Generation Interconnection

Feasibility Study Report

for

Queue Project AE2-341

SANDWICH-PLANO

100.6 MW Capacity / 150 MW Energy

July, 2019

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1 Preface

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

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

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

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

PJM utilizes manufacturer models to ensure the performance of turbines and inverters is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines or inverters and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a $10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

2 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Kendall County, Illinois. The installed facilities will have a total capability of 150 MW with 100.6 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 1, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AE2-341
Project Name	SANDWICH-PLANO
State	None
County	Kendall
Transmission Owner	ComEd
MFO	150
MWE	150
MWC	100.6
Fuel	Solar
Basecase Study Year	2022

2.1 Primary Point of Interconnection

Queue Position AE2-341, a 150 MW solar facility Kendall County Solar, proposes to interconnect with the ComEd transmission system by tying into the Sandwich–Plano 138kV line 14609, approximately 6.3 miles from Sandwich.

2.2 Cost Summary

The AE2-341 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,000,000
Direct Connection Network Upgrade	$17,000,000
Non Direct Connection Network Upgrades	$2,500,000
Total Costs	$20,500,000

In addition, the AE2-341 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	$80,800,120

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

3 Transmission Owner Scope of Work

4 Attachment Facilities

The AE2-341 generator lead would interconnect to a new 138kV Interconnection Substation (see details in Direct Connection section below). The required Attachment Facilities are one 138kV line MOD, a dead-end structure and revenue metering as shown in the one-line diagram. The preliminary cost estimate for the Attachment Facilities is given below:

Scope of Work	Cost Estimate
Installation of one 138kV line MOD, one dead-end structure and one set of revenue metering (see notes below on cost estimate)	$1,000,000

5 Direct Connection Cost Estimate

To accommodate interconnection of AE2-341, a new 138kV Interconnection Substation would need to be built close to the Sandwich–Plano 138kV line 14609, approximately 6.3 miles from Sandwich.

The scope of work includes the installation of three 138kV circuit breakers in a "breaker-and-a-half" bus configuration and cutting in the Interconnection Substation to Sandwich–Plano 138kV line 14609, as shown in the one-line diagram below.

The Interconnection Customer ("IC") is responsible for constructing all of the facilities on the IC side of the Point of Interconnection ("POI"). It is assumed for the purposes of this report that the IC will obtain the site for the Interconnection Substation and right-of-way between the Interconnection Substation and the 138kV transmission line.

In the event that the IC exercises the option to build the Interconnecting Substation, the IC will be required to construct all interconnection facilities that will be turned over to ComEd in accordance with ComEd published standards and the PJM Tariff.

ComEd would design, engineer and construct the tie in of the Interconnection Substation to the Sandwich–Plano 138kV line 14609.

The preliminary cost estimate for Direct Connection Network Upgrade is given in the following tables.

For Option to Build Direct Connection cost estimates:

Scope of Work	Cost Estimate
Installation of a new 138kV substation as described above	N/A
Transmission line tie in work (foundations, structures, conductors)	$ 2,000,000
ComEd oversight and testing	$ 1,000,000
Total Cost Estimate (see notes below on cost estimate)	$ 3,000,000

For ComEd building the interconnecting substation cost estimates:

Scope of Work	Cost Estimate
Installation of a new 138kV substation as described above	$ 15,000,000
Transmission line tie in work (foundations, structures, conductors)	$ 2,000,000
Total Cost Estimate (see notes below on cost estimate)	$ 17,000,000

6 Non-Direct Connection Cost Estimate

The integration of the new 138kV Interconnection Substation would require relay, communication and SCADA upgrades at the Sandwich TSS 146, Plano TSS 167 and Plano West TDC 527. The ComEd cost is given below:

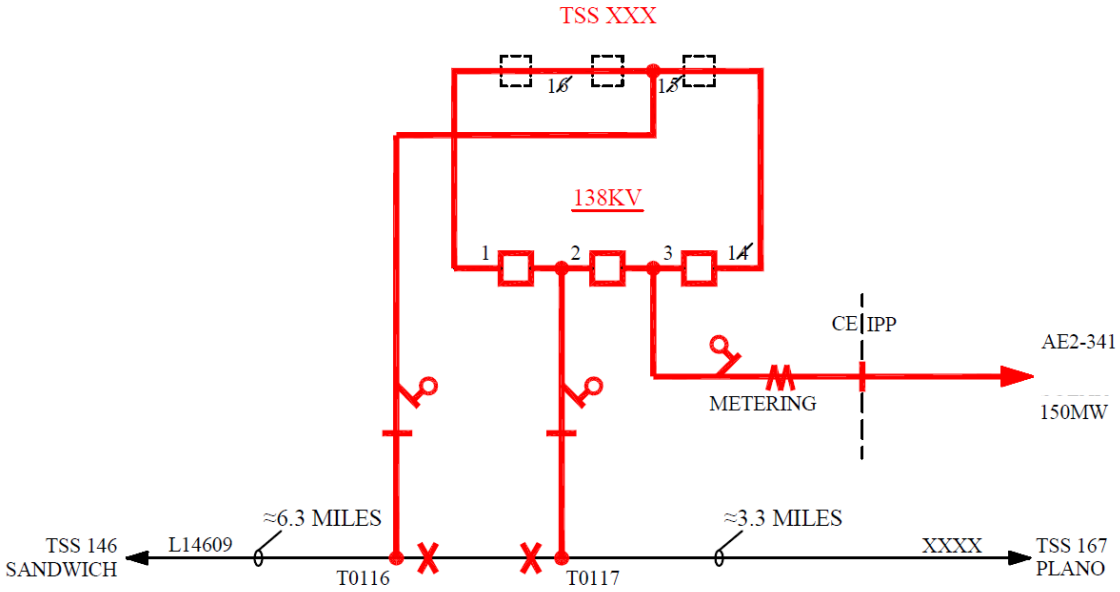
Scope of Work	Cost Estimate
Relay/communications/SCADA upgrades at Sandwich TSS 146	$ 1,000,000
Relay/communications/SCADA upgrades at Plano TSS 167	$ 1,000,000
Relay/communications/SCADA upgrades at Plano West TDC 527	$ 500,000
Total Cost Estimate (see notes below on cost estimate)	$ 2,500,000

7 Schedule

ComEd would take approximately 24-months to construct the substation and transmission line work after the ISA / ICSA are signed.

8 Transmission Owner Analysis

AE2-341
PRIMARY POI



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. 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.

9 Interconnection Customer Requirements

In the event that the IC exercises the option to build the Interconnecting Substation, the IC will be required to construct all interconnection facilities that will be turned over to ComEd in accordance with ComEd published standards and the PJM Tariff.

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.

10 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.

11 Network Impacts for Primary Point of Interconnection

The Queue Project AE2-341 was evaluated as a 150.0 MW (Capacity 100.6 MW) injection tapping the Sandwich to Plano 138kV line in the ComEd area. Project AE2-341 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-341 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

12 Generation Deliverability

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

None

13 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	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
9007243	272803	W PLANO ; R	CE	272251	PLANO; R	CE	1	COMED_P4_083-38-BT3-4__	breaker	498.0	81.11	107.55	DC	131.7
9007162	943120	AE2-341 TAP	CE	272803	W PLANO ; R	CE	1	COMED_P4_083-38-BT3-4__	breaker	498.0	88.64	115.08	DC	131.7

14 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	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
9007177	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	112.44	112.54	DC	12.63
9007027	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	134.16	134.27	DC	13.97
9007028	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	133.92	134.02	DC	14.14
9007029	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	133.62	133.72	DC	14.08
9007030	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	133.62	133.72	DC	14.08
7466927	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	173.75	173.87	DC	21.81
7467838	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	single	1409.0	111.17	111.66	DC	15.04
7468846	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	107.51	107.6	DC	52.65
7468847	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.45	105.54	DC	52.71
9007303	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	101.4	101.51	DC	18.54
9007151	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	115.64	115.77	DC	19.8
9007152	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_023-65-BT2-3__	breaker	1399.0	115.21	115.34	DC	20.06
9007153	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	115.13	115.26	DC	19.93
9007154	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	115.12	115.25	DC	19.92
7467250	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	126.32	126.43	DC	12.63

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
9007022	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	134.16	134.27	DC	13.97
9007023	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	133.92	134.02	DC	14.14
9007024	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	133.62	133.72	DC	14.08
9007025	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	133.62	133.72	DC	14.08
9006927	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	163.71	163.83	DC	23.28
9006936	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	163.51	163.65	DC	23.77
9006998	272728	WATERMAN ; B	CE	271560	GLIDDEN ;BT	CE	1	COMED_P4_167-38-L14609_	breaker	344.0	117.14	140.24	DC	79.46
9006950	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	160.7	160.82	DC	19.56
9006951	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1399.0	160.27	160.38	DC	19.82
9006952	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	160.22	160.33	DC	19.68
9006953	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	160.21	160.32	DC	19.68
7467110	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	139.32	139.47	DC	15.37
7467111	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_023-65-BT2-3__	breaker	971.0	138.22	138.37	DC	15.53
7467112	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_112-65-BT4-5__	breaker	971.0	138.21	138.37	DC	15.5
7467113	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_112-65-BT3-4__	breaker	971.0	138.21	138.37	DC	15.5
7467114	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_023-65-BT4-5__	breaker	971.0	138.2	138.35	DC	15.49
9006929	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	163.71	163.83	DC	23.28
9006935	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	163.51	163.65	DC	23.77

15 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	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
9007774	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P1-2_#695A	operation	1091.0	111.42	111.52	DC	12.78
9007568	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	AEP_P1-2_#695A	operation	1091.0	133.61	133.71	DC	14.07

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
7467833	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	operation	1409.0	170.88	171.01	DC	22.42
7468451	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	105.97	106.05	DC	45.9
9007891	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P1-2_#695A	operation	1441.0	100.64	100.76	DC	18.67
9007902	270697	COLLINS ; R	CE	275168	COLLINS ;2M	CE	1	COMED_P1-2_765-L2315___-S	operation	1379.0	99.55	100.05	DC	14.81
9007720	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	AEP_P1-2_#695A	operation	1399.0	115.08	115.21	DC	19.9
7468159	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	125.17	125.28	DC	12.78
9007571	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	AEP_P1-2_#695A	operation	1091.0	133.61	133.71	DC	14.07
9007878	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	102.79	102.86	DC	14.6
9007860	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	105.44	105.52	DC	15.34
9007504	272728	WATERMAN ; B	CE	271560	GLIDDEN ;BT	CE	1	COMED_P1-2_138-L14604_R-R-A	operation	321.0	125.43	150.19	DC	79.47
9007509	272728	WATERMAN ; B	CE	271560	GLIDDEN ;BT	CE	1	Base Case	operation	292.0	105.41	110.73	DC	15.54
9007481	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P1-2_#695A	operation	1399.0	160.18	160.29	DC	19.65
9007482	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	Base Case	operation	1091.0	135.52	136.02	DC	12.05
7467990	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	138.2	138.35	DC	15.5

16 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
9007151,9007153,9007152,9007154	8	E FRANKFO; B 345.0 kV - CRETE EC ;BP 345.0 kV Ckt 1	ce-014 (301) : L6607 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. A preliminary estimate is $10.3 M with an estimated construction timeline of 30 months. Upon completion of the upgrades the rating swill be 1334/1726/1837/2084 MVA (SN/SLTE/SSTE/SLD). Project Type : FAC Cost : $10,300,000 Time Estimate : 30.0 Months	$10,300,000
9007025,9007024,9007023,9007022	10	ST JOHN ; T 345.0 kV - 17GREEN_ACRE 345.0 kV Ckt 1	COMED ce-011 (297) : 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 a 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 (759) : 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 : N/A Months	$3,100,000
9006929	16	WILTON ;3M 345.0 kV - WILTON ; 765.0 kV Ckt 1	n5145 (292) : 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
9006927	11	WILTON ; B 345.0 kV - WILTON ;3M 345.0 kV Ckt 1	n5145 (292) : 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
9006936	12	WILTON ; R 345.0 kV - WILTON ;4M 345.0 kV Ckt 1	n5145 (292) : 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
9007303	7	BURNHAM ;0R 345.0 kV - 17MUNSTER 345.0 kV Ckt 1	**COMED** **ce-015 (302) : L17703 SSTE rating is 1251 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be to mitigate the sag on the line. A preliminary estimate for the upgrade is $2.7 M with a estimated construction timeline of 30 months. The new line rating upon completion of the upgrade will be 1201/1479/1568/1768 MVA (SN/SLTE/SSTE/SLD).** **Project Type : FAC** **Cost : $2,700,000** **Time Estimate : 30.0 Months** **NIPS** **NonPJMArea (759) : 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 : N/A Months**	$2,700,000
7467111,7467110,7467113,7467112,7467114	15	UNIV PK N;RP 345.0 kV - 05OLIVE 345.0 kV Ckt 1	**AEP** **AEP_AE1_REF_r0001 (120) : A Sag Study will be required on the 40.64 miles of ACSR/PE 1414 62/19 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** **AEP_AE1_REF_r0002 (121) : Replace 5 Jumpers (Sub cond 2156 ACSR 84/19 STD at Olive station, estimated cost : $175,000** **Project Type : FAC** **Cost : $175,000** **Time Estimate : 6-12 Months** **COMED** **ce-001 (278) : AEP owns limit on L97008. CE has a sag limit on 2 types of conductors as well. CE would need to address sag limit of 2 types of conductors to reach required rating. A preliminary estimate for sag mitigation is $21.4M 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 : $21,400,000** **Time Estimate : 30.0 Months**	$21,737,560
9007162	2	AE2-341 TAP 138.0 kV - W PLANO ; R 138.0 kV Ckt 1	**9007162** **No upgrade is required. ComEd 138kV L14609 SLD & ALDR ratings are 498 MVA & 573 MVA.**	$0

ID	Index	Facility	Upgrade Description	Cost
9006998	13	WATERMAN ; B 138.0 kV - GLIDDEN ;BT 138.0 kV Ckt 1	ce-028 (321) : ComEd 138kV L11106 SLD & ALDR ratings are 344 MVA & 396 MVA. The post contingency flow for this event exceeds the rating therefore an upgrade is required. The upgrade will be a new line relay package. A preliminary estiamte for this work is $1.2M with a estiamted construction timeline of 24 months. Upon completion the ratings will be 292/321/367/433/498 MVA SN/SLTE/SSTE/SLD/ALDR. Project Type : FAC Cost : $0 Time Estimate : 24.0 Months	$0
9007177	3	17GREEN_ACRE 345.0 kV - GREENACRE; T 345.0 kV Ckt 1	COMED ce-011 (297) : 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 a 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 (759) : 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 : N/A Months	$3,100,000
7468846,7468847	6	WILTON ; 765.0 kV - 05DUMONT 765.0 kV Ckt 1	AEPI0001a (80) : Replace Dumont Circuit Breaker B1 [Breaker (3000A) Non oil - Dumont] Project Type : FAC Cost : $3,000,000 Time Estimate : 12-18 Months 7468846,7468847 No upgrade is required. Line L11215. Line sag SLD= 4802 MVA, ALDR = 5522 MVA.	$3,000,000

ID	Index	Facility	Upgrade Description	Cost
7466927,7467838	5	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	**AEP** **n4790 (150) : PJM Network Upgrade n4790. Replace Dumont substation 2500A wavetrap. The network project had a projected in-service date of 06/01/2019 and an estimated cost of $200,000.** **Cost : $0** **n5769.1 (151) : PJM Network Upgrade n5769.1. Perform engineering study for CT limits, and relay compliance trip limits at Dumont substation. The network project has a projected in-service date of 06/01/2021 and an estimated cost of $25,000.** **Cost : $0** **n5769.2 (152) : PJM Network Upgrade n5769.2. Replace two Dumont 3000A Non-Oil breakers. The network project has a projected in-service date of 06/01/2021 and an estimated cost of $2,000,000.** **Cost : $0** **n5769.3 (153) : PJM Network Upgrade n5769.3. Replace 11 jumpers/risers at Dumont substation. The network project has a projected in-service date of 06/01/2021 and an estimated cost of $275,000.** **Cost : $0** **AEP_AD2_REF_r0001 (154) : Replace 4 Dumont switches (3000 A). Estimated cost is $2,400,000.** **Cost : $0** **AEP_AD2_REF_r0002 (155) : An engineering study will need to be conducted to determine if the Dumont Relay Compliance Trip limit settings can be adjusted. Estimated Cost to perform setting changes: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated Cost for relay package: $600,000.** **Cost : $0** **For all AEP reinforcements on the Stillwell-Dumont 345 kV line:** **Cost allocation will be performed in the Impact Study phase. Queue Project AE2-049 presently does not receive cost allocation for this upgrade.** **Note 1: As changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AE2-049 could receive cost allocation.** **Note 2: Although Queue Project AE2-049 may not have cost responsibility for this upgrade, Queue Project AE2-049 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AE2-049 comes into service prior to completion of the upgrade, Queue Project AE2-049 will need an interim study.** **NIPS** **NonPJMArea (759) : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.** **Cost : $0**	$0

ID	Index	Facility	Upgrade Description	Cost
9006935	17	WILTON ;4M 345.0 kV - WILTON ; 765.0 kV Ckt 1	n5145 (292) : 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
9007243	1	W PLANO ; R 138.0 kV - PLANO; R 138.0 kV Ckt 1	9007243 No upgrade is required. ComEd 138kV L14609 SLD & ALDR ratings are 498 MVA & 573 MVA.	$0
9006952,9006953,9006950,9006951	14	CRETE EC ;BP 345.0 kV - 17STJOHN 345.0 kV Ckt 1	COMED ce-009 (293) : 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 (759) : 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 : N/A Months	$14,900,000
9007027,9007029,9007028,9007030	4	17STJOHN 345.0 kV - ST JOHN ; T 345.0 kV Ckt 1	COMED ce-011 (297) : 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 a 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 (759) : 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 : N/A Months	$3,100,000

ID	Index	Facility	Upgrade Description	Cost
7467250	9	GREENACRE; T 345.0 kV - 05OLIVE 345.0 kV Ckt 1	**AEP** **AEP_AE1_REF_r0005 (123) : 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** **COMED** **ce-002 (279) : 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
			TOTAL COST	**$80,800,120**

17 Flow Gate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, 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.

17.1 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
9007243	272803	W PLANO ; R	CE	272251	PLANO; R	CE	1	COMED_P4_083-38-BT3-4__	breaker	498.0	81.11	107.55	DC	131.7

Bus #	Bus	MW Impact
272363	ESS H440 ; R	1.11
274850	MENDOTA H;RU	0.26
274855	GSG-6 ;RU	1.08
274872	LEE DEKAL;1U	3.08
290051	GSG-6; E	35.6
290108	LEEDK;1U E	105.15
295108	WESTBROOK C	0.39
295109	WESTBROOK E	19.06
295111	SUBLETTE E	2.0
916221	Z1-073 E	18.37
925301	AB2-191 C	0.42
925302	AB2-191 E	4.71
933431	AC2-156 C O1	6.13
933432	AC2-156 E O1	10.0
933911	AD1-013 C	6.41
933912	AD1-013 E	10.24
934431	AD1-067 C	0.45
934432	AD1-067 E	1.88
934701	AD1-098 C O1	22.47
934702	AD1-098 E O1	16.41
937001	AD2-134 C	9.31
937002	AD2-134 E	38.44
939691	AE1-199	8.32
939921	AE1-228 C O1	35.67
939922	AE1-228 E O1	23.78
941131	AE2-107 C	32.93
941132	AE2-107 E	21.95
943121	AE2-341 C	88.33
943122	AE2-341 E	43.37
BLUEG	BLUEG	0.29
CARR	CARR	0.03
CBM-S1	CBM-S1	0.33
CBM-S2	CBM-S2	0.02
CBM-W1	CBM-W1	2.94
CBM-W2	CBM-W2	5.49
G-007	G-007	0.09
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.0
MEC	MEC	5.37
O-066	O-066	0.55
RENSSELAER	RENSSELAER	0.02

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.03
WEC	WEC	0.27

17.2 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
9007162	943120	AE2-341 TAP	CE	272803	W PLANO ; R	CE	1	COMED_P4_083-38-BT3-4__	breaker	498.0	88.64	115.08	DC	131.7

Bus #	Bus	MW Impact
272363	ESS H440 ; R	1.11
274850	MENDOTA H;RU	0.26
274855	GSG-6 ;RU	1.08
274872	LEE DEKAL;1U	3.08
290051	GSG-6; E	35.6
290108	LEEDK;1U E	105.15
295108	WESTBROOK C	0.39
295109	WESTBROOK E	19.06
295111	SUBLETTE E	2.0
916221	Z1-073 E	18.37
925301	AB2-191 C	0.42
925302	AB2-191 E	4.71
933431	AC2-156 C O1	6.13
933432	AC2-156 E O1	10.0
933911	AD1-013 C	6.41
933912	AD1-013 E	10.24
934431	AD1-067 C	0.45
934432	AD1-067 E	1.88
934701	AD1-098 C O1	22.47
934702	AD1-098 E O1	16.41
937001	AD2-134 C	9.31
937002	AD2-134 E	38.44
939691	AE1-199	8.32
939921	AE1-228 C O1	35.67
939922	AE1-228 E O1	23.78
941131	AE2-107 C	32.93
941132	AE2-107 E	21.95
943121	AE2-341 C	88.33
943122	AE2-341 E	43.37
BLUEG	BLUEG	0.29
CARR	CARR	0.03
CBM-S1	CBM-S1	0.33
CBM-S2	CBM-S2	0.02
CBM-W1	CBM-W1	2.94
CBM-W2	CBM-W2	5.49
G-007	G-007	0.09
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.0
MEC	MEC	5.37
O-066	O-066	0.55
RENSSELAER	RENSSELAER	0.02

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.03
WEC	WEC	0.27

17.3 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
9007177	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	112.44	112.54	DC	12.63

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	8.05
274722	S-055 E	7.51
274751	CRETE EC ;1U	1.53
274752	CRETE EC ;2U	1.53
274753	CRETE EC ;3U	1.53
274754	CRETE EC ;4U	1.53
274788	SE CHICAG;5U	3.6
274789	SE CHICAG;6U	3.6
274790	SE CHICAG;7U	3.6
274791	SE CHICAG;8U	3.6
274792	SE CHICAG;9U	3.65
274793	SE CHICAG;0U	3.65
274794	SE CHICAG;1U	3.65
274795	SE CHICAG;2U	3.65
274859	EASYR;U1 E	7.29
274860	EASYR;U2 E	7.29
274888	PILOT HIL;1E	12.38
274890	CAYUG;1U E	8.9
274891	CAYUG;2U E	8.9
275149	KEMPTON ;1E	12.38
290021	O50 E	12.96
290051	GSG-6; E	6.93
290108	LEEDK;1U E	16.12
293061	N-015 E	10.22
293516	O-009 E1	2.6
293517	O-009 E2	1.32
293518	O-009 E3	1.45
293644	O22 E1	7.23
293645	O22 E2	14.04
293715	O-029 E	6.46
293716	O-029 E	3.54
293717	O-029 E	3.26
294392	P-010 E	12.98
294763	P-046 E	6.22
295109	WESTBROOK E	3.71
295111	SUBLETTE E	1.72
910542	X3-005 E	0.52
914641	Y2-103	30.04
915011	Y3-013 1	2.5
915021	Y3-013 2	2.5
915031	Y3-013 3	2.5
916221	Z1-073 E	3.58

Bus #	Bus	MW Impact
916502	Z1-106 E1	0.84
916504	Z1-106 E2	0.84
916512	Z1-107 E	1.71
916522	Z1-108 E	1.66
918052	AA1-018 E	10.6
919221	AA1-146	11.65
919581	AA2-030	11.65
920272	AA2-123 E	1.63
924471	AB2-096	28.16
925161	AB2-173	2.08
925302	AB2-191 E	0.92
926311	AC1-109 1	1.27
926321	AC1-109 2	1.27
926331	AC1-110 1	1.26
926341	AC1-110 2	1.26
926351	AC1-111 1	0.51
926361	AC1-111 2	0.51
926371	AC1-111 3	0.51
926381	AC1-111 4	0.51
926391	AC1-111 5	0.51
926401	AC1-111 6	0.51
926431	AC1-114	1.58
926821	AC1-168 C O1	0.76
926822	AC1-168 E O1	5.07
927091	AC1-204 1	48.7
927101	AC1-204 2	48.66
927451	AC1-142A 1	2.83
927461	AC1-142A 2	2.83
927511	AC1-113 1	0.79
927521	AC1-113 2	0.79
927531	AC1-185 1	0.46
927541	AC1-185 2	0.46
927551	AC1-185 3	0.46
927561	AC1-185 4	0.46
927571	AC1-185 5	0.46
927581	AC1-185 6	0.46
927591	AC1-185 7	0.46
927601	AC1-185 8	0.46
930481	AB1-089	43.69
930501	AB1-091 O1	49.08
930741	AB1-122 1O1	47.51
930751	AB1-122 2O1	49.68
932881	AC2-115 1	1.58
932891	AC2-115 2	1.58
932921	AC2-116	0.55
933341	AC2-147 C	0.58
933342	AC2-147 E	0.94
933411	AC2-154 C	1.68
933412	AC2-154 E	2.74
933431	AC2-156 C O1	0.63
933432	AC2-156 E O1	1.04
933911	AD1-013 C	1.22

Bus #	Bus	MW Impact
933912	AD1-013 E	1.95
933931	AD1-016 C	0.62
933932	AD1-016 E	1.01
934101	AD1-039 1	4.66
934111	AD1-039 2	4.87
934401	AD1-064 C O1	2.13
934402	AD1-064 E O1	9.97
934431	AD1-067 C	0.09
934432	AD1-067 E	0.37
934651	AD1-096 C	0.59
934652	AD1-096 E	0.97
934701	AD1-098 C O1	4.56
934702	AD1-098 E O1	3.33
934721	AD1-100 C	12.92
934722	AD1-100 E	60.3
934871	AD1-116 C	0.62
934872	AD1-116 E	1.01
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	13.71
935002	AD1-133 E O1	9.14
936291	AD2-038 C O1	1.54
936292	AD2-038 E O1	10.3
936371	AD2-047 C O1	1.5
936372	AD2-047 E O1	16.18
936461	AD2-060	1.77
936511	AD2-066 C O1	5.55
936512	AD2-066 E O1	3.7
936781	AD2-101 C	3.17
936782	AD2-101 E	14.82
936791	AD2-102 C	7.99
936792	AD2-102 E	7.67
937001	AD2-134 C	1.81
937002	AD2-134 E	7.49
937031	AD2-137 C O1	2.3
937032	AD2-137 E O1	10.79
937051	AD2-140 C O1	2.32
937052	AD2-140 E O1	10.85
937061	AD2-141 C O1	2.3
937062	AD2-141 E O1	10.86
937071	AD2-142 C O1	4.64
937072	AD2-142 E O1	21.7
937121	AD2-148 C O1	2.36
937122	AD2-148 E O1	11.03
937131	AD2-149 C O1	2.36
937132	AD2-149 E O1	11.03
937141	AD2-150 C O1	2.36
937142	AD2-150 E O1	11.03
937181	AD2-155 C O1	2.36
937182	AD2-155 E O1	11.03
937311	AD2-172 C	1.63
937312	AD2-172 E	2.26

Bus #	Bus	MW Impact
937321	AD2-175 C	10.97
937322	AD2-175 E	7.32
937331	AD2-176 C O1	4.88
937332	AD2-176 E O1	3.25
937401	AD2-194 1	5.24
937411	AD2-194 2	5.23
938012	AE1-002 E O1	4.63
938511	AE1-070 1	6.15
938521	AE1-070 2	5.63
938851	AE1-113 C O1	5.87
938852	AE1-113 E O1	18.44
938861	AE1-114 C O1	2.38
938862	AE1-114 E O1	9.11
939051	AE1-134 1	0.9
939061	AE1-134 2	0.9
939321	AE1-163 C O1	3.87
939322	AE1-163 E O1	23.76
939351	AE1-166 C O1	6.83
939352	AE1-166 E O1	6.3
939401	AE1-172 C O1	4.09
939402	AE1-172 E O1	19.14
939641	AE1-194 C	10.88
939642	AE1-194 E	72.79
939651	AE1-195 C	10.88
939652	AE1-195 E	72.79
939691	AE1-199	1.59
939701	AE1-201 C	1.33
939702	AE1-201 E	0.29
939732	AE1-204 E	0.2
939861	AE1-222 1	52.47
939871	AE1-222 2	54.86
939921	AE1-228 C O1	6.67
939922	AE1-228 E O1	4.44
940101	AE1-252 C O1	6.97
940102	AE1-252 E O1	4.65
940501	AE2-035 C	1.63
940502	AE2-035 E	2.26
940621	AE2-049 C O1	6.08
940622	AE2-049 E O1	4.05
940631	AE2-050 C O1	8.29
940632	AE2-050 E O1	5.53
940752	AE2-062 E	0.09
940762	AE2-063 E	0.09
940881	AE2-077 C	2.09
940882	AE2-077 E	3.42
941131	AE2-107 C	4.85
941132	AE2-107 E	3.23
941551	AE2-152 C	8.75
941552	AE2-152 E	4.38
941561	AE2-153 C O1	3.14
941562	AE2-153 E O1	14.71
942421	AE2-255 C O1	2.03

Bus #	Bus	MW Impact
942422	AE2-255 E O1	6.08
942651	AE2-281 C	0.55
942652	AE2-281 E	3.39
942881	AE2-307 C	15.2
942882	AE2-307 E	5.53
942911	AE2-310 C	5.9
942912	AE2-310 E	1.59
942991	AE2-321 C O1	5.44
942992	AE2-321 E O1	2.68
943121	AE2-341 C	8.47
943122	AE2-341 E	4.16
951721	J643	15.48
952581	J740 C	3.4
952582	J740 E	18.4
953871	J847	8.37
BLUEG	BLUEG	2.92
CANNELTON	CANNELTON	0.01
CARR	CARR	0.5
CATAWBA	CATAWBA	0.17
CBM-S1	CBM-S1	1.3
CBM-W1	CBM-W1	20.03
CBM-W2	CBM-W2	38.32
CHEOAH	CHEOAH	0.0
CIN	CIN	0.09
G-007	G-007	1.39
HAMLET	HAMLET	0.33
MEC	MEC	24.99
O-066	O-066	8.94
RENSSELAER	RENSSELAER	0.4
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.35
WEC	WEC	5.32
Z1-043	Z1-043	18.79

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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
9007028	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	133.92	134.02	DC	14.14

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.02
274654	BRAIDWOOD;1U	15.11
274655	BRAIDWOOD;2U	14.47
274661	LASCO STA;2U	13.96
274687	WILL CNTY;4U	6.37
274704	KENDALL ;1C	2.23
274705	KENDALL ;1S	1.49
274706	KENDALL ;2C	2.23
274707	KENDALL ;2S	1.49
274722	S-055 E	8.43
274751	CRETE EC ;1U	2.67
274752	CRETE EC ;2U	2.67
274753	CRETE EC ;3U	2.67
274754	CRETE EC ;4U	2.67
274859	EASYR;U1 E	8.15
274860	EASYR;U2 E	8.15
274861	TOP CROP ;1U	0.26
274862	TOP CROP ;2U	0.5
274888	PILOT HIL;1E	12.78
275149	KEMPTON ;1E	12.78
290021	O50 E	14.62
290051	GSG-6; E	7.76
290108	LEEDK;1U E	18.05
293061	N-015 E	11.59
293644	O22 E1	8.49
293645	O22 E2	16.47
294392	P-010 E	14.72
294763	P-046 E	6.96
295109	WESTBROOK E	4.15
295111	SUBLETTE E	1.92
914641	Y2-103	33.72
915011	Y3-013 1	2.81
915021	Y3-013 2	2.81
915031	Y3-013 3	2.81
916221	Z1-073 E	4.0
916502	Z1-106 E1	0.94
916504	Z1-106 E2	0.94
916512	Z1-107 E	1.85
916522	Z1-108 E	1.86
918052	AA1-018 E	11.61
920272	AA2-123 E	1.82

Bus #	Bus	MW Impact
924471	AB2-096	31.56
925302	AB2-191 E	1.03
926311	AC1-109 1	1.42
926321	AC1-109 2	1.42
926331	AC1-110 1	1.42
926341	AC1-110 2	1.42
926351	AC1-111 1	0.57
926361	AC1-111 2	0.57
926371	AC1-111 3	0.57
926381	AC1-111 4	0.57
926391	AC1-111 5	0.57
926401	AC1-111 6	0.57
926431	AC1-114	1.77
927091	AC1-204 1	55.08
927101	AC1-204 2	55.0
927451	AC1-142A 1	3.19
927461	AC1-142A 2	3.2
927511	AC1-113 1	0.89
927521	AC1-113 2	0.89
927531	AC1-185 1	0.51
927541	AC1-185 2	0.51
927551	AC1-185 3	0.51
927561	AC1-185 4	0.51
927571	AC1-185 5	0.51
927581	AC1-185 6	0.51
927591	AC1-185 7	0.51
927601	AC1-185 8	0.51
930481	AB1-089	48.93
930501	AB1-091 O1	50.49
930741	AB1-122 1O1	52.86
930751	AB1-122 2O1	56.2
932881	AC2-115 1	1.77
932891	AC2-115 2	1.77
932921	AC2-116	0.62
933341	AC2-147 C	0.65
933342	AC2-147 E	1.05
933411	AC2-154 C	1.73
933412	AC2-154 E	2.83
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.16
933911	AD1-013 C	1.37
933912	AD1-013 E	2.18
933931	AD1-016 C	0.69
933932	AD1-016 E	1.13
934101	AD1-039 1	5.18
934111	AD1-039 2	5.51
934401	AD1-064 C O1	2.39
934402	AD1-064 E O1	11.18
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.66
934652	AD1-096 E	1.08

Bus #	Bus	MW Impact
934701	AD1-098 C O1	5.1
934702	AD1-098 E O1	3.73
934721	AD1-100 C	14.24
934722	AD1-100 E	66.44
934871	AD1-116 C	0.68
934872	AD1-116 E	1.1
934971	AD1-129 C	0.67
934972	AD1-129 E	0.45
935001	AD1-133 C O1	10.36
935002	AD1-133 E O1	6.91
936291	AD2-038 C O1	1.71
936292	AD2-038 E O1	11.42
936371	AD2-047 C O1	1.55
936372	AD2-047 E O1	16.71
936461	AD2-060	1.83
936511	AD2-066 C O1	6.18
936512	AD2-066 E O1	4.12
936781	AD2-101 C	3.08
936782	AD2-101 E	14.43
936791	AD2-102 C	8.94
936792	AD2-102 E	8.59
937001	AD2-134 C	2.03
937002	AD2-134 E	8.38
937031	AD2-137 C O1	2.44
937032	AD2-137 E O1	11.4
937051	AD2-140 C O1	2.43
937052	AD2-140 E O1	11.4
937061	AD2-141 C O1	2.42
937062	AD2-141 E O1	11.41
937071	AD2-142 C O1	4.87
937072	AD2-142 E O1	22.79
937121	AD2-148 C O1	2.42
937122	AD2-148 E O1	11.35
937131	AD2-149 C O1	2.42
937132	AD2-149 E O1	11.35
937141	AD2-150 C O1	2.42
937142	AD2-150 E O1	11.35
937181	AD2-155 C O1	2.42
937182	AD2-155 E O1	11.35
937311	AD2-172 C	1.83
937312	AD2-172 E	2.52
937321	AD2-175 C	11.29
937322	AD2-175 E	7.53
937331	AD2-176 C O1	5.47
937332	AD2-176 E O1	3.65
937401	AD2-194 1	5.92
937411	AD2-194 2	5.91
938012	AE1-002 E O1	4.89
938511	AE1-070 1	6.96
938521	AE1-070 2	6.36
938851	AE1-113 C O1	6.61
938852	AE1-113 E O1	20.79

Bus #	Bus	MW Impact
938861	AE1-114 C O1	2.67
938862	AE1-114 E O1	10.19
939321	AE1-163 C O1	4.29
939322	AE1-163 E O1	26.35
939351	AE1-166 C O1	7.59
939352	AE1-166 E O1	7.0
939401	AE1-172 C O1	4.46
939402	AE1-172 E O1	20.9
939641	AE1-194 C	18.94
939642	AE1-194 E	126.77
939651	AE1-195 C	18.94
939652	AE1-195 E	126.77
939691	AE1-199	1.77
939701	AE1-201 C	1.49
939702	AE1-201 E	0.33
939732	AE1-204 E	0.22
939861	AE1-222 1	58.38
939871	AE1-222 2	62.06
939921	AE1-228 C O1	7.46
939922	AE1-228 E O1	4.97
940101	AE1-252 C O1	7.61
940102	AE1-252 E O1	5.07
940501	AE2-035 C	1.83
940502	AE2-035 E	2.52
940621	AE2-049 C O1	6.33
940622	AE2-049 E O1	4.22
940631	AE2-050 C O1	9.85
940632	AE2-050 E O1	6.57
940752	AE2-062 E	0.1
940762	AE2-063 E	0.1
940881	AE2-077 C	2.34
940882	AE2-077 E	3.82
941131	AE2-107 C	5.43
941132	AE2-107 E	3.62
941551	AE2-152 C	9.73
941552	AE2-152 E	4.86
941561	AE2-153 C O1	3.5
941562	AE2-153 E O1	16.37
942421	AE2-255 C O1	2.28
942422	AE2-255 E O1	6.85
942651	AE2-281 C	0.61
942652	AE2-281 E	3.76
942881	AE2-307 C	18.06
942882	AE2-307 E	6.57
942911	AE2-310 C	6.14
942912	AE2-310 E	1.66
942991	AE2-321 C O1	6.09
942992	AE2-321 E O1	3.0
943121	AE2-341 C	9.48
943122	AE2-341 E	4.66
BLUEG	BLUEG	5.16
CALDERWOOD	CALDERWOOD	0.1

Bus #	Bus	MW Impact
CANNELTON	CANNELTON	0.11
CARR	CARR	0.57
CATAWBA	CATAWBA	0.24
CBM-S1	CBM-S1	0.68
CBM-W1	CBM-W1	20.04
CBM-W2	CBM-W2	36.78
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
ELMERSMITH	ELMERSMITH	0.15
G-007	G-007	1.6
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.45
MEC	MEC	27.48
O-066	O-066	10.25
RENSSELAER	RENSSELAER	0.45
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.6
WEC	WEC	5.96
Z1-043	Z1-043	20.93

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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
7466927	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	173.75	173.87	DC	21.81

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	13.9
274722	S-055 E	12.93
274724	RIVER EC ;11	3.77
274788	SE CHICAG;5U	7.41
274789	SE CHICAG;6U	7.41
274790	SE CHICAG;7U	7.41
274791	SE CHICAG;8U	7.41
274792	SE CHICAG;9U	7.31
274793	SE CHICAG;0U	7.31
274794	SE CHICAG;1U	7.31
274795	SE CHICAG;2U	7.31
274832	U4-027	12.43
274859	EASYR;U1 E	12.65
274860	EASYR;U2 E	12.65
274888	PILOT HIL;1E	22.27
274890	CAYUG;1U E	15.74
274891	CAYUG;2U E	15.74
275149	KEMPTON ;1E	22.27
290021	O50 E	22.28
290051	GSG-6; E	12.01
290108	LEEDK;1U E	27.88
293061	N-015 E	17.51
293516	O-009 E1	10.43
293517	O-009 E2	5.3
293518	O-009 E3	5.84
293644	O22 E1	11.93
293645	O22 E2	23.17
293715	O-029 E	11.25
293716	O-029 E	6.17
293717	O-029 E	5.67
293771	O-035 E	7.35
294392	P-010 E	22.24
294763	P-046 E	10.78
295109	WESTBROOK E	6.43
295111	SUBLETTE E	2.98
910542	X3-005 E	1.0
914641	Y2-103	51.72
915011	Y3-013 1	4.31
915021	Y3-013 2	4.31
915031	Y3-013 3	4.31
916211	Z1-072 E	5.56
916221	Z1-073 E	6.19

Bus #	Bus	MW Impact
916502	Z1-106 E1	1.45
916504	Z1-106 E2	1.45
916512	Z1-107 E	3.03
916522	Z1-108 E	2.86
918052	AA1-018 E	18.71
919221	AA1-146	20.25
919581	AA2-030	20.25
920272	AA2-123 E	2.81
924471	AB2-096	48.66
925161	AB2-173	3.61
925302	AB2-191 E	1.59
926311	AC1-109 1	2.19
926321	AC1-109 2	2.19
926331	AC1-110 1	2.18
926341	AC1-110 2	2.18
926351	AC1-111 1	0.87
926361	AC1-111 2	0.87
926371	AC1-111 3	0.87
926381	AC1-111 4	0.87
926391	AC1-111 5	0.87
926401	AC1-111 6	0.87
926431	AC1-114	2.74
926821	AC1-168 C O1	1.32
926822	AC1-168 E O1	8.84
927091	AC1-204 1	83.15
927101	AC1-204 2	83.12
927201	AC1-214 C O1	2.36
927202	AC1-214 E O1	7.5
927451	AC1-142A 1	4.83
927461	AC1-142A 2	4.83
927511	AC1-113 1	1.37
927521	AC1-113 2	1.37
927531	AC1-185 1	0.79
927541	AC1-185 2	0.79
927551	AC1-185 3	0.79
927561	AC1-185 4	0.79
927571	AC1-185 5	0.79
927581	AC1-185 6	0.79
927591	AC1-185 7	0.79
927601	AC1-185 8	0.79
930481	AB1-089	75.56
930501	AB1-091 O1	88.11
930741	AB1-122 1O1	82.31
930751	AB1-122 2O1	84.84
932881	AC2-115 1	2.74
932891	AC2-115 2	2.74
932921	AC2-116	0.96
932931	AC2-117	5.8
933341	AC2-147 C	1.0
933342	AC2-147 E	1.64
933411	AC2-154 C	3.02
933412	AC2-154 E	4.93

Bus #	Bus	MW Impact
933431	AC2-156 C O1	1.1
933432	AC2-156 E O1	1.79
933911	AD1-013 C	2.11
933912	AD1-013 E	3.38
933931	AD1-016 C	1.07
933932	AD1-016 E	1.74
934101	AD1-039 1	8.07
934111	AD1-039 2	8.31
934401	AD1-064 C O1	3.68
934402	AD1-064 E O1	17.23
934431	AD1-067 C	0.15
934432	AD1-067 E	0.63
934651	AD1-096 C	1.03
934652	AD1-096 E	1.67
934701	AD1-098 C O1	7.9
934702	AD1-098 E O1	5.77
934721	AD1-100 C	22.42
934722	AD1-100 E	104.62
934871	AD1-116 C	1.09
934872	AD1-116 E	1.78
934971	AD1-129 C	1.04
934972	AD1-129 E	0.69
935001	AD1-133 C O1	24.03
935002	AD1-133 E O1	16.02
936291	AD2-038 C O1	2.69
936292	AD2-038 E O1	18.0
936371	AD2-047 C O1	2.7
936372	AD2-047 E O1	29.11
936461	AD2-060	3.18
936511	AD2-066 C O1	9.66
936512	AD2-066 E O1	6.44
936781	AD2-101 C	5.89
936782	AD2-101 E	27.59
936791	AD2-102 C	13.83
936792	AD2-102 E	13.28
937001	AD2-134 C	3.14
937002	AD2-134 E	12.96
937031	AD2-137 C O1	4.07
937032	AD2-137 E O1	19.06
937051	AD2-140 C O1	4.11
937052	AD2-140 E O1	19.23
937061	AD2-141 C O1	4.08
937062	AD2-141 E O1	19.25
937071	AD2-142 C O1	8.21
937072	AD2-142 E O1	38.45
937121	AD2-148 C O1	4.23
937122	AD2-148 E O1	19.8
937131	AD2-149 C O1	4.23
937132	AD2-149 E O1	19.8
937141	AD2-150 C O1	4.23
937142	AD2-150 E O1	19.8
937181	AD2-155 C O1	4.23

Bus #	Bus	MW Impact
937182	AD2-155 E O1	19.8
937311	AD2-172 C	2.83
937312	AD2-172 E	3.91
937321	AD2-175 C	19.7
937322	AD2-175 E	13.13
937331	AD2-176 C O1	8.42
937332	AD2-176 E O1	5.62
937401	AD2-194 1	8.94
937411	AD2-194 2	8.94
937531	AD2-214 C	5.09
937532	AD2-214 E	2.39
938012	AE1-002 E O1	8.17
938511	AE1-070 1	10.51
938521	AE1-070 2	9.61
938851	AE1-113 C O1	10.08
938852	AE1-113 E O1	31.69
938861	AE1-114 C O1	4.14
938862	AE1-114 E O1	15.81
939051	AE1-134 1	1.57
939061	AE1-134 2	1.57
939321	AE1-163 C O1	6.76
939322	AE1-163 E O1	41.51
939351	AE1-166 C O1	11.78
939352	AE1-166 E O1	10.87
939401	AE1-172 C O1	7.2
939402	AE1-172 E O1	33.69
939641	AE1-194 C	10.23
939642	AE1-194 E	68.46
939651	AE1-195 C	10.23
939652	AE1-195 E	68.46
939681	AE1-198 C O1	23.4
939682	AE1-198 E O1	19.88
939691	AE1-199	2.74
939701	AE1-201 C	2.3
939702	AE1-201 E	0.51
939732	AE1-204 E	0.34
939861	AE1-222 1	90.89
939871	AE1-222 2	93.69
939921	AE1-228 C O1	11.54
939922	AE1-228 E O1	7.7
940101	AE1-252 C O1	12.26
940102	AE1-252 E O1	8.18
940501	AE2-035 C	2.83
940502	AE2-035 E	3.91
940621	AE2-049 C O1	10.89
940622	AE2-049 E O1	7.26
940631	AE2-050 C O1	13.62
940632	AE2-050 E O1	9.08
940752	AE2-062 E	0.15
940762	AE2-063 E	0.15
940881	AE2-077 C	3.62
940882	AE2-077 E	5.91

Bus #	Bus	MW Impact
941131	AE2-107 C	8.39
941132	AE2-107 E	5.59
941551	AE2-152 C	15.1
941552	AE2-152 E	7.55
941561	AE2-153 C O1	5.42
941562	AE2-153 E O1	25.36
942421	AE2-255 C O1	3.48
942422	AE2-255 E O1	10.44
942651	AE2-281 C	0.97
942652	AE2-281 E	5.93
942881	AE2-307 C	24.97
942882	AE2-307 E	9.08
942911	AE2-310 C	10.57
942912	AE2-310 E	2.86
942991	AE2-321 C O1	9.39
942992	AE2-321 E O1	4.62
943121	AE2-341 C	14.63
943122	AE2-341 E	7.18
951721	J643	25.68
952581	J740 C	4.29
952582	J740 E	23.24
953871	J847	13.08
954751	J351	434.36
BLUEG	BLUEG	1.17
CARR	CARR	0.91
CATAWBA	CATAWBA	0.23
CBM-S1	CBM-S1	3.86
CBM-W1	CBM-W1	35.93
CBM-W2	CBM-W2	81.92
CIN	CIN	3.25
G-007	G-007	2.53
HAMLET	HAMLET	0.49
IPL	IPL	1.09
MEC	MEC	44.6
O-066	O-066	16.24
RENSSELAER	RENSSELAER	0.72
TRIMBLE	TRIMBLE	0.18
WEC	WEC	9.18
Z1-043	Z1-043	32.87

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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
7468846	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	107.51	107.6	DC	52.65

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	32.1
274722	S-055 E	29.48
274772	LINCOLN ;3U	3.73
274773	LINCOLN ;4U	3.73
274774	LINCOLN ;5U	3.73
274775	LINCOLN ;6U	3.73
274776	LINCOLN ;7U	3.73
274777	LINCOLN ;8U	3.73
274832	U4-027	27.98
274859	EASYR;U1 E	29.06
274860	EASYR;U2 E	29.06
274888	PILOT HIL;1E	44.2
274890	CAYUG;1U E	35.98
274891	CAYUG;2U E	35.98
275149	KEMPTON ;1E	44.2
290021	O50 E	49.12
290051	GSG-6; E	28.02
290108	LEEDK;1U E	65.42
293061	N-015 E	41.13
293516	O-009 E1	23.73
293517	O-009 E2	12.05
293518	O-009 E3	13.28
293644	O22 E1	25.25
293645	O22 E2	49.01
293715	O-029 E	25.71
293716	O-029 E	14.1
293717	O-029 E	12.96
293771	O-035 E	16.45
294392	P-010 E	52.23
294763	P-046 E	24.82
295109	WESTBROOK E	15.0
295111	SUBLETTE E	6.85
296125	R-030 C3	6.6
296128	R-030 E3	26.39
296271	R-030 C2	6.52
296272	R-030 E2	26.07
296308	R-030 C1	6.52
296309	R-030 E1	26.07
910542	X3-005 E	1.57
914641	Y2-103	117.92

Bus #	Bus	MW Impact
915011	Y3-013 1	9.83
915021	Y3-013 2	9.83
915031	Y3-013 3	9.83
916211	Z1-072 E	12.45
916221	Z1-073 E	14.46
916502	Z1-106 E1	3.4
916504	Z1-106 E2	3.4
916512	Z1-107 E	6.51
916522	Z1-108 E	6.61
918052	AA1-018 E	40.31
919221	AA1-146	46.38
919581	AA2-030	46.38
920272	AA2-123 E	6.49
924471	AB2-096	112.35
925161	AB2-173	8.27
925302	AB2-191 E	3.71
926311	AC1-109 1	5.2
926321	AC1-109 2	5.2
926331	AC1-110 1	5.11
926341	AC1-110 2	5.11
926351	AC1-111 1	2.06
926361	AC1-111 2	2.06
926371	AC1-111 3	2.06
926381	AC1-111 4	2.06
926391	AC1-111 5	2.06
926401	AC1-111 6	2.06
926431	AC1-114	6.31
926821	AC1-168 C O1	2.97
926822	AC1-168 E O1	19.96
927091	AC1-204 1	183.86
927101	AC1-204 2	183.9
927201	AC1-214 C O1	5.28
927202	AC1-214 E O1	16.78
927451	AC1-142A 1	10.58
927461	AC1-142A 2	10.58
927511	AC1-113 1	3.15
927521	AC1-113 2	3.15
927531	AC1-185 1	1.82
927541	AC1-185 2	1.82
927551	AC1-185 3	1.82
927561	AC1-185 4	1.82
927571	AC1-185 5	1.82
927581	AC1-185 6	1.82
927591	AC1-185 7	1.82
927601	AC1-185 8	1.82
930481	AB1-089	174.75
930501	AB1-091 O1	173.56
930741	AB1-122 1O1	194.52
930751	AB1-122 2O1	188.25
932881	AC2-115 1	6.31
932891	AC2-115 2	6.31
932921	AC2-116	2.21

Bus #	Bus	MW Impact
932931	AC2-117	14.91
933341	AC2-147 C	2.31
933342	AC2-147 E	3.76
933411	AC2-154 C	6.0
933412	AC2-154 E	9.79
933431	AC2-156 C O1	2.63
933432	AC2-156 E O1	4.29
933911	AD1-013 C	4.93
933912	AD1-013 E	7.88
933931	AD1-016 C	2.47
933932	AD1-016 E	4.02
934101	AD1-039 1	19.06
934111	AD1-039 2	18.45
934401	AD1-064 C O1	8.54
934402	AD1-064 E O1	39.99
934431	AD1-067 C	0.35
934432	AD1-067 E	1.48
934651	AD1-096 C	2.36
934652	AD1-096 E	3.85
934701	AD1-098 C O1	18.42
934702	AD1-098 E O1	13.45
934721	AD1-100 C	50.93
934722	AD1-100 E	237.66
934871	AD1-116 C	2.35
934872	AD1-116 E	3.83
934971	AD1-129 C	2.4
934972	AD1-129 E	1.6
935001	AD1-133 C O1	55.82
935002	AD1-133 E O1	37.21
936291	AD2-038 C O1	5.84
936292	AD2-038 E O1	39.1
936371	AD2-047 C O1	5.37
936372	AD2-047 E O1	57.77
936461	AD2-060	6.31
936511	AD2-066 C O1	21.42
936512	AD2-066 E O1	14.28
936781	AD2-101 C	10.65
936782	AD2-101 E	49.86
936791	AD2-102 C	31.81
936792	AD2-102 E	30.56
937001	AD2-134 C	7.32
937002	AD2-134 E	30.26
937031	AD2-137 C O1	10.24
937032	AD2-137 E O1	47.92
937051	AD2-140 C O1	10.48
937052	AD2-140 E O1	49.08
937061	AD2-141 C O1	10.42
937062	AD2-141 E O1	49.14
937071	AD2-142 C O1	20.97
937072	AD2-142 E O1	98.16
937121	AD2-148 C O1	8.33
937122	AD2-148 E O1	39.01

Bus #	Bus	MW Impact
937131	AD2-149 C O1	8.33
937132	AD2-149 E O1	39.01
937141	AD2-150 C O1	8.33
937142	AD2-150 E O1	39.01
937181	AD2-155 C O1	8.33
937182	AD2-155 E O1	39.01
937311	AD2-172 C	6.51
937312	AD2-172 E	9.0
937321	AD2-175 C	38.82
937322	AD2-175 E	25.88
937331	AD2-176 C O1	19.48
937332	AD2-176 E O1	12.98
937401	AD2-194 1	19.77
937411	AD2-194 2	19.78
937531	AD2-214 C	11.57
937532	AD2-214 E	5.45
938012	AE1-002 E O1	20.55
938511	AE1-070 1	23.23
938521	AE1-070 2	21.26
938851	AE1-113 C O1	22.23
938852	AE1-113 E O1	69.88
938861	AE1-114 C O1	9.51
938862	AE1-114 E O1	36.36
939051	AE1-134 1	3.6
939061	AE1-134 2	3.6
939321	AE1-163 C O1	14.68
939322	AE1-163 E O1	90.19
939351	AE1-166 C O1	26.21
939352	AE1-166 E O1	24.2
939401	AE1-172 C O1	16.53
939402	AE1-172 E O1	77.39
939641	AE1-194 C	21.06
939642	AE1-194 E	140.92
939651	AE1-195 C	21.06
939652	AE1-195 E	140.92
939691	AE1-199	6.41
939701	AE1-201 C	5.32
939702	AE1-201 E	1.17
939732	AE1-204 E	0.77
939741	AE1-205 C O1	23.23
939742	AE1-205 E O1	32.07
939861	AE1-222 1	214.82
939871	AE1-222 2	207.89
939921	AE1-228 C O1	26.96
939922	AE1-228 E O1	17.97
940101	AE1-252 C O1	28.18
940102	AE1-252 E O1	18.78
940501	AE2-035 C	6.51
940502	AE2-035 E	9.0
940621	AE2-049 C O1	21.85
940622	AE2-049 E O1	14.57
940631	AE2-050 C O1	30.19

Bus #	Bus	MW Impact
940632	AE2-050 E O1	20.13
940752	AE2-062 E	0.33
940762	AE2-063 E	0.33
940881	AE2-077 C	8.36
940882	AE2-077 E	13.63
941131	AE2-107 C	19.71
941132	AE2-107 E	13.14
941551	AE2-152 C	33.61
941552	AE2-152 E	16.8
941561	AE2-153 C O1	11.6
941562	AE2-153 E O1	54.33
942421	AE2-255 C O1	7.68
942422	AE2-255 E O1	23.03
942651	AE2-281 C	2.1
942652	AE2-281 E	12.89
942881	AE2-307 C	55.35
942882	AE2-307 E	20.13
942911	AE2-310 C	21.22
942912	AE2-310 E	5.73
942991	AE2-321 C O1	21.71
942992	AE2-321 E O1	10.69
943121	AE2-341 C	35.31
943122	AE2-341 E	17.34
BLUEG	BLUEG	17.18
CALDERWOOD	CALDERWOOD	0.27
CANNELTON	CANNELTON	0.28
CARR	CARR	2.0
CATAWBA	CATAWBA	0.82
CBM-S1	CBM-S1	3.15
CBM-W1	CBM-W1	76.97
CBM-W2	CBM-W2	139.71
CHEOAH	CHEOAH	0.28
CHILHOWEE	CHILHOWEE	0.08
ELMERSMITH	ELMERSMITH	0.31
G-007	G-007	5.61
GIBSON	GIBSON	0.1
HAMLET	HAMLET	1.54
MEC	MEC	97.87
O-066	O-066	35.97
RENSSELAER	RENSSELAER	1.58
SANTEETLA	SANTEETLA	0.09
TRIMBLE	TRIMBLE	2.03
WEC	WEC	20.89
Z1-043	Z1-043	73.67

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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
9007303	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	101.4	101.51	DC	18.54

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	11.72
274722	S-055 E	10.94
274723	RIVER EC ;12	3.43
274792	SE CHICAG;9U	6.24
274793	SE CHICAG;0U	6.24
274794	SE CHICAG;1U	6.24
274795	SE CHICAG;2U	6.24
274826	FISK ;BP	1.82
274832	U4-027	10.29
274859	EASYR;U1 E	10.59
274860	EASYR;U2 E	10.59
274888	PILOT HIL;1E	20.45
274890	CAYUG;1U E	13.37
274891	CAYUG;2U E	13.37
275149	KEMPTON ;1E	20.45
290021	O50 E	18.53
290051	GSG-6; E	10.11
290108	LEEDK;1U E	23.53
293061	N-015 E	14.79
293516	O-009 E1	8.68
293517	O-009 E2	4.41
293518	O-009 E3	4.86
293644	O22 E1	9.25
293645	O22 E2	17.95
293715	O-029 E	9.38
293716	O-029 E	5.14
293717	O-029 E	4.73
293771	O-035 E	6.07
294392	P-010 E	18.79
294763	P-046 E	9.05
295109	WESTBROOK E	5.41
295111	SUBLETTE E	2.49
296125	R-030 C3	3.42
296128	R-030 E3	13.68
296271	R-030 C2	3.38
296272	R-030 E2	13.51
296308	R-030 C1	3.38
296309	R-030 E1	13.51
910541	X3-005 C	0.07
910542	X3-005 E	0.91
914641	Y2-103	43.74
915011	Y3-013 1	3.65

Bus #	Bus	MW Impact
915021	Y3-013 2	3.65
915031	Y3-013 3	3.65
916211	Z1-072 E	4.6
916221	Z1-073 E	5.22
916502	Z1-106 E1	1.23
916504	Z1-106 E2	1.23
916512	Z1-107 E	2.58
916522	Z1-108 E	2.42
917502	Z2-087 E	7.1
918052	AA1-018 E	16.78
919221	AA1-146	16.9
919581	AA2-030	16.9
920272	AA2-123 E	2.37
924471	AB2-096	41.03
925161	AB2-173	3.01
925302	AB2-191 E	1.34
926311	AC1-109 1	1.86
926321	AC1-109 2	1.86
926331	AC1-110 1	1.85
926341	AC1-110 2	1.85
926351	AC1-111 1	0.74
926361	AC1-111 2	0.74
926371	AC1-111 3	0.74
926381	AC1-111 4	0.74
926391	AC1-111 5	0.74
926401	AC1-111 6	0.74
926431	AC1-114	2.3
926821	AC1-168 C O1	1.09
926822	AC1-168 E O1	7.34
927091	AC1-204 1	69.96
927101	AC1-204 2	70.02
927201	AC1-214 C O1	1.95
927202	AC1-214 E O1	6.2
927451	AC1-142A 1	4.09
927461	AC1-142A 2	4.08
927511	AC1-113 1	1.15
927521	AC1-113 2	1.15
927531	AC1-185 1	0.66
927541	AC1-185 2	0.66
927551	AC1-185 3	0.66
927561	AC1-185 4	0.66
927571	AC1-185 5	0.66
927581	AC1-185 6	0.66
927591	AC1-185 7	0.66
927601	AC1-185 8	0.66
930481	AB1-089	63.61
930501	AB1-091 O1	82.15
930741	AB1-122 1O1	69.9
930751	AB1-122 2O1	70.86
932881	AC2-115 1	2.3
932891	AC2-115 2	2.3
932921	AC2-116	0.81

Bus #	Bus	MW Impact
932931	AC2-117	5.29
933341	AC2-147 C	0.84
933342	AC2-147 E	1.37
933411	AC2-154 C	2.77
933412	AC2-154 E	4.53
933431	AC2-156 C O1	0.93
933432	AC2-156 E O1	1.52
933911	AD1-013 C	1.78
933912	AD1-013 E	2.84
933931	AD1-016 C	0.9
933932	AD1-016 E	1.47
934101	AD1-039 1	6.85
934111	AD1-039 2	6.94
934401	AD1-064 C O1	3.1
934402	AD1-064 E O1	14.53
934431	AD1-067 C	0.13
934432	AD1-067 E	0.53
934651	AD1-096 C	0.86
934652	AD1-096 E	1.4
934701	AD1-098 C O1	6.65
934702	AD1-098 E O1	4.86
934721	AD1-100 C	19.51
934722	AD1-100 E	91.04
934871	AD1-116 C	0.98
934872	AD1-116 E	1.59
934971	AD1-129 C	0.88
934972	AD1-129 E	0.58
935001	AD1-133 C O1	20.26
935002	AD1-133 E O1	13.5
936291	AD2-038 C O1	2.32
936292	AD2-038 E O1	15.55
936371	AD2-047 C O1	2.48
936372	AD2-047 E O1	26.73
936461	AD2-060	2.92
936511	AD2-066 C O1	8.12
936512	AD2-066 E O1	5.42
936781	AD2-101 C	4.74
936782	AD2-101 E	22.18
936791	AD2-102 C	11.62
936792	AD2-102 E	11.17
937001	AD2-134 C	2.64
937002	AD2-134 E	10.91
937031	AD2-137 C O1	3.66
937032	AD2-137 E O1	17.14
937051	AD2-140 C O1	3.71
937052	AD2-140 E O1	17.39
937061	AD2-141 C O1	3.69
937062	AD2-141 E O1	17.41
937071	AD2-142 C O1	7.43
937072	AD2-142 E O1	34.78
937121	AD2-148 C O1	3.93
937122	AD2-148 E O1	18.4

Bus #	Bus	MW Impact
937131	AD2-149 C O1	3.93
937132	AD2-149 E O1	18.4
937141	AD2-150 C O1	3.93
937142	AD2-150 E O1	18.4
937181	AD2-155 C O1	3.93
937182	AD2-155 E O1	18.4
937311	AD2-172 C	2.38
937312	AD2-172 E	3.28
937321	AD2-175 C	18.31
937322	AD2-175 E	12.21
937331	AD2-176 C O1	7.11
937332	AD2-176 E O1	4.74
937401	AD2-194 1	7.52
937411	AD2-194 2	7.53
937531	AD2-214 C	4.23
937532	AD2-214 E	1.99
938012	AE1-002 E O1	7.35
938511	AE1-070 1	8.84
938521	AE1-070 2	8.09
938851	AE1-113 C O1	8.39
938852	AE1-113 E O1	26.36
938861	AE1-114 C O1	3.47
938862	AE1-114 E O1	13.25
939051	AE1-134 1	1.31
939061	AE1-134 2	1.31
939321	AE1-163 C O1	5.84
939322	AE1-163 E O1	35.87
939351	AE1-166 C O1	10.21
939352	AE1-166 E O1	9.43
939401	AE1-172 C O1	6.17
939402	AE1-172 E O1	28.89
939691	AE1-199	2.31
939701	AE1-201 C	1.94
939702	AE1-201 E	0.43
939732	AE1-204 E	0.28
939741	AE1-205 C O1	8.55
939742	AE1-205 E O1	11.81
939861	AE1-222 1	77.19
939871	AE1-222 2	78.26
939921	AE1-228 C O1	9.72
939922	AE1-228 E O1	6.48
940101	AE1-252 C O1	10.52
940102	AE1-252 E O1	7.01
940501	AE2-035 C	2.38
940502	AE2-035 E	3.28
940621	AE2-049 C O1	9.92
940622	AE2-049 E O1	6.61
940631	AE2-050 C O1	11.06
940632	AE2-050 E O1	7.37
940752	AE2-062 E	0.13
940762	AE2-063 E	0.13
940881	AE2-077 C	3.05

Bus #	Bus	MW Impact
940882	AE2-077 E	4.97
941131	AE2-107 C	7.08
941132	AE2-107 E	4.72
941551	AE2-152 C	13.1
941552	AE2-152 E	6.55
941561	AE2-153 C O1	4.72
941562	AE2-153 E O1	22.12
942111	AE2-223 C	1.98
942112	AE2-223 E	13.26
942421	AE2-255 C O1	2.9
942422	AE2-255 E O1	8.69
942651	AE2-281 C	0.83
942652	AE2-281 E	5.12
942881	AE2-307 C	20.28
942882	AE2-307 E	7.37
942911	AE2-310 C	9.63
942912	AE2-310 E	2.6
942991	AE2-321 C O1	7.92
942992	AE2-321 E O1	3.9
943121	AE2-341 C	12.44
943122	AE2-341 E	6.11
BLUEG	BLUEG	5.58
CALDERWOOD	CALDERWOOD	0.07
CANNELTON	CANNELTON	0.09
CARR	CARR	0.74
CATAWBA	CATAWBA	0.28
CBM-S1	CBM-S1	1.35
CBM-W1	CBM-W1	23.91
CBM-W2	CBM-W2	51.55
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02
ELMERSMITH	ELMERSMITH	0.09
G-007	G-007	2.05
GIBSON	GIBSON	0.04
HAMLET	HAMLET	0.53
MEC	MEC	35.99
O-066	O-066	13.18
RENSSELAER	RENSSELAER	0.58
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.66
WEC	WEC	7.73
Z1-043	Z1-043	27.21

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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
9007154	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	115.12	115.25	DC	19.92

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	12.76
274654	BRAIDWOOD;1U	21.73
274655	BRAIDWOOD;2U	20.79
274660	LASCO STA;1U	19.85
274661	LASCO STA;2U	19.89
274675	JOLIET 29;7U	8.97
274676	JOLIET 29;8U	8.97
274687	WILL CNTY;4U	9.06
274704	KENDALL ;1C	3.19
274705	KENDALL ;1S	2.13
274706	KENDALL ;2C	3.19
274707	KENDALL ;2S	2.13
274722	S-055 E	11.95
274736	ELWOOD EC;9P	2.57
274859	EASYR;U1 E	11.54
274860	EASYR;U2 E	11.54
274861	TOP CROP ;1U	0.38
274862	TOP CROP ;2U	0.73
274888	PILOT HIL;1E	17.16
275149	KEMPTON ;1E	17.16
290021	O50 E	20.84
290051	GSG-6; E	10.97
290108	LEEDK;1U E	25.51
293061	N-015 E	16.48
293516	O-009 E1	6.05
293517	O-009 E2	3.07
293518	O-009 E3	3.39
293644	O22 E1	12.37
293645	O22 E2	24.01
293715	O-029 E	10.23
293716	O-029 E	5.61
293717	O-029 E	5.15
294392	P-010 E	20.93
294763	P-046 E	9.86
295109	WESTBROOK E	5.87
295111	SUBLETTE E	2.72
914641	Y2-103	47.78
915011	Y3-013 1	3.98
915021	Y3-013 2	3.98
915031	Y3-013 3	3.98
916221	Z1-073 E	5.66

Bus #	Bus	MW Impact
916502	Z1-106 E1	1.33
916504	Z1-106 E2	1.33
916512	Z1-107 E	2.56
916522	Z1-108 E	2.63
918052	AA1-018 E	16.24
919221	AA1-146	18.43
919581	AA2-030	18.43
920272	AA2-123 E	2.58
924471	AB2-096	44.68
925161	AB2-173	3.29
925302	AB2-191 E	1.45
926311	AC1-109 1	2.0
926321	AC1-109 2	2.0
926331	AC1-110 1	2.01
926341	AC1-110 2	2.01
926351	AC1-111 1	0.8
926361	AC1-111 2	0.8
926371	AC1-111 3	0.8
926381	AC1-111 4	0.8
926391	AC1-111 5	0.8
926401	AC1-111 6	0.8
926431	AC1-114	2.51
926821	AC1-168 C O1	1.2
926822	AC1-168 E O1	8.04
927091	AC1-204 1	78.55
927101	AC1-204 2	78.42
927451	AC1-142A 1	4.55
927461	AC1-142A 2	4.55
927511	AC1-113 1	1.25
927521	AC1-113 2	1.25
927531	AC1-185 1	0.72
927541	AC1-185 2	0.72
927551	AC1-185 3	0.72
927561	AC1-185 4	0.72
927571	AC1-185 5	0.72
927581	AC1-185 6	0.72
927591	AC1-185 7	0.72
927601	AC1-185 8	0.72
930481	AB1-089	69.28
930501	AB1-091 O1	67.62
930741	AB1-122 1O1	74.91
930751	AB1-122 2O1	80.1
932881	AC2-115 1	2.51
932891	AC2-115 2	2.51
932921	AC2-116	0.88
933341	AC2-147 C	0.92
933342	AC2-147 E	1.49
933411	AC2-154 C	2.33
933412	AC2-154 E	3.8
933431	AC2-156 C O1	1.0
933432	AC2-156 E O1	1.63
933911	AD1-013 C	1.93

Bus #	Bus	MW Impact
933912	AD1-013 E	3.09
933931	AD1-016 C	0.98
933932	AD1-016 E	1.6
934101	AD1-039 1	7.34
934111	AD1-039 2	7.85
934401	AD1-064 C O1	3.38
934402	AD1-064 E O1	15.82
934431	AD1-067 C	0.14
934432	AD1-067 E	0.58
934651	AD1-096 C	0.94
934652	AD1-096 E	1.53
934701	AD1-098 C O1	7.22
934702	AD1-098 E O1	5.27
934721	AD1-100 C	19.99
934722	AD1-100 E	93.28
934871	AD1-116 C	0.95
934872	AD1-116 E	1.54
934971	AD1-129 C	0.95
934972	AD1-129 E	0.64
935001	AD1-133 C O1	21.37
935002	AD1-133 E O1	14.25
936291	AD2-038 C O1	2.41
936292	AD2-038 E O1	16.13
936371	AD2-047 C O1	2.08
936372	AD2-047 E O1	22.44
936461	AD2-060	2.45
936511	AD2-066 C O1	8.73
936512	AD2-066 E O1	5.82
936791	AD2-102 C	12.66
936792	AD2-102 E	12.17
937001	AD2-134 C	2.87
937002	AD2-134 E	11.85
937031	AD2-137 C O1	3.34
937032	AD2-137 E O1	15.65
937051	AD2-140 C O1	3.33
937052	AD2-140 E O1	15.57
937061	AD2-141 C O1	3.31
937062	AD2-141 E O1	15.59
937071	AD2-142 C O1	6.65
937072	AD2-142 E O1	31.14
937121	AD2-148 C O1	3.25
937122	AD2-148 E O1	15.2
937131	AD2-149 C O1	3.25
937132	AD2-149 E O1	15.2
937141	AD2-150 C O1	3.25
937142	AD2-150 E O1	15.2
937181	AD2-155 C O1	3.25
937182	AD2-155 E O1	15.2
937311	AD2-172 C	2.59
937312	AD2-172 E	3.57
937321	AD2-175 C	15.13
937322	AD2-175 E	10.08

Bus #	Bus	MW Impact
937331	AD2-176 C O1	7.74
937332	AD2-176 E O1	5.16
937401	AD2-194 1	8.45
937411	AD2-194 2	8.43
938012	AE1-002 E O1	6.71
938511	AE1-070 1	9.93
938521	AE1-070 2	9.07
938851	AE1-113 C O1	9.43
938852	AE1-113 E O1	29.64
938861	AE1-114 C O1	3.78
938862	AE1-114 E O1	14.44
939051	AE1-134 1	1.43
939061	AE1-134 2	1.43
939321	AE1-163 C O1	6.06
939322	AE1-163 E O1	37.2
939351	AE1-166 C O1	10.69
939352	AE1-166 E O1	9.87
939401	AE1-172 C O1	6.26
939402	AE1-172 E O1	29.29
939691	AE1-199	2.51
939701	AE1-201 C	2.12
939702	AE1-201 E	0.46
939732	AE1-204 E	0.31
939861	AE1-222 1	82.73
939871	AE1-222 2	88.46
939921	AE1-228 C O1	10.55
939922	AE1-228 E O1	7.03
940101	AE1-252 C O1	10.67
940102	AE1-252 E O1	7.11
940501	AE2-035 C	2.59
940502	AE2-035 E	3.57
940621	AE2-049 C O1	8.55
940622	AE2-049 E O1	5.7
940631	AE2-050 C O1	14.4
940632	AE2-050 E O1	9.6
940752	AE2-062 E	0.14
940762	AE2-063 E	0.14
940881	AE2-077 C	3.32
940882	AE2-077 E	5.42
941131	AE2-107 C	7.68
941132	AE2-107 E	5.12
941551	AE2-152 C	13.71
941552	AE2-152 E	6.85
941561	AE2-153 C O1	4.92
941562	AE2-153 E O1	23.04
942421	AE2-255 C O1	3.26
942422	AE2-255 E O1	9.77
942651	AE2-281 C	0.87
942652	AE2-281 E	5.31
942881	AE2-307 C	26.41
942882	AE2-307 E	9.6
942911	AE2-310 C	8.3

Bus #	Bus	MW Impact
942912	AE2-310 E	2.24
942991	AE2-321 C O1	8.63
942992	AE2-321 E O1	4.25
943121	AE2-341 C	13.36
943122	AE2-341 E	6.56
BLUEG	BLUEG	6.81
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.14
CARR	CARR	0.75
CATAWBA	CATAWBA	0.29
CBM-S1	CBM-S1	1.26
CBM-W1	CBM-W1	26.85
CBM-W2	CBM-W2	53.48
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03
ELMERSMITH	ELMERSMITH	0.17
G-007	G-007	2.1
GIBSON	GIBSON	0.08
HAMLET	HAMLET	0.56
MEC	MEC	39.06
O-066	O-066	13.46
RENSSELAER	RENSSELAER	0.59
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.8
WEC	WEC	8.44
Z1-043	Z1-043	29.69

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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
7467250	270771	GREENACRE ; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	126.32	126.43	DC	12.63

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	8.05
274722	S-055 E	7.51
274751	CRETE EC ;1U	1.53
274752	CRETE EC ;2U	1.53
274753	CRETE EC ;3U	1.53
274754	CRETE EC ;4U	1.53
274788	SE CHICAG;5U	3.6
274789	SE CHICAG;6U	3.6
274790	SE CHICAG;7U	3.6
274791	SE CHICAG;8U	3.6
274792	SE CHICAG;9U	3.65
274793	SE CHICAG;0U	3.65
274794	SE CHICAG;1U	3.65
274795	SE CHICAG;2U	3.65
274859	EASYR;U1 E	7.29
274860	EASYR;U2 E	7.29
274888	PILOT HIL;1E	12.38
274890	CAYUG;1U E	8.9
274891	CAYUG;2U E	8.9
275149	KEMPTON ;1E	12.38
290021	O50 E	12.96
290051	GSG-6; E	6.93
290108	LEEDK;1U E	16.12
293061	N-015 E	10.22
293516	O-009 E1	2.6
293517	O-009 E2	1.32
293518	O-009 E3	1.45
293644	O22 E1	7.23
293645	O22 E2	14.04
293715	O-029 E	6.46
293716	O-029 E	3.54
293717	O-029 E	3.26
294392	P-010 E	12.98
294763	P-046 E	6.22
295109	WESTBROOK E	3.71
295111	SUBLETTE E	1.72
910542	X3-005 E	0.52
914641	Y2-103	30.04
915011	Y3-013 1	2.5
915021	Y3-013 2	2.5
915031	Y3-013 3	2.5
916221	Z1-073 E	3.58

Bus #	Bus	MW Impact
916502	Z1-106 E1	0.84
916504	Z1-106 E2	0.84
916512	Z1-107 E	1.71
916522	Z1-108 E	1.66
918052	AA1-018 E	10.6
919221	AA1-146	11.65
919581	AA2-030	11.65
920272	AA2-123 E	1.63
924471	AB2-096	28.16
925161	AB2-173	2.08
925302	AB2-191 E	0.92
926311	AC1-109 1	1.27
926321	AC1-109 2	1.27
926331	AC1-110 1	1.26
926341	AC1-110 2	1.26
926351	AC1-111 1	0.51
926361	AC1-111 2	0.51
926371	AC1-111 3	0.51
926381	AC1-111 4	0.51
926391	AC1-111 5	0.51
926401	AC1-111 6	0.51
926431	AC1-114	1.58
926821	AC1-168 C O1	0.76
926822	AC1-168 E O1	5.07
927091	AC1-204 1	48.7
927101	AC1-204 2	48.66
927451	AC1-142A 1	2.83
927461	AC1-142A 2	2.83
927511	AC1-113 1	0.79
927521	AC1-113 2	0.79
927531	AC1-185 1	0.46
927541	AC1-185 2	0.46
927551	AC1-185 3	0.46
927561	AC1-185 4	0.46
927571	AC1-185 5	0.46
927581	AC1-185 6	0.46
927591	AC1-185 7	0.46
927601	AC1-185 8	0.46
930481	AB1-089	43.69
930501	AB1-091 O1	49.08
930741	AB1-122 1O1	47.51
930751	AB1-122 2O1	49.68
932881	AC2-115 1	1.58
932891	AC2-115 2	1.58
932921	AC2-116	0.55
933341	AC2-147 C	0.58
933342	AC2-147 E	0.94
933411	AC2-154 C	1.68
933412	AC2-154 E	2.74
933431	AC2-156 C O1	0.63
933432	AC2-156 E O1	1.04
933911	AD1-013 C	1.22

Bus #	Bus	MW Impact
933912	AD1-013 E	1.95
933931	AD1-016 C	0.62
933932	AD1-016 E	1.01
934101	AD1-039 1	4.66
934111	AD1-039 2	4.87
934401	AD1-064 C O1	2.13
934402	AD1-064 E O1	9.97
934431	AD1-067 C	0.09
934432	AD1-067 E	0.37
934651	AD1-096 C	0.59
934652	AD1-096 E	0.97
934701	AD1-098 C O1	4.56
934702	AD1-098 E O1	3.33
934721	AD1-100 C	12.92
934722	AD1-100 E	60.3
934871	AD1-116 C	0.62
934872	AD1-116 E	1.01
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	13.71
935002	AD1-133 E O1	9.14
936291	AD2-038 C O1	1.54
936292	AD2-038 E O1	10.3
936371	AD2-047 C O1	1.5
936372	AD2-047 E O1	16.18
936461	AD2-060	1.77
936511	AD2-066 C O1	5.55
936512	AD2-066 E O1	3.7
936781	AD2-101 C	3.17
936782	AD2-101 E	14.82
936791	AD2-102 C	7.99
936792	AD2-102 E	7.67
937001	AD2-134 C	1.81
937002	AD2-134 E	7.49
937031	AD2-137 C O1	2.3
937032	AD2-137 E O1	10.79
937051	AD2-140 C O1	2.32
937052	AD2-140 E O1	10.85
937061	AD2-141 C O1	2.3
937062	AD2-141 E O1	10.86
937071	AD2-142 C O1	4.64
937072	AD2-142 E O1	21.7
937121	AD2-148 C O1	2.36
937122	AD2-148 E O1	11.03
937131	AD2-149 C O1	2.36
937132	AD2-149 E O1	11.03
937141	AD2-150 C O1	2.36
937142	AD2-150 E O1	11.03
937181	AD2-155 C O1	2.36
937182	AD2-155 E O1	11.03
937311	AD2-172 C	1.63
937312	AD2-172 E	2.26

Bus #	Bus	MW Impact
937321	AD2-175 C	10.97
937322	AD2-175 E	7.32
937331	AD2-176 C O1	4.88
937332	AD2-176 E O1	3.25
937401	AD2-194 1	5.24
937411	AD2-194 2	5.23
938012	AE1-002 E O1	4.63
938511	AE1-070 1	6.15
938521	AE1-070 2	5.63
938851	AE1-113 C O1	5.87
938852	AE1-113 E O1	18.44
938861	AE1-114 C O1	2.38
938862	AE1-114 E O1	9.11
939051	AE1-134 1	0.9
939061	AE1-134 2	0.9
939321	AE1-163 C O1	3.87
939322	AE1-163 E O1	23.76
939351	AE1-166 C O1	6.83
939352	AE1-166 E O1	6.3
939401	AE1-172 C O1	4.09
939402	AE1-172 E O1	19.14
939641	AE1-194 C	10.88
939642	AE1-194 E	72.79
939651	AE1-195 C	10.88
939652	AE1-195 E	72.79
939691	AE1-199	1.59
939701	AE1-201 C	1.33
939702	AE1-201 E	0.29
939732	AE1-204 E	0.2
939861	AE1-222 1	52.47
939871	AE1-222 2	54.86
939921	AE1-228 C O1	6.67
939922	AE1-228 E O1	4.44
940101	AE1-252 C O1	6.97
940102	AE1-252 E O1	4.65
940501	AE2-035 C	1.63
940502	AE2-035 E	2.26
940621	AE2-049 C O1	6.08
940622	AE2-049 E O1	4.05
940631	AE2-050 C O1	8.29
940632	AE2-050 E O1	5.53
940752	AE2-062 E	0.09
940762	AE2-063 E	0.09
940881	AE2-077 C	2.09
940882	AE2-077 E	3.42
941131	AE2-107 C	4.85
941132	AE2-107 E	3.23
941551	AE2-152 C	8.75
941552	AE2-152 E	4.38
941561	AE2-153 C O1	3.14
941562	AE2-153 E O1	14.71
942421	AE2-255 C O1	2.03

Bus #	Bus	MW Impact
942422	AE2-255 E O1	6.08
942651	AE2-281 C	0.55
942652	AE2-281 E	3.39
942881	AE2-307 C	15.2
942882	AE2-307 E	5.53
942911	AE2-310 C	5.9
942912	AE2-310 E	1.59
942991	AE2-321 C O1	5.44
942992	AE2-321 E O1	2.68
943121	AE2-341 C	8.47
943122	AE2-341 E	4.16
951721	J643	15.48
952581	J740 C	3.4
952582	J740 E	18.4
953871	J847	8.37
BLUEG	BLUEG	2.92
CANNELTON	CANNELTON	0.01
CARR	CARR	0.5
CATAWBA	CATAWBA	0.17
CBM-S1	CBM-S1	1.3
CBM-W1	CBM-W1	20.03
CBM-W2	CBM-W2	38.32
CHEOAH	CHEOAH	0.0
CIN	CIN	0.09
G-007	G-007	1.39
HAMLET	HAMLET	0.33
MEC	MEC	24.99
O-066	O-066	8.94
RENSSELAER	RENSSELAER	0.4
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.35
WEC	WEC	5.32
Z1-043	Z1-043	18.79

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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
9007023	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	133.92	134.02	DC	14.14

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.02
274654	BRAIDWOOD;1U	15.11
274655	BRAIDWOOD;2U	14.47
274661	LASCO STA;2U	13.96
274687	WILL CNTY;4U	6.37
274704	KENDALL ;1C	2.23
274705	KENDALL ;1S	1.49
274706	KENDALL ;2C	2.23
274707	KENDALL ;2S	1.49
274722	S-055 E	8.43
274751	CRETE EC ;1U	2.67
274752	CRETE EC ;2U	2.67
274753	CRETE EC ;3U	2.67
274754	CRETE EC ;4U	2.67
274859	EASYR;U1 E	8.15
274860	EASYR;U2 E	8.15
274861	TOP CROP ;1U	0.26
274862	TOP CROP ;2U	0.5
274888	PILOT HIL;1E	12.78
275149	KEMPTON ;1E	12.78
290021	O50 E	14.62
290051	GSG-6; E	7.76
290108	LEEDK;1U E	18.05
293061	N-015 E	11.59
293644	O22 E1	8.49
293645	O22 E2	16.47
294392	P-010 E	14.72
294763	P-046 E	6.96
295109	WESTBROOK E	4.15
295111	SUBLETTE E	1.92
914641	Y2-103	33.72
915011	Y3-013 1	2.81
915021	Y3-013 2	2.81
915031	Y3-013 3	2.81
916221	Z1-073 E	4.0
916502	Z1-106 E1	0.94
916504	Z1-106 E2	0.94
916512	Z1-107 E	1.85
916522	Z1-108 E	1.86
918052	AA1-018 E	11.61
920272	AA2-123 E	1.82

Bus #	Bus	MW Impact
924471	AB2-096	31.56
925302	AB2-191 E	1.03
926311	AC1-109 1	1.42
926321	AC1-109 2	1.42
926331	AC1-110 1	1.42
926341	AC1-110 2	1.42
926351	AC1-111 1	0.57
926361	AC1-111 2	0.57
926371	AC1-111 3	0.57
926381	AC1-111 4	0.57
926391	AC1-111 5	0.57
926401	AC1-111 6	0.57
926431	AC1-114	1.77
927091	AC1-204 1	55.08
927101	AC1-204 2	55.0
927451	AC1-142A 1	3.19
927461	AC1-142A 2	3.2
927511	AC1-113 1	0.89
927521	AC1-113 2	0.89
927531	AC1-185 1	0.51
927541	AC1-185 2	0.51
927551	AC1-185 3	0.51
927561	AC1-185 4	0.51
927571	AC1-185 5	0.51
927581	AC1-185 6	0.51
927591	AC1-185 7	0.51
927601	AC1-185 8	0.51
930481	AB1-089	48.93
930501	AB1-091 O1	50.49
930741	AB1-122 1O1	52.86
930751	AB1-122 2O1	56.2
932881	AC2-115 1	1.77
932891	AC2-115 2	1.77
932921	AC2-116	0.62
933341	AC2-147 C	0.65
933342	AC2-147 E	1.05
933411	AC2-154 C	1.73
933412	AC2-154 E	2.83
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.16
933911	AD1-013 C	1.37
933912	AD1-013 E	2.18
933931	AD1-016 C	0.69
933932	AD1-016 E	1.13
934101	AD1-039 1	5.18
934111	AD1-039 2	5.51
934401	AD1-064 C O1	2.39
934402	AD1-064 E O1	11.18
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.66
934652	AD1-096 E	1.08

Bus #	Bus	MW Impact
934701	AD1-098 C O1	5.1
934702	AD1-098 E O1	3.73
934721	AD1-100 C	14.24
934722	AD1-100 E	66.44
934871	AD1-116 C	0.68
934872	AD1-116 E	1.1
934971	AD1-129 C	0.67
934972	AD1-129 E	0.45
935001	AD1-133 C O1	10.36
935002	AD1-133 E O1	6.91
936291	AD2-038 C O1	1.71
936292	AD2-038 E O1	11.42
936371	AD2-047 C O1	1.55
936372	AD2-047 E O1	16.71
936461	AD2-060	1.83
936511	AD2-066 C O1	6.18
936512	AD2-066 E O1	4.12
936781	AD2-101 C	3.08
936782	AD2-101 E	14.43
936791	AD2-102 C	8.94
936792	AD2-102 E	8.59
937001	AD2-134 C	2.03
937002	AD2-134 E	8.38
937031	AD2-137 C O1	2.44
937032	AD2-137 E O1	11.4
937051	AD2-140 C O1	2.43
937052	AD2-140 E O1	11.4
937061	AD2-141 C O1	2.42
937062	AD2-141 E O1	11.41
937071	AD2-142 C O1	4.87
937072	AD2-142 E O1	22.79
937121	AD2-148 C O1	2.42
937122	AD2-148 E O1	11.35
937131	AD2-149 C O1	2.42
937132	AD2-149 E O1	11.35
937141	AD2-150 C O1	2.42
937142	AD2-150 E O1	11.35
937181	AD2-155 C O1	2.42
937182	AD2-155 E O1	11.35
937311	AD2-172 C	1.83
937312	AD2-172 E	2.52
937321	AD2-175 C	11.29
937322	AD2-175 E	7.53
937331	AD2-176 C O1	5.47
937332	AD2-176 E O1	3.65
937401	AD2-194 1	5.92
937411	AD2-194 2	5.91
938012	AE1-002 E O1	4.89
938511	AE1-070 1	6.96
938521	AE1-070 2	6.36
938851	AE1-113 C O1	6.61
938852	AE1-113 E O1	20.79

Bus #	Bus	MW Impact
938861	AE1-114 C O1	2.67
938862	AE1-114 E O1	10.19
939321	AE1-163 C O1	4.29
939322	AE1-163 E O1	26.35
939351	AE1-166 C O1	7.59
939352	AE1-166 E O1	7.0
939401	AE1-172 C O1	4.46
939402	AE1-172 E O1	20.9
939641	AE1-194 C	18.94
939642	AE1-194 E	126.77
939651	AE1-195 C	18.94
939652	AE1-195 E	126.77
939691	AE1-199	1.77
939701	AE1-201 C	1.49
939702	AE1-201 E	0.33
939732	AE1-204 E	0.22
939861	AE1-222 1	58.38
939871	AE1-222 2	62.06
939921	AE1-228 C O1	7.46
939922	AE1-228 E O1	4.97
940101	AE1-252 C O1	7.61
940102	AE1-252 E O1	5.07
940501	AE2-035 C	1.83
940502	AE2-035 E	2.52
940621	AE2-049 C O1	6.33
940622	AE2-049 E O1	4.22
940631	AE2-050 C O1	9.85
940632	AE2-050 E O1	6.57
940752	AE2-062 E	0.1
940762	AE2-063 E	0.1
940881	AE2-077 C	2.34
940882	AE2-077 E	3.82
941131	AE2-107 C	5.43
941132	AE2-107 E	3.62
941551	AE2-152 C	9.73
941552	AE2-152 E	4.86
941561	AE2-153 C O1	3.5
941562	AE2-153 E O1	16.37
942421	AE2-255 C O1	2.28
942422	AE2-255 E O1	6.85
942651	AE2-281 C	0.61
942652	AE2-281 E	3.76
942881	AE2-307 C	18.06
942882	AE2-307 E	6.57
942911	AE2-310 C	6.14
942912	AE2-310 E	1.66
942991	AE2-321 C O1	6.09
942992	AE2-321 E O1	3.0
943121	AE2-341 C	9.48
943122	AE2-341 E	4.66
BLUEG	BLUEG	5.16
CALDERWOOD	CALDERWOOD	0.1

Bus #	Bus	MW Impact
CANNELTON	CANNELTON	0.11
CARR	CARR	0.57
CATAWBA	CATAWBA	0.24
CBM-S1	CBM-S1	0.68
CBM-W1	CBM-W1	20.04
CBM-W2	CBM-W2	36.78
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
ELMERSMITH	ELMERSMITH	0.15
G-007	G-007	1.6
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.45
MEC	MEC	27.48
O-066	O-066	10.25
RENSSELAER	RENSSELAER	0.45
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.6
WEC	WEC	5.96
Z1-043	Z1-043	20.93

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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
9006927	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	163.71	163.83	DC	23.28

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.78
274722	S-055 E	13.73
274772	LINCOLN ;3U	2.67
274773	LINCOLN ;4U	2.67
274774	LINCOLN ;5U	2.67
274775	LINCOLN ;6U	2.67
274776	LINCOLN ;7U	2.67
274777	LINCOLN ;8U	2.67
274788	SE CHICAG;5U	5.44
274789	SE CHICAG;6U	5.44
274790	SE CHICAG;7U	5.44
274791	SE CHICAG;8U	5.44
274792	SE CHICAG;9U	5.4
274793	SE CHICAG;0U	5.4
274794	SE CHICAG;1U	5.4
274795	SE CHICAG;2U	5.4
274859	EASYR;U1 E	13.43
274860	EASYR;U2 E	13.43
274888	PILOT HIL;1E	23.57
274890	CAYUG;1U E	20.22
274891	CAYUG;2U E	20.22
275149	KEMPTON ;1E	23.57
290021	O50 E	23.7
290051	GSG-6; E	12.77
290108	LEEDK;1U E	29.68
293061	N-015 E	19.41
293644	O22 E1	12.53
293645	O22 E2	24.32
294392	P-010 E	24.65
294763	P-046 E	11.45
295109	WESTBROOK E	6.84
295111	SUBLETTE E	3.17
296125	R-030 C3	4.97
296128	R-030 E3	19.89
296271	R-030 C2	4.91
296272	R-030 E2	19.65
296308	R-030 C1	4.91
296309	R-030 E1	19.65
910542	X3-005 E	0.89
914641	Y2-103	54.9
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58

Bus #	Bus	MW Impact
915031	Y3-013 3	4.58
916221	Z1-073 E	6.59
916502	Z1-106 E1	1.54
916504	Z1-106 E2	1.54
916512	Z1-107 E	3.16
916522	Z1-108 E	3.04
917502	Z2-087 E	25.7
918052	AA1-018 E	20.09
919581	AA2-030	18.9
920272	AA2-123 E	2.98
924041	AB2-047 C O1	4.74
924042	AB2-047 E O1	31.72
924471	AB2-096	51.72
925161	AB2-173	3.83
925302	AB2-191 E	1.69
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.32
926341	AC1-110 2	2.32
926351	AC1-111 1	0.93
926361	AC1-111 2	0.93
926371	AC1-111 3	0.93
926381	AC1-111 4	0.93
926391	AC1-111 5	0.93
926401	AC1-111 6	0.93
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.57
927091	AC1-204 1	88.75
927101	AC1-204 2	88.75
927451	AC1-142A 1	5.11
927461	AC1-142A 2	5.11
927511	AC1-113 1	1.45
927521	AC1-113 2	1.45
927531	AC1-185 1	0.84
927541	AC1-185 2	0.84
927551	AC1-185 3	0.84
927561	AC1-185 4	0.84
927571	AC1-185 5	0.84
927581	AC1-185 6	0.84
927591	AC1-185 7	0.84
927601	AC1-185 8	0.84
930481	AB1-089	80.32
930501	AB1-091 O1	93.8
930741	AB1-122 1O1	89.17
930751	AB1-122 2O1	90.13
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.51
933341	AC2-147 C	1.07
933342	AC2-147 E	1.74

Bus #	Bus	MW Impact
933411	AC2-154 C	3.2
933412	AC2-154 E	5.22
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.59
933931	AD1-016 C	1.13
933932	AD1-016 E	1.85
934101	AD1-039 1	8.74
934111	AD1-039 2	8.83
934401	AD1-064 C O1	3.91
934402	AD1-064 E O1	18.33
934431	AD1-067 C	0.16
934432	AD1-067 E	0.67
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.41
934702	AD1-098 E O1	6.14
934721	AD1-100 C	29.39
934722	AD1-100 E	137.14
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934971	AD1-129 C	1.1
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.36
935002	AD1-133 E O1	18.24
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.25
936371	AD2-047 C O1	2.86
936372	AD2-047 E O1	30.81
936461	AD2-060	3.37
936511	AD2-066 C O1	10.34
936512	AD2-066 E O1	6.89
936781	AD2-101 C	5.82
936782	AD2-101 E	27.26
936791	AD2-102 C	14.68
936792	AD2-102 E	14.11
937001	AD2-134 C	3.34
937002	AD2-134 E	13.79
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.55
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.24
937061	AD2-141 C O1	7.48
937062	AD2-141 E O1	35.28
937071	AD2-142 C O1	15.05
937072	AD2-142 E O1	70.47
937121	AD2-148 C O1	4.5
937122	AD2-148 E O1	21.09
937131	AD2-149 C O1	4.5
937132	AD2-149 E O1	21.09
937141	AD2-150 C O1	4.5

Bus #	Bus	MW Impact
937142	AD2-150 E O1	21.09
937181	AD2-155 C O1	4.5
937182	AD2-155 E O1	21.09
937311	AD2-172 C	3.01
937312	AD2-172 E	4.15
937321	AD2-175 C	20.99
937322	AD2-175 E	13.99
937331	AD2-176 C O1	8.96
937332	AD2-176 E O1	5.97
937401	AD2-194 1	9.54
937411	AD2-194 2	9.54
938012	AE1-002 E O1	14.38
938511	AE1-070 1	11.21
938521	AE1-070 2	10.26
938851	AE1-113 C O1	10.72
938852	AE1-113 E O1	33.71
938861	AE1-114 C O1	4.39
938862	AE1-114 E O1	16.8
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.23
939322	AE1-163 E O1	44.39
939351	AE1-166 C O1	14.5
939352	AE1-166 E O1	13.38
939401	AE1-172 C O1	9.5
939402	AE1-172 E O1	44.49
939691	AE1-199	2.92
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.45
939742	AE1-205 E O1	17.19
939861	AE1-222 1	98.48
939871	AE1-222 2	99.53
939921	AE1-228 C O1	12.28
939922	AE1-228 E O1	8.19
940101	AE1-252 C O1	16.2
940102	AE1-252 E O1	10.8
940501	AE2-035 C	3.01
940502	AE2-035 E	4.15
940621	AE2-049 C O1	11.53
940622	AE2-049 E O1	7.69
940631	AE2-050 C O1	15.38
940632	AE2-050 E O1	10.26
940752	AE2-062 E	0.16
940762	AE2-063 E	0.16
940881	AE2-077 C	3.85
940882	AE2-077 E	6.28
941131	AE2-107 C	8.93
941132	AE2-107 E	5.96
941551	AE2-152 C	18.59
941552	AE2-152 E	9.29

Bus #	Bus	MW Impact
941561	AE2-153 C O1	6.06
941562	AE2-153 E O1	28.37
941731	AE2-173	7.31
942111	AE2-223 C	2.88
942112	AE2-223 E	19.28
942421	AE2-255 C O1	3.7
942422	AE2-255 E O1	11.11
942651	AE2-281 C	1.03
942652	AE2-281 E	6.34
942881	AE2-307 C	28.2
942882	AE2-307 E	10.26
942911	AE2-310 C	11.2
942912	AE2-310 E	3.02
942991	AE2-321 C O1	9.98
942992	AE2-321 E O1	4.92
943121	AE2-341 C	15.61
943122	AE2-341 E	7.67
BLUEG	BLUEG	8.02
CALDERWOOD	CALDERWOOD	0.11
CANNELTON	CANNELTON	0.1
CARR	CARR	0.97
CATAWBA	CATAWBA	0.4
CBM-S1	CBM-S1	1.72
CBM-W1	CBM-W1	37.33
CBM-W2	CBM-W2	70.69
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.03
ELMERSMITH	ELMERSMITH	0.09
G-007	G-007	2.73
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.74
MEC	MEC	46.43
O-066	O-066	17.5
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.04
TRIMBLE	TRIMBLE	0.95
WEC	WEC	9.73
Z1-043	Z1-043	35.42

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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
9006936	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	163.51	163.65	DC	23.77

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.09
274722	S-055 E	14.02
274772	LINCOLN ;3U	2.74
274773	LINCOLN ;4U	2.74
274774	LINCOLN ;5U	2.74
274775	LINCOLN ;6U	2.74
274776	LINCOLN ;7U	2.74
274777	LINCOLN ;8U	2.74
274788	SE CHICAG;5U	5.56
274789	SE CHICAG;6U	5.56
274790	SE CHICAG;7U	5.56
274791	SE CHICAG;8U	5.56
274792	SE CHICAG;9U	5.52
274793	SE CHICAG;0U	5.52
274794	SE CHICAG;1U	5.52
274795	SE CHICAG;2U	5.52
274859	EASYR;U1 E	13.72
274860	EASYR;U2 E	13.72
274888	PILOT HIL;1E	24.06
274890	CAYUG;1U E	20.62
274891	CAYUG;2U E	20.62
275149	KEMPTON ;1E	24.06
290021	O50 E	24.2
290051	GSG-6; E	13.05
290108	LEEDK;1U E	30.31
293061	N-015 E	19.81
293516	O-009 E1	2.14
293517	O-009 E2	1.09
293518	O-009 E3	1.2
293644	O22 E1	12.79
293645	O22 E2	24.83
293715	O-029 E	12.21
293716	O-029 E	6.69
293717	O-029 E	6.15
294392	P-010 E	25.16
294763	P-046 E	11.69
295109	WESTBROOK E	6.98
295111	SUBLETTE E	3.24
296125	R-030 C3	5.07
296128	R-030 E3	20.29
296271	R-030 C2	5.01
296272	R-030 E2	20.05

Bus #	Bus	MW Impact
296308	R-030 C1	5.01
296309	R-030 E1	20.05
910542	X3-005 E	0.91
914641	Y2-103	56.07
915011	Y3-013 1	4.67
915021	Y3-013 2	4.67
915031	Y3-013 3	4.67
916221	Z1-073 E	6.73
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.1
917502	Z2-087 E	26.22
918052	AA1-018 E	20.53
919221	AA1-146	21.95
919581	AA2-030	21.95
920272	AA2-123 E	3.05
924041	AB2-047 C O1	4.84
924042	AB2-047 E O1	32.36
924471	AB2-096	52.83
925161	AB2-173	3.91
925302	AB2-191 E	1.73
926311	AC1-109 1	2.39
926321	AC1-109 2	2.39
926331	AC1-110 1	2.37
926341	AC1-110 2	2.37
926351	AC1-111 1	0.95
926361	AC1-111 2	0.95
926371	AC1-111 3	0.95
926381	AC1-111 4	0.95
926391	AC1-111 5	0.95
926401	AC1-111 6	0.95
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.77
927091	AC1-204 1	90.65
927101	AC1-204 2	90.65
927451	AC1-142A 1	5.22
927461	AC1-142A 2	5.22
927511	AC1-113 1	1.48
927521	AC1-113 2	1.48
927531	AC1-185 1	0.86
927541	AC1-185 2	0.86
927551	AC1-185 3	0.86
927561	AC1-185 4	0.86
927571	AC1-185 5	0.86
927581	AC1-185 6	0.86
927591	AC1-185 7	0.86
927601	AC1-185 8	0.86
930481	AB1-089	82.03
930501	AB1-091 O1	95.74
930741	AB1-122 1O1	91.06

Bus #	Bus	MW Impact
930751	AB1-122 2O1	92.05
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.65
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.33
933431	AC2-156 C O1	1.19
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.67
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.92
934111	AD1-039 2	9.02
934401	AD1-064 C O1	4.0
934402	AD1-064 E O1	18.72
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.81
934701	AD1-098 C O1	8.59
934702	AD1-098 E O1	6.27
934721	AD1-100 C	29.97
934722	AD1-100 E	139.86
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.93
935002	AD1-133 E O1	18.62
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.66
936371	AD2-047 C O1	2.92
936372	AD2-047 E O1	31.45
936461	AD2-060	3.44
936511	AD2-066 C O1	10.56
936512	AD2-066 E O1	7.04
936781	AD2-101 C	5.94
936782	AD2-101 E	27.82
936791	AD2-102 C	14.99
936792	AD2-102 E	14.41
937001	AD2-134 C	3.41
937002	AD2-134 E	14.09
937031	AD2-137 C O1	7.3
937032	AD2-137 E O1	34.17
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.89
937061	AD2-141 C O1	7.62
937062	AD2-141 E O1	35.93

Bus #	Bus	MW Impact
937071	AD2-142 C O1	15.33
937072	AD2-142 E O1	71.78
937121	AD2-148 C O1	4.6
937122	AD2-148 E O1	21.53
937131	AD2-149 C O1	4.6
937132	AD2-149 E O1	21.53
937141	AD2-150 C O1	4.6
937142	AD2-150 E O1	21.53
937181	AD2-155 C O1	4.6
937182	AD2-155 E O1	21.53
937311	AD2-172 C	3.07
937312	AD2-172 E	4.24
937321	AD2-175 C	21.42
937322	AD2-175 E	14.28
937331	AD2-176 C O1	9.15
937332	AD2-176 E O1	6.1
937401	AD2-194 1	9.75
937411	AD2-194 2	9.75
938012	AE1-002 E O1	14.65
938511	AE1-070 1	11.45
938521	AE1-070 2	10.48
938851	AE1-113 C O1	10.95
938852	AE1-113 E O1	34.43
938861	AE1-114 C O1	4.49
938862	AE1-114 E O1	17.15
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.38
939322	AE1-163 E O1	45.35
939351	AE1-166 C O1	14.79
939352	AE1-166 E O1	13.65
939401	AE1-172 C O1	9.69
939402	AE1-172 E O1	45.37
939691	AE1-199	2.98
939701	AE1-201 C	2.5
939702	AE1-201 E	0.55
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.7
939742	AE1-205 E O1	17.54
939861	AE1-222 1	100.56
939871	AE1-222 2	101.65
939921	AE1-228 C O1	12.54
939922	AE1-228 E O1	8.36
940101	AE1-252 C O1	16.52
940102	AE1-252 E O1	11.01
940501	AE2-035 C	3.07
940502	AE2-035 E	4.24
940621	AE2-049 C O1	11.77
940622	AE2-049 E O1	7.85
940631	AE2-050 C O1	15.7
940632	AE2-050 E O1	10.47
940752	AE2-062 E	0.16

Bus #	Bus	MW Impact
940762	AE2-063 E	0.16
940881	AE2-077 C	3.93
940882	AE2-077 E	6.42
941131	AE2-107 C	9.12
941132	AE2-107 E	6.08
941551	AE2-152 C	18.96
941552	AE2-152 E	9.48
941561	AE2-153 C O1	6.18
941562	AE2-153 E O1	28.96
941731	AE2-173	7.45
942111	AE2-223 C	2.94
942112	AE2-223 E	19.67
942421	AE2-255 C O1	3.78
942422	AE2-255 E O1	11.34
942651	AE2-281 C	1.05
942652	AE2-281 E	6.48
942881	AE2-307 C	28.78
942882	AE2-307 E	10.47
942911	AE2-310 C	11.43
942912	AE2-310 E	3.09
942991	AE2-321 C O1	10.2
942992	AE2-321 E O1	5.02
943121	AE2-341 C	15.94
943122	AE2-341 E	7.83
BLUEG	BLUEG	8.2
CALDERWOOD	CALDERWOOD	0.12
CANNELTON	CANNELTON	0.1
CARR	CARR	0.99
CATAWBA	CATAWBA	0.4
CBM-S1	CBM-S1	1.75
CBM-W1	CBM-W1	38.13
CBM-W2	CBM-W2	72.15
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
ELMERSMITH	ELMERSMITH	0.09
G-007	G-007	2.79
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.76
MEC	MEC	47.41
O-066	O-066	17.87
RENSSELAER	RENSSELAER	0.78
SANTEETLA	SANTEETLA	0.04
TRIMBLE	TRIMBLE	0.98
WEC	WEC	9.93
Z1-043	Z1-043	36.17

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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
9006998	272728	WATERMAN ; B	CE	271560	GLIDDEN ;BT	CE	1	COMED_P4_167-38-L14609_	breaker	344.0	117.14	140.24	DC	79.46

Bus #	Bus	MW Impact
272363	ESS H440 ; R	0.97
274850	MENDOTA H;RU	0.23
274855	GSG-6 ;RU	0.95
274872	LEE DEKAL;1U	2.7
290051	GSG-6; E	31.18
290108	LEEDK;1U E	92.17
295108	WESTBROOK C	0.34
295109	WESTBROOK E	16.69
295111	SUBLETTE E	1.73
916221	Z1-073 E	16.09
925301	AB2-191 C	0.36
925302	AB2-191 E	4.13
933431	AC2-156 C O1	4.03
933432	AC2-156 E O1	6.57
933911	AD1-013 C	5.61
933912	AD1-013 E	8.97
934431	AD1-067 C	0.39
934432	AD1-067 E	1.65
934701	AD1-098 C O1	19.68
934702	AD1-098 E O1	14.37
937001	AD2-134 C	8.15
937002	AD2-134 E	33.67
939691	AE1-199	7.29
939921	AE1-228 C O1	31.25
939922	AE1-228 E O1	20.83
941131	AE2-107 C	28.87
941132	AE2-107 E	19.24
943121	AE2-341 C	53.29
943122	AE2-341 E	26.17
BLUEG	BLUEG	0.21
CARR	CARR	0.02
CBM-S1	CBM-S1	0.29
CBM-S2	CBM-S2	0.02
CBM-W1	CBM-W1	2.26
CBM-W2	CBM-W2	4.5
G-007	G-007	0.06
GIBSON	GIBSON	0.0
MEC	MEC	4.36
O-066	O-066	0.4
RENSSELAER	RENSSELAER	0.02
TRIMBLE	TRIMBLE	0.03
WEC	WEC	0.14

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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
9006953	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	160.21	160.32	DC	19.68

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	12.6
274654	BRAIDWOOD;1U	21.49
274655	BRAIDWOOD;2U	20.56
274661	LASCO STA;2U	19.66
274687	WILL CNTY;4U	8.96
274704	KENDALL ;1C	3.15
274705	KENDALL ;1S	2.1
274706	KENDALL ;2C	3.15
274707	KENDALL ;2S	2.1
274722	S-055 E	11.8
274751	CRETE EC ;1U	4.57
274752	CRETE EC ;2U	4.57
274753	CRETE EC ;3U	4.57
274754	CRETE EC ;4U	4.57
274859	EASYR;U1 E	11.39
274860	EASYR;U2 E	11.39
274861	TOP CROP ;1U	0.37
274862	TOP CROP ;2U	0.72
274888	PILOT HIL;1E	16.93
275149	KEMPTON ;1E	16.93
290021	O50 E	20.58
290051	GSG-6; E	10.83
290108	LEEDK;1U E	25.18
293061	N-015 E	16.29
293644	O22 E1	12.24
293645	O22 E2	23.75
294392	P-010 E	20.68
294763	P-046 E	9.73
295109	WESTBROOK E	5.8
295111	SUBLETTE E	2.68
914641	Y2-103	47.19
915011	Y3-013 1	3.93
915021	Y3-013 2	3.93
915031	Y3-013 3	3.93
916221	Z1-073 E	5.59
916502	Z1-106 E1	1.32
916504	Z1-106 E2	1.32
916512	Z1-107 E	2.53
916522	Z1-108 E	2.6
918052	AA1-018 E	16.03
920272	AA2-123 E	2.55
924471	AB2-096	44.1

Bus #	Bus	MW Impact
925302	AB2-191 E	1.43
926311	AC1-109 1	1.98
926321	AC1-109 2	1.98
926331	AC1-110 1	1.98
926341	AC1-110 2	1.98
926351	AC1-111 1	0.79
926361	AC1-111 2	0.79
926371	AC1-111 3	0.79
926381	AC1-111 4	0.79
926391	AC1-111 5	0.79
926401	AC1-111 6	0.79
926431	AC1-114	2.47
927091	AC1-204 1	77.64
927101	AC1-204 2	77.51
927451	AC1-142A 1	4.49
927461	AC1-142A 2	4.5
927511	AC1-113 1	1.24
927521	AC1-113 2	1.24
927531	AC1-185 1	0.71
927541	AC1-185 2	0.71
927551	AC1-185 3	0.71
927561	AC1-185 4	0.71
927571	AC1-185 5	0.71
927581	AC1-185 6	0.71
927591	AC1-185 7	0.71
927601	AC1-185 8	0.71
930481	AB1-089	68.38
930501	AB1-091 O1	66.72
930741	AB1-122 1O1	73.97
930751	AB1-122 2O1	79.16
932881	AC2-115 1	2.47
932891	AC2-115 2	2.47
932921	AC2-116	0.87
933341	AC2-147 C	0.9
933342	AC2-147 E	1.47
933411	AC2-154 C	2.3
933412	AC2-154 E	3.75
933431	AC2-156 C O1	0.99
933432	AC2-156 E O1	1.61
933911	AD1-013 C	1.91
933912	AD1-013 E	3.05
933931	AD1-016 C	0.97
933932	AD1-016 E	1.58
934101	AD1-039 1	7.25
934111	AD1-039 2	7.76
934401	AD1-064 C O1	3.34
934402	AD1-064 E O1	15.62
934431	AD1-067 C	0.14
934432	AD1-067 E	0.57
934651	AD1-096 C	0.93
934652	AD1-096 E	1.51
934701	AD1-098 C O1	7.13

Bus #	Bus	MW Impact
934702	AD1-098 E O1	5.2
934721	AD1-100 C	19.74
934722	AD1-100 E	92.14
934871	AD1-116 C	0.93
934872	AD1-116 E	1.52
934971	AD1-129 C	0.94
934972	AD1-129 E	0.63
935001	AD1-133 C O1	21.07
935002	AD1-133 E O1	14.05
936291	AD2-038 C O1	2.38
936292	AD2-038 E O1	15.91
936371	AD2-047 C O1	2.06
936372	AD2-047 E O1	22.14
936461	AD2-060	2.42
936511	AD2-066 C O1	8.62
936512	AD2-066 E O1	5.75
936791	AD2-102 C	12.5
936792	AD2-102 E	12.01
937001	AD2-134 C	2.83
937002	AD2-134 E	11.69
937031	AD2-137 C O1	3.3
937032	AD2-137 E O1	15.44
937051	AD2-140 C O1	3.28
937052	AD2-140 E O1	15.37
937061	AD2-141 C O1	3.26
937062	AD2-141 E O1	15.39
937071	AD2-142 C O1	6.57
937072	AD2-142 E O1	30.74
937121	AD2-148 C O1	3.2
937122	AD2-148 E O1	15.0
937131	AD2-149 C O1	3.2
937132	AD2-149 E O1	15.0
937141	AD2-150 C O1	3.2
937142	AD2-150 E O1	15.0
937181	AD2-155 C O1	3.2
937182	AD2-155 E O1	15.0
937311	AD2-172 C	2.55
937312	AD2-172 E	3.53
937321	AD2-175 C	14.92
937322	AD2-175 E	9.95
937331	AD2-176 C O1	7.64
937332	AD2-176 E O1	5.1
937401	AD2-194 1	8.35
937411	AD2-194 2	8.34
938012	AE1-002 E O1	6.62
938511	AE1-070 1	9.81
938521	AE1-070 2	8.96
938851	AE1-113 C O1	9.31
938852	AE1-113 E O1	29.27
938861	AE1-114 C O1	3.73
938862	AE1-114 E O1	14.25
939051	AE1-134 1	1.26

Bus #	Bus	MW Impact
939061	AE1-134 2	1.26
939321	AE1-163 C O1	5.98
939322	AE1-163 E O1	36.71
939351	AE1-166 C O1	10.56
939352	AE1-166 E O1	9.75
939401	AE1-172 C O1	6.17
939402	AE1-172 E O1	28.89
939641	AE1-194 C	32.42
939642	AE1-194 E	216.99
939651	AE1-195 C	32.42
939652	AE1-195 E	216.99
939691	AE1-199	2.48
939701	AE1-201 C	2.09
939702	AE1-201 E	0.46
939732	AE1-204 E	0.31
939861	AE1-222 1	81.69
939871	AE1-222 2	87.42
939921	AE1-228 C O1	10.41
939922	AE1-228 E O1	6.94
940101	AE1-252 C O1	10.52
940102	AE1-252 E O1	7.01
940501	AE2-035 C	2.55
940502	AE2-035 E	3.53
940621	AE2-049 C O1	8.43
940622	AE2-049 E O1	5.62
940631	AE2-050 C O1	14.26
940632	AE2-050 E O1	9.5
940752	AE2-062 E	0.14
940762	AE2-063 E	0.14
940881	AE2-077 C	3.28
940882	AE2-077 E	5.34
941131	AE2-107 C	7.58
941132	AE2-107 E	5.05
941551	AE2-152 C	13.54
941552	AE2-152 E	6.77
941561	AE2-153 C O1	4.86
941562	AE2-153 E O1	22.77
942421	AE2-255 C O1	3.22
942422	AE2-255 E O1	9.65
942651	AE2-281 C	0.85
942652	AE2-281 E	5.24
942881	AE2-307 C	26.14
942882	AE2-307 E	9.5
942911	AE2-310 C	8.19
942912	AE2-310 E	2.21
942991	AE2-321 C O1	8.52
942992	AE2-321 E O1	4.2
943121	AE2-341 C	13.2
943122	AE2-341 E	6.48
BLUEG	BLUEG	7.64
CALDERWOOD	CALDERWOOD	0.17
CANNELTON	CANNELTON	0.19

Bus #	Bus	MW Impact
CARR	CARR	0.81
CATAWBA	CATAWBA	0.35
CBM-S1	CBM-S1	0.72
CBM-W1	CBM-W1	25.89
CBM-W2	CBM-W2	49.57
CHEOAH	CHEOAH	0.17
CHILHOWEE	CHILHOWEE	0.05
ELMERSMITH	ELMERSMITH	0.26
G-007	G-007	2.27
GIBSON	GIBSON	0.12
HAMLET	HAMLET	0.65
MEC	MEC	38.3
O-066	O-066	14.58
RENSSELAER	RENSSELAER	0.64
SANTEETLA	SANTEETLA	0.05
TRIMBLE	TRIMBLE	0.89
WEC	WEC	8.33
Z1-043	Z1-043	29.26

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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
7467110	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	139.32	139.47	DC	15.37

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.77
274722	S-055 E	9.13
274808	UNIV PK N;4U	1.28
274809	UNIV PK N;5U	1.28
274811	UNIV PK N;7U	1.28
274812	UNIV PK N;8U	1.28
274814	UNIV PK N;0U	1.28
274815	UNIV PK N;XU	1.28
274832	U4-027	8.59
274859	EASYR;U1 E	8.82
274860	EASYR;U2 E	8.82
274888	PILOT HIL;1E	14.83
274890	CAYUG;1U E	10.67
274891	CAYUG;2U E	10.67
275149	KEMPTON ;1E	14.83
290021	O50 E	15.58
290051	GSG-6; E	8.41
290108	LEEDK;1U E	19.56
293061	N-015 E	12.57
293516	O-009 E1	7.24
293517	O-009 E2	3.68
293518	O-009 E3	4.05
293644	O22 E1	7.86
293645	O22 E2	15.26
293715	O-029 E	7.82
293716	O-029 E	4.29
293717	O-029 E	3.94
293771	O-035 E	5.08
294392	P-010 E	15.97
294401	BSHIL;1U E	6.79
294410	BSHIL;2U E	6.79
294763	P-046 E	7.54
295109	WESTBROOK E	4.5
295111	SUBLETTE E	2.08
910542	X3-005 E	0.51
914641	Y2-103	36.51
915011	Y3-013 1	3.04
915021	Y3-013 2	3.04
915031	Y3-013 3	3.04
916211	Z1-072 E	3.84
916221	Z1-073 E	4.34

Bus #	Bus	MW Impact
916502	Z1-106 E1	1.02
916504	Z1-106 E2	1.02
916512	Z1-107 E	2.17
916522	Z1-108 E	2.01
918052	AA1-018 E	14.26
919221	AA1-146	14.08
919581	AA2-030	14.08
919621	AA2-039 C	1.65
919622	AA2-039 E	11.07
920272	AA2-123 E	1.98
924471	AB2-096	34.19
925161	AB2-173	2.51
925302	AB2-191 E	1.11
925581	AC1-033 C	1.11
925582	AC1-033 E	7.44
926311	AC1-109 1	1.55
926321	AC1-109 2	1.55
926331	AC1-110 1	1.53
926341	AC1-110 2	1.53
926351	AC1-111 1	0.62
926361	AC1-111 2	0.62
926371	AC1-111 3	0.62
926381	AC1-111 4	0.62
926391	AC1-111 5	0.62
926401	AC1-111 6	0.62
926431	AC1-114	1.92
926821	AC1-168 C O1	0.92
926822	AC1-168 E O1	6.16
927091	AC1-204 1	59.04
927101	AC1-204 2	59.09
927201	AC1-214 C O1	1.63
927202	AC1-214 E O1	5.18
927451	AC1-142A 1	3.45
927461	AC1-142A 2	3.44
927511	AC1-113 1	0.96
927521	AC1-113 2	0.96
927531	AC1-185 1	0.55
927541	AC1-185 2	0.55
927551	AC1-185 3	0.55
927561	AC1-185 4	0.55
927571	AC1-185 5	0.55
927581	AC1-185 6	0.55
927591	AC1-185 7	0.55
927601	AC1-185 8	0.55
930481	AB1-089	52.99
930501	AB1-091 O1	57.0
930741	AB1-122 1O1	58.08
930751	AB1-122 2O1	59.55
932881	AC2-115 1	1.92
932891	AC2-115 2	1.92
932921	AC2-116	0.67
932931	AC2-117	10.38

Bus #	Bus	MW Impact
933341	AC2-147 C	0.7
933342	AC2-147 E	1.14
933411	AC2-154 C	2.01
933412	AC2-154 E	3.28
933431	AC2-156 C O1	0.77
933432	AC2-156 E O1	1.26
933911	AD1-013 C	1.48
933912	AD1-013 E	2.37
933931	AD1-016 C	0.75
933932	AD1-016 E	1.22
934051	AD1-031 C O1	2.26
934052	AD1-031 E O1	3.68
934101	AD1-039 1	5.69
934111	AD1-039 2	5.84
934401	AD1-064 C O1	2.59
934402	AD1-064 E O1	12.1
934431	AD1-067 C	0.11
934432	AD1-067 E	0.44
934651	AD1-096 C	0.72
934652	AD1-096 E	1.17
934701	AD1-098 C O1	5.53
934702	AD1-098 E O1	4.04
934721	AD1-100 C	15.54
934722	AD1-100 E	72.54
934871	AD1-116 C	0.83
934872	AD1-116 E	1.36
934971	AD1-129 C	0.73
934972	AD1-129 E	0.49
935001	AD1-133 C O1	16.63
935002	AD1-133 E O1	11.09
936291	AD2-038 C O1	1.97
936292	AD2-038 E O1	13.16
936371	AD2-047 C O1	1.8
936372	AD2-047 E O1	19.38
936461	AD2-060	2.12
936511	AD2-066 C O1	6.81
936512	AD2-066 E O1	4.54
936781	AD2-101 C	3.5
936782	AD2-101 E	16.38
936791	AD2-102 C	9.68
936792	AD2-102 E	9.3
937001	AD2-134 C	2.2
937002	AD2-134 E	9.08
937031	AD2-137 C O1	2.69
937032	AD2-137 E O1	12.58
937051	AD2-140 C O1	2.69
937052	AD2-140 E O1	12.58
937061	AD2-141 C O1	2.67
937062	AD2-141 E O1	12.6
937071	AD2-142 C O1	5.38
937072	AD2-142 E O1	25.17
937121	AD2-148 C O1	2.74

Bus #	Bus	MW Impact
937122	AD2-148 E O1	12.81
937131	AD2-149 C O1	2.74
937132	AD2-149 E O1	12.81
937141	AD2-150 C O1	2.74
937142	AD2-150 E O1	12.81
937181	AD2-155 C O1	2.74
937182	AD2-155 E O1	12.81
937311	AD2-172 C	1.98
937312	AD2-172 E	2.73
937321	AD2-175 C	12.74
937322	AD2-175 E	8.5
937331	AD2-176 C O1	5.92
937332	AD2-176 E O1	3.95
937401	AD2-194 1	6.35
937411	AD2-194 2	6.35
937531	AD2-214 C	3.52
937532	AD2-214 E	1.66
938012	AE1-002 E O1	5.39
938511	AE1-070 1	7.46
938521	AE1-070 2	6.83
938851	AE1-113 C O1	7.05
938852	AE1-113 E O1	22.17
938861	AE1-114 C O1	2.89
938862	AE1-114 E O1	11.04
939051	AE1-134 1	1.09
939061	AE1-134 2	1.09
939321	AE1-163 C O1	4.94
939322	AE1-163 E O1	30.35
939351	AE1-166 C O1	8.26
939352	AE1-166 E O1	7.63
939401	AE1-172 C O1	4.9
939402	AE1-172 E O1	22.92
939631	AE1-193 C O1	5.51
939632	AE1-193 E O1	36.9
939681	AE1-198 C O1	16.37
939682	AE1-198 E O1	13.91
939691	AE1-199	1.92
939701	AE1-201 C	1.62
939702	AE1-201 E	0.36
939732	AE1-204 E	0.24
939861	AE1-222 1	64.14
939871	AE1-222 2	65.77
939921	AE1-228 C O1	8.09
939922	AE1-228 E O1	5.39
940101	AE1-252 C O1	8.34
940102	AE1-252 E O1	5.56
940501	AE2-035 C	1.98
940502	AE2-035 E	2.73
940621	AE2-049 C O1	7.3
940622	AE2-049 E O1	4.87
940631	AE2-050 C O1	9.78
940632	AE2-050 E O1	6.52

Bus #	Bus	MW Impact
940752	AE2-062 E	0.1
940762	AE2-063 E	0.1
940881	AE2-077 C	2.54
940882	AE2-077 E	4.14
941131	AE2-107 C	5.89
941132	AE2-107 E	3.93
941551	AE2-152 C	10.59
941552	AE2-152 E	5.3
941561	AE2-153 C O1	3.82
941562	AE2-153 E O1	17.9
942421	AE2-255 C O1	2.44
942422	AE2-255 E O1	7.3
942651	AE2-281 C	0.71
942652	AE2-281 E	4.34
942881	AE2-307 C	17.93
942882	AE2-307 E	6.52
942911	AE2-310 C	7.09
942912	AE2-310 E	1.92
942991	AE2-321 C O1	6.6
942992	AE2-321 E O1	3.25
943121	AE2-341 C	10.31
943122	AE2-341 E	5.06
990901	L-005 E	8.02
BLUEG	BLUEG	4.52
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.07
CARR	CARR	0.62
CATAWBA	CATAWBA	0.24
CBM-S1	CBM-S1	1.13
CBM-W1	CBM-W1	21.91
CBM-W2	CBM-W2	42.89
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	1.74
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.45
MEC	MEC	29.98
O-066	O-066	11.15
RENSSELAER	RENSSELAER	0.49
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.53
WEC	WEC	6.45
Z1-043	Z1-043	22.8

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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
9006929	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	163.71	163.83	DC	23.28

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.78
274722	S-055 E	13.73
274772	LINCOLN ;3U	2.67
274773	LINCOLN ;4U	2.67
274774	LINCOLN ;5U	2.67
274775	LINCOLN ;6U	2.67
274776	LINCOLN ;7U	2.67
274777	LINCOLN ;8U	2.67
274788	SE CHICAG;5U	5.44
274789	SE CHICAG;6U	5.44
274790	SE CHICAG;7U	5.44
274791	SE CHICAG;8U	5.44
274792	SE CHICAG;9U	5.4
274793	SE CHICAG;0U	5.4
274794	SE CHICAG;1U	5.4
274795	SE CHICAG;2U	5.4
274859	EASYR;U1 E	13.43
274860	EASYR;U2 E	13.43
274888	PILOT HIL;1E	23.57
274890	CAYUG;1U E	20.22
274891	CAYUG;2U E	20.22
275149	KEMPTON ;1E	23.57
290021	O50 E	23.7
290051	GSG-6; E	12.77
290108	LEEDK;1U E	29.68
293061	N-015 E	19.41
293644	O22 E1	12.53
293645	O22 E2	24.32
294392	P-010 E	24.65
294763	P-046 E	11.45
295109	WESTBROOK E	6.84
295111	SUBLETTE E	3.17
296125	R-030 C3	4.97
296128	R-030 E3	19.89
296271	R-030 C2	4.91
296272	R-030 E2	19.65
296308	R-030 C1	4.91
296309	R-030 E1	19.65
910542	X3-005 E	0.89
914641	Y2-103	54.9
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58

Bus #	Bus	MW Impact
915031	Y3-013 3	4.58
916221	Z1-073 E	6.59
916502	Z1-106 E1	1.54
916504	Z1-106 E2	1.54
916512	Z1-107 E	3.16
916522	Z1-108 E	3.04
917502	Z2-087 E	25.7
918052	AA1-018 E	20.09
919581	AA2-030	18.9
920272	AA2-123 E	2.98
924041	AB2-047 C O1	4.74
924042	AB2-047 E O1	31.72
924471	AB2-096	51.72
925161	AB2-173	3.83
925302	AB2-191 E	1.69
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.32
926341	AC1-110 2	2.32
926351	AC1-111 1	0.93
926361	AC1-111 2	0.93
926371	AC1-111 3	0.93
926381	AC1-111 4	0.93
926391	AC1-111 5	0.93
926401	AC1-111 6	0.93
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.57
927091	AC1-204 1	88.75
927101	AC1-204 2	88.75
927451	AC1-142A 1	5.11
927461	AC1-142A 2	5.11
927511	AC1-113 1	1.45
927521	AC1-113 2	1.45
927531	AC1-185 1	0.84
927541	AC1-185 2	0.84
927551	AC1-185 3	0.84
927561	AC1-185 4	0.84
927571	AC1-185 5	0.84
927581	AC1-185 6	0.84
927591	AC1-185 7	0.84
927601	AC1-185 8	0.84
930481	AB1-089	80.32
930501	AB1-091 O1	93.8
930741	AB1-122 1O1	89.17
930751	AB1-122 2O1	90.13
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.51
933341	AC2-147 C	1.07
933342	AC2-147 E	1.74

Bus #	Bus	MW Impact
933411	AC2-154 C	3.2
933412	AC2-154 E	5.22
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.59
933931	AD1-016 C	1.13
933932	AD1-016 E	1.85
934101	AD1-039 1	8.74
934111	AD1-039 2	8.83
934401	AD1-064 C O1	3.91
934402	AD1-064 E O1	18.33
934431	AD1-067 C	0.16
934432	AD1-067 E	0.67
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.41
934702	AD1-098 E O1	6.14
934721	AD1-100 C	29.39
934722	AD1-100 E	137.14
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934971	AD1-129 C	1.1
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.36
935002	AD1-133 E O1	18.24
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.25
936371	AD2-047 C O1	2.86
936372	AD2-047 E O1	30.81
936461	AD2-060	3.37
936511	AD2-066 C O1	10.34
936512	AD2-066 E O1	6.89
936781	AD2-101 C	5.82
936782	AD2-101 E	27.26
936791	AD2-102 C	14.68
936792	AD2-102 E	14.11
937001	AD2-134 C	3.34
937002	AD2-134 E	13.79
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.55
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.24
937061	AD2-141 C O1	7.48
937062	AD2-141 E O1	35.28
937071	AD2-142 C O1	15.05
937072	AD2-142 E O1	70.47
937121	AD2-148 C O1	4.5
937122	AD2-148 E O1	21.09
937131	AD2-149 C O1	4.5
937132	AD2-149 E O1	21.09
937141	AD2-150 C O1	4.5

Bus #	Bus	MW Impact
937142	AD2-150 E O1	21.09
937181	AD2-155 C O1	4.5
937182	AD2-155 E O1	21.09
937311	AD2-172 C	3.01
937312	AD2-172 E	4.15
937321	AD2-175 C	20.99
937322	AD2-175 E	13.99
937331	AD2-176 C O1	8.96
937332	AD2-176 E O1	5.97
937401	AD2-194 1	9.54
937411	AD2-194 2	9.54
938012	AE1-002 E O1	14.38
938511	AE1-070 1	11.21
938521	AE1-070 2	10.26
938851	AE1-113 C O1	10.72
938852	AE1-113 E O1	33.71
938861	AE1-114 C O1	4.39
938862	AE1-114 E O1	16.8
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.23
939322	AE1-163 E O1	44.39
939351	AE1-166 C O1	14.5
939352	AE1-166 E O1	13.38
939401	AE1-172 C O1	9.5
939402	AE1-172 E O1	44.49
939691	AE1-199	2.92
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.45
939742	AE1-205 E O1	17.19
939861	AE1-222 1	98.48
939871	AE1-222 2	99.53
939921	AE1-228 C O1	12.28
939922	AE1-228 E O1	8.19
940101	AE1-252 C O1	16.2
940102	AE1-252 E O1	10.8
940501	AE2-035 C	3.01
940502	AE2-035 E	4.15
940621	AE2-049 C O1	11.53
940622	AE2-049 E O1	7.69
940631	AE2-050 C O1	15.38
940632	AE2-050 E O1	10.26
940752	AE2-062 E	0.16
940762	AE2-063 E	0.16
940881	AE2-077 C	3.85
940882	AE2-077 E	6.28
941131	AE2-107 C	8.93
941132	AE2-107 E	5.96
941551	AE2-152 C	18.59
941552	AE2-152 E	9.29

Bus #	Bus	MW Impact
941561	AE2-153 C O1	6.06
941562	AE2-153 E O1	28.37
941731	AE2-173	7.31
942111	AE2-223 C	2.88
942112	AE2-223 E	19.28
942421	AE2-255 C O1	3.7
942422	AE2-255 E O1	11.11
942651	AE2-281 C	1.03
942652	AE2-281 E	6.34
942881	AE2-307 C	28.2
942882	AE2-307 E	10.26
942911	AE2-310 C	11.2
942912	AE2-310 E	3.02
942991	AE2-321 C O1	9.98
942992	AE2-321 E O1	4.92
943121	AE2-341 C	15.61
943122	AE2-341 E	7.67
BLUEG	BLUEG	8.02
CALDERWOOD	CALDERWOOD	0.11
CANNELTON	CANNELTON	0.1
CARR	CARR	0.97
CATAWBA	CATAWBA	0.4
CBM-S1	CBM-S1	1.72
CBM-W1	CBM-W1	37.33
CBM-W2	CBM-W2	70.69
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.03
ELMERSMITH	ELMERSMITH	0.09
G-007	G-007	2.73
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.74
MEC	MEC	46.43
O-066	O-066	17.5
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.04
TRIMBLE	TRIMBLE	0.95
WEC	WEC	9.73
Z1-043	Z1-043	35.42

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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
9006935	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	163.51	163.65	DC	23.77

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.09
274722	S-055 E	14.02
274772	LINCOLN ;3U	2.74
274773	LINCOLN ;4U	2.74
274774	LINCOLN ;5U	2.74
274775	LINCOLN ;6U	2.74
274776	LINCOLN ;7U	2.74
274777	LINCOLN ;8U	2.74
274788	SE CHICAG;5U	5.56
274789	SE CHICAG;6U	5.56
274790	SE CHICAG;7U	5.56
274791	SE CHICAG;8U	5.56
274792	SE CHICAG;9U	5.52
274793	SE CHICAG;0U	5.52
274794	SE CHICAG;1U	5.52
274795	SE CHICAG;2U	5.52
274859	EASYR;U1 E	13.72
274860	EASYR;U2 E	13.72
274888	PILOT HIL;1E	24.06
274890	CAYUG;1U E	20.62
274891	CAYUG;2U E	20.62
275149	KEMPTON ;1E	24.06
290021	O50 E	24.2
290051	GSG-6; E	13.05
290108	LEEDK;1U E	30.31
293061	N-015 E	19.81
293516	O-009 E1	2.14
293517	O-009 E2	1.09
293518	O-009 E3	1.2
293644	O22 E1	12.79
293645	O22 E2	24.83
293715	O-029 E	12.21
293716	O-029 E	6.69
293717	O-029 E	6.15
294392	P-010 E	25.16
294763	P-046 E	11.69
295109	WESTBROOK E	6.98
295111	SUBLETTE E	3.24
296125	R-030 C3	5.07
296128	R-030 E3	20.29
296271	R-030 C2	5.01
296272	R-030 E2	20.05

Bus #	Bus	MW Impact
296308	R-030 C1	5.01
296309	R-030 E1	20.05
910542	X3-005 E	0.91
914641	Y2-103	56.07
915011	Y3-013 1	4.67
915021	Y3-013 2	4.67
915031	Y3-013 3	4.67
916221	Z1-073 E	6.73
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.1
917502	Z2-087 E	26.22
918052	AA1-018 E	20.53
919221	AA1-146	21.95
919581	AA2-030	21.95
920272	AA2-123 E	3.05
924041	AB2-047 C O1	4.84
924042	AB2-047 E O1	32.36
924471	AB2-096	52.83
925161	AB2-173	3.91
925302	AB2-191 E	1.73
926311	AC1-109 1	2.39
926321	AC1-109 2	2.39
926331	AC1-110 1	2.37
926341	AC1-110 2	2.37
926351	AC1-111 1	0.95
926361	AC1-111 2	0.95
926371	AC1-111 3	0.95
926381	AC1-111 4	0.95
926391	AC1-111 5	0.95
926401	AC1-111 6	0.95
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.77
927091	AC1-204 1	90.65
927101	AC1-204 2	90.65
927451	AC1-142A 1	5.22
927461	AC1-142A 2	5.22
927511	AC1-113 1	1.48
927521	AC1-113 2	1.48
927531	AC1-185 1	0.86
927541	AC1-185 2	0.86
927551	AC1-185 3	0.86
927561	AC1-185 4	0.86
927571	AC1-185 5	0.86
927581	AC1-185 6	0.86
927591	AC1-185 7	0.86
927601	AC1-185 8	0.86
930481	AB1-089	82.03
930501	AB1-091 O1	95.74
930741	AB1-122 1O1	91.06

Bus #	Bus	MW Impact
930751	AB1-122 2O1	92.05
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.65
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.33
933431	AC2-156 C O1	1.19
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.67
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.92
934111	AD1-039 2	9.02
934401	AD1-064 C O1	4.0
934402	AD1-064 E O1	18.72
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.81
934701	AD1-098 C O1	8.59
934702	AD1-098 E O1	6.27
934721	AD1-100 C	29.97
934722	AD1-100 E	139.86
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.93
935002	AD1-133 E O1	18.62
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.66
936371	AD2-047 C O1	2.92
936372	AD2-047 E O1	31.45
936461	AD2-060	3.44
936511	AD2-066 C O1	10.56
936512	AD2-066 E O1	7.04
936781	AD2-101 C	5.94
936782	AD2-101 E	27.82
936791	AD2-102 C	14.99
936792	AD2-102 E	14.41
937001	AD2-134 C	3.41
937002	AD2-134 E	14.09
937031	AD2-137 C O1	7.3
937032	AD2-137 E O1	34.17
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.89
937061	AD2-141 C O1	7.62
937062	AD2-141 E O1	35.93

Bus #	Bus	MW Impact
937071	AD2-142 C O1	15.33
937072	AD2-142 E O1	71.78
937121	AD2-148 C O1	4.6
937122	AD2-148 E O1	21.53
937131	AD2-149 C O1	4.6
937132	AD2-149 E O1	21.53
937141	AD2-150 C O1	4.6
937142	AD2-150 E O1	21.53
937181	AD2-155 C O1	4.6
937182	AD2-155 E O1	21.53
937311	AD2-172 C	3.07
937312	AD2-172 E	4.24
937321	AD2-175 C	21.42
937322	AD2-175 E	14.28
937331	AD2-176 C O1	9.15
937332	AD2-176 E O1	6.1
937401	AD2-194 1	9.75
937411	AD2-194 2	9.75
938012	AE1-002 E O1	14.65
938511	AE1-070 1	11.45
938521	AE1-070 2	10.48
938851	AE1-113 C O1	10.95
938852	AE1-113 E O1	34.43
938861	AE1-114 C O1	4.49
938862	AE1-114 E O1	17.15
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.38
939322	AE1-163 E O1	45.35
939351	AE1-166 C O1	14.79
939352	AE1-166 E O1	13.65
939401	AE1-172 C O1	9.69
939402	AE1-172 E O1	45.37
939691	AE1-199	2.98
939701	AE1-201 C	2.5
939702	AE1-201 E	0.55
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.7
939742	AE1-205 E O1	17.54
939861	AE1-222 1	100.56
939871	AE1-222 2	101.65
939921	AE1-228 C O1	12.54
939922	AE1-228 E O1	8.36
940101	AE1-252 C O1	16.52
940102	AE1-252 E O1	11.01
940501	AE2-035 C	3.07
940502	AE2-035 E	4.24
940621	AE2-049 C O1	11.77
940622	AE2-049 E O1	7.85
940631	AE2-050 C O1	15.7
940632	AE2-050 E O1	10.47
940752	AE2-062 E	0.16

Bus #	Bus	MW Impact
940762	AE2-063 E	0.16
940881	AE2-077 C	3.93
940882	AE2-077 E	6.42
941131	AE2-107 C	9.12
941132	AE2-107 E	6.08
941551	AE2-152 C	18.96
941552	AE2-152 E	9.48
941561	AE2-153 C O1	6.18
941562	AE2-153 E O1	28.96
941731	AE2-173	7.45
942111	AE2-223 C	2.94
942112	AE2-223 E	19.67
942421	AE2-255 C O1	3.78
942422	AE2-255 E O1	11.34
942651	AE2-281 C	1.05
942652	AE2-281 E	6.48
942881	AE2-307 C	28.78
942882	AE2-307 E	10.47
942911	AE2-310 C	11.43
942912	AE2-310 E	3.09
942991	AE2-321 C O1	10.2
942992	AE2-321 E O1	5.02
943121	AE2-341 C	15.94
943122	AE2-341 E	7.83
BLUEG	BLUEG	8.2
CALDERWOOD	CALDERWOOD	0.12
CANNELTON	CANNELTON	0.1
CARR	CARR	0.99
CATAWBA	CATAWBA	0.4
CBM-S1	CBM-S1	1.75
CBM-W1	CBM-W1	38.13
CBM-W2	CBM-W2	72.15
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
ELMERSMITH	ELMERSMITH	0.09
G-007	G-007	2.79
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.76
MEC	MEC	47.41
O-066	O-066	17.87
RENSSELAER	RENSSELAER	0.78
SANTEETLA	SANTEETLA	0.04
TRIMBLE	TRIMBLE	0.98
WEC	WEC	9.93
Z1-043	Z1-043	36.17

Affected Systems

18 Affected Systems

18.1 LG&E

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

18.2 MISO

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

18.3 TVA

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

18.4 Duke Energy Progress

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

18.5 NYISO

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

Contingency Name	Contingency Definition
COMED_P7_345-L6607__B-S_+_345-L97008_R-S	CONTINGENCY 'COMED_P7_345-L6607__B-S_+_345-L97008_R-S' TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRANKFO; B 345 CRETE EC ;BP 345 TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UNIV PK N;RP 345 05OLIVE 345 END
AEP_P1-2_#695A	CONTINGENCY 'AEP_P1-2_#695A' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
COMED_P7_345-L94507_B-S_+_345-L97008_R-S	CONTINGENCY 'COMED_P7_345-L94507_B-S_+_345-L97008_R-S' TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345 TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UPNOR;RP 345 05OLIVE 345 END
COMED_P4_023-65-BT4-5__	CONTINGENCY 'COMED_P4_023-65-BT4-5__' TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765 TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345 TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33 TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 END
COMED_P1-2_765-L2315___-S	CONTINGENCY 'COMED_P1-2_765-L2315___-S' TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END
COMED_P1-2_138-L14604_R-R-A	CONTINGENCY 'COMED_P1-2_138-L14604_R-R-A' TRIP BRANCH FROM BUS 272251 TO BUS 272803 CKT 1 / PLANO; R 138 W PLANO ; R 138 TRIP BRANCH FROM BUS 272803 TO BUS 943120 CKT 1 / W PLANO ; R 138 AE2-341 TAP 138 MOVE 25 PERCENT LOAD FROM BUS 272803 TO BUS 271116 / W PLANO ; R 138 BRISTOL ; B 138 MOVE 25 PERCENT LOAD FROM BUS 272803 TO BUS 271117 / W PLANO ; R 138 BRISTOL ; R 138 MOVE 50 PERCENT LOAD FROM BUS 272803 TO BUS 272445 / W PLANO ; R 138 SANDWICH ; R 138 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

Contingency Name	Contingency Definition
AEP_P4_#2978_05DUMONT 765_B	CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B' OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207 05GRNTWN 765 1 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
COMED_P1-2_765-L11216__-S	CONTINGENCY 'COMED_P1-2_765-L11216__-S' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 END
Base Case	
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_P4_083-38-BT3-4__	CONTINGENCY 'COMED_P4_083-38-BT3-4__' TRIP BRANCH FROM BUS 271390 TO BUS 271586 CKT 1 / ELECT; B 138 W541 ; B 138 TRIP BRANCH FROM BUS 271560 TO BUS 271558 CKT 1 / GLIDD;BT 138 GLIDD; B 138 TRIP BRANCH FROM BUS 271560 TO BUS 272728 CKT 1 / GLIDD;BT 138 WATER; B 138 TRIP BRANCH FROM BUS 271586 TO BUS 272114 CKT 1 / W541 ; B 138 N AUR; B 138 TRIP BRANCH FROM BUS 272114 TO BUS 272522 CKT 1 / N AUR; B 138 SUGAR; B 138 TRIP BRANCH FROM BUS 272522 TO BUS 271560 CKT 1 / SUGAR; B 138 GLIDD;BT 138 MOVE 100 PERCENT LOAD FROM BUS 271586 TO BUS 271587 / W541 ; B 138 W541 ; R 138 MOVE 100 PERCENT LOAD FROM BUS 272522 TO BUS 272523 / SUGAR; B 138 SUGAR; R 138 CLOSE LINE FROM BUS 272114 TO BUS 272115 CKT 1 / N AUR; B 138 N AUR; R 138 TRIP BRANCH FROM BUS 271558 TO BUS 272730 CKT 1 / GLIDD; B 138 WATER;3B 138 MOVE 100 PERCENT LOAD FROM BUS 272761 TO BUS 272759 / W DEK;7R 138 W DEK;4R 138 DISCONNECT BUS 271581 / B200 ; R 138 DISCONNECT BUS 272757 / W DEK;7T 138 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

Contingency Name	Contingency Definition
COMED_P4_167-38-L14609_	CONTINGENCY 'COMED_P4_167-38-L14609_' TRIP BRANCH FROM BUS 272251 TO BUS 272803 CKT 1 / PLANO; R 138 W PLANO ; R 138 TRIP BRANCH FROM BUS 272803 TO BUS 943120 CKT 1 / W PLANO ; R 138 AE2-341 TAP 138 MOVE 25 PERCENT LOAD FROM BUS 272803 TO BUS 271116 / W PLANO ; R 138 BRISTOL ; B 138 MOVE 25 PERCENT LOAD FROM BUS 272803 TO BUS 271117 / W PLANO ; R 138 BRISTOL ; R 138 MOVE 50 PERCENT LOAD FROM BUS 272803 TO BUS 272445 / W PLANO ; R 138 SANDWICH ; R 138 DISCONNECT BUS 272251 / PLANO; R 138 END

Short Circuit

19 Short Circuit

No issues identified.