTON ; B 345 1 OPEN BRANCH FROM BUS 275332 TO BUS 275232 CKT 1 / 275332 WILTON ;3C 33.0 275232 WILTON ;3M 345 1 END
COMED_P1-2_765-L11215__-S	CONTINGENCY 'COMED_P1-2_765-L11215__-S' / 2294 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 OPEN SHUNT FROM BUS 270644 CKT 1 /* 270644 WILTON ; 765 END

Contingency Name	Contingency Definition
AEP_P7-1_#11010	CONTINGENCY 'AEP_P7-1_#11010' OPEN BRANCH FROM BUS 242933 TO BUS 243211 CKT 1 / 242933 05RPMONE 345 243211 05ALLEN 345 1 OPEN BRANCH FROM BUS 243211 TO BUS 243232 CKT 1 / 243211 05ALLEN 345 243232 05SORENS 345 1 END
COMED_P2-2_116_GG-345R__2	CONTINGENCY 'COMED_P2-2_116_GG-345R__2' / CONTINGENCY # 118 DISCONNECT BUS 270769 / GOODINGS ;2R 345 END
AEP_P7-1_#11001	CONTINGENCY 'AEP_P7-1_#11001' OPEN BRANCH FROM BUS 243219 TO BUS 246955 CKT 1 / 243219 05DUMONT 345 246955 05OLIVE_BP 345 1 OPEN BRANCH FROM BUS 243228 TO BUS 243232 CKT 1 / 243228 05MERIDN 345 243232 05SORENS 345 1 OPEN BRANCH FROM BUS 243232 TO BUS 246955 CKT 1 / 243232 05SORENS 345 246955 05OLIVE_BP 345 1 END
AEP_P4_#7334_05JEFRSO 765_A2	CONTINGENCY 'AEP_P4_#7334_05JEFRSO 765_A2' / 2874 OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 OPEN BRANCH FROM BUS 243208 TO BUS 242865 CKT 2 / 243208 05JEFRSO 765 242865 05JEFRSO 345 2 OPEN BRANCH FROM BUS 242865 TO BUS 248000 CKT Z1 / 242865 05JEFRSO 345 248000 06CLIFTY 345 Z1 END
COMED_P4_112-65-BT3-4__	CONTINGENCY 'COMED_P4_112-65-BT3-4__' / 3130 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275232 CKT 1 / 270644 WILTON ; 765 275232 WILTON ;3M 345 1 OPEN BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / 275232 WILTON ;3M 345 270926 WILTON ; B 345 1 OPEN BRANCH FROM BUS 275332 TO BUS 275232 CKT 1 / 275332 WILTON ;3C 33.0 275232 WILTON ;3M 345 1 OPEN SHUNT FROM BUS 270644 CKT 1 /* 270644 WILTON ; 765 END
AEP_P1-2_#8810	CONTINGENCY 'AEP_P1-2_#8810' / 1330 OPEN BRANCH FROM BUS 243219 TO BUS 243918 CKT 1 / 243219 05DUMONT 345 243918 05ELDERBERRY 345 1 END

Contingency Name	Contingency Definition
AEP_P7-1_#11046	CONTINGENCY 'AEP_P7-1_#11046' OPEN BRANCH FROM BUS 243219 TO BUS 246955 CKT 1 / 243219 05DUMONT 345 246955 05OLIVE_BP 345 1 OPEN BRANCH FROM BUS 243228 TO BUS 243234 CKT 1 / 243228 05MERIDN 345 243234 05TWIN B 345 1 OPEN BRANCH FROM BUS 243232 TO BUS 246955 CKT 1 / 243232 05SORENS 345 246955 05OLIVE_BP 345 1 END
AEP_P1-2_#709_546	CONTINGENCY 'AEP_P1-2_#709_546' / 1848 OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 END
AEP_P4_#7443_05DUMONT 765_A	CONTINGENCY 'AEP_P4_#7443_05DUMONT 765_A' / 2220 OPEN BRANCH FROM BUS 243205 TO BUS 243206 CKT 1 / 243205 05COOK 765 243206 05DUMONT 765 1 OPEN BRANCH FROM BUS 243206 TO BUS 246999 CKT 1 / 243206 05DUMONT 765 246999 05SORENS 765 1 END
COMED_P2-2_116_GG-345R__1	CONTINGENCY 'COMED_P2-2_116_GG-345R__1' / CONTINGENCY # 117 TRIP BRANCH FROM BUS 270729 TO BUS 271385 TO BUS 275351 CKT 1 / E FRANKFO; R 345 E FRANKFO; R 138 E FRANKFO;3C 34.5 DISCONNECT BUS 270767 / GOODINGS ;1R 345 DISCONNECT BUS 275240 / GOODINGS ;1M 138 END
COMED_P2-2_116_GG-345B__4	CONTINGENCY 'COMED_P2-2_116_GG-345B__4' / CONTINGENCY # 116 DISCONNECT BUS 270770 / GOODINGS ;4B 345 END
COMED_P4_112-65-BT4-5__	CONTINGENCY 'COMED_P4_112-65-BT4-5__' / 2515 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 OPEN BRANCH FROM BUS 270644 TO BUS 275233 CKT 1 / 270644 WILTON ; 765 275233 WILTON ;4M 345 1 OPEN BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / 275233 WILTON ;4M 345 270927 WILTON ; R 345 1 OPEN BRANCH FROM BUS 275333 TO BUS 275233 CKT 1 / 275333 WILTON ;4C 33.0 275233 WILTON ;4M 345 1 OPEN SHUNT FROM BUS 270644 CKT 1 /* 270644 WILTON ; 765 END

14 Affected Systems

14.1 MISO

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

Attachment 1: One Line Diagram