



**Generation Interconnection
Feasibility Study Report
for
Queue Project AF1-296
GARDEN PLAIN 138 KV
37.3 MW Capacity / 212.1 MW Energy**

January, 2020

1 General

The Interconnection Customer (IC) has proposed a wind generating facility located in Whiteside County, Illinois. The installed facilities will have a total capability of 212.1 MW with 37.3 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is September 15, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF1-296
Project Name	GARDEN PLAIN 138 KV
State	Illinois
County	Whiteside
Transmission Owner	ComEd
MFO	212.1
MWE	212.1
MWC	37.3
Fuel	Wind
Basecase Study Year	2023

1.1 Primary Point of Interconnection

Queue Position AF1-296, a 212.1 MW wind-farm, proposes to interconnect with the ComEd transmission system by connecting to 138kV bus at TSS 132 Garden Plain.

1.2 Cost Summary

AF1-296 will be responsible for the following costs associated with the physical interconnection of the project:

Description	Total Cost
Attachment Facilities	\$1,000,000
Direct Connection Network Upgrade	\$12,000,000
Non Direct Connection Network Upgrades	\$0
Total Costs	\$13,000,000

In addition, the AF1-296 project may be responsible for a contribution to the following costs associated with network upgrades:

Description	Total Cost
System Upgrades	\$104,140,000

Cost allocations for these upgrades will be provided in the System Impact Study Report.

2 Transmission Owner Scope of Work

Attachment Facilities

The AF1-296 generator lead will interconnect to 138 kV bus at TSS 132 Garden Plain (see details in Direct Connection section below). The required Attachment Facilities are one 138 kV line MOD, one dead-end structure and one set of revenue-metering.

Direct Connection Network Upgrades

In order to accommodate interconnection of AF1-296, TSS 132 Garden Plain would need to be expanded to create a 138kV bus position

The scope of work includes installation of four 138 kV circuit breakers and reconfiguration of bus connections at TSS 132 Garden Plain, 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 install four 138 kV circuit breakers and reconfigure 138kV bus at TSS 132 Garden Plain. The preliminary cost estimate for Direct Connection Network Upgrade is given in the following tables.

Non-Direct Connection Cost Estimate

None

3 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Installation of one 138 kV line MOD, one dead-end structure and one set of revenue metering (see notes below on cost estimate)	\$1,000,000
Total Attachment Facility Costs	\$1,000,000

4 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Installation of four 138kV circuit breakers to reconfigure TSS 132 Garden Plain	\$12,000,000
Total Direct Connection Facility Costs	\$12,000,000

5 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
None	\$0
Total Non-Direct Connection Facility Costs	\$0

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.

6 Schedule

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

7 Transmission Owner Analysis

See Section 3

8 Interconnection Customer Requirements

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

To the extent that these Applicable Technical Requirements and Standards may conflict with the terms and conditions of the Tariff, the Tariff shall control.

ComEd distribution line drops to move customer cranes and heavy equipment is not part of PJM process. The customer should directly contact ComEd New Business Group to arrange for line drops, if needed.

9 Revenue Metering and SCADA 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 Network Impacts

The Queue Project AF1-296 was evaluated as a 212.1 MW (Capacity 37.3 MW) injection at the Garden Plain 138 kV substation in the ComEd area. Project AF1-296 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-296 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

11 Generation Deliverability

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

None

12 Multiple Facility Contingency

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

None

13 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
44487118	270678	BYRON ; B	345.0	CE	270694	CHERRY VA; B	345.0	CE	1	COMED_P4_006-45-BT7-8__	breaker	1441.0	117.21	118.03	DC	25.91
44487078	270694	CHERRY VA; B	345.0	CE	270759	GARDEN PR; R	345.0	CE	1	COMED_P4_144-45-BT6-8__	breaker	1479.0	115.69	116.38	DC	21.91
44487052	270770	GOODIN GS ;4B	345.0	CE	270766	GOODING S ;3B	345.0	CE	1	COMED_P4_076-45-BT4-5__	breaker	1802.0	119.77	120.28	DC	20.28
44487021	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	127.15	128.37	DC	50.41
44487022	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_937-45-BT1-2__	breaker	1656.0	121.48	122.0	DC	51.65
44487023	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_937-45-BT1-4__	breaker	1656.0	121.12	121.64	DC	51.66
44487142	270847	PLANO ; R	345.0	CE	275208	PLANO ;4M	345.0	CE	1	COMED_P4_167-45-BT8-9__	breaker	1379.0	110.84	111.28	DC	13.82
44487143	270847	PLANO ; R	345.0	CE	275208	PLANO ;4M	345.0	CE	1	COMED_P4_167-45-BT9-12__	breaker	1379.0	110.76	111.21	DC	13.82
44487145	275208	PLANO ;4M	345.0	CE	270630	PLANO ;	765.0	CE	1	COMED_P4_167-45-BT8-9__	breaker	1379.0	110.84	111.28	DC	13.82
44487146	275208	PLANO ;4M	345.0	CE	270630	PLANO ;	765.0	CE	1	COMED_P4_167-45-BT9-12__	breaker	1379.0	110.76	111.21	DC	13.82
44486970	943410	AF1-012 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	134.53	134.9	DC	50.41
43609445	956820	J1180 TAP	345.0	AMIL	247712	05SULLIVAN	345.0	AEP	1	AEP_P4_#3128_05EU GENE 345_A2	breaker	1466.0	175.44	175.71	DC	17.5

14 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
44487662	270694	CHERRY VA; B	345.0	CE	270759	GARDEN PR; R	345.0	CE	1	COMED_P1-2_345-L0626__B-R-B	operation	1479.0	115.53	116.21	DC	21.86
44487560	270700	CORDOVA ; B	345.0	CE	270828	NELSON ; B	345.0	CE	1	COMED_P1-2_345-L0404__-R	operation	2058.0	137.68	138.84	DC	23.85
44487796	270730	ELECT JCT; B	345.0	CE	270812	LOMBARD ; B	345.0	CE	1	Base Case	operation	1201.0	103.14	103.59	DC	12.09
44487584	270759	GARDEN PR; R	345.0	CE	270883	SILVER LK; R	345.0	CE	1	COMED_P1-2_345-L0626__B-R-B	operation	1479.0	121.16	121.83	DC	21.86
44487587	270759	GARDEN PR; R	345.0	CE	270883	SILVER LK; R	345.0	CE	1	Base Case	operation	1201.0	111.51	112.1	DC	15.69

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS LOADIN G %	POST PROJECTIONS LOADIN G %	AC DC	MW IMPACT
44487672	270770	GOODINGS;4B	345.0	CE	270766	GOODINGS;3B	345.0	CE	1	COMED_P1-2_345-L11613AB-S	operation	1802.0	119.04	119.55	DC	20.23
44487683	270828	NELSON;B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P1-2_345-L15501_B-R-B	operation	1656.0	121.09	121.61	DC	51.66
44487686	270828	NELSON;B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	Base Case	operation	1334.0	101.4	102.64	DC	37.43
44487770	270846	PLANO;B	345.0	CE	275207	PLANO;3M	345.0	CE	1	COMED_P1-3_TR94_PLANO_R-S	operation	1379.0	107.16	107.66	DC	17.65
44487559	270864	QUAD 13-11	345.0	CE	270890	ESS H471;	345.0	CE	1	COMED_P1-2_345-L15503_B-R	operation	2058.0	137.64	138.8	DC	24.04
44487562	270890	ESS H471;	345.0	CE	270828	NELSON;B	345.0	CE	1	COMED_P1-2_345-L15503_B-R	operation	2058.0	137.49	138.65	DC	24.04
44487851	271543	GARDEN PL;	138.0	CE	631033	ALBANY 6	138.0	ALT W	1	COMED_P2-1_132-L15518_A	operation	248.0	14.72	100.24	DC	212.1
44487852	271543	GARDEN PL;	138.0	CE	631033	ALBANY 6	138.0	ALT W	1	COMED_P1-2_138-L15518GB-R-A	operation	248.0	14.72	100.24	DC	212.1
44487806	274768	LEE COEC;BP	345.0	CE	270678	BYRON;B	345.0	CE	1	COMED_P1-2_345-L15502_B-R-B	operation	1726.0	103.28	104.75	DC	56.14
44487772	275207	PLANO;3M	345.0	CE	270630	PLANO;	765.0	CE	1	COMED_P1-3_TR94_PLANO_R-S	operation	1379.0	107.16	107.66	DC	17.65
44487833	631141	ROCK CK3	345.0	ALT W	270864	QUAD 13-11	345.0	CE	1	COMED_P2-1_132-L15518_A	operation	1195.0	97.89	105.39	DC	89.62
44487554	937530	AD2-214 TAP	138.0	CE	272512	ESS H71;BT	138.0	CE	1	COMED_P1-2_138-L13219_X-R	operation	182.0	20.05	136.59	DC	212.1
44487594	943410	AF1-012 TAP	345.0	CE	270730	ELECT JCT;B	345.0	CE	1	COMED_P1-2_345-L15501_B-R-A	operation	1656.0	131.23	131.61	DC	51.66
44487596	943410	AF1-012 TAP	345.0	CE	270730	ELECT JCT;B	345.0	CE	1	Base Case	operation	1334.0	116.95	118.16	DC	37.43
43609754	956820	J1180 TAP	345.0	AMIL	247712	05SULLIVAN	345.0	AEP	1	AEP_P1-2_#286	operation	1466.0	170.6	170.86	DC	17.7
43609755	956820	J1180 TAP	345.0	AMIL	247712	05SULLIVAN	345.0	AEP	1	Base Case	operation	1334.0	148.45	148.95	DC	14.77

15 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
43609445	8	J1180 TAP 345.0 kV - 05SULLIVAN 345.0 kV Ckt 1	<u>AEPI</u> AEPI0010a (2055) : Reconductor/rebuild 0.82 miles of ACAR ~ 1024.5 ~ 30/7 ~ RAIL1 conductor section 5 Project Type : FAC Cost : \$1,640,000 Time Estimate : 24 - 36 months Months AEPI0010b (2056) : Reconductor/rebuild 1 miles of ACAR ~ 1024.5 ~ 30/7 ~ RAIL1 conductor section 6 Project Type : FAC Cost : \$2,000,000 Time Estimate : 24 - 36 months Months AEPI0010c (2057) : Replace two sullivan 3000A Wavetrap Project Type : FAC Cost : \$400,000 Time Estimate : 12- 18 months Months AEPI0010d (2058) : Replace three 2-2000 AAC 91 Str Project Type : FAC Cost : \$300,000 Time Estimate : 12- 18 months Months AEPI0010e (2059) : Reconductor/rebuild 0.2 miles of ACAR ~ 1315.5 ~ 45/7 ~ DIPPER conductor sec 3, 1 Project Type : FAC Cost : \$400,000 Time Estimate : 24 - 36 months Months	\$4,740,000
44487142,44487143	5	PLANO ; R 345.0 kV - PLANO ;4M 345.0 kV Ckt 1	<u>CE</u> CE_NUN_TSS 167-345KV_BT 8-9 : ComEd Tr. 94 at TSS 167 Plano SSTE rating is 1469 MVA. The upgrade will be to install a new 345kV bus tie circuit breaker at TSS 167 Plano,BT CB 8-14 and relocate 345kV L0101 to newly designated 345kV Bus 14 on the Blue Bus. The purpose is to reduce the impact of the current contingency impact. There will not be a rating change. A preliminary estimate for the upgrade is \$10M with an estimated construction timeline of 30 months contingent upon line relocation issues. PJM to confirm this proposed solution. Project Type : CON Cost : \$10,000,000 Time Estimate : 30.0 Months <u>CE</u> CE_NUN_TSS 167-345KV_BT 10-12 : ComEd Tr. 94 at TSS 167 Plano SSTE rating is 1469 MVA. The contingency name should be BT 10-12 rather than BT 9-12.The upgrade will be to install a new 345kV bus tie circuit breaker at TSS 167 Plano,BT CB 9-10. The purpose is to reduce the impact of the current contingency impact. There will not be a rating change. A preliminary estimate for the upgrade is \$4M with an estimated construction timeline of 30 months contingent upon line relocation issues. PJM to confirm this proposed solution. Project Type : FAC Cost : \$4,000,000 Time Estimate : 30.0 Months	\$14,000,000

ID	Index	Facility	Upgrade Description	Cost
44487078	2	CHERRY VA; B 345.0 kV - GARDEN PR; R 345.0 kV Ckt 1	<u>CE</u> ce-017 (792) : L15616 SSTE rating is 1568 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to re-conductor a portion of the line, perform sag mitigation on another portion of the line and station conductor upgrade at a line terminal. A preliminary estimate for the upgrades is \$19.4M with a estimated construction time of 30 months. Upon completion the rating swill be 1248/1441/1667/1982 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$19,400,000 Time Estimate : 30.0 Months	\$19,400,000
44487052	3	GOODINGS ;4B 345.0 kV - GOODINGS ;3B 345.0 kV Ckt 1	<u>CE</u> CE_NUN_116BT3-4 (34) : ComEd 345kV BT3-4 at TSS 116 SSTE rating is 2083 MVA. The upgrade will be to replace the 345kV BT3-4 circuit breaker at TSS 116. A preliminary estimate for the upgrade is \$3M. A preliminary construction timeline id 24 months. Upon completion of the upgrade the ratings will be 1754/2246/2297/2488 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$3,000,000 Time Estimate : 24.0 Months	\$3,000,000
44486970	7	AF1-012 TAP 345.0 kV - ELECT JCT; B 345.0 kV Ckt 1	<u>CE</u> CE_NUN_15502 (56) : ComEd 345kV L15502 SSTE rating is 1837 MVA. The upgrade will be to re-conductor a portion of the line, 1-345kV circuit breaker and associated switches and upgrade of station conductor. A preliminary estimate for the upgrade is \$25.4M with an estimated construction timeline od 30 months. Upon completion of the upgrade the ratings will be 2293/2293/2293/2436 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$25,400,000 Time Estimate : 30.0 Months	\$25,400,000
44487118	1	BYRON ; B 345.0 kV - CHERRY VA; B 345.0 kV Ckt 1	<u>CE</u> CE_NUN_L0621 (71) : ComEd 345kV I0621 SSTE rating is 1585 MVA. The upgrade will be to mitigate sag on the line and replace a 345kV circuit breaker at Cherry Valley. A preliminary estimate for the upgrade is \$12.2 M with a estimated construction timeline of 24 months subject to outage coordination with Station 6 Byron Nuclear Station. Upon completion of the upgrade the ratings will be 1334/1726/1837/2084 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$12,200,000 Time Estimate : 24.0 Months	\$12,200,000

ID	Index	Facility	Upgrade Description	Cost
44487145,44487146	6	PLANO ;4M 345.0 kV - PLANO ; 765.0 kV Ckt 1	<u>CE</u> <u>CE</u> CE_NUN_TSS 167-345KV_BT 8-9 : ComEd Tr. 94 at TSS 167 Plano SSTE rating is 1469 MVA. The upgrade will be to install a new 345kV bus tie circuit breaker at TSS 167 Plano,BT CB 8-14 and relocate 345kV L0101 to newly designated 345kV Bus 14 on the Blue Bus. The purpose is to reduce the impact of the current contingency impact. There will not be a rating change. A preliminary estimate for the upgrade is \$10M with an estimated construction timeline of 30 months contingent upon line relocation issues. PJM to confirm this proposed solution. Project Type : CON Cost : \$10,000,000 Time Estimate : 30.0 Months CE_NUN_TSS 167-345KV_BT 10-12 : ComEd Tr. 94 at TSS 167 Plano SSTE rating is 1469 MVA. The contingency name should be BT 10-12 rather than BT 9-12.The upgrade will be to install a new 345kV bus tie circuit breaker at TSS 167 Plano,BT CB 9-10. The purpose is to reduce the impact of the current contingency impact. There will not be a rating change. A preliminary estimate for the upgrade is \$4M with an estimated construction timeline of 30 months contingent upon line relocation issues. PJM to confirm this proposed solution. Project Type : FAC Cost : \$4,000,000 Time Estimate : 30.0 Months	\$14,000,000
44487023,44487022, 44487021	4	NELSON ; B 345.0 kV - AF1-012 TAP 345.0 kV Ckt 1	<u>CE</u> CE_NUN_15502 (56) : ComEd 345kV L15502 SSTE rating is 1837 MVA. The upgrade will be to re-conductor a portion of the line, 1-345kV circuit breaker and associated switches and upgrade of station conductor. A preliminary estimate for the upgrade is \$25.4M with an estimated construction timeline of 30 months. Upon completion of the upgrade the ratings will be 2293/2293/2293/2436 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : \$25,400,000 Time Estimate : 30.0 Months	\$25,400,000
			TOTAL COST	\$104,140,000

16 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

16.1 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
44487118	270678	BYRON ; B	CE	270694	CHERRY VA; B	CE	1	COMED_P4_006-45-BT7-8	breaker	1441.0	117.21	118.03	DC	25.91

Bus #	Bus	MW Impact
274656	BYRON ;1U	81.1826
274760	LEE CO EC;1U	3.4478
274761	LEE CO EC;2U	3.4478
274763	LEE CO EC;4U	3.4128
274764	LEE CO EC;5U	3.4565
274765	LEE CO EC;6U	3.4565
274766	LEE CO EC;7U	3.4041
274767	LEE CO EC;8U	3.4041
274859	EASYR;U1 E	25.5457
274860	EASYR;U2 E	25.5457
276160	W4-084	0.2851
276172	Z1-108 BAT	1.7754
293516	O-009 E1	8.6742
293517	O-009 E2	4.4058
293518	O-009 E3	4.8520
293715	O-029 E	9.2737
293716	O-029 E	5.0846
293717	O-029 E	4.6733
919581	AA2-030	25.5877
920273	AA2-123 BAT	2.9120
925161	AB2-173 (Withdrawn : 12/24/2019)	4.5634
937531	AD2-214 C	4.6322
937532	AD2-214 E	3.0881
939051	AE1-134 1	1.9883
939061	AE1-134 2	1.9883
943401	AF1-011 C	1.6363
943402	AF1-011 E	1.7260
943411	AF1-012 C	7.5906
943412	AF1-012 E	5.0604
943803	AF1-048 BAT	7.8081
943922	AF1-060 BAT	1.4410
946161	AF1-281 C	17.4313
946162	AF1-281 E	9.9607
946321	AF1-296 C O1	2.0546
946322	AF1-296 E O1	9.6189
946531	AF1-317 C O1	1.4458
946532	AF1-317 E O1	2.1688
946681	AF1-332 C	1.4458
946682	AF1-332 E	2.1688
954792	J952 E	4.1607
954901	J963	0.8428
955051	J981 C	2.4027

Bus #	Bus	MW Impact
955052	J981 E	12.9993
955971	J1084	19.4550
956411	J1131	10.4710
CBM-W2	CBM-W2	6.8878
NY	NY	0.1963
TVA	TVA	0.6748
O-066	O-066	2.2982
CBM-S2	CBM-S2	0.0289
CBM-S1	CBM-S1	3.0502
TILTON	TILTON	0.0025
G-007	G-007	0.3546
MADISON	MADISON	1.2842
MEC	MEC	6.4116
GIBSON	GIBSON	0.0339
BLUEG	BLUEG	0.3594
TRIMBLE	TRIMBLE	0.1241
CATAWBA	CATAWBA	0.0017

16.2 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
44487078	270694	CHERRY VA; B	CE	270759	GARDEN PR; R	CE	1	COMED_P4_144-45-BT6-8__	breaker	1479.0	115.69	116.38	DC	21.91

Bus #	Bus	MW Impact
274656	BYRON ;1U	41.4378
274657	BYRON ;2U	40.5298
274822	ROCKFORD ;11	3.7754
274823	ROCKFORD ;21	3.8743
274824	ROCKFORD ;12	3.7425
274859	EASYSR;U1 E	14.5428
274860	EASYSR;U2 E	14.5428
276160	W4-084	0.4257
276172	Z1-108 BAT	2.0868
290051	GSG-6; E	7.4386
290108	LEEDK;1U E	14.8121
290266	R-018	0.2232
293516	O-009 E1	7.6184
293517	O-009 E2	3.8696
293518	O-009 E3	4.2615
293715	O-029 E	8.1450
293716	O-029 E	4.4658
293717	O-029 E	4.1045
294763	P-046 E	14.4357
919581	AA2-030	17.1350
925161	AB2-173 (Withdrawn : 12/24/2019)	3.0559
926431	AC1-114	4.9268

Bus #	Bus	MW Impact
927511	AC1-113 1	2.0938
927521	AC1-113 2	2.0938
930481	AB1-089	139.7165
932881	AC2-115 1	4.9266
932891	AC2-115 2	4.9266
932921	AC2-116	1.7244
933341	AC2-147 C	1.0521
933342	AC2-147 E	1.7166
933911	AD1-013 C	1.2962
933912	AD1-013 E	2.0705
934431	AD1-067 C	0.0934
934432	AD1-067 E	0.3927
934651	AD1-096 C	1.3790
934652	AD1-096 E	2.2499
934701	AD1-098 C O1	5.0039
934702	AD1-098 E O1	3.6534
934971	AD1-129 C	1.0959
934972	AD1-129 E	0.7306
936791	AD2-102 C	24.0832
936792	AD2-102 E	16.0555
937001	AD2-134 C	1.9446
937002	AD2-134 E	8.0330
937311	AD2-172 C	3.7894
937312	AD2-172 E	5.2329
937531	AD2-214 C	3.8724
937532	AD2-214 E	2.5816
938861	AE1-114 C O1	5.2043
938862	AE1-114 E O1	17.7559
939051	AE1-134 1	1.3315
939061	AE1-134 2	1.3315
940501	AE2-035 C	2.0084
940502	AE2-035 E	2.7735
941131	AE2-107 C	2.2884
941132	AE2-107 E	1.5256
943381	AF1-009 C	0.2294
943382	AF1-009 E	0.9177
943401	AF1-011 C	1.4371
943402	AF1-011 E	1.5159
943411	AF1-012 C	5.0798
943412	AF1-012 E	3.3865
943422	AF1-013 E	1.1471
943921	AF1-060	1.1476
946161	AF1-281 C	10.2905
946162	AF1-281 E	5.8803
946321	AF1-296 C O1	1.7370
946322	AF1-296 E O1	8.1324
946501	AF1-314 C	4.5906
946502	AF1-314 E	21.4896
946531	AF1-317 C O1	0.9676
946532	AF1-317 E O1	1.4514
946671	AF1-331	0.8922
946681	AF1-332 C	0.9676

Bus #	Bus	MW Impact
946682	AF1-332 E	1.4514
950101	J390	83.6714
952431	J760	5.3721
952511	J584 C	1.0645
952512	J584 E	5.7593
953111	J807 C	1.2239
953112	J807 E	6.6214
953681	J818	14.1923
953691	J819 C	1.4986
953692	J819 E	8.1078
953901	J850	21.0825
954001	J864	4.4352
955221	J1000	3.7495
955971	J1084	11.1600
956371	J1127	5.6362
956391	J1129	8.5768
956581	J1154	7.1483
956901	J1188	5.8185
WEC	WEC	0.5314
CBM-W2	CBM-W2	8.5585
NY	NY	0.2688
CBM-W1	CBM-W1	39.8193
TVA	TVA	0.8932
O-066	O-066	3.1450
CBM-S2	CBM-S2	0.0058
CBM-S1	CBM-S1	3.9533
TILTON	TILTON	0.1399
G-007	G-007	0.4857
MADISON	MADISON	11.2936
MEC	MEC	9.4657
GIBSON	GIBSON	0.0988
BLUEG	BLUEG	0.5711
TRIMBLE	TRIMBLE	0.1948
CATAWBA	CATAWBA	0.0046

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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
44487052	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_076-45-BT4-5_	breaker	1802.0	119.77	120.28	DC	20.28

Bus #	Bus	MW Impact
274704	KENDALL ;1C	5.0337
274705	KENDALL ;1S	3.3659
274706	KENDALL ;2C	5.0337
274707	KENDALL ;2S	3.3659
274734	ELWOOD EC;8P	3.9754

Bus #	Bus	MW Impact
274736	ELWOOD EC;9P	3.9754
274830	U3-021 1	4.5882
274831	U3-021 2	4.5882
274859	EASYR;U1 E	8.2914
274860	EASYR;U2 E	8.2914
274861	TOP CROP ;1U	0.9940
274862	TOP CROP ;2U	1.9295
276160	W4-084	0.3135
276161	W4-086	0.1384
276167	Z1-106 E2	0.8844
276168	Z1-106 E1	0.8848
276170	Z1-108 E	1.8766
290021	O50 E	22.0932
290051	GSG-6; E	7.2494
290108	LEEDK;1U E	16.4118
293516	O-009 E1	6.8611
293517	O-009 E2	3.4849
293518	O-009 E3	3.8378
293644	O22 E1	28.4849
293645	O22 E2	55.2943
293715	O-029 E	7.3353
293716	O-029 E	4.0218
293717	O-029 E	3.6965
293771	O-035 E	4.6013
294401	BSHIL;1U E	6.4682
294410	BSHIL;2U E	6.4682
294763	P-046 E	7.0292
914321	Y2-103 (Withdrawn : 12/24/2019)	36.0407
915011	Y3-013 1	3.0034
915021	Y3-013 2	3.0034
915031	Y3-013 3	3.0034
918052	AA1-018 E OP	8.4580
919581	AA2-030	13.3196
919621	AA2-039 C	1.5766
919622	AA2-039 E	10.5512
920272	AA2-123 E	1.8335
924471	AB2-096	31.8623
925161	AB2-173 (Withdrawn : 12/24/2019)	2.3755
925581	AC1-033 C	1.0593
925582	AC1-033 E	7.0915
926311	AC1-109 1	1.2750
926321	AC1-109 2	1.2750
926331	AC1-110 1	1.3265
926341	AC1-110 2	1.3265
926351	AC1-111 1	0.5058
926361	AC1-111 2	0.5058
926371	AC1-111 3	0.5058
926381	AC1-111 4	0.5058
926391	AC1-111 5	0.5058
926401	AC1-111 6	0.5058
926431	AC1-114	1.7823
926821	AC1-168 C O1	0.6598

Bus #	Bus	MW Impact
926822	AC1-168 E O1	4.4277
926841	AC1-171 C O1	0.8726
926842	AC1-171 E O1	5.8287
927091	AC1-204 1	90.0473
927101	AC1-204 2	88.9897
927201	AC1-214 C O1	1.4768
927202	AC1-214 E O1	4.6945
927451	AC1-142A 1	4.6444
927461	AC1-142A 2	4.6694
927511	AC1-113 1	0.8911
927521	AC1-113 2	0.8911
930481	AB1-089	49.0033
930741	AB1-122 1O1	56.6950
930751	AB1-122 2O1	85.1354
932881	AC2-115 1	1.7823
932891	AC2-115 2	1.7823
932921	AC2-116	0.6238
933341	AC2-147 C	0.6526
933342	AC2-147 E	1.0648
933431	AC2-156 C O1	0.5604
933432	AC2-156 E O1	0.9143
933911	AD1-013 C	1.2735
933912	AD1-013 E	2.0343
933931	AD1-016 C	0.6967
933932	AD1-016 E	1.1367
934051	AD1-031 C O1	2.1504
934052	AD1-031 E O1	3.5086
934101	AD1-039 1	5.5561
934111	AD1-039 2	8.3433
934431	AD1-067 C	0.0910
934432	AD1-067 E	0.3827
934651	AD1-096 C	0.6646
934652	AD1-096 E	1.0844
934701	AD1-098 C O1	4.7892
934702	AD1-098 E O1	3.4966
934871	AD1-116 C	0.4926
934872	AD1-116 E	0.8037
934971	AD1-129 C	0.6770
934972	AD1-129 E	0.4513
935001	AD1-133 C O1	12.1941
935002	AD1-133 E O1	8.1294
936291	AD2-038 C O1	1.8927
936292	AD2-038 E O1	12.6665
936511	AD2-066 C O1	6.0893
936512	AD2-066 E O1	4.0596
936791	AD2-102 C	10.6814
936792	AD2-102 E	7.1210
937001	AD2-134 C	1.8951
937002	AD2-134 E	7.8287
937311	AD2-172 C	1.8452
937312	AD2-172 E	2.5481
937401	AD2-194 1	9.6834

Bus #	Bus	MW Impact
937411	AD2-194 2	9.5696
937531	AD2-214 C	3.3674
937532	AD2-214 E	2.2450
938511	AE1-070 1	11.3780
938521	AE1-070 2	10.2874
938851	AE1-113 C	9.1134
938852	AE1-113 E	32.3113
938861	AE1-114 C O1	2.9432
938862	AE1-114 E O1	10.0414
939051	AE1-134 1	1.0350
939061	AE1-134 2	1.0350
939321	AE1-163 C O1	4.7560
939322	AE1-163 E O1	29.2155
939683	AE1-198 BAT	22.5802
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.4445
940501	AE2-035 C	0.9779
940502	AE2-035 E	1.3505
941131	AE2-107 C	2.6052
941132	AE2-107 E	1.7368
942421	AE2-255 C O1	3.4521
942422	AE2-255 E O1	10.3562
942651	AE2-281 C O1	0.6794
942652	AE2-281 E O1	4.1736
942883	AE2-307 BAT	6.3000
942991	AE2-321 C	6.1312
942992	AE2-321 E	3.0199
943121	AE2-341 C	7.1401
943122	AE2-341 E	3.5062
943381	AF1-009 C	0.2196
943382	AF1-009 E	0.8783
943401	AF1-011 C	1.2943
943402	AF1-011 E	1.3652
943411	AF1-012 C	4.7856
943412	AF1-012 E	3.1904
943422	AF1-013 E	1.0979
943591	AF1-030 C O1	2.5241
943592	AF1-030 E O1	1.2376
943801	AF1-048 C	1.5190
943802	AF1-048 E	1.0127
943921	AF1-060	0.5588
944041	AF1-072	0.8418
946161	AF1-281 C	6.3745
946162	AF1-281 E	3.6426
946321	AF1-296 C O1	1.6079
946322	AF1-296 E O1	7.5277
946501	AF1-314 C	2.2353
946502	AF1-314 E	10.4639
946531	AF1-317 C O1	0.9115
946532	AF1-317 E O1	1.3673
946541	AF1-318 C O1	2.0519
946542	AF1-318 E O1	9.6077
946661	AF1-330 C	0.7968

Bus #	Bus	MW Impact
946662	AF1-330 E	0.1749
946671	AF1-331	0.8766
946681	AF1-332 C	0.9115
946682	AF1-332 E	1.3673
950101	J390	50.1088
951391	J505	7.1130
953151	J831	3.0268
953491	J947	15.7740
953681	J818	10.5850
954141	J878	15.8480
954191	J886	10.6650
954981	J974 C	3.3946
954982	J974 E	18.3654
955301	J1009	33.0040
955311	J1010	32.5520
955321	J1011	32.5520
955581	J1042 C	2.2725
955582	J1042 E	12.8775
955601	J1044 C	7.6060
955602	J1044 E	7.6060
955631	J1047	15.2120
955671	J1051	3.6915
955691	J1053	22.1670
956141	J1101	1.4220
956171	J1104	7.6380
956391	J1129	4.6215
956571	J1153	11.1945
956581	J1154	5.3280
956731	J1171	7.2230
990901	L-005 E	9.7991
WEC	WEC	3.5009
CBM-W2	CBM-W2	16.8059
NY	NY	0.6896
CBM-W1	CBM-W1	50.7781
TVA	TVA	1.3202
O-066	O-066	8.1178
CBM-S1	CBM-S1	5.4869
G-007	G-007	1.2542
MADISON	MADISON	16.6360
MEC	MEC	11.8968
GIBSON	GIBSON	0.1092
BLUEG	BLUEG	1.2430
TRIMBLE	TRIMBLE	0.4246
CATAWBA	CATAWBA	0.1088

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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
44487021	270828	NELSON ; B	CE	943410	AF1-012 TAP	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	127.15	128.37	DC	50.41

Bus #	Bus	MW Impact
274662	QUAD CITI;1U	31.9770
274663	QUAD CITI;2U	32.0391
274699	CORDOVA ;1C	5.6233
274700	CORDOVA ;2C	5.6233
274701	CORDOVA ;1S	6.3262
274715	NELSON EC;1C	8.1817
274716	NELSON EC;1S	5.9698
274717	NELSON EC;2C	8.2449
274718	NELSON EC;2S	6.0233
276156	O-029 C	0.3733
276157	O-029 C	0.4036
276158	O-029 C	0.7365
276160	W4-084	0.7032
290051	GSG-6; E	5.4296
293513	O-009 C1	0.6894
293514	O-009 C2	0.3498
293515	O-009 C3	0.3868
293516	O-009 E1	19.7667
293517	O-009 E2	10.0400
293518	O-009 E3	11.0567
293715	O-029 E	21.1328
293716	O-029 E	11.5868
293717	O-029 E	10.6495
293771	O-035 E	4.8825
294401	BSHIL;1U E	7.9846
294410	BSHIL;2U E	7.9846
294763	P-046 E	4.7546
919221	AA1-146	7.6324
919581	AA2-030	54.6800
919621	AA2-039 C	1.9462
919622	AA2-039 E	13.0248
925161	AB2-173 (Withdrawn : 12/24/2019)	9.7518
925581	AC1-033 C	1.3078
925582	AC1-033 E	8.7553
927201	AC1-214 C O1	1.5670
927202	AC1-214 E O1	4.9815
933341	AC2-147 C	1.1234
933342	AC2-147 E	1.8329
934051	AD1-031 C O1	2.6560
934052	AD1-031 E O1	4.3335
934431	AD1-067 C	0.0682
934432	AD1-067 E	0.2867
934651	AD1-096 C	0.5446
934652	AD1-096 E	0.8885
934701	AD1-098 C O1	3.9894

Bus #	Bus	MW Impact
934702	AD1-098 E O1	2.9126
937001	AD2-134 C	1.4194
937002	AD2-134 E	5.8635
937311	AD2-172 C	1.2481
937312	AD2-172 E	1.7235
937531	AD2-214 C	10.2934
937532	AD2-214 E	6.8623
938861	AE1-114 C O1	3.9792
938862	AE1-114 E O1	13.5762
939051	AE1-134 1	4.2490
939061	AE1-134 2	4.2490
940501	AE2-035 C	0.6615
940502	AE2-035 E	0.9135
943381	AF1-009 C	0.1829
943382	AF1-009 E	0.7316
943401	AF1-011 C	3.1695
943402	AF1-011 E	3.3431
943422	AF1-013 E	0.9145
943921	AF1-060	0.3780
946321	AF1-296 C O1	3.9971
946322	AF1-296 E O1	18.7135
946501	AF1-314 C	1.5120
946502	AF1-314 E	7.0778
946533	AF1-317 BAT	28.3210
946683	AF1-332 BAT	28.3210
950181	J407 C	3.0508
950182	J407 E	12.2032
950401	J041 C	1.6578
950402	J041 E	6.6312
950471	J438 C	3.3963
950472	J438 E	13.5852
950501	J449 C	3.2760
950502	J449 E	13.1041
950522	J455 E	21.7410
951031	J344 C	3.0687
951032	J344 E	9.2061
951221	J475 C	3.7524
951222	J475 E	15.0096
951301	J495 C	3.5170
951302	J495 E	10.5510
951351	J500 C	6.8720
951352	J500 E	27.4880
951381	J504	5.8275
951421	J514	3.4842
951441	J523 C	2.2302
951442	J523 E	1.4868
951451	J524 C	4.5390
951452	J524 E	3.0260
951501	J529 C	3.4800
951502	J529 E	13.9200
951511	J530 C	5.5475
951512	J530 E	22.1900

Bus #	Bus	MW Impact
951541	J534 C	3.5910
951542	J534 E	14.3640
951551	J535 C	3.0509
951552	J535 E	12.2035
951821	J541 C	4.4741
951822	J541 E	24.2059
951841	J555 C	2.0488
951842	J555 E	11.0846
952021	J614 C	0.7584
952022	J614 E	4.1032
952191	J583 C	2.1695
952192	J583 E	11.7375
952211	J590 C	1.0175
952212	J590 E	5.5048
952231	J598 C	3.3556
952232	J598 E	18.1544
953011	J885 C	0.7615
953012	J885 E	4.1198
953082	J836 E	14.4840
953231	J447 C	1.9691
953232	J447 E	10.6534
953821	J840 C	1.6286
953822	J840 E	8.8114
954091	J873 C	3.3262
954092	J873 E	17.9958
954131	J877	18.1175
954301	J898 C	1.1371
954302	J898 E	6.1519
954521	J927 C	1.1312
954522	J927 E	6.1198
954702	J844 E	14.1752
954792	J952 E	6.8467
954861	J959 C	2.3117
954862	J959 E	12.5068
954901	J963	1.4155
954931	J967 C	1.8327
954932	J967 E	9.9153
955051	J981 C	3.8950
955052	J981 E	21.0730
955061	J982 C	3.2573
955062	J982 E	17.6227
955201	J998	3.7420
955211	J999	12.3500
955221	J1000	4.0215
955291	J1008	3.5385
955661	J1050 C	2.7936
955662	J1050 E	15.1141
955871	J1072	11.7480
955971	J1084	31.8375
956231	J1110	7.3440
956381	J1128	11.1540
956411	J1131	17.0440

Bus #	Bus	MW Impact
956431	J1135	4.0970
956761	J1174	23.2770
956771	J1175 C	3.6312
956772	J1175 E	19.6458
956781	J1176 C	1.8399
956782	J1176 E	9.9544
956791	J1177 C	3.3556
956792	J1177 E	18.1544
956831	J1181 C	3.0270
956832	J1181 E	16.3770
990901	L-005 E	10.7600
LGEE	LGEE	0.1010
CPL	CPL	0.3308
CBM-W2	CBM-W2	22.4979
NY	NY	0.1134
CBM-W1	CBM-W1	47.0376
TVA	TVA	2.6880
O-066	O-066	1.2230
CBM-S2	CBM-S2	4.0865
CBM-S1	CBM-S1	13.5979
G-007	G-007	0.1872
MADISON	MADISON	14.4507
MEC	MEC	18.4133

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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
44487143	270847	PLANO ; R	CE	275208	PLANO ;4M	CE	1	COMED_P4_167-45-BT9-12_	breaker	1379.0	110.76	111.21	DC	13.82

Bus #	Bus	MW Impact
274660	LASCO STA;1U	21.4385
274661	LASCO STA;2U	21.6053
274737	AURORA EC;1P	2.8038
274739	AURORA EC;2P	2.8038
274746	AURORA EC;0P	0.5322
274830	U3-021 1	3.6881
274831	U3-021 2	3.6881
274847	GR RIDGE ;BU	0.4890
274859	EASYR;U1 E	6.2506
274860	EASYR;U2 E	6.2506
274871	GR RIDGE ;2U	0.6210
274881	PILOT HIL;1E	6.6140
275149	KELLYCK ;1E	6.6140
276160	W4-084	0.2336
276161	W4-086	0.0922
276167	Z1-106 E2	0.8546

Bus #	Bus	MW Impact
276168	Z1-106 E1	0.8526
276169	Z1-107 E	1.0343
276170	Z1-108 E	1.5445
290021	O50 E	1.7961
290051	GSG-6; E	6.0677
290108	LEEDK;1U E	14.1491
293061	N-015 E	14.0136
293516	O-009 E1	4.8465
293517	O-009 E2	2.4617
293518	O-009 E3	2.7110
293715	O-029 E	5.1815
293716	O-029 E	2.8409
293717	O-029 E	2.6111
293771	O-035 E	3.0620
294392	P-010 E	17.7973
294401	BSHIL;1U E	4.0888
294410	BSHIL;2U E	4.0888
294763	P-046 E	5.4577
914321	Y2-103 (Withdrawn : 12/24/2019)	25.2052
915011	Y3-013 1	2.1004
915021	Y3-013 2	2.1004
915031	Y3-013 3	2.1004
919581	AA2-030	9.6631
919621	AA2-039 C	0.9967
919622	AA2-039 E	6.6699
920272	AA2-123 E	1.4970
924471	AB2-096	25.6118
925161	AB2-173 (Withdrawn : 12/24/2019)	1.7234
925581	AC1-033 C	0.6695
925582	AC1-033 E	4.4824
926311	AC1-109 1	1.9823
926321	AC1-109 2	1.9823
926331	AC1-110 1	1.1337
926341	AC1-110 2	1.1337
926351	AC1-111 1	0.5868
926361	AC1-111 2	0.5868
926371	AC1-111 3	0.5868
926381	AC1-111 4	0.5868
926391	AC1-111 5	0.5868
926401	AC1-111 6	0.5868
926431	AC1-114	1.4139
926821	AC1-168 C O1	0.6131
926822	AC1-168 E O1	4.1147
927201	AC1-214 C O1	0.9827
927202	AC1-214 E O1	3.1240
927451	AC1-142A 1	1.5384
927461	AC1-142A 2	1.5392
927511	AC1-113 1	0.7069
927521	AC1-113 2	0.7069
930481	AB1-089	40.1208
930501	AB1-091 O1	26.1613
930751	AB1-122 2O1	28.7043

Bus #	Bus	MW Impact
932881	AC2-115 1	1.4139
932891	AC2-115 2	1.4139
932921	AC2-116	0.4949
933341	AC2-147 C	0.4925
933342	AC2-147 E	0.8036
933411	AC2-154 C	0.8976
933412	AC2-154 E	1.4645
933431	AC2-156 C O1	0.5543
933432	AC2-156 E O1	0.9044
933911	AD1-013 C	1.0753
933912	AD1-013 E	1.7178
933931	AD1-016 C	0.5689
933932	AD1-016 E	0.9282
934051	AD1-031 C O1	1.3598
934052	AD1-031 E O1	2.2186
934111	AD1-039 2	2.8130
934431	AD1-067 C	0.0762
934432	AD1-067 E	0.3204
934651	AD1-096 C	0.5184
934652	AD1-096 E	0.8457
934701	AD1-098 C O1	3.9840
934702	AD1-098 E O1	2.9087
934971	AD1-129 C	0.5452
934972	AD1-129 E	0.3635
936371	AD2-047 C O1	1.6063
936372	AD2-047 E O1	7.8423
936461	AD2-060	0.5008
936511	AD2-066 C O1	3.6590
936512	AD2-066 E O1	2.4394
936791	AD2-102 C	8.3303
936792	AD2-102 E	5.5536
937001	AD2-134 C	1.5862
937002	AD2-134 E	6.5526
937311	AD2-172 C	1.4326
937312	AD2-172 E	1.9784
937321	AD2-175 C (Withdrawn : 12/10/2019)	5.8423
937322	AD2-175 E (Withdrawn : 12/10/2019)	3.8948
937531	AD2-214 C	2.3517
937532	AD2-214 E	1.5678
938851	AE1-113 C	2.9716
938852	AE1-113 E	10.5357
938861	AE1-114 C O1	2.2438
938862	AE1-114 E O1	7.6553
939051	AE1-134 1	0.7509
939061	AE1-134 2	0.7509
939351	AE1-166 C O1	2.0247
939352	AE1-166 E O1	1.8690
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.3090
940501	AE2-035 C	0.7593
940502	AE2-035 E	1.0486
940621	AE2-049 C O1	1.7389
940622	AE2-049 E O1	1.1592

Bus #	Bus	MW Impact
940631	AE2-050 C O1	2.9476
940632	AE2-050 E O1	1.9651
940752	AE2-062 E	0.0269
940762	AE2-063 E (Withdrawn : 01/14/2020)	0.0269
941131	AE2-107 C	2.2586
941132	AE2-107 E	1.5058
941551	AE2-152 C O1	2.3362
941552	AE2-152 E O1	1.5575
941561	AE2-153 C O1	2.0582
941562	AE2-153 E O1	9.6361
942421	AE2-255 C O1	1.1256
942422	AE2-255 E O1	3.3768
942881	AE2-307 C O1	5.4040
942882	AE2-307 E O1	1.9651
942911	AE2-310 C O1	1.6885
942912	AE2-310 E O1	0.4536
942991	AE2-321 C	4.9996
942992	AE2-321 E	2.4625
943121	AE2-341 C	7.3821
943122	AE2-341 E	3.6250
943381	AF1-009 C	0.1827
943382	AF1-009 E	0.7306
943401	AF1-011 C	0.9142
943402	AF1-011 E	0.9643
943411	AF1-012 C	3.5075
943412	AF1-012 E	2.3383
943422	AF1-013 E	0.9133
943591	AF1-030 C O1	2.6096
943592	AF1-030 E O1	1.2795
943801	AF1-048 C	1.2387
943802	AF1-048 E	0.8258
943921	AF1-060	0.4339
944041	AF1-072	0.7392
944911	AF1-156 C	2.7891
944912	AF1-156 E	1.8594
945351	AF1-200 FTIR	700.0603
946161	AF1-281 C	4.7511
946162	AF1-281 E	2.7149
946321	AF1-296 C O1	1.0955
946322	AF1-296 E O1	5.1287
946501	AF1-314 C	1.7355
946502	AF1-314 E	8.1245
946521	AF1-316 C O1	6.1660
946522	AF1-316 E O1	9.2490
946531	AF1-317 C O1	0.6681
946532	AF1-317 E O1	1.0021
946541	AF1-318 C O1	1.4707
946542	AF1-318 E O1	6.8862
946661	AF1-330 C	0.6506
946662	AF1-330 E	0.1428
946671	AF1-331	0.7402
946681	AF1-332 C	0.6681

Bus #	Bus	MW Impact
946682	AF1-332 E	1.0021
950101	J390	37.8659
952431	J760	1.6584
952511	J584 C	0.4781
952512	J584 E	2.5867
953151	J831	2.1172
953491	J947	10.9540
953681	J818	7.8434
953901	J850	12.7400
954141	J878	11.1120
955251	J1003	2.5405
955301	J1009	22.7040
955311	J1010	22.2880
955321	J1011	22.2880
955581	J1042 C	1.6470
955582	J1042 E	9.3330
955601	J1044 C	5.4900
955602	J1044 E	5.4900
955631	J1047	10.9800
955671	J1051	2.6495
955691	J1053	15.8460
956171	J1104	5.3520
956371	J1127	2.5813
956391	J1129	3.5250
956571	J1153	7.8270
956581	J1154	3.9480
956731	J1171	5.1200
956901	J1188	2.6295
990901	L-005 E	5.8619
WEC	WEC	2.4690
CBM-W2	CBM-W2	8.8206
NY	NY	0.6470
CBM-W1	CBM-W1	39.1438
TVA	TVA	0.4592
O-066	O-066	7.6877
CHEOAH	CHEOAH	0.0991
CBM-S1	CBM-S1	1.1672
G-007	G-007	1.1887
MADISON	MADISON	11.4489
MEC	MEC	7.5366
GIBSON	GIBSON	0.1469
CALDERWOOD	CALDERWOOD	0.0929
BLUEG	BLUEG	1.2794
TRIMBLE	TRIMBLE	0.4313
CATAWBA	CATAWBA	0.1900

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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
44487146	275208	PLANO ;4M	CE	270630	PLANO ;	CE	1	COMED_P4_167-45-BT9-12_	breaker	1379.0	110.76	111.21	DC	13.82

Bus #	Bus	MW Impact
274660	LASCO STA;1U	21.4385
274661	LASCO STA;2U	21.6053
274737	AURORA EC;1P	2.8038
274739	AURORA EC;2P	2.8038
274746	AURORA EC;0P	0.5322
274830	U3-021 1	3.6881
274831	U3-021 2	3.6881
274847	GR RIDGE ;BU	0.4890
274859	EASYR;U1 E	6.2506
274860	EASYR;U2 E	6.2506
274871	GR RIDGE ;2U	0.6210
274881	PILOT HIL;1E	6.6140
275149	KELLYCK ;1E	6.6140
276160	W4-084	0.2336
276161	W4-086	0.0922
276167	Z1-106 E2	0.8546
276168	Z1-106 E1	0.8526
276169	Z1-107 E	1.0343
276170	Z1-108 E	1.5445
290021	O50 E	1.7961
290051	GSG-6; E	6.0677
290108	LEEDK;1U E	14.1491
293061	N-015 E	14.0136
293516	O-009 E1	4.8465
293517	O-009 E2	2.4617
293518	O-009 E3	2.7110
293715	O-029 E	5.1815
293716	O-029 E	2.8409
293717	O-029 E	2.6111
293771	O-035 E	3.0620
294392	P-010 E	17.7973
294401	BSHIL;1U E	4.0888
294410	BSHIL;2U E	4.0888
294763	P-046 E	5.4577
914321	Y2-103 (Withdrawn : 12/24/2019)	25.2052
915011	Y3-013 1	2.1004
915021	Y3-013 2	2.1004
915031	Y3-013 3	2.1004
919581	AA2-030	9.6631
919621	AA2-039 C	0.9967
919622	AA2-039 E	6.6699
920272	AA2-123 E	1.4970
924471	AB2-096	25.6118
925161	AB2-173 (Withdrawn : 12/24/2019)	1.7234
925581	AC1-033 C	0.6695
925582	AC1-033 E	4.4824

Bus #	Bus	MW Impact
926311	AC1-109 1	1.9823
926321	AC1-109 2	1.9823
926331	AC1-110 1	1.1337
926341	AC1-110 2	1.1337
926351	AC1-111 1	0.5868
926361	AC1-111 2	0.5868
926371	AC1-111 3	0.5868
926381	AC1-111 4	0.5868
926391	AC1-111 5	0.5868
926401	AC1-111 6	0.5868
926431	AC1-114	1.4139
926821	AC1-168 C O1	0.6131
926822	AC1-168 E O1	4.1147
927201	AC1-214 C O1	0.9827
927202	AC1-214 E O1	3.1240
927451	AC1-142A 1	1.5384
927461	AC1-142A 2	1.5392
927511	AC1-113 1	0.7069
927521	AC1-113 2	0.7069
930481	AB1-089	40.1208
930501	AB1-091 O1	26.1613
930751	AB1-122 2O1	28.7043
932881	AC2-115 1	1.4139
932891	AC2-115 2	1.4139
932921	AC2-116	0.4949
933341	AC2-147 C	0.4925
933342	AC2-147 E	0.8036
933411	AC2-154 C	0.8976
933412	AC2-154 E	1.4645
933431	AC2-156 C O1	0.5543
933432	AC2-156 E O1	0.9044
933911	AD1-013 C	1.0753
933912	AD1-013 E	1.7178
933931	AD1-016 C	0.5689
933932	AD1-016 E	0.9282
934051	AD1-031 C O1	1.3598
934052	AD1-031 E O1	2.2186
934111	AD1-039 2	2.8130
934431	AD1-067 C	0.0762
934432	AD1-067 E	0.3204
934651	AD1-096 C	0.5184
934652	AD1-096 E	0.8457
934701	AD1-098 C O1	3.9840
934702	AD1-098 E O1	2.9087
934971	AD1-129 C	0.5452
934972	AD1-129 E	0.3635
936371	AD2-047 C O1	1.6063
936372	AD2-047 E O1	7.8423
936461	AD2-060	0.5008
936511	AD2-066 C O1	3.6590
936512	AD2-066 E O1	2.4394
936791	AD2-102 C	8.3303

Bus #	Bus	MW Impact
936792	AD2-102 E	5.5536
937001	AD2-134 C	1.5862
937002	AD2-134 E	6.5526
937311	AD2-172 C	1.4326
937312	AD2-172 E	1.9784
937321	AD2-175 C (Withdrawn : 12/10/2019)	5.8423
937322	AD2-175 E (Withdrawn : 12/10/2019)	3.8948
937531	AD2-214 C	2.3517
937532	AD2-214 E	1.5678
938851	AE1-113 C	2.9716
938852	AE1-113 E	10.5357
938861	AE1-114 C O1	2.2438
938862	AE1-114 E O1	7.6553
939051	AE1-134 1	0.7509
939061	AE1-134 2	0.7509
939351	AE1-166 C O1	2.0247
939352	AE1-166 E O1	1.8690
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.3090
940501	AE2-035 C	0.7593
940502	AE2-035 E	1.0486
940621	AE2-049 C O1	1.7389
940622	AE2-049 E O1	1.1592
940631	AE2-050 C O1	2.9476
940632	AE2-050 E O1	1.9651
940752	AE2-062 E	0.0269
940762	AE2-063 E (Withdrawn : 01/14/2020)	0.0269
941131	AE2-107 C	2.2586
941132	AE2-107 E	1.5058
941551	AE2-152 C O1	2.3362
941552	AE2-152 E O1	1.5575
941561	AE2-153 C O1	2.0582
941562	AE2-153 E O1	9.6361
942421	AE2-255 C O1	1.1256
942422	AE2-255 E O1	3.3768
942881	AE2-307 C O1	5.4040
942882	AE2-307 E O1	1.9651
942911	AE2-310 C O1	1.6885
942912	AE2-310 E O1	0.4536
942991	AE2-321 C	4.9996
942992	AE2-321 E	2.4625
943121	AE2-341 C	7.3821
943122	AE2-341 E	3.6250
943381	AF1-009 C	0.1827
943382	AF1-009 E	0.7306
943401	AF1-011 C	0.9142
943402	AF1-011 E	0.9643
943411	AF1-012 C	3.5075
943412	AF1-012 E	2.3383
943422	AF1-013 E	0.9133
943591	AF1-030 C O1	2.6096
943592	AF1-030 E O1	1.2795
943801	AF1-048 C	1.2387

Bus #	Bus	MW Impact
943802	AF1-048 E	0.8258
943921	AF1-060	0.4339
944041	AF1-072	0.7392
944911	AF1-156 C	2.7891
944912	AF1-156 E	1.8594
945351	AF1-200 FTIR	700.0603
946161	AF1-281 C	4.7511
946162	AF1-281 E	2.7149
946321	AF1-296 C O1	1.0955
946322	AF1-296 E O1	5.1287
946501	AF1-314 C	1.7355
946502	AF1-314 E	8.1245
946521	AF1-316 C O1	6.1660
946522	AF1-316 E O1	9.2490
946531	AF1-317 C O1	0.6681
946532	AF1-317 E O1	1.0021
946541	AF1-318 C O1	1.4707
946542	AF1-318 E O1	6.8862
946661	AF1-330 C	0.6506
946662	AF1-330 E	0.1428
946671	AF1-331	0.7402
946681	AF1-332 C	0.6681
946682	AF1-332 E	1.0021
950101	J390	37.8659
952431	J760	1.6584
952511	J584 C	0.4781
952512	J584 E	2.5867
953151	J831	2.1172
953491	J947	10.9540
953681	J818	7.8434
953901	J850	12.7400
954141	J878	11.1120
955251	J1003	2.5405
955301	J1009	22.7040
955311	J1010	22.2880
955321	J1011	22.2880
955581	J1042 C	1.6470
955582	J1042 E	9.3330
955601	J1044 C	5.4900
955602	J1044 E	5.4900
955631	J1047	10.9800
955671	J1051	2.6495
955691	J1053	15.8460
956171	J1104	5.3520
956371	J1127	2.5813
956391	J1129	3.5250
956571	J1153	7.8270
956581	J1154	3.9480
956731	J1171	5.1200
956901	J1188	2.6295
990901	L-005 E	5.8619
WEC	WEC	2.4690

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	8.8206
NY	NY	0.6470
CBM-W1	CBM-W1	39.1438
TVA	TVA	0.4592
O-066	O-066	7.6877
CHEOAH	CHEOAH	0.0991
CBM-S1	CBM-S1	1.1672
G-007	G-007	1.1887
MADISON	MADISON	11.4489
MEC	MEC	7.5366
GIBSON	GIBSON	0.1469
CALDERWOOD	CALDERWOOD	0.0929
BLUEG	BLUEG	1.2794
TRIMBLE	TRIMBLE	0.4313
CATAWBA	CATAWBA	0.1900

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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
44486970	943410	AF1-012 TAP	CE	270730	ELECT JCT; B	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	134.53	134.9	DC	50.41

Bus #	Bus	MW Impact
274715	NELSON EC;1C	8.1817
274716	NELSON EC;1S	5.9698
274717	NELSON EC;2C	8.2449
274718	NELSON EC;2S	6.0233
276160	W4-084	0.7032
290051	GSG-6; E	5.4296
293516	O-009 E1	16.8017
293517	O-009 E2	8.5340
293518	O-009 E3	9.3982
293715	O-029 E	17.9629
293716	O-029 E	9.8488
293717	O-029 E	9.0521
293771	O-035 E	4.8825
294401	BSHIL;1U E	7.9846
294410	BSHIL;2U E	7.9846
294763	P-046 E	4.7546
919221	AA1-146	7.6324
919581	AA2-030	54.6800
919621	AA2-039 C	1.9462
919622	AA2-039 E	13.0248
925161	AB2-173 (Withdrawn : 12/24/2019)	9.7518
925581	AC1-033 C	1.3078
925582	AC1-033 E	8.7553

Bus #	Bus	MW Impact
927201	AC1-214 C O1	1.5670
927202	AC1-214 E O1	4.9815
933341	AC2-147 C	1.1234
933342	AC2-147 E	1.8329
934051	AD1-031 C O1	2.6560
934052	AD1-031 E O1	4.3335
934431	AD1-067 C	0.0682
934432	AD1-067 E	0.2867
934651	AD1-096 C	0.5446
934652	AD1-096 E	0.8885
934701	AD1-098 C O1	3.9894
934702	AD1-098 E O1	2.9126
937001	AD2-134 C	1.4194
937002	AD2-134 E	5.8635
937311	AD2-172 C	1.2481
937312	AD2-172 E	1.7235
937531	AD2-214 C	10.2934
937532	AD2-214 E	6.8623
938861	AE1-114 C O1	3.9792
938862	AE1-114 E O1	13.5762
939051	AE1-134 1	4.2490
939061	AE1-134 2	4.2490
940501	AE2-035 C	0.6615
940502	AE2-035 E	0.9135
943381	AF1-009 C	0.1829
943382	AF1-009 E	0.7316
943401	AF1-011 C	3.1695
943402	AF1-011 E	3.3431
943411	AF1-012 C	45.5259
943412	AF1-012 E	30.3506
943422	AF1-013 E	0.9145
943921	AF1-060	0.3780
946321	AF1-296 C O1	3.9971
946322	AF1-296 E O1	18.7135
946501	AF1-314 C	1.5120
946502	AF1-314 E	7.0778
946531	AF1-317 C O1	8.6716
946532	AF1-317 E O1	13.0074
946541	AF1-318 C O1	1.6264
946542	AF1-318 E O1	7.6155
946681	AF1-332 C	8.6716
946682	AF1-332 E	13.0074
950181	J407 C	3.0508
950182	J407 E	12.2032
950401	J041 C	1.6578
950402	J041 E	6.6312
950471	J438 C	3.3963
950472	J438 E	13.5852
950501	J449 C	3.2760
950502	J449 E	13.1041
950522	J455 E	21.7410
951031	J344 C	3.0687

Bus #	Bus	MW Impact
951032	J344 E	9.2061
951221	J475 C	3.7524
951222	J475 E	15.0096
951301	J495 C	3.5170
951302	J495 E	10.5510
951351	J500 C	6.8720
951352	J500 E	27.4880
951381	J504	5.8275
951402	J506 E	13.1320
951421	J514	3.4842
951441	J523 C	2.2302
951442	J523 E	1.4868
951451	J524 C	4.5390
951452	J524 E	3.0260
951491	J528 C	2.6808
951492	J528 E	10.7232
951501	J529 C	3.4800
951502	J529 E	13.9200
951511	J530 C	5.5475
951512	J530 E	22.1900
951541	J534 C	3.5910
951542	J534 E	14.3640
951551	J535 C	3.0509
951552	J535 E	12.2035
951821	J541 C	4.4741
951822	J541 E	24.2059
951841	J555 C	2.0488
951842	J555 E	11.0846
952021	J614 C	0.7584
952022	J614 E	4.1032
952191	J583 C	2.1695
952192	J583 E	11.7375
952211	J590 C	1.0175
952212	J590 E	5.5048
952231	J598 C	3.3556
952232	J598 E	18.1544
952781	J748 C	2.0873
952782	J748 E	11.2927
953001	J785 C	1.1096
953002	J785 E	6.0031
953011	J885 C	0.7615
953012	J885 E	4.1198
953082	J836 E	14.4840
953091	J916	0.1325
953231	J447 C	1.9691
953232	J447 E	10.6534
953571	J720 C	2.0873
953572	J720 E	11.2927
953821	J840 C	1.6286
953822	J840 E	8.8114
954091	J873 C	3.3262
954092	J873 E	17.9958

Bus #	Bus	MW Impact
954131	J877	18.1175
954301	J898 C	1.1371
954302	J898 E	6.1519
954521	J927 C	1.1312
954522	J927 E	6.1198
954702	J844 E	14.1752
954792	J952 E	6.8467
954861	J959 C	2.3117
954862	J959 E	12.5068
954901	J963	1.4155
954931	J967 C	1.8327
954932	J967 E	9.9153
955011	J977 C	3.1389
955012	J977 E	16.9821
955051	J981 C	3.8950
955052	J981 E	21.0730
955061	J982 C	3.2573
955062	J982 E	17.6227
955201	J998	3.7420
955211	J999	12.3500
955221	J1000	4.0215
955291	J1008	3.5385
955571	J1041	1.3154
955661	J1050 C	2.7936
955662	J1050 E	15.1141
955731	J1057	8.2213
955871	J1072	11.7480
955971	J1084	31.8375
955991	J1086	7.8780
956111	J1098	2.6568
956231	J1110	7.3440
956271	J1114 C	2.0486
956272	J1114 E	11.0834
956381	J1128	11.1540
956411	J1131	17.0440
956421	J1132	3.3785
956431	J1135	4.0970
956761	J1174	23.2770
956771	J1175 C	3.6312
956772	J1175 E	19.6458
956781	J1176 C	1.8399
956782	J1176 E	9.9544
956791	J1177 C	3.3556
956792	J1177 E	18.1544
956831	J1181 C	3.0270
956832	J1181 E	16.3770
990901	L-005 E	10.7600
LGEE	LGEE	0.1010
CPL	CPL	0.3308
CBM-W2	CBM-W2	22.4979
NY	NY	0.1134
CBM-W1	CBM-W1	47.0376

Bus #	Bus	MW Impact
TVA	TVA	2.6880
O-066	O-066	1.2230
CBM-S2	CBM-S2	4.0865
CBM-S1	CBM-S1	13.5979
G-007	G-007	0.1872
MADISON	MADISON	14.4507
MEC	MEC	18.4133

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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
43609445	956820	J1180 TAP	AMIL	247712	O5SULLIVAN	AEP	1	AEP_P4_#3128_05EUGENE 345_A2	breaker	1466.0	175.44	175.71	DC	17.5

Bus #	Bus	MW Impact
274650	KINCAID ;1U	13.2935
274651	KINCAID ;2U	13.2881
274830	U3-021 1	2.7041
274831	U3-021 2	2.7041
274853	TWINGROVE;U1	0.7109
274854	TWINGROVE;U2	0.7109
274859	EASYR;U1 E	5.8271
274860	EASYR;U2 E	5.8271
274880	GENERATOR;	0.9428
274882	W4-005 E	45.2314
274890	CAYUG;1U E	8.8128
274891	CAYUG;2U E	8.8128
276153	W2-048 E	1.9673
276160	W4-084	0.2292
276161	W4-086	0.0932
276167	Z1-106 E2	0.4813
276168	Z1-106 E1	0.4813
276170	Z1-108 E	1.0033
290021	O50 E	9.3214
290051	GSG-6; E	4.7952
290108	LEEDK;1U E	10.5825
290261	S-027 E	20.3734
290265	S-028 E	20.3734
293516	O-009 E1	5.4176
293517	O-009 E2	2.7517
293518	O-009 E3	3.0304
293644	O22 E1	4.2400
293645	O22 E2	8.2305
293715	O-029 E	5.7921
293716	O-029 E	3.1757
293717	O-029 E	2.9188
293771	O-035 E	4.3612

Bus #	Bus	MW Impact
294401	BSHIL;1U E	5.9282
294410	BSHIL;2U E	5.9282
294763	P-046 E	4.6206
909052	X2-022 E	28.4500
914321	Y2-103 (Withdrawn : 12/24/2019)	17.8765
915011	Y3-013 1	1.4897
915021	Y3-013 2	1.4897
915031	Y3-013 3	1.4897
917501	Z2-087 C	0.3697
917502	Z2-087 E	17.7254
918052	AA1-018 E OP	6.8485
919581	AA2-030	9.9647
919621	AA2-039 C	1.4450
919622	AA2-039 E	9.6704
920272	AA2-123 E	1.0482
924041	AB2-047 C O1	3.3108
924042	AB2-047 E O1	22.1567
924261	AB2-070 C O1	3.8233
924262	AB2-070 E O1	25.5867
924471	AB2-096	18.7782
925161	AB2-173 (Withdrawn : 12/24/2019)	1.7771
925581	AC1-033 C	0.9706
925582	AC1-033 E	6.4981
925771	AC1-053 C	3.8589
925772	AC1-053 E	25.8251
926431	AC1-114	1.1147
926821	AC1-168 C O1	0.7027
926822	AC1-168 E O1	4.7157
926841	AC1-171 C O1	1.0402
926842	AC1-171 E O1	6.9481
927201	AC1-214 C O1	1.3997
927202	AC1-214 E O1	4.4496
927511	AC1-113 1	0.5573
927521	AC1-113 2	0.5573
930481	AB1-089	30.3454
930741	AB1-122 1O1	30.2585
930751	AB1-122 2O1	2.9235
932881	AC2-115 1	1.1147
932891	AC2-115 2	1.1147
932921	AC2-116	0.3901
933341	AC2-147 C	0.4607
933342	AC2-147 E	0.7516
933431	AC2-156 C O1	0.3661
933432	AC2-156 E O1	0.5973
933911	AD1-013 C	0.8334
933912	AD1-013 E	1.3313
933931	AD1-016 C	0.3983
933932	AD1-016 E	0.6499
934051	AD1-031 C O1	1.9711
934052	AD1-031 E O1	3.2161
934101	AD1-039 1	2.9653
934111	AD1-039 2	2.7019

Bus #	Bus	MW Impact
934431	AD1-067 C	0.0602
934432	AD1-067 E	0.2532
934651	AD1-096 C	0.4390
934652	AD1-096 E	0.7162
934701	AD1-098 C O1	3.1871
934702	AD1-098 E O1	2.3269
934871	AD1-116 C	0.3988
934872	AD1-116 E	0.6507
934971	AD1-129 C	0.4060
934972	AD1-129 E	0.2707
935001	AD1-133 C O1	12.2568
935002	AD1-133 E O1	8.1712
935141	AD1-148	7.4152
936291	AD2-038 C O1	1.1619
936292	AD2-038 E O1	7.7758
936511	AD2-066 C O1	4.0672
936512	AD2-066 E O1	2.7115
936771	AD2-100 C	22.4746
936772	AD2-100 E	14.9831
936791	AD2-102 C	6.7983
936792	AD2-102 E	4.5322
936971	AD2-131 C	1.4805
936972	AD2-131 E	7.4380
937001	AD2-134 C	1.2535
937002	AD2-134 E	5.1784
937211	AD2-159 C	4.8880
937212	AD2-159 E	22.8845
937311	AD2-172 C	1.2129
937312	AD2-172 E	1.6750
937531	AD2-214 C	2.7616
937532	AD2-214 E	1.8410
938851	AE1-113 C	3.8451
938852	AE1-113 E	13.6326
938861	AE1-114 C O1	2.0270
938862	AE1-114 E O1	6.9158
939051	AE1-134 1	0.7743
939061	AE1-134 2	0.7743
939321	AE1-163 C O1	2.9197
939322	AE1-163 E O1	17.9351
939401	AE1-172 C O1	2.9630
939402	AE1-172 E O1	13.9023
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.2160
939741	AE1-205 C O1	8.5571
939742	AE1-205 E O1	11.8169
940101	AE1-252 C O1	5.9525
940102	AE1-252 E O1	3.9683
940501	AE2-035 C	0.6428
940502	AE2-035 E	0.8877
941131	AE2-107 C	1.6718
941132	AE2-107 E	1.1145
941343	AE2-130 BAT	31.7940
941731	AE2-173 O1	5.0935

Bus #	Bus	MW Impact
942111	AE2-223 C	1.9865
942112	AE2-223 E	13.2940
942421	AE2-255 C O1	1.4565
942422	AE2-255 E O1	4.3694
942481	AE2-261 C	31.0721
942482	AE2-261 E	20.7147
942602	AE2-276 BAT	14.0055
942651	AE2-281 C O1	0.4171
942652	AE2-281 E O1	2.5622
942991	AE2-321 C	3.5229
942992	AE2-321 E	1.7352
943381	AF1-009 C	0.1461
943382	AF1-009 E	0.5845
943401	AF1-011 C	1.0220
943402	AF1-011 E	1.0780
943411	AF1-012 C	3.3977
943412	AF1-012 E	2.2652
943422	AF1-013 E	0.7306
943801	AF1-048 C	0.8728
943802	AF1-048 E	0.5819
943921	AF1-060	0.3673
944041	AF1-072	0.4494
944221	AF1-090 C O1	6.8126
944222	AF1-090 E O1	31.8954
945881	AF1-253 O1	20.4378
946161	AF1-281 C	4.5656
946162	AF1-281 E	2.6089
946321	AF1-296 C O1	1.3874
946322	AF1-296 E O1	6.4955
946501	AF1-314 C	1.4694
946502	AF1-314 E	6.8784
946531	AF1-317 C O1	0.6472
946532	AF1-317 E O1	0.9708
946541	AF1-318 C O1	2.0448
946542	AF1-318 E O1	9.5743
946661	AF1-330 C	0.4556
946662	AF1-330 E	0.1000
946671	AF1-331	0.5737
946681	AF1-332 C	0.6472
946682	AF1-332 E	0.9708
951741	J474 C	1.9020
951742	J474 E	10.2905
952251	J641	9.9834
952271	J644	9.2422
952651	J756 C	2.2026
952652	J756 E	11.9168
952871	J757 C	3.9305
952872	J757 E	21.2652
953371	J808	8.8051
953401	J811	17.7527
953431	J853	10.8085
953641	J813	39.5225

Bus #	Bus	MW Impact
953651	J815	31.4750
953671	J817	10.3791
953741	J826 C	1.6144
953742	J826 E	8.7346
953851	J845 C	1.6818
953852	J845 E	9.0990
953881	J848 C	5.1492
953882	J848 E	27.8583
953951	J859	9.4027
954181	J884	7.3910
954411	J912	14.0350
954681	J949 C	32.7828
954721	J750 C	2.0377
954722	J750 E	11.0243
954761	J468 C	5.2098
954762	J468 E	29.5221
954821	J955	107.6504
954831	J956	13.0280
955001	J976	22.7910
955031	J979 C	4.1193
955032	J979 E	22.2867
955041	J980 C	4.1193
955042	J980 E	22.2867
955101	J987	7.0950
955131	J991	40.7140
955161	J994	6.4670
955171	J995	8.4020
955391	J1021 C	3.5231
955392	J1021 E	19.0609
955401	J1022 C	2.4217
955402	J1022 E	13.1018
955441	J1026 C	3.8351
955442	J1026 E	20.7489
955551	J1039	3.7985
956071	J1094	13.5180
956091	J1096	11.0880
956151	J1102	5.2353
956241	J1111	10.7055
956281	J1115 C	2.8027
956282	J1115 E	15.1633
956341	J1123 C	1.5243
956342	J1123 E	8.2467
956451	J1139	21.9840
956501	J1145	16.0975
956821	J1180	36.4837
990901	L-005 E	9.1892
CPL	CPL	0.5987
WEC	WEC	2.0236
CBM-W2	CBM-W2	71.4987
NY	NY	0.4524
CBM-W1	CBM-W1	61.4366
TVA	TVA	7.8036

Bus #	Bus	MW Impact
O-066	O-066	5.0870
CBM-S2	CBM-S2	8.6527
CBM-S1	CBM-S1	36.9853
G-007	G-007	0.7842
MADISON	MADISON	25.3331
MEC	MEC	15.7740
BLUEG	BLUEG	2.7012
TRIMBLE	TRIMBLE	0.9995

Affected Systems

17 Affected Systems

17.1 LG&E

LG&E Impacts to be determined during later study phases (as applicable).

17.2 MISO

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

17.3 TVA

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

17.4 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

17.5 NYISO

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

Contingency Name	Contingency Definition
COMED_P2-1_132-L15518__A	CONTINGENCY 'COMED_P2-1_132-L15518__A' TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138 END
COMED_P1-2_345-L0626__B-R-B	CONTINGENCY 'COMED_P1-2_345-L0626__B-R-B' TRIP BRANCH FROM BUS 930480 TO BUS 270916 CKT 1 / AB1-089 TAP 345 WAYNE ; B 345 END
COMED_P4_167-45-BT8-9__	CONTINGENCY 'COMED_P4_167-45-BT8-9__' TRIP BRANCH FROM BUS 270802 TO BUS 270846 CKT 1 / LASCO STA; B 345 PLANO ; B 345 TRIP BRANCH FROM BUS 270846 TO BUS 270847 CKT 1 / PLANO ; B 345 PLANO ; R 345 TRIP BRANCH FROM BUS 270846 TO BUS 270730 CKT 1 / PLANO ; B 345 ELEC JUNC; B 345 TRIP BRANCH FROM BUS 272250 TO BUS 272278 CKT 1 / PLANO ; B 138 PLANO;1I 138 TRIP BRANCH FROM BUS 272250 TO BUS 272278 CKT 2 / PLANO ; B 138 PLANO;1I 138 TRIP BRANCH FROM BUS 270846 TO BUS 272278 TO BUS 275354 CKT 1 / PLANO ; B 345 PLANO;1I 138 PLANO;1C 34.5 END
COMED_P4_167-45-BT9-12__	CONTINGENCY 'COMED_P4_167-45-BT9-12__' TRIP BRANCH FROM BUS 270802 TO BUS 270846 CKT 1 / LASCO STA; B 345 PLANO ; B 345 TRIP BRANCH FROM BUS 270846 TO BUS 270847 CKT 1 / PLANO ; B 345 PLANO ; R 345 TRIP BRANCH FROM BUS 275207 TO BUS 270630 CKT 1 / PLANO ;3M 345 PLANO ; 765 TRIP BRANCH FROM BUS 275207 TO BUS 270846 CKT 1 / PLANO ;3M 345 PLANO ; B 345 TRIP BRANCH FROM BUS 275207 TO BUS 275307 CKT 1 / PLANO ;3M 345 PLANO ;3C 33 END
COMED_P4_144-45-BT6-8__	CONTINGENCY 'COMED_P4_144-45-BT6-8__' TRIP BRANCH FROM BUS 930480 TO BUS 270916 CKT 1 / AB1-089 TAP 345 WAYNE ; B 345 TRIP BRANCH FROM BUS 270730 TO BUS 270916 CKT 1 / ELEC JUNC; B 345 WAYNE ; B 345 TRIP BRANCH FROM BUS 270916 TO BUS 270917 CKT 1 / WAYNE ; B 345 WAYNE ; R 345 END
AEP_P4_#3128_05EUGENE 345_A2	CONTINGENCY 'AEP_P4_#3128_05EUGENE 345_A2' OPEN BRANCH FROM BUS 243221 TO BUS 249504 CKT 1 / 243221 05EUGENE 345 249504 08CAYSUB 345 1 OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_P1-2_138-L15518GB-R-A	CONTINGENCY 'COMED_P1-2_138-L15518GB-R-A' TRIP BRANCH FROM BUS 272094 TO BUS 272366 CKT 1 / NELSO; B 138 R FAL; B 138 TRIP BRANCH FROM BUS 272366 TO BUS 272512 CKT 1 / R FAL; B 138 H71 ;BT 138 TRIP BRANCH FROM BUS 272512 TO BUS 937530 CKT 1 / H71 ;BT 138 AD2-214 TAP 138 TRIP BRANCH FROM BUS 272512 TO BUS 272514 CKT 1 / H71 ;BT 138 H71 ; B 138 MOVE 100 PERCENT LOAD FROM BUS 272514 TO BUS 272515 / H71 ; B 138 H71 ; R 138 CLOSE LINE FROM BUS 272366 TO BUS 272367 CKT 1 / R FAL; B 138 R FAL; R 138 END

Contingency Name	Contingency Definition
COMED_P4_076-45-BT4-5__	CONTINGENCY 'COMED_P4_076-45-BT4-5__' TRIP BRANCH FROM BUS 270664 TO BUS 275162 CKT 1 / B ISL; B 345 B ISL;3M 138 TRIP BRANCH FROM BUS 270674 TO BUS 270664 CKT 1 / BURNH; B 345 B ISL; B 345 TRIP BRANCH FROM BUS 275162 TO BUS 271100 CKT 1 / B ISL;3M 138 B ISL; B 138 TRIP BRANCH FROM BUS 275262 TO BUS 275162 CKT 1 / B ISL;3C 34.5 B ISL;3M 138 TRIP BRANCH FROM BUS 270664 TO BUS 275181 CKT 1 / B ISL; B 345 B ISL;4M 138 TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / B ISL;BT 345 B ISL; B 345 TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / B ISL;BT 345 WILTO; B 345 TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 / GOODI;4B 345 B ISL;BT 345 TRIP BRANCH FROM BUS 275181 TO BUS 271100 CKT 1 / B ISL;4M 138 B ISL; B 138 TRIP BRANCH FROM BUS 275281 TO BUS 275181 CKT 1 / B ISL;4C 34.5 B ISL;4M 138 END
COMED_P4_006-45-BT7-8__	CONTINGENCY 'COMED_P4_006-45-BT7-8__' TRIP BRANCH FROM BUS 270678 TO BUS 930480 CKT 1 / BYRON ; B 345 AB1-089 TAP 345 TRIP BRANCH FROM BUS 270678 TO BUS 270679 CKT 1 / BYRON ; B 345 BYRON ; R 345 END
COMED_P1-2_345-L15501_B-R-B	CONTINGENCY 'COMED_P1-2_345-L15501_B-R-B' TRIP BRANCH FROM BUS 946160 TO BUS 274768 CKT 1 / AF1-281 TAP 345 LEECO;BP 345 END
COMED_P1-2_345-L15501_B-R-A	CONTINGENCY 'COMED_P1-2_345-L15501_B-R-A' TRIP BRANCH FROM BUS 270828 TO BUS 946160 CKT 1 / NELSO; B 345 AF1-281 TAP 345 END
AEP_P1-2_#286	CONTINGENCY 'AEP_P1-2_#286' OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_P1-2_345-L15502_B-R-B	CONTINGENCY 'COMED_P1-2_345-L15502_B-R-B' TRIP BRANCH FROM BUS 943410 TO BUS 270730 CKT 1 / AF1-012 TAP 345 ELEC JUNC; B 345 END
COMED_P4_155-45-BT6-7__	CONTINGENCY 'COMED_P4_155-45-BT6-7__' TRIP BRANCH FROM BUS 275204 TO BUS 270828 CKT 1 / NELSO;4M 138 NELSO; B 345 TRIP BRANCH FROM BUS 275204 TO BUS 272094 CKT 1 / NELSO;4M 138 NELSO; B 138 TRIP BRANCH FROM BUS 275204 TO BUS 275304 CKT 1 / NELSO;4M 138 NELSO;4C 34.5 TRIP BRANCH FROM BUS 270828 TO BUS 946160 CKT 1 / NELSO; B 345 AF1-281 TAP 345 END
COMED_P4_937-45-BT1-2__	CONTINGENCY 'COMED_P4_937-45-BT1-2__' TRIP BRANCH FROM BUS 946160 TO BUS 274768 CKT 1 / AF1-281 TAP 345 LEECO;BP 345 TRIP BRANCH FROM BUS 274768 TO BUS 270678 CKT 1 / LEECO;BP 345 BYRON; B 345 END
Base Case	

Contingency Name	Contingency Definition
COMED_P1-2_345-L15503_B-R	CONTINGENCY 'COMED_P1-2_345-L15503_B-R' TRIP BRANCH FROM BUS 270828 TO BUS 270700 CKT 1 END / NELSO; B 345 CORDO; B 345
COMED_P1-2_345-L11613AB-S	CONTINGENCY 'COMED_P1-2_345-L11613AB-S' TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 END / B ISL;BT 345 B ISL; B 345 / B ISL;BT 345 WILTO; B 345 / GOODI;4B 345 B ISL;BT 345
COMED_P1-3_TR94_PLANO_R-S	CONTINGENCY 'COMED_P1-3_TR94_PLANO_R-S' TRIP BRANCH FROM BUS 275208 TO BUS 270630 CKT 1 TRIP BRANCH FROM BUS 275208 TO BUS 270847 CKT 1 TRIP BRANCH FROM BUS 275208 TO BUS 275308 CKT 1 END / PLANO;4M 345 PLANO; 765 / PLANO;4M 345 PLANO; R 345 / PLANO;4M 345 PLANO;4C 33
COMED_P1-2_345-L0404___-R	CONTINGENCY 'COMED_P1-2_345-L0404___-R' TRIP BRANCH FROM BUS 270864 TO BUS 270890 CKT 1 END / QUAD3-11 345 H471 ; 345
COMED_P4_937-45-BT1-4__	CONTINGENCY 'COMED_P4_937-45-BT1-4__' TRIP BRANCH FROM BUS 946160 TO BUS 274768 CKT 1 TRIP BRANCH FROM BUS 271421 TO BUS 274450 CKT 1 TRIP BRANCH FROM BUS 271421 TO BUS 274451 CKT 1 TRIP BRANCH FROM BUS 272528 TO BUS 271421 CKT 1 TRIP BRANCH FROM BUS 274420 TO BUS 274857 CKT 1 TRIP BRANCH FROM BUS 274421 TO BUS 274858 CKT 1 TRIP BRANCH FROM BUS 274450 TO BUS 274420 CKT 1 TRIP BRANCH FROM BUS 274451 TO BUS 274421 CKT 1 TRIP BRANCH FROM BUS 274768 TO BUS 272528 CKT 1 REMOVE UNIT W1 FROM BUS 274857 REMOVE UNIT W2 FROM BUS 274858 END / AF1-281 TAP 345 LEECO;BP 345 / EASYR; B 138 EASYR;1 34.5 / EASYR; B 138 EASYR;2 34.5 / S DIX; B 138 EASYR; B 138 / EASYR;1H 34.5 EASYR;U1 0.69 / EASYR;2H 34.5 EASYR;U2 0.69 / EASYR;1 34.5 EASYR;1H 34.5 / EASYR;2 34.5 EASYR;2H 34.5 / LEECO;BP 345 S DIX; B 138 / EASYR;U1 0.69 / EASYR;U2 0.69
COMED_P1-2_138-L13219_X-R	CONTINGENCY 'COMED_P1-2_138-L13219_X-R' TRIP BRANCH FROM BUS 271543 TO BUS 631033 CKT 1 END / GARDE; 138 ALBANY 6 138

Short Circuit

18 Short Circuit

The following Breakers are overdutied:

Bus Number	Bus Name	BREAKER	Type	Capacity (Amps)	Duty Percentage Post Queue	Duty Percentage Pre Queue

20. Secondary Point of Interconnection

AF1-296 will interconnect with the ComEd transmission system tapping the Sterling Steel to Quad Cities 345 kV line.

Summer Peak Load Flow

21. Generation Deliverability

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

None

22. Multiple Facility Contingency

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

None

23. 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 LOADIN G %	POST PROJE CT LOADIN G %	AC/D C	MW IMPAC T
44487118	270678	BYRON ; B	345.0	CE	270694	CHERRY VA; B	345.0	CE	1	COMED_P4_006-45-BT7-8__	breaker	1441.0	187.77	188.73	DC	30.82
45845850	270678	BYRON ; B	345.0	CE	270694	CHERRY VA; B	345.0	CE	1	COMED_P4_006-45-BT10-14	breaker	1441.0	132.42	132.99	DC	18.32
44487196	270730	ELECT JCT; B	345.0	CE	270812	LOMBARD ; B	345.0	CE	1	COMED_P4_012-45-BT5-6__	breaker	1479.0	104.21	104.68	DC	15.45
44487021	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	125.09	128.31	DC	58.39
44487022	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_937-45-BT1-2__	breaker	1656.0	120.93	122.21	DC	57.73
44487023	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P4_937-45-BT1-4__	breaker	1656.0	120.56	121.84	DC	57.73
61008583	270828	NELSON ; B	345.0	CE	274768	LEE CO EC;BP	345.0	CE	1	COMED_P4_937-45-BT3-4__	breaker	1479.0	126.93	130.38	DC	46.2
44486970	943410	AF1-012 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_155-45-BT6-7__	breaker	1656.0	132.97	134.26	DC	58.39
44486971	943410	AF1-012 TAP	345.0	CE	270730	ELECT JCT; B	345.0	CE	1	COMED_P4_937-45-BT1-2__	breaker	1656.0	131.93	133.19	DC	57.73
43609445	956820	J1180 TAP	345.0	AMIL	247712	OSSULLIVAN	345.0	AEP	1	AEP_P4_#3128_05EUG ENE 345_A2	breaker	1466.0	176.32	176.5	DC	17.33

24. 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 IMPAC T
44487964	270678	BYRON ; B	345.0	CE	930480	AB1-089 TAP	345.0	CE	1	COMED_P 1-2_345-L97116__R_FSA	operation	2058.0	114.07	114.63	DC	25.32
61009413	270678	BYRON ; B	345.0	CE	930480	AB1-089 TAP	345.0	CE	1	Base Case	operation	1679.0	108.73	109.28	DC	20.39
44487662	270694	CHERRY VA; B	345.0	CE	270759	GARDEN PR; R	345.0	CE	1	COMED_P 1-2_345-L0626__B-R-B	operation	1479.0	151.23	151.92	DC	22.5
44487664	270694	CHERRY VA; B	345.0	CE	270759	GARDEN PR; R	345.0	CE	1	Base Case	operation	1201.0	112.35	112.95	DC	16.03
52926894	270700	CORDOVA ; B	345.0	CE	270828	NELSON ; B	345.0	CE	1	COMED_P 1-2_345-L0404__R-B	operation	2058.0	157.4	163.77	DC	78.05
44487796	270730	ELECT JCT; B	345.0	CE	270812	LOMBARD ; B	345.0	CE	1	Base Case	operation	1201.0	101.96	102.45	DC	13.03
44487584	270759	GARDEN PR; R	345.0	CE	270883	SILVER LK; R	345.0	CE	1	COMED_P 1-2_345-L0626__B-R-B	operation	1479.0	140.1	140.78	DC	22.5
44487587	270759	GARDEN PR; R	345.0	CE	270883	SILVER LK; R	345.0	CE	1	Base Case	operation	1201.0	127.67	128.27	DC	16.03
44487672	270770	GOODING S ;4B	345.0	CE	270766	GOODINGS ;3B	345.0	CE	1	COMED_P 1-2_345-L11613AB-S	operation	1802.0	124.01	124.52	DC	20.4
44487684	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	COMED_P 1-2_345-L15501_B-R-A	operation	1656.0	120.53	121.82	DC	57.74
44487686	270828	NELSON ; B	345.0	CE	943410	AF1-012 TAP	345.0	CE	1	Base Case	operation	1334.0	107.18	110.29	DC	41.25
61009188	270828	NELSON ; B	345.0	CE	274768	LEE CO EC;BP	345.0	CE	1	Base Case	operation	1201.0	126.98	132.79	DC	46.65
61009189	270828	NELSON ; B	345.0	CE	274768	LEE CO EC;BP	345.0	CE	1	COMED_P 1-2_345-L93701_B-R	operation	1479.0	125.62	129.41	DC	46.23
44487562	270890	ESS H471 ;	345.0	CE	270828	NELSON ; B	345.0	CE	1	COMED_P 1-2_345-L15503_B-R	operation	2058.0	156.0	163.65	DC	97.9
44487806	274768	LEE CO EC;BP	345.0	CE	270678	BYRON ; B	345.0	CE	1	COMED_P 1-2_345-L15502_B-R-B	operation	1726.0	120.03	121.7	DC	64.22

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Ratin g MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
4448781 0	27476 8	LEE CO EC;BP	345. 0	CE	27067 8	BYRON ; B	345. 0	CE	1	Base Case	operatio n	1334. 0	113.72	115.26	DC	45.82
4448787 1	93048 0	AB1-089 TAP	345. 0	CE	27091 6	WAYNE ; B	345. 0	CE	1	COMED_P 1-2_345- L97116__- R_FSA	operatio n	2058. 0	125.12	125.68	DC	25.32
4448787 5	93048 0	AB1-089 TAP	345. 0	CE	27091 6	WAYNE ; B	345. 0	CE	1	Base Case	operatio n	1679. 0	121.45	122.0	DC	20.39
4448759 4	94341 0	AF1-012 TAP	345. 0	CE	27073 0	ELECT JCT; B	345. 0	CE	1	COMED_P 1-2_345- L15501_B- R-A	operatio n	1656. 0	131.7	132.96	DC	57.74
4448759 6	94341 0	AF1-012 TAP	345. 0	CE	27073 0	ELECT JCT; B	345. 0	CE	1	Base Case	operatio n	1334. 0	124.54	127.59	DC	41.25
5292688 9	94632 0	AF1-296 TAP	345. 0	CE	27089 0	ESS H471 ;	345. 0	CE	1	COMED_P 1-2_345- L15503_B- R	operatio n	2058. 0	156.13	163.79	DC	97.9
4360975 4	95682 0	J1180 TAP	345. 0	AMIL	24771 2	05SULLIVA N	345. 0	AEP	1	AEP_P1- 2_#286	operatio n	1466. 0	171.45	171.63	DC	17.54
4360975 5	95682 0	J1180 TAP	345. 0	AMIL	24771 2	05SULLIVA N	345. 0	AEP	1	Base Case	operatio n	1334. 0	151.99	152.43	DC	14.63