Generation Interconnection

Feasibility Study Report

for

Queue Project AF1-156

BRAIDWOOD-DAVIS CREEK

90 MW Capacity / 150 MW Energy

January, 2020

1 General

The Interconnection Customer (IC) has proposed a solar generating facility located in Kankakee County, Illinois. The installed facilities will have a total capability of 150 MW with 90 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is September 30, 2021. This study does not imply a TO commitment to this in-service date. The IC requested the AF1-156 project be studied at both a Primary and Secondary Point of Interconnection.

Queue Number	AF1-156
Project Name	BRAIDWOOD-DAVIS CREEK
State	Illinois
County	Kankakee
Transmission Owner	ComEd
MFO	150
MWE	150
MWC	90
Fuel	Solar
Basecase Study Year	2023

1.1 Primary Point of Interconnection

Queue Position AF1-156, a 150 MW solar facility, proposes to interconnect with the ComEd transmission system by tying into the 345kV bus at the Interconnection Substation proposed in the AE2-153 project.

1.2 Cost Summary

AF1-156 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	$3,000,000
Non Direct Connection Network Upgrades	$0
Total Costs	$4,000,000

In addition, the AF1-156 project may be responsible for a contribution to the following costs associated with Network Upgrades (See Section 16):

Description	Total Cost
System Upgrades	**$91,862,560**

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

2 Transmission Owner Scope of Work

Attachment Facilities

The AF1-156 generator lead would interconnect to the 345kV bus at the Interconnection Substation proposed in the AE2-153 project. The required Attachment Facilities are one 345kV line MOD, a dead-end structure and revenue metering.

Direct Connection Network Upgrades

Prior to the AF1-156 queue project, AE2-153 would build an Interconnection Substation in a breaker-and-a-half configuration. The generator lead for AF1-156 would be interconnected to this substation by expanding it.

The scope of work includes the installation of one 345 kV circuit breaker at this Interconnection Substation to create a line position for the IC's generator lead, as shown in the one-line diagram below. Please note that if the AE2-153 project withdraws from the New Services queue, the interconnection scope for AF1-156 would change.

The Interconnection Customer ("IC") is responsible for constructing all of the facilities on the IC side of the Point of Interconnection ("POI") outside of the substation.

Non-Direct Connection Network Upgrades

None

3 Attachment Facilities Cost Estimate

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 345kV 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

Description	Total Cost
Installation of one 345kV circuit breaker at the AE2-153 Interconnection TSS and relay/protection work	$3,000,000
Total Direct Connection Facility Costs	**$3,000,000**

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 IC.

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 IC and the actual costs of ComEd's work may differ significantly from these estimates. The IC 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 IC is responsible for all engineering, procurement, testing and construction of all equipment on the IC'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 of acquiring property and associated legal costs will be investigated during Facilities Study for this project.

6 Schedule

ComEd would take approximately 24-months to construct the substation and transmission line work after the 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

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 Network Impacts

The Queue Project AF1-156 was evaluated as a 150.0 MW (Capacity 90.0 MW) injection tapping the Braidwood to Davis Creek 345 kV line in the ComEd area. Project AF1-156 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-156 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	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC| DC	MW IMPACT
44275847	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1091.0	124.75	124.79	DC	14.65
44275848	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1091.0	124.76	124.8	DC	14.65
44275849	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	124.18	124.22	DC	14.78
44275850	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	124.16	124.21	DC	14.77
44275851	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	124.16	124.2	DC	14.77
43480210	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1409.0	133.35	133.4	DC	23.02
43480211	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1409.0	133.34	133.39	DC	23.02
43480355	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P4_#2978_05DUMONT_FSA	breaker	971.0	101.98	102.03	DC	13.32
43480356	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	971.0	101.98	102.03	DC	13.32
44275852	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1091.0	124.75	124.79	DC	14.65
44275853	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1091.0	124.75	124.79	DC	14.65
44275854	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	124.18	124.22	DC	14.78
44275855	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	124.15	124.2	DC	14.77
44275856	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	124.15	124.2	DC	14.77
44275917	270926	WILTON ; B	345.0	CE	275232	WILTON ;3M	345.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.65	117.72	DC	25.69
44275892	270927	WILTON ; R	345.0	CE	275233	WILTON ;4M	345.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.11	120.19	DC	26.22
44275747	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1399.0	153.49	153.55	DC	20.44
44275748	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1399.0	153.49	153.55	DC	20.44
44275749	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	153.06	153.12	DC	20.55
44275750	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	153.06	153.11	DC	20.55
44275916	275232	WILTON ;3M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.65	117.72	DC	25.69
44275893	275233	WILTON ;4M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.11	120.19	DC	26.22
44276846	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S-B	tower	2221.0	121.16	122.6	DC	31.23
44276847	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S-A	tower	2221.0	118.16	119.6	DC	31.3

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	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
44276451	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P1-2_695_B2	operation	1091.0	124.15	124.2	DC	14.77
43480554	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_695_B2	operation	1409.0	131.39	131.44	DC	23.73
44276349	270670	BRAIDWOOD; B	345.0	CE	934730	AD1-100 TAP	345.0	CE	1	COMED_P1-2_345-L2004_AR-S-B	operation	1341.0	120.12	124.44	DC	57.76
44276337	270728	E FRANKFO; B	345.0	CE	270766	GOODINGS ;3B	345.0	CE	1	COMED_P1-2_345-L94507_B-S	operation	1726.0	145.92	146.94	DC	17.63
43480711	270771	GREENACRE ; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_695_B2	operation	971.0	101.03	101.08	DC	13.49
44276456	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P1-2_695_B2	operation	1091.0	124.15	124.2	DC	14.77
44276319	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	Base Case	operation	1091.0	154.92	154.96	DC	13.73
44276320	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P1-2_695_B2	operation	1399.0	153.02	153.07	DC	20.55
43480700	274804	UNIV PK N;RP	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_695_B2	operation	971.0	102.86	102.95	DC	16.51
44276296	934720	AD1-100 TAP	345.0	CE	270926	WILTON ; B	345.0	CE	1	Base Case	operation	1364.0	146.28	147.82	DC	20.75
44276640	934730	AD1-100 TAP	345.0	CE	270710	DAVIS CRK; B	345.0	CE	1	COMED_P1-2_345-L2004_AR-S-B	operation	1341.0	104.41	105.7	DC	17.21

15 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost

ID	Index	Facility	Upgrade Description	Cost
44276847,44276846	10	AD1-100 TAP 345.0 kV - WILTON ; B 345.0 kV Ckt 1	CE ce-019 (1839) : L11212 SLD & ALDR ratings are 2221 MVA & 2554MVA respectively. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to re-conductor the line, upgrade station conductor at both terminals, upgrade 2-345kV circuit breakers at Wilton Center. A preliminary estimate for the upgrades is $ 43.2 M with a estimated construction timeline of 36 months. Upon completion of the upgrades the rating swill be 1912/1912/1912/2390/2749 MVA (SN/SLTE/SSTE/SLD/ALDR). Project Type : FAC Cost : $43,200,000 Time Estimate : 36.0 Months	$43,200,000
44275916	8	WILTON ;3M 345.0 kV - WILTON ; 765.0 kV Ckt 1	CE n5145 (1825) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : $11,000,000 Time Estimate : 36-40 Months	$11,000,000
44275917	5	WILTON ; B 345.0 kV - WILTON ;3M 345.0 kV Ckt 1	CE n5145 (1825) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : $11,000,000 Time Estimate : 36-40 Months	$11,000,000
44275892	6	WILTON ; R 345.0 kV - WILTON ;4M 345.0 kV Ckt 1	CE n5145 (1825) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : $11,000,000 Time Estimate : 36-40 Months	$11,000,000
44275893	9	WILTON ;4M 345.0 kV - WILTON ; 765.0 kV Ckt 1	CE n5145 (1825) : PJM Network Upgrade (n5145): Reconfigure Wilton 765kV bus thereby allowing for 765kV L11216 (currently on Bus 6) to be relocated to Bus 8. Along with this line relocation, installation of 2-765kV BT CBs (6-8 & 8-2). Project Type : CON Cost : $11,000,000 Time Estimate : 36-40 Months	$11,000,000

ID	Index	Facility	Upgrade Description	Cost
44275749,44275748, 44275750,44275747	7	CRETE EC ;BP 345.0 kV - 17STJOHN 345.0 kV Ckt 1	**CE** **N5253 (1827) : L94507 SSTE rating is 1483 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to reconductor the line, upgrade station conductor and upgrade a relay package. A preliminary cost estimate is $14.9 M with an estimated construction timeline of 30 months. Upon complation of this upgrade the new ratings will be 1754/2246/2297/2488 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $14,900,000** **Time Estimate : 30.0 Months** **NIPS** **NonPJMArea (1906) : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months**	$14,900,000
43480356,43480355	3	GREENACRE; T 345.0 kV - 05OLIVE 345.0 kV Ckt 1	**AEP** **AEP_AE1_REF_r0005 (219) : Replace ACSR/PE 1414 62/19 - Conductor Section 1. 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** **CE** **ce-002 (1817) : AEP owns limit on L6615. CE and NIPSCO have a sag limit as well that would need to be addressed. CE SSTE rating is 1134 MVA.A preliminary estimate for sag mitigation is $13.9M with an estimated construction timeline of 30 months. Upon completion of the sag mitigation the new ratings will become 1091/1399/1483/1674 MVA SN/SLTE/SSTE/SLD.** **Project Type : FAC** **Cost : $13,900,000** **Time Estimate : 30.0 Months**	$14,062,560

ID	Index	Facility	Upgrade Description	Cost
43480210,43480211	2	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	**AEP** **n4790 (245) : PJM Network Upgrade n4790. Replace Dumont substation 2500A wavetrap.** **Project Type : FAC** **Cost : $200,000** **Time Estimate : 12-18 Months** **n5769.1 (246) : PJM Network Upgrade n5769.1. Perform engineering study for CT limits, and relay compliance trip limits at Dumont substation.** **Project Type : FAC** **Cost : $25,000** **Time Estimate : 12-18 Months** **n5769.2 (247) : PJM Network Upgrade n5769.2. Replace two Dumont 3000A Non-Oil breakers.** **Project Type : FAC** **Cost : $2,000,000** **Time Estimate : 12-18 Months** **n5769.3 (248) : PJM Network Upgrade n5769.3. Replace 11 jumpers/risers at Dumont substation.** **Project Type : FAC** **Cost : $275,000** **Time Estimate : 12-18 Months** **NIPS** **NonPJMArea (446) : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months**	$2,500,000
44275851,44275847, 44275850,44275848, 44275849	1	17STJOHN 345.0 kV - ST JOHN ; T 345.0 kV Ckt 1	**CE** **N5833 (1830) : L6617 SSTE is 1134 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade is sag mitgation of the line. A preliminary estimate is $3.1 M with an estimated construction timeline of 30 months. Upon completion of this upgrade the new ratings will be 1091/1399/1483/1674 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $3,100,000** **Time Estimate : 30.0 Months** **NIPS** **NonPJMArea (1906) : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.** **Project Type : FAC** **Cost : $0** **Time Estimate : 0.0 Months**	$3,100,000

ID	Index	Facility	Upgrade Description	Cost
44275853,44275852, 44275855,44275854, 44275856	4	ST JOHN ; T 345.0 kV - 17GREEN_ACRE 345.0 kV Ckt 1	CE N5834 (1831) : L6617 SSTE is 1134 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade is sag mitgation of the line. A preliminary estimate is $3.1 M with an estimated construction timeline of 30 months. Upon completion of this upgrade the new ratings will be 1091/1399/1483/1674 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : $3,100,000 Time Estimate : 30.0 Months NIPS NonPJMArea (1906) : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : $0 Time Estimate : 0.0 Months	$3,100,000
			TOTAL COST	$91,862,560

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
44275851	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	124.16	124.2	DC	14.77

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	16.9156
274655	BRAIDWOOD;2U	16.4655
274687	WILL CNTY;4U	7.2284
274751	CRETE EC ;1U	3.0597
274752	CRETE EC ;2U	3.0597
274753	CRETE EC ;3U	3.0597

Bus #	Bus	MW Impact
274754	CRETE EC ;4U	3.0597
274861	TOP CROP ;1U	0.2955
274862	TOP CROP ;2U	0.5737
274881	PILOT HIL;1E	10.7945
275149	KELLYCK ;1E	10.7945
276161	W4-086	0.1491
276167	Z1-106 E2	0.7945
276168	Z1-106 E1	0.7945
276169	Z1-107 E	1.5625
276170	Z1-108 E	1.5677
290021	O50 E	12.3162
290108	LEEDK;1U E	12.6627
293061	N-015 E	9.7889
293644	O22 E1	8.4693
293645	O22 E2	16.4403
294392	P-010 E	12.4320
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**28.4029**
915011	Y3-013 1	2.3669
915021	Y3-013 2	2.3669
915031	Y3-013 3	2.3669
920272	AA2-123 E	1.5376
926311	AC1-109 1	1.1984
926321	AC1-109 2	1.1984
926331	AC1-110 1	1.1951
926341	AC1-110 2	1.1951
926351	AC1-111 1	0.4787
926361	AC1-111 2	0.4787
926371	AC1-111 3	0.4787
926381	AC1-111 4	0.4787
926391	AC1-111 5	0.4787
926401	AC1-111 6	0.4787
927091	AC1-204 1	46.5484
927101	AC1-204 2	46.4820
927451	AC1-142A 1	2.6996
927461	AC1-142A 2	2.7010
930501	AB1-091 O1	42.6547
930741	AB1-122 1O1	44.7060
930751	AB1-122 2O1	47.4039
933411	AC2-154 C	1.4650
933412	AC2-154 E	2.3902
933431	AC2-156 C O1	0.5983
933432	AC2-156 E O1	0.9761
933931	AD1-016 C	0.5843
933932	AD1-016 E	0.9533
934101	AD1-039 1	4.3812
934111	AD1-039 2	4.6456
934721	AD1-100 C	12.0296
934722	AD1-100 E	56.1383
936371	AD2-047 C O1	2.6215
936372	AD2-047 E O1	12.7992
936461	AD2-060	0.8173
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**9.5391**

Bus #	Bus	MW Impact
937322	AD2-175 E (Withdrawn : 12/10/2019)	6.3594
937401	AD2-194 1	5.0057
937411	AD2-194 2	4.9985
938511	AE1-070 1	5.8816
938521	AE1-070 2	5.3734
938851	AE1-113 C	5.0804
938852	AE1-113 E	18.0124
939351	AE1-166 C O1	3.3965
939352	AE1-166 E O1	3.1353
939631	AE1-193 C	18.9468
939632	AE1-193 E	126.7981
939641	AE1-194 C	18.9468
939642	AE1-194 E	126.7981
939651	AE1-195 C	18.9468
939652	AE1-195 E	126.7981
939681	AE1-198 C	56.2576
939682	AE1-198 E	47.8044
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.3491
940621	AE2-049 C O1	2.8324
940622	AE2-049 E O1	1.8883
940631	AE2-050 C O1	9.7974
940632	AE2-050 E O1	6.5316
940752	AE2-062 E	0.1005
940762	AE2-063 E (Withdrawn : 01/14/2020)	0.1005
941131	AE2-107 C	2.4316
941132	AE2-107 E	1.6211
941551	AE2-152 C O1	3.9191
941552	AE2-152 E O1	2.6127
941561	AE2-153 C O1	2.9468
941562	AE2-153 E O1	13.7965
942421	AE2-255 C O1	1.9244
942422	AE2-255 E O1	5.7732
942881	AE2-307 C O1	17.9619
942882	AE2-307 E O1	6.5316
942911	AE2-310 C O1	2.7503
942912	AE2-310 E O1	0.7389
942991	AE2-321 C	5.1432
942992	AE2-321 E	2.5332
943121	AE2-341 C	7.9824
943122	AE2-341 E	3.9198
943591	AF1-030 C O1	2.8218
943592	AF1-030 E O1	1.3836
943801	AF1-048 C	1.2742
943802	AF1-048 E	0.8495
944041	AF1-072	0.7191
944911	AF1-156 C	3.9933
944912	AF1-156 E	2.6622
945351	AF1-200 FTIR	102.7966
946521	AF1-316 C O1	2.2828
946522	AF1-316 E O1	3.4242
946661	AF1-330 C	0.6683
946662	AF1-330 E	0.1467

Bus #	Bus	MW Impact
955741	J1058	50.4750
WEC	WEC	2.7808
CBM-W2	CBM-W2	13.5053
NY	NY	0.8433
CBM-W1	CBM-W1	41.3581
TVA	TVA	0.8008
O-066	O-066	9.9725
CHEOAH	CHEOAH	0.0751
CBM-S1	CBM-S1	2.6412
G-007	G-007	1.5413
MADISON	MADISON	14.3257
MEC	MEC	9.4466
GIBSON	GIBSON	0.1349
CALDERWOOD	CALDERWOOD	0.0671
BLUEG	BLUEG	1.5329
TRIMBLE	TRIMBLE	0.5198
CATAWBA	CATAWBA	0.2191

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
4348021 1	25511 3	17STILLWEL L	NIPS	24321 9	05DUMON T	AEP	1	AEP_P4_#2978_05DUMONT_FSA	breake r	1409. 0	133.34	133.39	DC	23.02

Bus #	Bus	MW Impact
274724	RIVER EC ;11	4.3131
274788	**SE CHICAG;5U (Deativation : 06/01/20)**	**7.2749**
274789	**SE CHICAG;6U (Deativation : 06/01/20)**	**7.2941**
274790	**SE CHICAG;7U (Deativation : 06/01/20)**	**7.3901**
274791	**SE CHICAG;8U (Deativation : 06/01/20)**	**7.3901**
274792	**SE CHICAG;9U (Deativation : 06/01/20)**	**6.2047**
274793	**SE CHICAG;0U (Deativation : 06/01/20)**	**6.2047**
274794	**SE CHICAG;1U (Deativation : 06/01/20)**	**7.2996**
274795	**SE CHICAG;2U (Deativation : 06/01/20)**	**7.2996**
274830	U3-021 1	5.9351
274831	U3-021 2	5.9351
274881	PILOT HIL;1E	18.8591
275149	KELLYCK ;1E	18.8591
276161	W4-086	0.2359
276167	Z1-106 E2	1.2273
276168	Z1-106 E1	1.2272
276169	Z1-107 E	2.5648
276170	Z1-108 E	2.4191
290021	O50 E	18.8333
290051	GSG-6; E	3.3074
290108	LEEDK;1U E	23.6810

Bus #	Bus	MW Impact
293061	N-015 E	14.8492
293644	O22 E1	10.1030
293645	O22 E2	19.6117
294392	P-010 E	18.8584
910542	X3-005 E	0.8451
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**43.7243**
915011	Y3-013 1	3.6437
915021	Y3-013 2	3.6437
915031	Y3-013 3	3.6437
918052	AA1-018 E OP	15.8157
920272	AA2-123 E	2.3780
924471	AB2-096	41.2156
926311	AC1-109 1	1.8513
926321	AC1-109 2	1.8513
926331	AC1-110 1	1.8457
926341	AC1-110 2	1.8457
926351	AC1-111 1	0.7409
926361	AC1-111 2	0.7409
926371	AC1-111 3	0.7409
926381	AC1-111 4	0.7409
926391	AC1-111 5	0.7409
926401	AC1-111 6	0.7409
927091	AC1-204 1	70.3798
927101	AC1-204 2	70.3561
927451	AC1-142A 1	4.0890
927461	AC1-142A 2	4.0892
930501	AB1-091 O1	74.6224
930741	AB1-122 1O1	69.6078
930751	AB1-122 2O1	71.8071
933411	AC2-154 C	2.5595
933412	AC2-154 E	4.1759
933431	AC2-156 C O1	0.9283
933432	AC2-156 E O1	1.5146
933911	AD1-013 C	1.8083
933912	AD1-013 E	2.8885
933931	AD1-016 C	0.9036
933932	AD1-016 E	1.4743
934101	AD1-039 1	6.8216
934111	AD1-039 2	7.0371
934431	AD1-067 C	0.1286
934432	AD1-067 E	0.5407
934721	AD1-100 C	18.9656
934722	AD1-100 E	88.5063
934871	AD1-116 C	0.9211
934872	AD1-116 E	1.5028
934971	AD1-129 C	0.8798
934972	AD1-129 E	0.5865
936371	AD2-047 C O1	4.5801
936372	AD2-047 E O1	22.3615
936461	AD2-060	1.4279
936511	AD2-066 C O1	8.1954
936512	AD2-066 E O1	5.4636

Bus #	Bus	MW Impact
937001	AD2-134 C	2.6772
937002	AD2-134 E	11.0596
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**16.6862**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**11.1241**
937401	AD2-194 1	7.5684
937411	AD2-194 2	7.5659
938511	AE1-070 1	8.8929
938521	AE1-070 2	8.1333
938851	AE1-113 C	7.7687
938852	AE1-113 E	27.5437
939351	AE1-166 C O1	5.2839
939352	AE1-166 E O1	4.8774
939631	AE1-193 C	8.6820
939632	AE1-193 E	58.1025
939641	AE1-194 C	8.6820
939642	AE1-194 E	58.1025
939651	AE1-195 C	8.6820
939652	AE1-195 E	58.1025
939681	AE1-198 C	25.7788
939682	AE1-198 E	21.9053
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.5371**
940621	AE2-049 C O1	4.8871
940622	AE2-049 E O1	3.2581
940631	AE2-050 C O1	6.1122
940632	AE2-050 E O1	4.0748
940752	AE2-062 E	0.0687
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.0687**
941131	AE2-107 C	3.7742
941132	AE2-107 E	2.5161
941551	AE2-152 C O1	6.0968
941552	AE2-152 E O1	4.0645
941561	AE2-153 C O1	4.5912
941562	AE2-153 E O1	21.4953
942421	AE2-255 C O1	2.9427
942422	AE2-255 E O1	8.8281
942881	AE2-307 C O1	11.2056
942882	AE2-307 E O1	4.0748
942911	AE2-310 C O1	4.7454
942912	AE2-310 E O1	1.2749
942991	AE2-321 C	7.9553
942992	AE2-321 E	3.9183
943121	AE2-341 C	12.3870
943122	AE2-341 E	6.0827
943591	AF1-030 C O1	4.3789
943592	AF1-030 E O1	2.1470
943801	AF1-048 C	1.9710
943802	AF1-048 E	1.3140
944041	AF1-072	1.1094
944911	AF1-156 C	6.2216
944912	AF1-156 E	4.1478
945351	AF1-200 FTIR	158.8704
946521	AF1-316 C O1	3.4628

Bus #	Bus	MW Impact
946522	AF1-316 E O1	5.1942
946661	AF1-330 C	1.0335
946662	AF1-330 E	0.2269
946671	AF1-331	1.2446
951721	J643	25.9805
953871	J847	13.2318
954751	J351	435.5561
955741	J1058	36.5370
WEC	WEC	4.3038
CBM-W2	CBM-W2	29.4185
NY	NY	1.3477
CBM-W1	CBM-W1	73.8716
TVA	TVA	2.3114
O-066	O-066	15.9264
CBM-S1	CBM-S1	11.3231
G-007	G-007	2.4606
MADISON	MADISON	22.0167
MEC	MEC	15.3609
BLUEG	BLUEG	0.0972
TRIMBLE	TRIMBLE	0.0723
CATAWBA	CATAWBA	0.2034

16.3 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
4348035 6	27077 1	GREENACR E; T	CE	24322 9	05OLIV E	AEP	1	AEP_P4_#2978_05DUMONT_NON_ FSA	breake r	971.0	101.98	102.03	DC	13.32

Bus #	Bus	MW Impact
274751	CRETE EC ;1U	1.7551
274752	CRETE EC ;2U	1.7551
274753	CRETE EC ;3U	1.7551
274754	CRETE EC ;4U	1.7551
274788	**SE CHICAG;5U (Deativation : 06/01/20)**	**3.0011**
274789	**SE CHICAG;6U (Deativation : 06/01/20)**	**3.0091**
274790	**SE CHICAG;7U (Deativation : 06/01/20)**	**3.0487**
274791	**SE CHICAG;8U (Deativation : 06/01/20)**	**3.0487**
274792	**SE CHICAG;9U (Deativation : 06/01/20)**	**3.0948**
274793	**SE CHICAG;0U (Deativation : 06/01/20)**	**3.0948**
274794	**SE CHICAG;1U (Deativation : 06/01/20)**	**3.0948**
274795	**SE CHICAG;2U (Deativation : 06/01/20)**	**3.0948**
274830	U3-021 1	3.4285
274831	U3-021 2	3.4285
274881	PILOT HIL;1E	10.4613
275149	KELLYCK ;1E	10.4613
276161	W4-086	0.1351

Bus #	Bus	MW Impact
276167	Z1-106 E2	0.7104
276168	Z1-106 E1	0.7104
276169	Z1-107 E	1.4472
276170	Z1-108 E	1.4005
290021	O50 E	10.9303
290108	LEEDK;1U E	13.6646
293061	N-015 E	8.6537
293644	O22 E1	6.1217
293645	O22 E2	11.8833
294392	P-010 E	10.9902
910542	X3-005 E	0.4382
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**25.3429**
915011	Y3-013 1	2.1119
915021	Y3-013 2	2.1119
915031	Y3-013 3	2.1119
918052	AA1-018 E OP	8.9217
920272	AA2-123 E	1.3746
924471	AB2-096	23.8089
926311	AC1-109 1	1.0716
926321	AC1-109 2	1.0716
926331	AC1-110 1	1.0687
926341	AC1-110 2	1.0687
926351	AC1-111 1	0.4286
926361	AC1-111 2	0.4286
926371	AC1-111 3	0.4286
926381	AC1-111 4	0.4286
926391	AC1-111 5	0.4286
926401	AC1-111 6	0.4286
927091	AC1-204 1	41.1371
927101	AC1-204 2	41.0992
927451	AC1-142A 1	2.3892
927461	AC1-142A 2	2.3898
930501	AB1-091 O1	41.4766
930741	AB1-122 1O1	40.1068
930751	AB1-122 2O1	41.9445
933411	AC2-154 C	1.4197
933412	AC2-154 E	2.3164
933431	AC2-156 C O1	0.5363
933432	AC2-156 E O1	0.8750
933931	AD1-016 C	0.5224
933932	AD1-016 E	0.8523
934101	AD1-039 1	3.9305
934111	AD1-039 2	4.1106
934721	AD1-100 C	10.9102
934722	AD1-100 E	50.9142
934871	AD1-116 C	0.5196
934872	AD1-116 E	0.8477
934971	AD1-129 C	0.4611
934972	AD1-129 E	0.3074
936371	AD2-047 C O1	2.5406
936372	AD2-047 E O1	12.4041
936461	AD2-060	0.7921

Bus #	Bus	MW Impact
937321	AD2-175 C (Withdrawn : 12/10/2019)	9.2736
937322	AD2-175 E (Withdrawn : 12/10/2019)	6.1824
937401	AD2-194 1	4.4237
937411	AD2-194 2	4.4197
938511	AE1-070 1	5.1979
938521	AE1-070 2	4.7511
938851	AE1-113 C	4.5088
938852	AE1-113 E	15.9856
939351	AE1-166 C O1	3.0564
939352	AE1-166 E O1	2.8213
939631	AE1-193 C	10.8686
939632	AE1-193 E	72.7363
939641	AE1-194 C	10.8686
939642	AE1-194 E	72.7363
939651	AE1-195 C	10.8686
939652	AE1-195 E	72.7363
939681	AE1-198 C	32.2715
939682	AE1-198 E	27.4224
939732	AE1-204 E (Withdrawn : 11/18/2019)	0.3114
940621	AE2-049 C O1	2.7218
940622	AE2-049 E O1	1.8145
940631	AE2-050 C O1	3.7164
940632	AE2-050 E O1	2.4776
940752	AE2-062 E	0.0402
940762	AE2-063 E (Withdrawn : 01/14/2020)	0.0402
941131	AE2-107 C	2.1783
941132	AE2-107 E	1.4522
941551	AE2-152 C O1	3.5266
941552	AE2-152 E O1	2.3511
941561	AE2-153 C O1	2.6560
941562	AE2-153 E O1	12.4349
942421	AE2-255 C O1	1.7079
942422	AE2-255 E O1	5.1236
942881	AE2-307 C O1	6.8133
942882	AE2-307 E O1	2.4776
942911	AE2-310 C O1	2.6429
942912	AE2-310 E O1	0.7100
942991	AE2-321 C	4.5981
942992	AE2-321 E	2.2648
943121	AE2-341 C	7.1572
943122	AE2-341 E	3.5146
943591	AF1-030 C O1	2.5301
943592	AF1-030 E O1	1.2406
943801	AF1-048 C	1.1392
943802	AF1-048 E	0.7595
944041	AF1-072	0.6424
944911	AF1-156 C	3.5992
944912	AF1-156 E	2.3995
945351	AF1-200 FTIR	92.0111
946521	AF1-316 C O1	2.0180
946522	AF1-316 E O1	3.0271
946661	AF1-330 C	0.5974

Bus #	Bus	MW Impact
946662	AF1-330 E	0.1311
951721	J643	15.6310
953871	J847	8.4483
955741	J1058	43.9140
WEC	WEC	2.4860
CBM-W2	CBM-W2	13.9230
NY	NY	0.7388
CBM-W1	CBM-W1	41.2830
TVA	TVA	0.9800
O-066	O-066	8.7226
CBM-S1	CBM-S1	4.1492
G-007	G-007	1.3478
MADISON	MADISON	12.6242
MEC	MEC	8.5981
BLUEG	BLUEG	0.8090
TRIMBLE	TRIMBLE	0.2827
CATAWBA	CATAWBA	0.1515

16.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
44275856	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	124.15	124.2	DC	14.77

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	16.9156
274655	BRAIDWOOD;2U	16.4655
274687	WILL CNTY;4U	7.2284
274751	CRETE EC ;1U	3.0597
274752	CRETE EC ;2U	3.0597
274753	CRETE EC ;3U	3.0597
274754	CRETE EC ;4U	3.0597
274861	TOP CROP ;1U	0.2955
274862	TOP CROP ;2U	0.5737
274881	PILOT HIL;1E	10.7945
275149	KELLYCK ;1E	10.7945
276161	W4-086	0.1491
276167	Z1-106 E2	0.7945
276168	Z1-106 E1	0.7945
276169	Z1-107 E	1.5625
276170	Z1-108 E	1.5677
290021	O50 E	12.3162
290108	LEEDK;1U E	12.6627
293061	N-015 E	9.7889
293644	O22 E1	8.4693
293645	O22 E2	16.4403

Bus #	Bus	MW Impact
294392	P-010 E	12.4320
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**28.4029**
915011	Y3-013 1	2.3669
915021	Y3-013 2	2.3669
915031	Y3-013 3	2.3669
920272	AA2-123 E	1.5376
926311	AC1-109 1	1.1984
926321	AC1-109 2	1.1984
926331	AC1-110 1	1.1951
926341	AC1-110 2	1.1951
926351	AC1-111 1	0.4787
926361	AC1-111 2	0.4787
926371	AC1-111 3	0.4787
926381	AC1-111 4	0.4787
926391	AC1-111 5	0.4787
926401	AC1-111 6	0.4787
927091	AC1-204 1	46.5484
927101	AC1-204 2	46.4820
927451	AC1-142A 1	2.6996
927461	AC1-142A 2	2.7010
930501	AB1-091 O1	42.6547
930741	AB1-122 1O1	44.7060
930751	AB1-122 2O1	47.4039
933411	AC2-154 C	1.4650
933412	AC2-154 E	2.3902
933431	AC2-156 C O1	0.5983
933432	AC2-156 E O1	0.9761
933931	AD1-016 C	0.5843
933932	AD1-016 E	0.9533
934101	AD1-039 1	4.3812
934111	AD1-039 2	4.6456
934721	AD1-100 C	12.0296
934722	AD1-100 E	56.1383
936371	AD2-047 C O1	2.6215
936372	AD2-047 E O1	12.7992
936461	AD2-060	0.8173
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**9.5391**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**6.3594**
937401	AD2-194 1	5.0057
937411	AD2-194 2	4.9985
938511	AE1-070 1	5.8816
938521	AE1-070 2	5.3734
938851	AE1-113 C	5.0804
938852	AE1-113 E	18.0124
939351	AE1-166 C O1	3.3965
939352	AE1-166 E O1	3.1353
939631	AE1-193 C	18.9468
939632	AE1-193 E	126.7981
939641	AE1-194 C	18.9468
939642	AE1-194 E	126.7981
939651	AE1-195 C	18.9468
939652	AE1-195 E	126.7981

Bus #	Bus	MW Impact
939681	AE1-198 C	56.2576
939682	AE1-198 E	47.8044
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.3491**
940621	AE2-049 C O1	2.8324
940622	AE2-049 E O1	1.8883
940631	AE2-050 C O1	9.7974
940632	AE2-050 E O1	6.5316
940752	AE2-062 E	0.1005
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.1005**
941131	AE2-107 C	2.4316
941132	AE2-107 E	1.6211
941551	AE2-152 C O1	3.9191
941552	AE2-152 E O1	2.6127
941561	AE2-153 C O1	2.9468
941562	AE2-153 E O1	13.7965
942421	AE2-255 C O1	1.9244
942422	AE2-255 E O1	5.7732
942881	AE2-307 C O1	17.9619
942882	AE2-307 E O1	6.5316
942911	AE2-310 C O1	2.7503
942912	AE2-310 E O1	0.7389
942991	AE2-321 C	5.1432
942992	AE2-321 E	2.5332
943121	AE2-341 C	7.9824
943122	AE2-341 E	3.9198
943591	AF1-030 C O1	2.8218
943592	AF1-030 E O1	1.3836
943801	AF1-048 C	1.2742
943802	AF1-048 E	0.8495
944041	AF1-072	0.7191
944911	AF1-156 C	3.9933
944912	AF1-156 E	2.6622
945351	AF1-200 FTIR	102.7966
946521	AF1-316 C O1	2.2828
946522	AF1-316 E O1	3.4242
946661	AF1-330 C	0.6683
946662	AF1-330 E	0.1467
955741	J1058	50.4750
WEC	WEC	2.7808
CBM-W2	CBM-W2	13.5053
NY	NY	0.8433
CBM-W1	CBM-W1	41.3581
TVA	TVA	0.8008
O-066	O-066	9.9725
CHEOAH	CHEOAH	0.0751
CBM-S1	CBM-S1	2.6412
G-007	G-007	1.5413
MADISON	MADISON	14.3257
MEC	MEC	9.4466
GIBSON	GIBSON	0.1349
CALDERWOOD	CALDERWOOD	0.0671
BLUEG	BLUEG	1.5329

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.5198
CATAWBA	CATAWBA	0.2191

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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
44275917	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.65	117.72	DC	25.69

Bus #	Bus	MW Impact
274771	LINCOLN ;2U	3.0480
274772	LINCOLN ;3U	3.0480
274773	LINCOLN ;4U	3.0480
274774	LINCOLN ;5U	3.0480
274775	LINCOLN ;6U	3.0480
274776	LINCOLN ;7U	3.0480
274777	LINCOLN ;8U	3.0480
274830	U3-021 1	6.3043
274831	U3-021 2	6.3043
274881	PILOT HIL;1E	19.9420
274890	CAYUG;1U E	17.0075
274891	CAYUG;2U E	17.0075
275149	KELLYCK ;1E	19.9420
276161	W4-086	0.2521
276167	Z1-106 E2	1.3064
276168	Z1-106 E1	1.3064
276169	Z1-107 E	2.6741
276170	Z1-108 E	2.5706
290021	O50 E	20.0287
290051	GSG-6; E	10.8928
290108	LEEDK;1U E	25.1957
293061	N-015 E	16.4444
293644	O22 E1	10.5927
293645	O22 E2	20.5622
294392	P-010 E	20.8844
910542	X3-005 E	0.7563
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**46.3651**
915011	Y3-013 1	3.8638
915021	Y3-013 2	3.8638
915031	Y3-013 3	3.8638
918052	AA1-018 E OP	16.9848
920272	AA2-123 E	2.5264
924041	AB2-047 C O1	0.5855
924042	AB2-047 E O1	3.9182
924471	AB2-096	43.7801
926311	AC1-109 1	1.9768
926321	AC1-109 2	1.9768

Bus #	Bus	MW Impact
926331	AC1-110 1	1.9636
926341	AC1-110 2	1.9636
926351	AC1-111 1	0.7895
926361	AC1-111 2	0.7895
926371	AC1-111 3	0.7895
926381	AC1-111 4	0.7895
926391	AC1-111 5	0.7895
926401	AC1-111 6	0.7895
927091	AC1-204 1	75.0465
927101	AC1-204 2	75.0465
927451	AC1-142A 1	4.3262
927461	AC1-142A 2	4.3259
930501	AB1-091 O1	79.3488
930741	AB1-122 1O1	75.3115
930751	AB1-122 2O1	76.2401
933411	AC2-154 C	2.7064
933412	AC2-154 E	4.4157
933431	AC2-156 C O1	0.9894
933432	AC2-156 E O1	1.6143
933911	AD1-013 C	1.9234
933912	AD1-013 E	3.0725
933931	AD1-016 C	0.9600
933932	AD1-016 E	1.5663
934101	AD1-039 1	7.3805
934111	AD1-039 2	7.4715
934431	AD1-067 C	0.1368
934432	AD1-067 E	0.5751
934701	AD1-098 C O1	7.1671
934702	AD1-098 E O1	5.2327
934721	AD1-100 C	24.8549
934722	AD1-100 E	115.9893
934871	AD1-116 C	0.9892
934872	AD1-116 E	1.6139
934971	AD1-129 C	0.9346
934972	AD1-129 E	0.6230
935001	AD1-133 C O1	23.0265
935002	AD1-133 E O1	15.3510
936291	AD2-038 C O1	2.4304
936292	AD2-038 E O1	16.2649
936371	AD2-047 C O1	4.8431
936372	AD2-047 E O1	23.6455
936461	AD2-060	1.5099
936511	AD2-066 C O1	8.7651
936512	AD2-066 E O1	5.8434
937001	AD2-134 C	2.8475
937002	AD2-134 E	11.7632
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**17.7568**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**11.8378**
937401	AD2-194 1	8.0702
937411	AD2-194 2	8.0702
938511	AE1-070 1	9.4825
938521	AE1-070 2	8.6755

Bus #	Bus	MW Impact
938851	AE1-113 C	8.2618
938852	AE1-113 E	29.2920
939321	AE1-163 C O1	6.1071
939322	AE1-163 E O1	37.5153
939351	AE1-166 C O1	6.4997
939352	AE1-166 E O1	5.9997
939401	AE1-172 C O1	6.7954
939402	AE1-172 E O1	31.8837
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.5696**
939741	AE1-205 C O1	10.4001
939742	AE1-205 E O1	14.3621
940101	AE1-252 C O1	13.6514
940102	AE1-252 E O1	9.1010
940621	AE2-049 C O1	5.1697
940622	AE2-049 E O1	3.4464
940631	AE2-050 C O1	6.8967
940632	AE2-050 E O1	4.5978
940752	AE2-062 E	0.0716
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.0716**
941131	AE2-107 C	4.0158
941132	AE2-107 E	2.6772
941551	AE2-152 C O1	7.4996
941552	AE2-152 E O1	4.9997
941561	AE2-153 C O1	5.1253
941562	AE2-153 E O1	23.9957
941731	AE2-173 O1	6.1905
942111	AE2-223 C	2.4143
942112	AE2-223 E	16.1573
942421	AE2-255 C O1	3.1295
942422	AE2-255 E O1	9.3885
942651	AE2-281 C O1	0.8724
942652	AE2-281 E O1	5.3593
942881	AE2-307 C O1	12.6440
942882	AE2-307 E O1	4.5978
942911	AE2-310 C O1	5.0198
942912	AE2-310 E O1	1.3486
942991	AE2-321 C	8.4519
942992	AE2-321 E	4.1629
943121	AE2-341 C	13.2096
943122	AE2-341 E	6.4866
943381	AF1-009 C	0.3286
943382	AF1-009 E	1.3144
943422	AF1-013 E	1.6430
943591	AF1-030 C O1	4.6697
943592	AF1-030 E O1	2.2896
943801	AF1-048 C	2.0940
943802	AF1-048 E	1.3960
944041	AF1-072	1.1799
944911	AF1-156 C	6.9454
944912	AF1-156 E	4.6302
945351	AF1-200 FTIR	171.0257
946521	AF1-316 C O1	3.8348

Bus #	Bus	MW Impact
946522	AF1-316 E O1	5.7523
946661	AF1-330 C	1.0980
946662	AF1-330 E	0.2410
946671	AF1-331	1.3239
WEC	WEC	4.5593
CBM-W2	CBM-W2	25.8886
NY	NY	1.4400
CBM-W1	CBM-W1	77.6746
TVA	TVA	1.6184
O-066	O-066	17.0957
CHEOAH	CHEOAH	0.0776
CBM-S1	CBM-S1	6.0492
G-007	G-007	2.6426
MADISON	MADISON	24.2726
MEC	MEC	16.0219
CALDERWOOD	CALDERWOOD	0.0636
BLUEG	BLUEG	2.3054
TRIMBLE	TRIMBLE	0.7964
CATAWBA	CATAWBA	0.3626

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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
44275892	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.11	120.19	DC	26.22

Bus #	Bus	MW Impact
274771	LINCOLN ;2U	3.1304
274772	LINCOLN ;3U	3.1304
274773	LINCOLN ;4U	3.1304
274774	LINCOLN ;5U	3.1304
274775	LINCOLN ;6U	3.1304
274776	LINCOLN ;7U	3.1304
274777	LINCOLN ;8U	3.1304
274830	U3-021 1	6.4384
274831	U3-021 2	6.4384
274881	PILOT HIL;1E	20.3585
274890	CAYUG;1U E	17.3471
274891	CAYUG;2U E	17.3471
275149	KELLYCK ;1E	20.3585
276161	W4-086	0.2575
276167	Z1-106 E2	1.3343
276168	Z1-106 E1	1.3342
276169	Z1-107 E	2.7312
276170	Z1-108 E	2.6255
290021	O50 E	20.4558
290051	GSG-6; E	11.1243

Bus #	Bus	MW Impact
290108	LEEDK;1U E	25.7329
293061	N-015 E	16.7882
293644	O22 E1	10.8167
293645	O22 E2	20.9971
294392	P-010 E	21.3210
910542	X3-005 E	0.7728
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**47.3566**
915011	Y3-013 1	3.9464
915021	Y3-013 2	3.9464
915031	Y3-013 3	3.9464
918052	AA1-018 E OP	17.3564
920272	AA2-123 E	2.5803
924041	AB2-047 C O1	0.5973
924042	AB2-047 E O1	3.9976
924471	AB2-096	44.7113
926311	AC1-109 1	2.0188
926321	AC1-109 2	2.0188
926331	AC1-110 1	2.0054
926341	AC1-110 2	2.0054
926351	AC1-111 1	0.8064
926361	AC1-111 2	0.8064
926371	AC1-111 3	0.8064
926381	AC1-111 4	0.8064
926391	AC1-111 5	0.8064
926401	AC1-111 6	0.8064
927091	AC1-204 1	76.6590
927101	AC1-204 2	76.6542
927451	AC1-142A 1	4.4192
927461	AC1-142A 2	4.4192
930501	AB1-091 O1	80.9991
930741	AB1-122 1O1	76.9097
930751	AB1-122 2O1	77.8676
933411	AC2-154 C	2.7629
933412	AC2-154 E	4.5080
933431	AC2-156 C O1	1.0105
933432	AC2-156 E O1	1.6487
933911	AD1-013 C	1.9643
933912	AD1-013 E	3.1378
933931	AD1-016 C	0.9805
933932	AD1-016 E	1.5998
934101	AD1-039 1	7.5372
934111	AD1-039 2	7.6310
934431	AD1-067 C	0.1397
934432	AD1-067 E	0.5873
934701	AD1-098 C O1	7.3194
934702	AD1-098 E O1	5.3439
934721	AD1-100 C	25.3483
934722	AD1-100 E	118.2919
934871	AD1-116 C	1.0108
934872	AD1-116 E	1.6492
934971	AD1-129 C	0.9545
934972	AD1-129 E	0.6363

Bus #	Bus	MW Impact
935001	AD1-133 C O1	23.5039
935002	AD1-133 E O1	15.6692
936291	AD2-038 C O1	2.4828
936292	AD2-038 E O1	16.6155
936371	AD2-047 C O1	4.9442
936372	AD2-047 E O1	24.1394
936461	AD2-060	1.5414
936511	AD2-066 C O1	8.9509
936512	AD2-066 E O1	5.9673
937001	AD2-134 C	2.9081
937002	AD2-134 E	12.0133
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**18.1248**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**12.0832**
937401	AD2-194 1	8.2436
937411	AD2-194 2	8.2431
938511	AE1-070 1	9.6863
938521	AE1-070 2	8.8614
938851	AE1-113 C	8.4380
938852	AE1-113 E	29.9165
939321	AE1-163 C O1	6.2388
939322	AE1-163 E O1	38.3238
939351	AE1-166 C O1	6.6307
939352	AE1-166 E O1	6.1207
939401	AE1-172 C O1	6.9298
939402	AE1-172 E O1	32.5144
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.5818**
939741	AE1-205 C O1	10.6108
939742	AE1-205 E O1	14.6529
940101	AE1-252 C O1	13.9215
940102	AE1-252 E O1	9.2810
940621	AE2-049 C O1	5.2778
940622	AE2-049 E O1	3.5186
940631	AE2-050 C O1	7.0386
940632	AE2-050 E O1	4.6924
940752	AE2-062 E	0.0731
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.0731**
941131	AE2-107 C	4.1013
941132	AE2-107 E	2.7342
941551	AE2-152 C O1	7.6508
941552	AE2-152 E O1	5.1006
941561	AE2-153 C O1	5.2309
941562	AE2-153 E O1	24.4902
941731	AE2-173 O1	6.3159
942111	AE2-223 C	2.4632
942112	AE2-223 E	16.4846
942421	AE2-255 C O1	3.1962
942422	AE2-255 E O1	9.5886
942651	AE2-281 C O1	0.8913
942652	AE2-281 E O1	5.4748
942881	AE2-307 C O1	12.9041
942882	AE2-307 E O1	4.6924
942911	AE2-310 C O1	5.1249

Bus #	Bus	MW Impact
942912	AE2-310 E O1	1.3768
942991	AE2-321 C	8.6325
942992	AE2-321 E	4.2518
943121	AE2-341 C	13.4901
943122	AE2-341 E	6.6243
943381	AF1-009 C	0.3356
943382	AF1-009 E	1.3423
943422	AF1-013 E	1.6779
943591	AF1-030 C O1	4.7689
943592	AF1-030 E O1	2.3382
943801	AF1-048 C	2.1387
943802	AF1-048 E	1.4258
944041	AF1-072	1.2051
944911	AF1-156 C	7.0885
944912	AF1-156 E	4.7257
945351	AF1-200 FTIR	174.6388
946521	AF1-316 C O1	3.9150
946522	AF1-316 E O1	5.8725
946661	AF1-330 C	1.1214
946662	AF1-330 E	0.2462
946671	AF1-331	1.3520
WEC	WEC	4.6566
CBM-W2	CBM-W2	26.4209
NY	NY	1.4710
CBM-W1	CBM-W1	79.3384
TVA	TVA	1.6506
O-066	O-066	17.4586
CHEOAH	CHEOAH	0.0796
CBM-S1	CBM-S1	6.1685
G-007	G-007	2.6988
MADISON	MADISON	24.7867
MEC	MEC	16.3603
CALDERWOOD	CALDERWOOD	0.0651
BLUEG	BLUEG	2.3558
TRIMBLE	TRIMBLE	0.8136
CATAWBA	CATAWBA	0.3707

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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
44275750	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	153.06	153.11	DC	20.55

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	24.0804
274655	BRAIDWOOD;2U	23.4273
274660	LASCO STA;1U	22.1562

Bus #	Bus	MW Impact
274661	LASCO STA;2U	22.2399
274687	WILL CNTY;4U	10.1663
274704	KENDALL ;1C	3.5729
274705	KENDALL ;1S	2.3891
274706	KENDALL ;2C	3.5729
274707	KENDALL ;2S	2.3891
274751	CRETE EC ;1U	5.2386
274752	CRETE EC ;2U	5.2386
274753	CRETE EC ;3U	5.2386
274754	CRETE EC ;4U	5.2386
274830	U3-021 1	5.3713
274831	U3-021 2	5.3713
274861	TOP CROP ;1U	0.4267
274862	TOP CROP ;2U	0.8283
276161	W4-086	0.2070
276167	Z1-106 E2	1.1126
276168	Z1-106 E1	1.1126
276169	Z1-107 E	2.1384
276170	Z1-108 E	2.1971
290021	O50 E	17.3386
290051	GSG-6; E	6.7666
290108	LEEDK;1U E	21.3503
293061	N-015 E	13.7975
293644	O22 E1	12.2286
293645	O22 E2	23.7378
294392	P-010 E	17.5229
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**39.8259**
915011	Y3-013 1	3.3188
915021	Y3-013 2	3.3188
915031	Y3-013 3	3.3188
920272	AA2-123 E	2.1544
924471	AB2-096	37.3005
926311	AC1-109 1	1.6778
926321	AC1-109 2	1.6778
926331	AC1-110 1	1.6734
926341	AC1-110 2	1.6734
926351	AC1-111 1	0.6698
926361	AC1-111 2	0.6698
926371	AC1-111 3	0.6698
926381	AC1-111 4	0.6698
926391	AC1-111 5	0.6698
926401	AC1-111 6	0.6698
927091	AC1-204 1	65.6088
927101	AC1-204 2	65.4902
927451	AC1-142A 1	3.8001
927461	AC1-142A 2	3.8026
930741	AB1-122 1O1	62.5014
930751	AB1-122 2O1	66.7877
933431	AC2-156 C O1	0.8366
933432	AC2-156 E O1	1.3649
933911	AD1-013 C	1.6294
933912	AD1-013 E	2.6029

Bus #	Bus	MW Impact
933931	AD1-016 C	0.8187
933932	AD1-016 E	1.3357
934101	AD1-039 1	6.1251
934111	AD1-039 2	6.5452
934431	AD1-067 C	0.1158
934432	AD1-067 E	0.4870
934721	AD1-100 C	16.6744
934722	AD1-100 E	77.8141
934971	AD1-129 C	0.7957
934972	AD1-129 E	0.5305
937001	AD2-134 C	2.4115
937002	AD2-134 E	9.9620
937401	AD2-194 1	7.0553
937411	AD2-194 2	7.0426
938511	AE1-070 1	8.2900
938521	AE1-070 2	7.5708
938851	AE1-113 C	7.1522
938852	AE1-113 E	25.3578
939351	AE1-166 C O1	4.7311
939352	AE1-166 E O1	4.3672
939631	AE1-193 C	32.4395
939632	AE1-193 E	217.0954
939641	AE1-194 C	32.4395
939642	AE1-194 E	217.0954
939651	AE1-195 C	32.4395
939652	AE1-195 E	217.0954
939681	AE1-198 C	96.3205
939682	AE1-198 E	81.8475
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.4896**
940631	AE2-050 C O1	14.1975
940632	AE2-050 E O1	9.4650
940752	AE2-062 E	0.1413
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.1413**
941131	AE2-107 C	3.4031
941132	AE2-107 E	2.2687
941551	AE2-152 C O1	5.4590
941552	AE2-152 E O1	3.6393
941561	AE2-153 C O1	4.0984
941562	AE2-153 E O1	19.1882
942421	AE2-255 C O1	2.7092
942422	AE2-255 E O1	8.1275
942881	AE2-307 C O1	26.0287
942882	AE2-307 E O1	9.4650
942991	AE2-321 C	7.2065
942992	AE2-321 E	3.5494
943121	AE2-341 C	11.1591
943122	AE2-341 E	5.4797
943591	AF1-030 C O1	3.9448
943592	AF1-030 E O1	1.9342
943801	AF1-048 C	1.7854
943802	AF1-048 E	1.1903
944041	AF1-072	1.0076

Bus #	Bus	MW Impact
944911	AF1-156 C	5.5539
944912	AF1-156 E	3.7026
945351	AF1-200 FTIR	143.8786
946521	AF1-316 C O1	3.2176
946522	AF1-316 E O1	4.8264
946661	AF1-330 C	0.9363
946662	AF1-330 E	0.2055
946671	AF1-331	1.1216
WEC	WEC	3.8972
CBM-W2	CBM-W2	18.2473
NY	NY	1.1995
CBM-W1	CBM-W1	53.5678
TVA	TVA	1.0262
O-066	O-066	14.1926
CHEOAH	CHEOAH	0.1351
CBM-S1	CBM-S1	3.0842
G-007	G-007	2.1944
MADISON	MADISON	20.1580
MEC	MEC	13.1855
GIBSON	GIBSON	0.2555
CALDERWOOD	CALDERWOOD	0.1242
BLUEG	BLUEG	2.3019
TRIMBLE	TRIMBLE	0.7769
CATAWBA	CATAWBA	0.3252

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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
44275916	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.65	117.72	DC	25.69

Bus #	Bus	MW Impact
274771	LINCOLN ;2U	3.0480
274772	LINCOLN ;3U	3.0480
274773	LINCOLN ;4U	3.0480
274774	LINCOLN ;5U	3.0480
274775	LINCOLN ;6U	3.0480
274776	LINCOLN ;7U	3.0480
274777	LINCOLN ;8U	3.0480
274830	U3-021 1	6.3043
274831	U3-021 2	6.3043
274881	PILOT HIL;1E	19.9420
274890	CAYUG;1U E	17.0075
274891	CAYUG;2U E	17.0075
275149	KELLYCK ;1E	19.9420
276161	W4-086	0.2521
276167	Z1-106 E2	1.3064

Bus #	Bus	MW Impact
276168	Z1-106 E1	1.3064
276169	Z1-107 E	2.6741
276170	Z1-108 E	2.5706
290021	O50 E	20.0287
290051	GSG-6; E	10.8928
290108	LEEDK;1U E	25.1957
293061	N-015 E	16.4444
293644	O22 E1	10.5927
293645	O22 E2	20.5622
294392	P-010 E	20.8844
910542	X3-005 E	0.7563
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**46.3651**
915011	Y3-013 1	3.8638
915021	Y3-013 2	3.8638
915031	Y3-013 3	3.8638
918052	AA1-018 E OP	16.9848
920272	AA2-123 E	2.5264
924041	AB2-047 C O1	0.5855
924042	AB2-047 E O1	3.9182
924471	AB2-096	43.7801
926311	AC1-109 1	1.9768
926321	AC1-109 2	1.9768
926331	AC1-110 1	1.9636
926341	AC1-110 2	1.9636
926351	AC1-111 1	0.7895
926361	AC1-111 2	0.7895
926371	AC1-111 3	0.7895
926381	AC1-111 4	0.7895
926391	AC1-111 5	0.7895
926401	AC1-111 6	0.7895
927091	AC1-204 1	75.0465
927101	AC1-204 2	75.0465
927451	AC1-142A 1	4.3262
927461	AC1-142A 2	4.3259
930501	AB1-091 O1	79.3488
930741	AB1-122 1O1	75.3115
930751	AB1-122 2O1	76.2401
933411	AC2-154 C	2.7064
933412	AC2-154 E	4.4157
933431	AC2-156 C O1	0.9894
933432	AC2-156 E O1	1.6143
933911	AD1-013 C	1.9234
933912	AD1-013 E	3.0725
933931	AD1-016 C	0.9600
933932	AD1-016 E	1.5663
934101	AD1-039 1	7.3805
934111	AD1-039 2	7.4715
934431	AD1-067 C	0.1368
934432	AD1-067 E	0.5751
934701	AD1-098 C O1	7.1671
934702	AD1-098 E O1	5.2327
934721	AD1-100 C	24.8549

Bus #	Bus	MW Impact
934722	AD1-100 E	115.9893
934871	AD1-116 C	0.9892
934872	AD1-116 E	1.6139
934971	AD1-129 C	0.9346
934972	AD1-129 E	0.6230
935001	AD1-133 C O1	23.0265
935002	AD1-133 E O1	15.3510
936291	AD2-038 C O1	2.4304
936292	AD2-038 E O1	16.2649
936371	AD2-047 C O1	4.8431
936372	AD2-047 E O1	23.6455
936461	AD2-060	1.5099
936511	AD2-066 C O1	8.7651
936512	AD2-066 E O1	5.8434
937001	AD2-134 C	2.8475
937002	AD2-134 E	11.7632
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**17.7568**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**11.8378**
937401	AD2-194 1	8.0702
937411	AD2-194 2	8.0702
938511	AE1-070 1	9.4825
938521	AE1-070 2	8.6755
938851	AE1-113 C	8.2618
938852	AE1-113 E	29.2920
939321	AE1-163 C O1	6.1071
939322	AE1-163 E O1	37.5153
939351	AE1-166 C O1	6.4997
939352	AE1-166 E O1	5.9997
939401	AE1-172 C O1	6.7954
939402	AE1-172 E O1	31.8837
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.5696**
939741	AE1-205 C O1	10.4001
939742	AE1-205 E O1	14.3621
940101	AE1-252 C O1	13.6514
940102	AE1-252 E O1	9.1010
940621	AE2-049 C O1	5.1697
940622	AE2-049 E O1	3.4464
940631	AE2-050 C O1	6.8967
940632	AE2-050 E O1	4.5978
940752	AE2-062 E	0.0716
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.0716**
941131	AE2-107 C	4.0158
941132	AE2-107 E	2.6772
941551	AE2-152 C O1	7.4996
941552	AE2-152 E O1	4.9997
941561	AE2-153 C O1	5.1253
941562	AE2-153 E O1	23.9957
941731	AE2-173 O1	6.1905
942111	AE2-223 C	2.4143
942112	AE2-223 E	16.1573
942421	AE2-255 C O1	3.1295
942422	AE2-255 E O1	9.3885

Bus #	Bus	MW Impact
942651	AE2-281 C O1	0.8724
942652	AE2-281 E O1	5.3593
942881	AE2-307 C O1	12.6440
942882	AE2-307 E O1	4.5978
942911	AE2-310 C O1	5.0198
942912	AE2-310 E O1	1.3486
942991	AE2-321 C	8.4519
942992	AE2-321 E	4.1629
943121	AE2-341 C	13.2096
943122	AE2-341 E	6.4866
943381	AF1-009 C	0.3286
943382	AF1-009 E	1.3144
943422	AF1-013 E	1.6430
943591	AF1-030 C O1	4.6697
943592	AF1-030 E O1	2.2896
943801	AF1-048 C	2.0940
943802	AF1-048 E	1.3960
944041	AF1-072	1.1799
944911	AF1-156 C	6.9454
944912	AF1-156 E	4.6302
945351	AF1-200 FTIR	171.0257
946521	AF1-316 C O1	3.8348
946522	AF1-316 E O1	5.7523
946661	AF1-330 C	1.0980
946662	AF1-330 E	0.2410
946671	AF1-331	1.3239
WEC	WEC	4.5593
CBM-W2	CBM-W2	25.8886
NY	NY	1.4400
CBM-W1	CBM-W1	77.6746
TVA	TVA	1.6184
O-066	O-066	17.0957
CHEOAH	CHEOAH	0.0776
CBM-S1	CBM-S1	6.0492
G-007	G-007	2.6426
MADISON	MADISON	24.2726
MEC	MEC	16.0219
CALDERWOOD	CALDERWOOD	0.0636
BLUEG	BLUEG	2.3054
TRIMBLE	TRIMBLE	0.7964
CATAWBA	CATAWBA	0.3626

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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
44275893	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.11	120.19	DC	26.22

Bus #	Bus	MW Impact
274771	LINCOLN ;2U	3.1304
274772	LINCOLN ;3U	3.1304
274773	LINCOLN ;4U	3.1304
274774	LINCOLN ;5U	3.1304
274775	LINCOLN ;6U	3.1304
274776	LINCOLN ;7U	3.1304
274777	LINCOLN ;8U	3.1304
274830	U3-021 1	6.4384
274831	U3-021 2	6.4384
274881	PILOT HIL;1E	20.3585
274890	CAYUG;1U E	17.3471
274891	CAYUG;2U E	17.3471
275149	KELLYCK ;1E	20.3585
276161	W4-086	0.2575
276167	Z1-106 E2	1.3343
276168	Z1-106 E1	1.3342
276169	Z1-107 E	2.7312
276170	Z1-108 E	2.6255
290021	O50 E	20.4558
290051	GSG-6; E	11.1243
290108	LEEDK;1U E	25.7329
293061	N-015 E	16.7882
293644	O22 E1	10.8167
293645	O22 E2	20.9971
294392	P-010 E	21.3210
910542	X3-005 E	0.7728
914321	**Y2-103 (Withdrawn : 12/24/2019)**	**47.3566**
915011	Y3-013 1	3.9464
915021	Y3-013 2	3.9464
915031	Y3-013 3	3.9464
918052	AA1-018 E OP	17.3564
920272	AA2-123 E	2.5803
924041	AB2-047 C O1	0.5973
924042	AB2-047 E O1	3.9976
924471	AB2-096	44.7113
926311	AC1-109 1	2.0188
926321	AC1-109 2	2.0188
926331	AC1-110 1	2.0054
926341	AC1-110 2	2.0054
926351	AC1-111 1	0.8064
926361	AC1-111 2	0.8064
926371	AC1-111 3	0.8064
926381	AC1-111 4	0.8064
926391	AC1-111 5	0.8064
926401	AC1-111 6	0.8064
927091	AC1-204 1	76.6590
927101	AC1-204 2	76.6542
927451	AC1-142A 1	4.4192
927461	AC1-142A 2	4.4192
930501	AB1-091 O1	80.9991
930741	AB1-122 1O1	76.9097
930751	AB1-122 2O1	77.8676

Bus #	Bus	MW Impact
933411	AC2-154 C	2.7629
933412	AC2-154 E	4.5080
933431	AC2-156 C O1	1.0105
933432	AC2-156 E O1	1.6487
933911	AD1-013 C	1.9643
933912	AD1-013 E	3.1378
933931	AD1-016 C	0.9805
933932	AD1-016 E	1.5998
934101	AD1-039 1	7.5372
934111	AD1-039 2	7.6310
934431	AD1-067 C	0.1397
934432	AD1-067 E	0.5873
934701	AD1-098 C O1	7.3194
934702	AD1-098 E O1	5.3439
934721	AD1-100 C	25.3483
934722	AD1-100 E	118.2919
934871	AD1-116 C	1.0108
934872	AD1-116 E	1.6492
934971	AD1-129 C	0.9545
934972	AD1-129 E	0.6363
935001	AD1-133 C O1	23.5039
935002	AD1-133 E O1	15.6692
936291	AD2-038 C O1	2.4828
936292	AD2-038 E O1	16.6155
936371	AD2-047 C O1	4.9442
936372	AD2-047 E O1	24.1394
936461	AD2-060	1.5414
936511	AD2-066 C O1	8.9509
936512	AD2-066 E O1	5.9673
937001	AD2-134 C	2.9081
937002	AD2-134 E	12.0133
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**18.1248**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**12.0832**
937401	AD2-194 1	8.2436
937411	AD2-194 2	8.2431
938511	AE1-070 1	9.6863
938521	AE1-070 2	8.8614
938851	AE1-113 C	8.4380
938852	AE1-113 E	29.9165
939321	AE1-163 C O1	6.2388
939322	AE1-163 E O1	38.3238
939351	AE1-166 C O1	6.6307
939352	AE1-166 E O1	6.1207
939401	AE1-172 C O1	6.9298
939402	AE1-172 E O1	32.5144
939732	**AE1-204 E (Withdrawn : 11/18/2019)**	**0.5818**
939741	AE1-205 C O1	10.6108
939742	AE1-205 E O1	14.6529
940101	AE1-252 C O1	13.9215
940102	AE1-252 E O1	9.2810
940621	AE2-049 C O1	5.2778
940622	AE2-049 E O1	3.5186

Bus #	Bus	MW Impact
940631	AE2-050 C O1	7.0386
940632	AE2-050 E O1	4.6924
940752	AE2-062 E	0.0731
940762	**AE2-063 E (Withdrawn : 01/14/2020)**	**0.0731**
941131	AE2-107 C	4.1013
941132	AE2-107 E	2.7342
941551	AE2-152 C O1	7.6508
941552	AE2-152 E O1	5.1006
941561	AE2-153 C O1	5.2309
941562	AE2-153 E O1	24.4902
941731	AE2-173 O1	6.3159
942111	AE2-223 C	2.4632
942112	AE2-223 E	16.4846
942421	AE2-255 C O1	3.1962
942422	AE2-255 E O1	9.5886
942651	AE2-281 C O1	0.8913
942652	AE2-281 E O1	5.4748
942881	AE2-307 C O1	12.9041
942882	AE2-307 E O1	4.6924
942911	AE2-310 C O1	5.1249
942912	AE2-310 E O1	1.3768
942991	AE2-321 C	8.6325
942992	AE2-321 E	4.2518
943121	AE2-341 C	13.4901
943122	AE2-341 E	6.6243
943381	AF1-009 C	0.3356
943382	AF1-009 E	1.3423
943422	AF1-013 E	1.6779
943591	AF1-030 C O1	4.7689
943592	AF1-030 E O1	2.3382
943801	AF1-048 C	2.1387
943802	AF1-048 E	1.4258
944041	AF1-072	1.2051
944911	AF1-156 C	7.0885
944912	AF1-156 E	4.7257
945351	AF1-200 FTIR	174.6388
946521	AF1-316 C O1	3.9150
946522	AF1-316 E O1	5.8725
946661	AF1-330 C	1.1214
946662	AF1-330 E	0.2462
946671	AF1-331	1.3520
WEC	WEC	4.6566
CBM-W2	CBM-W2	26.4209
NY	NY	1.4710
CBM-W1	CBM-W1	79.3384
TVA	TVA	1.6506
O-066	O-066	17.4586
CHEOAH	CHEOAH	0.0796
CBM-S1	CBM-S1	6.1685
G-007	G-007	2.6988
MADISON	MADISON	24.7867
MEC	MEC	16.3603

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.0651
BLUEG	BLUEG	2.3558
TRIMBLE	TRIMBLE	0.8136
CATAWBA	CATAWBA	0.3707

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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
44276846	934720	AD1-100 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S-B	tower	2221.0	121.16	122.6	DC	31.23

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	38.0683
274655	BRAIDWOOD;2U	36.9692
274660	LASCO STA;1U	24.0421
274661	LASCO STA;2U	24.1391
274847	GR RIDGE ;BU	0.5270
274853	TWINGROVE;U1	0.7727
274854	TWINGROVE;U2	0.7727
274863	CAYUGA RI;1U	1.0685
274864	CAYUGA RI;2U	1.0685
274871	GR RIDGE ;2U	0.6692
274880	GENERATOR;	0.7145
274881	PILOT HIL;1E	20.1796
274882	W4-005 E	34.2808
274887	PILOT HIL;1U	0.7042
274888	KELLYCK ;1U	0.7042
274890	CAYUG;1U E	30.6192
274891	CAYUG;2U E	30.6192
275149	KELLYCK ;1E	20.1796
276153	W2-048 E	1.3305
290261	S-027 E	22.1443
290265	S-028 E	22.1443
293061	N-015 E	15.1008
294392	P-010 E	19.1780
909052	X2-022 E	19.2418
917501	Z2-087 C	0.6407
917502	Z2-087 E	30.7180
924041	AB2-047 C O1	5.7376
924042	AB2-047 E O1	38.3975
924261	AB2-070 C O1	2.8101
924262	AB2-070 E O1	18.8059
925771	AC1-053 C	2.7622
925772	AC1-053 E	18.4858
926821	AC1-168 C O1	0.5707

Bus #	Bus	MW Impact
926822	AC1-168 E O1	3.8296
930501	AB1-091 O1	91.7950
933411	AC2-154 C	2.7385
933412	AC2-154 E	4.4680
934721	AD1-100 C	51.4575
934722	AD1-100 E	240.1350
935001	AD1-133 C O1	14.9741
935002	AD1-133 E O1	9.9827
935141	AD1-148	5.0151
936371	AD2-047 C O1	4.9004
936372	AD2-047 E O1	23.9256
936461	AD2-060	2.8826
936771	AD2-100 C	8.0454
936772	AD2-100 E	5.3636
936971	AD2-131 C	0.5300
936972	AD2-131 E	2.6626
937211	AD2-159 C	3.7046
937212	AD2-159 E	17.3442
937321	**AD2-175 C (Withdrawn : 12/10/2019)**	**20.5963**
937322	**AD2-175 E (Withdrawn : 12/10/2019)**	**13.7309**
939351	AE1-166 C O1	22.4882
939352	AE1-166 E O1	20.7583
939401	AE1-172 C O1	13.3912
939402	AE1-172 E O1	62.8309
939741	AE1-205 C O1	14.8294
939742	AE1-205 E O1	20.4786
940101	AE1-252 C O1	26.9019
940102	AE1-252 E O1	17.9346
940621	AE2-049 C O1	9.0390
940622	AE2-049 E O1	6.0260
940631	AE2-050 C O1	20.7459
940632	AE2-050 E O1	13.8306
941551	AE2-152 C O1	25.9479
941552	AE2-152 E O1	17.2986
941561	AE2-153 C O1	7.3293
941562	AE2-153 E O1	34.3147
941731	AE2-173 O1	8.8270
942111	AE2-223 C	3.4425
942112	AE2-223 E	23.0385
942481	AE2-261 C	11.8607
942482	AE2-261 E	7.9071
942881	AE2-307 C O1	38.0341
942882	AE2-307 E O1	13.8306
942911	AE2-310 C O1	8.7770
942912	AE2-310 E O1	2.3580
944221	AF1-090 C O1	1.0674
944222	AF1-090 E O1	4.9973
944911	AF1-156 C	18.7398
944912	AF1-156 E	12.4932
945881	AF1-253 O1	3.2021
946521	AF1-316 C O1	6.6444
946522	AF1-316 E O1	9.9665

Bus #	Bus	MW Impact
946541	AF1-318 C O1	1.3289
946542	AF1-318 E O1	6.2225
951741	J474 C	1.8434
951742	J474 E	9.9732
952651	J756 C	1.7704
952652	J756 E	9.5782
953741	J826 C	1.0321
953742	J826 E	5.5839
954181	J884	9.1570
954721	J750 C	1.3516
954722	J750 E	7.3124
954821	J955	62.3584
955391	J1021 C	1.9672
955392	J1021 E	10.6428
955401	J1022 C	1.5481
955402	J1022 E	8.3759
956151	J1102	4.2994
956281	J1115 C	2.6523
956282	J1115 E	14.3497
LGEE	LGEE	0.0690
WEC	WEC	0.4145
CBM-W2	CBM-W2	17.4119
NY	NY	0.4219
CBM-W1	CBM-W1	8.5819
TVA	TVA	1.4770
O-066	O-066	4.9526
CBM-S2	CBM-S2	0.1618
CBM-S1	CBM-S1	7.5061
G-007	G-007	0.7654
MADISON	MADISON	6.7032
MEC	MEC	4.3443

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_P7_345-L2001__B-S_+_345-L2003__R-S-B	CONTINGENCY 'COMED_P7_345-L2001__B-S_+_345-L2003__R-S-B' TRIP BRANCH FROM BUS 940630 TO BUS 270728 CKT 1 / AE2-050 TAP 345 E FRA; B 345 TRIP BRANCH FROM BUS 270728 TO BUS 270766 CKT 1 / E FRA; B 345 GOODI;3B 345 TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRA; B 345 CRETE;BP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAID; R 345 E FRA; R 345 END
COMED_P7_345-L2001__B-S_+_345-L2003__R-S-A	CONTINGENCY 'COMED_P7_345-L2001__B-S_+_345-L2003__R-S-A' TRIP BRANCH FROM BUS 270670 TO BUS 940630 CKT 1 / BRAID; B 345 AE2-050 TAP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAID; R 345 E FRA; R 345 END
COMED_P1-2_345-L94507_B-S	CONTINGENCY 'COMED_P1-2_345-L94507_B-S' TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345 END
AEP_P4_#2978_05DUMONT_NON_FSA	CONTINGENCY 'AEP_P4_#2978_05DUMONT_NON_FSA' OPEN BRANCH FROM BUS 243206 TO BUS 907040 CKT 1 / 243206 05DUMONT 765 X1-020 OPEN BRANCH FROM BUS 243207 TO BUS 907040 CKT 1 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
AEP_P4_#2978_05DUMONT_FSA	CONTINGENCY 'AEP_P4_#2978_05DUMONT_FSA' OPEN BRANCH FROM BUS 243206 TO BUS 907040 CKT 1 / 243206 05DUMONT 765 X1-020 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
COMED_P1-2_695_B2	CONTINGENCY 'COMED_P1-2_695_B2' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTO; 765 1 END
COMED_P4_112-65-BT2-3__	CONTINGENCY 'COMED_P4_112-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END
COMED_P4_112-65-BT3-4__	CONTINGENCY 'COMED_P4_112-65-BT3-4__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END
Base Case	

Contingency Name	Contingency Definition
COMED_P4_023-65-BT2-3__	CONTINGENCY 'COMED_P4_023-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END
COMED_P1-2_345-L2004_AR-S-B	CONTINGENCY 'COMED_P1-2_345-L2004_AR-S-B' TRIP BRANCH FROM BUS 941560 TO BUS 270711 CKT 1 / AE2-153 TAP 345 DAVIS; R 345 END
COMED_P4_112-65-BT5-6__	CONTINGENCY 'COMED_P4_112-65-BT5-6__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END
COMED_P4_112-65-BT4-5__	CONTINGENCY 'COMED_P4_112-65-BT4-5__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END

Short Circuit

18 Short Circuit

The following breakers are overdutied:

None

20 Secondary Point of Interconnection

The Queue Project AF1-156 was evaluated as a 150.0 MW (Capacity 90.0 MW) injection tapping the Wilmington to Davis Creek 138kV line in the ComEd area.

Summer Peak Load Flow

19 Generation Deliverability

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

None

20 Multiple Facility Contingency

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

None

21 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC| DC	MW IMPACT
44275847	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1091.0	124.73	124.75	DC	13.61
44275848	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1091.0	124.73	124.75	DC	13.61
44275849	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	124.15	124.17	DC	13.73
43480210	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1409.0	133.36	133.41	DC	23.39
43480211	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1409.0	133.35	133.4	DC	23.39
44276059	270716	DRESDEN ; B	345.0	CE	270928	WOLFS ; B	345.0	CE	1	COMED_P4_012-45-BT5-6__	breaker	1479.0	101.81	102.85	DC	15.26
43480355	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P4_#2978_05DUMONT_FSA	breaker	971.0	101.94	101.95	DC	13.08
43480356	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	971.0	101.94	101.95	DC	13.08
44275852	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1091.0	124.73	124.75	DC	13.61
44275853	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1091.0	124.72	124.74	DC	13.61
44275854	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	124.14	124.16	DC	13.73
44275855	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	124.13	124.15	DC	13.73
44275856	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	124.13	124.15	DC	13.73
44275917	270926	WILTON ; B	345.0	CE	275232	WILTON ;3M	345.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.57	117.58	DC	24.75
44275892	270927	WILTON ; R	345.0	CE	275233	WILTON ;4M	345.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.02	120.04	DC	25.27
44275747	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_NON_FSA	breaker	1399.0	153.44	153.45	DC	18.3
44275748	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	AEP_P4_#2978_05DUMONT_FSA	breaker	1399.0	153.45	153.45	DC	18.3
44275749	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	153.01	153.01	DC	18.41
44275750	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	153.0	153.01	DC	18.41
44275916	275232	WILTON ;3M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	117.57	117.58	DC	24.75
44275893	275233	WILTON ;4M	345.0	CE	270644	WILTON ;	765.0	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	120.02	120.04	DC	25.27

22 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
44276451	255112	17STJOHN	345.0	NIPS	270886	ST JOHN ; T	345.0	CE	1	COMED_P1-2_695_B2	operation	1091.0	124.13	124.15	DC	13.73
43480554	255113	17STILLWELL	345.0	NIPS	243219	05DUMONT	345.0	AEP	1	COMED_P1-2_695_B2	operation	1409.0	131.4	131.45	DC	24.11
43480711	270771	GREENACRE; T	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_695_B2	operation	971.0	101.03	101.07	DC	13.26
44276456	270886	ST JOHN ; T	345.0	CE	255104	17GREEN_ACRE	345.0	NIPS	1	COMED_P1-2_695_B2	operation	1091.0	124.12	124.14	DC	13.73
44276319	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	Base Case	operation	1091.0	154.87	154.88	DC	11.78
44276320	274750	CRETE EC ;BP	345.0	CE	255112	17STJOHN	345.0	NIPS	1	COMED_P1-2_695_B2	operation	1399.0	152.97	152.97	DC	18.42
43480700	274804	UNIV PK N;RP	345.0	CE	243229	05OLIVE	345.0	AEP	1	COMED_P1-2_695_B2	operation	971.0	102.79	102.83	DC	16.11
77565033	940620	AE2-049 TAP	138.0	CE	271295	DAVIS CRK; R	138.0	CE	1	Base Case	operation	249.0	57.48	102.48	DC	112.06
77565014	944910	AF1-156 TAP	138.0	CE	272789	WILMINGTO;	138.0	CE	1	COMED_P1-2_138-L8607__R-S-A	operation	317.0	63.03	110.35	DC	150.0