Generation Interconnection

Feasibility Study Report

for

Queue Project AE1-205

PONTIAC MIDPOINT 345 KV

84 MW Capacity / 200 MW Energy

July, 2019

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 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 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.

The conduct of light load analysis as well as Affected Systems as required under the PJM planning process is not performed during the Generation Interconnection Feasibility Study phase of the PJM study process. Additional reinforcement requirements for this Interconnection Request may be defined during the conduct of the System Impact Study.

General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Livingston County, Illinois. The installed facilities will have a total capability of 200 MW with 84 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 31, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	**AE1-205**
Project Name	PONTIAC MIDPOINT 345 KV
State	None
County	Livingston
Transmission Owner	ComEd
MFO	200
MWE	200
MWC	84
Fuel	Solar
Basecase Study Year	2022

Primary Point of Interconnection

Queue Position AE1-205, a 200 MW solar facility, proposes to interconnect with the ComEd transmission system by tying into the 345kV bus at Pontiac Midpoint TSS 80.

Cost Summary

The AE1-205 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,000,000
Direct Connection Network Upgrade	$0
Non Direct Connection Network Upgrades	$3,000,000
Total Costs	$4,000,000

In addition, the AE1-205 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	$88,705,000

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

Transmission Owner Scope of Work

Attachment Facilities

The AE1-205 generator lead would interconnect to the 345kV bus at Pontiac Midpoint TSS 80. The required Attachment Facilities are one 345kV line MOD, a dead-end structure and revenue metering as shown in the one-line diagram.

Scope of Work	Cost Estimate
Installation of one 345kV line MOD, one dead-end structure and one set of revenue metering (see notes below on cost estimate)	$1,000,000

Direct Connection Cost Estimate

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

None.

Non-Direct Connection Cost Estimate

To accommodate the interconnection of the AE1-205 queue project, the 345kV switchgear at Pontiac Midpoint TSS 80 would be expanded to create a line position for the IC's generator lead.

The scope of work includes the installation of one 345kV circuit breaker as well as bus work, as shown on 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") outside of the substation.

The estimated cost for the Non-Direct Connection Network upgrade is given below.

Scope of Work	Cost Estimate
Installation of one 345kV circuit breaker at Pontiac Midpoint TSS 80 and relay/protection work	$3,000,000
Total Cost Estimate (see notes below on cost estimate)	$3,000,000

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

Schedule

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

Transmission Owner Analysis

Notes on Cost Estimate:

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

2) There were no site visits performed for these estimates. There may be costs related to specific site related issues that are not identified in these estimates. The site reviews will be performed during the Facilities Study or during detailed engineering.

3) These estimates are not a guarantee of the maximum amount payable by the Interconnection Customer and the actual costs of ComEd's work may differ significantly from these estimates. Interconnection Customer will be responsible for paying actual costs of ComEd's work in accordance with Sections 212.1 and 217 of the PJM Open Access Transmission Tariff.

4) The Interconnection Customer is responsible for all engineering, procurement, testing and construction of all equipment on the Interconnection Customer's side of the POI.

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

Interconnection Customer Requirements

Exelon Utilities Transmission Bus Configuration Design Philosophy, ComEd Interconnection Guidelines, and Exelon Utilities Transmission Facility Interconnection Requirements shall apply. They are available on the PJM website. To the extent that these Applicable Technical Requirements and Standards conflict with the terms and conditions of the Tariff, the Tariff shall control.

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.

Network Impacts

The Queue Project AE1-205 was evaluated as a 200 MW (Capacity 84 MW) injection at the Pontiac; B 345 kV substation in the ComEd area. Project AE1-205 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-205 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

Generation Deliverability

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

None

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
231519	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	AEP_P4_#8805_05OLIVE 345_D	breaker	4105.0	98.2	98.58	DC	51.68
843123	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	AEP_P4_#8805_05OLIVE 345_D	breaker	4105.0	98.2	98.58	DC	51.68
231435	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	100.59	101.25	DC	22.47

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
232604	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	107.66	107.97	DC	55.45
232605	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.25	105.61	DC	55.53

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
844348	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	107.66	107.97	DC	55.45
844349	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.25	105.61	DC	55.53
231413	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	113.81	114.19	DC	20.41
231734	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	114.87	117.67	DC	42.48
231735	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	109.0	111.8	DC	42.48
231760	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	112.57	115.37	DC	42.51
231761	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	106.7	109.5	DC	42.51
231767	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	101.98	104.54	DC	39.11
231768	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-B	single	1528.0	101.8	104.37	DC	39.11
231103	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.87	167.22	DC	29.71
231105	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.11	165.64	DC	30.31
231102	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.87	167.22	DC	29.71
231107	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.11	165.64	DC	30.31
842595	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P4_#3128_05EUGENE 345_A2	breaker	1466.0	146.76	147.37	DC	19.84
232441	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	143.05	144.96	DC	35.31
232442	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S	tower	1846.0	140.46	142.43	DC	36.47
231741	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	109.72	112.28	DC	39.11
231742	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-B	single	1528.0	108.14	110.72	DC	39.11
232415	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	150.23	152.15	DC	35.31
232416	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S	tower	1846.0	147.99	149.97	DC	36.47
231698	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	115.71	118.5	DC	42.48
231699	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	110.39	113.17	DC	42.48

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
232195	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	106.47	106.77	DC	48.22
232196	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	AEP_P1-2_#697A	operation	4105.0	98.17	98.54	DC	51.68
843848	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	106.47	106.77	DC	48.22
843849	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	AEP_P1-2_#697A	operation	4105.0	98.17	98.54	DC	51.68
232138	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P1-2_#695A	operation	1441.0	112.99	113.37	DC	20.47
231729	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	202.34	208.98	DC	101.15
231731	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	Base Case	operation	1364.0	151.0	156.06	DC	69.07
232132	270717	DRESDEN ; R	CE	270737	ELWOOD ; R	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1479.0	99.24	100.95	DC	25.35
232148	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	100.45	101.12	DC	22.5
232027	270796	KINCAID ; B	CE	347955	7AUSTIN	AMIL	1	COMED_P1-2_345-L11212_B-S-C-A	operation	956.0	121.56	124.31	DC	26.48
231755	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	190.85	197.49	DC	101.22
231757	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	Base Case	operation	1364.0	138.41	143.48	DC	69.13
231762	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-A	operation	1528.0	184.03	190.13	DC	93.12
231766	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	Base Case	operation	1334.0	124.04	128.24	DC	56.08
232220	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	104.76	104.98	DC	18.66
232194	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	106.48	106.82	DC	19.53
843483	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P1-2_#286	operation	1466.0	141.13	141.75	DC	19.89
843484	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	Base Case	operation	1334.0	124.93	125.45	DC	15.18
843958	348885	7BUNSONVILLE	AMIL	243221	05EUGENE	AEP	1	AEP_P1-2_#8907	operation	1793.0	103.11	104.03	DC	21.97
231858	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	158.48	161.54	DC	46.69
231862	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	Base Case	operation	1364.0	141.16	143.58	DC	33.01
232240	934730	AD1-100 TAP	CE	270670	BRAIDWOOD; B	CE	1	COMED_P1-2_345-L11212_B-S-A	operation	1528.0	96.89	99.71	DC	43.14
231736	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	operation	1528.0	197.03	203.13	DC	93.12
231739	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	Base Case	operation	1334.0	136.7	140.9	DC	56.08
231821	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	165.18	168.23	DC	46.69
231825	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	Base Case	operation	1364.0	151.06	153.48	DC	33.01

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
231693	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	213.0	219.63	DC	101.15
231695	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	Base Case	operation	1364.0	162.08	167.14	DC	69.07

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
231107	10	WILTON ;4M 345.0 kV - WILTON ; 765.0 kV Ckt 1	**CE** Description : 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 CB's (6-8 & 8-2). The baseline project has an projected in-service date of 06/30/2019. Time Estimate : 36.0 Months Cost : $ 11,000,000	$11,000,000
231103	7	WILTON ; B 345.0 kV - WILTON ;3M 345.0 kV Ckt 1		
231102	9	WILTON ;3M 345.0 kV - WILTON ; 765.0 kV Ckt 1		
231105	8	WILTON ; R 345.0 kV - WILTON ;4M 345.0 kV Ckt 1		
231413	3	BURNHAM ;0R 345.0 kV - 17MUNSTER 345.0 kV Ckt 1	**CE** Description : Upgrade 2-345kV circuit breakers & CT's,Line conductor & station conductor upgrades. (Note that there may be additional 345kV line tower costs as a result of this upgrade. This estimate does not include potential tower work. The tower costs will be determined during the Facility Study). Time Estimate : 36.0 Months Cost : $15,500,000 **NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.	$15,500,000
232416,232415	14	AD2-137 TAP 345.0 kV - WILTON ; B 345.0 kV Ckt 1	**CE** Description : Replace 2 345kV circuit breakers and station conductor @ Wilton Center, Reconductor 5 miles, replace 1 MOD, relay upgrade. Time Estimate : 36.0 Months Cost : $15,600,000	$15,600,000
231698,231699	15	AE1-172 TAP 345.0 kV - AD1-100 TAP 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1846 MVA.	$0
232441,232442	12	AD1-100 TAP 345.0 kV - AD2-137 TAP 345.0 kV Ckt 1	**CE** Description : Upgrade 2-345kV circuit breakers at TSS 112, Line conductor upgrade and station conductor upgrades at the two line terminals. Time Estimate : 30.0 Months Cost : $39,300,000	$39,300,000
231435	2	DRESDEN ; R 345.0 kV - COLLINS ; R 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1837 MVA.	$0
231768,231767	6	PONTIAC ; R 345.0 kV - AD1-133 TAP 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1797 MVA.	$0

ID	Index	Facility	Upgrade Description	Cost
231741,231742	13	AD1-133 TAP 345.0 kV - DRESDEN ; R 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1797 MVA.	$0
231734,231735	4	LORETTO ; B 345.0 kV - AE1-172 TAP 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1846 MVA.	$0
842595	11	7CASEY 345.0 kV - 05SULLIVAN 345.0 kV Ckt 1	**AEP** Description : 1) Rebuild / reconductor 0.6 miles of conductor (ACAR ~ 1024.5 ~ 30/7 ~ RAIL1 - Condcutor section 5), estimated cost : $1.2 million 2) Rebuild / reconductor 1.44 miles of conductor (ACSR/PE ~ 1414 ~ 62/19 ~ - Conductor section 2), estimated cost : $2.88 million. 3) Replace two Sullivan 3000A Wavetraps , Estimated cost : $225, 000. Time Estimate : 24-36 Months Cost : $4,305,000 **AMIL** Description : The external (i.e. Non-PJM) Transmission Owner, AMIL, will not evaluate this violation until the impact study phase.	$4,305,000
231760,231761	5	PONTIAC ; B 345.0 kV - LORETTO ; B 345.0 kV Ckt 1	**CE** Description : No Violation. The SSTE rating is 1846 MVA.	$0
232604,232605,843123,844348,844349,231519	1	WILTON ; 765.0 kV - 05DUMONT 765.0 kV Ckt 1	**CE** Description : No Violation. The SLD rating is 4802 MVA. **AEP** Description : 1) Replace Dumont Circuit Breaker [Breaker (3000A) Non oil - Dumont] Time Estimate : 24-36 Months Cost : $3,000,000	$3,000,000
			TOTAL COST	**$88,705,000**

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.

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
844348	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	107.66	107.97	DC	55.45

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	32.17
274722	S-055 E	29.55
274772	LINCOLN ;3U	4.7
274773	LINCOLN ;4U	4.7
274774	LINCOLN ;5U	4.7
274775	LINCOLN ;6U	4.7
274776	LINCOLN ;7U	4.7
274777	LINCOLN ;8U	4.7
274832	U4-027	28.06
274859	EASYR;U1 E	29.13
274860	EASYR;U2 E	29.13
274888	PILOT HIL;1E	44.3
274890	CAYUG;1U E	36.07
274891	CAYUG;2U E	36.07
275149	KEMPTON ;1E	44.3
290021	O50 E	49.24
290051	GSG-6; E	28.08
290108	LEEDK;1U E	65.57
293061	N-015 E	41.22
293516	O-009 E1	23.79
293517	O-009 E2	12.09
293518	O-009 E3	13.31
293644	O22 E1	25.31
293645	O22 E2	49.12
293715	O-029 E	25.78
293716	O-029 E	14.13
293717	O-029 E	12.99
293771	O-035 E	16.49
294392	P-010 E	52.34
294763	P-046 E	24.88
295109	WESTBROOK E	15.03
295111	SUBLETTE E	6.87
296125	R-030 C3	9.31
296128	R-030 E3	37.24
296271	R-030 C2	9.2
296272	R-030 E2	36.8
296308	R-030 C1	9.2
296309	R-030 E1	36.8
910542	X3-005 E	1.57
914641	Y2-103	118.19

Bus #	Bus	MW Impact
915011	Y3-013 1	9.85
915021	Y3-013 2	9.85
915031	Y3-013 3	9.85
916211	Z1-072 E	12.48
916221	Z1-073 E	14.49
916502	Z1-106 E1	3.41
916504	Z1-106 E2	3.41
916512	Z1-107 E	6.53
916522	Z1-108 E	6.62
917502	Z2-087 E	48.13
918052	AA1-018 E	40.41
919221	AA1-146	46.5
919581	AA2-030	46.5
919621	AA2-039 C	3.78
919622	AA2-039 E	25.31
920272	AA2-123 E	6.51
924471	AB2-096	112.6
925161	AB2-173	8.29
925302	AB2-191 E	3.72
925581	AC1-033 C	3.62
925582	AC1-033 E	24.22
926311	AC1-109 1	5.21
926321	AC1-109 2	5.21
926331	AC1-110 1	5.12
926341	AC1-110 2	5.12
926351	AC1-111 1	2.07
926361	AC1-111 2	2.07
926371	AC1-111 3	2.07
926381	AC1-111 4	2.07
926391	AC1-111 5	2.07
926401	AC1-111 6	2.07
926431	AC1-114	6.32
926821	AC1-168 C O1	2.98
926822	AC1-168 E O1	20.01
927091	AC1-204 1	184.27
927101	AC1-204 2	184.31
927201	AC1-214 C O1	5.29
927202	AC1-214 E O1	16.83
927451	AC1-142A 1	10.61
927461	AC1-142A 2	10.61
927511	AC1-113 1	3.16
927521	AC1-113 2	3.16
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	175.15
930501	AB1-091 O1	173.97

Bus #	Bus	MW Impact
930741	AB1-122 1O1	194.95
930751	AB1-122 2O1	188.67
932881	AC2-115 1	6.32
932891	AC2-115 2	6.32
932921	AC2-116	2.21
932931	AC2-117	14.95
933341	AC2-147 C	2.31
933342	AC2-147 E	3.77
933411	AC2-154 C	6.01
933412	AC2-154 E	9.81
933431	AC2-156 C O1	2.64
933432	AC2-156 E O1	4.3
933911	AD1-013 C	4.95
933912	AD1-013 E	7.9
933931	AD1-016 C	2.47
933932	AD1-016 E	4.03
934051	AD1-031 C O1	7.35
934052	AD1-031 E O1	11.99
934101	AD1-039 1	19.1
934111	AD1-039 2	18.49
934401	AD1-064 C O1	8.56
934402	AD1-064 E O1	40.08
934431	AD1-067 C	0.35
934432	AD1-067 E	1.48
934651	AD1-096 C	2.37
934652	AD1-096 E	3.86
934701	AD1-098 C O1	18.47
934702	AD1-098 E O1	13.48
934721	AD1-100 C	51.04
934722	AD1-100 E	238.17
934871	AD1-116 C	2.35
934872	AD1-116 E	3.84
934881	AD1-117 C	14.23
934882	AD1-117 E	9.49
934971	AD1-129 C	2.4
934972	AD1-129 E	1.6
935001	AD1-133 C O1	55.95
935002	AD1-133 E O1	37.3
936291	AD2-038 C O1	5.86
936292	AD2-038 E O1	39.2
936371	AD2-047 C O1	5.38
936372	AD2-047 E O1	57.91
936461	AD2-060	6.33
936511	AD2-066 C O1	21.47
936512	AD2-066 E O1	14.31
936781	AD2-101 C	10.68
936782	AD2-101 E	49.98
936791	AD2-102 C	31.89
936792	AD2-102 E	30.64
936961	AD2-130	1.4
937001	AD2-134 C	7.34
937002	AD2-134 E	30.33

Bus #	Bus	MW Impact
937031	AD2-137 C O1	10.26
937032	AD2-137 E O1	48.01
937051	AD2-140 C O1	10.5
937052	AD2-140 E O1	49.17
937061	AD2-141 C O1	10.44
937062	AD2-141 E O1	49.23
937071	AD2-142 C O1	21.0
937072	AD2-142 E O1	98.34
937121	AD2-148 C O1	8.35
937122	AD2-148 E O1	39.1
937131	AD2-149 C O1	8.35
937132	AD2-149 E O1	39.1
937141	AD2-150 C O1	8.35
937142	AD2-150 E O1	39.1
937181	AD2-155 C O1	8.35
937182	AD2-155 E O1	39.1
937311	AD2-172 C	6.53
937312	AD2-172 E	9.02
937321	AD2-175 C	38.91
937322	AD2-175 E	25.94
937331	AD2-176 C O1	19.52
937332	AD2-176 E O1	13.01
937401	AD2-194 1	19.82
937411	AD2-194 2	19.82
937531	AD2-214 C	11.6
937532	AD2-214 E	5.46
938012	AE1-002 E O1	20.59
938511	AE1-070 1	23.28
938521	AE1-070 2	21.31
938851	AE1-113 C O1	22.28
938852	AE1-113 E O1	70.05
938861	AE1-114 C O1	9.53
938862	AE1-114 E O1	36.45
939051	AE1-134 1	3.61
939061	AE1-134 2	3.61
939321	AE1-163 C O1	14.72
939322	AE1-163 E O1	90.42
939351	AE1-166 C O1	26.27
939352	AE1-166 E O1	24.25
939401	AE1-172 C O1	16.57
939402	AE1-172 E O1	77.57
939631	AE1-193 C O1	17.95
939632	AE1-193 E O1	120.14
939641	AE1-194 C	21.1
939642	AE1-194 E	141.24
939651	AE1-195 C	21.1
939652	AE1-195 E	141.24
939681	AE1-198 C O1	53.3
939682	AE1-198 E O1	45.3
939691	AE1-199	6.42
939701	AE1-201 C	5.34
939702	AE1-201 E	1.17

Bus #	Bus	MW Impact
939732	AE1-204 E	0.77
939741	AE1-205 C O1	23.29
939742	AE1-205 E O1	32.16
939861	AE1-222 1	215.29
939871	AE1-222 2	208.36
939921	AE1-228 C O1	27.02
939922	AE1-228 E O1	18.01
939961	AE1-233 C O1	6.29
939962	AE1-233 E O1	25.97
940101	AE1-252 C O1	28.24
940102	AE1-252 E O1	18.83
AB2-013	AB2-013	41.07
AE1-033	AE1-033	47.69
BLUEG	BLUEG	16.82
CALDERWOOD	CALDERWOOD	0.23
CANNELTON	CANNELTON	0.26
CARR	CARR	1.97
CATAWBA	CATAWBA	0.8
CBM-S1	CBM-S1	3.44
CBM-W1	CBM-W1	76.96
CBM-W2	CBM-W2	140.68
CHEOAH	CHEOAH	0.24
CHILHOWEE	CHILHOWEE	0.07
DEARBORN	DEARBORN	6.43
ELMERSMITH	ELMERSMITH	0.27
G-007	G-007	5.53
GIBSON	GIBSON	0.08
HAMLET	HAMLET	3.02
MEC	MEC	98.2
O-066	O-066	18.61
RENSSELAER	RENSSELAER	1.56
SANTEETLA	SANTEETLA	0.08
TRIMBLE	TRIMBLE	1.99
WEC	WEC	20.94
Z1-043	Z1-043	73.86

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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
231435	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	100.59	101.25	DC	22.47

Bus #	Bus	MW Impact
274659	DRESDEN ;3U	42.28
274729	ELWOOD EC;1P	2.69
274731	ELWOOD EC;2P	2.69
274733	ELWOOD EC;3P	2.69
274735	ELWOOD EC;4P	2.69
274736	ELWOOD EC;9P	2.66
274890	CAYUG;1U E	9.67
274891	CAYUG;2U E	9.67
276150	W2-048 E	0.97
290021	O50 E	11.1
290261	S-027 E	15.15
290265	S-028 E	15.15
296125	R-030 C3	3.8
296128	R-030 E3	15.19
296271	R-030 C2	3.75
296272	R-030 E2	15.01
296308	R-030 C1	3.75
296309	R-030 E1	15.01
905082	W4-005 E	25.39
909052	X2-022 E	13.53
917502	Z2-087 E	19.63
924041	AB2-047 C O1	3.61
924042	AB2-047 E O1	24.18
924261	AB2-070 C O1	1.95
924262	AB2-070 E O1	13.08
925771	AC1-053 C	1.93
925772	AC1-053 E	12.91
926841	AC1-171 C O1	0.6
926842	AC1-171 E O1	4.0
927091	AC1-204 1	64.57
927101	AC1-204 2	65.35
930741	AB1-122 1O1	173.78
930751	AB1-122 2O1	33.89
934101	AD1-039 1	17.03
934111	AD1-039 2	3.32
935001	AD1-133 C O1	39.0
935002	AD1-133 E O1	26.0
935141	AD1-148	3.54
936291	AD2-038 C O1	1.13
936292	AD2-038 E O1	7.56
936771	AD2-100 C O1	7.92

Bus #	Bus	MW Impact
936772	AD2-100 E O1	5.28
936972	AD2-131 E O1	1.67
937161	AD2-153 C O1	2.52
937162	AD2-153 E O1	11.79
937171	AD2-154 C O1	2.52
937172	AD2-154 E O1	11.79
937211	AD2-159 C	2.74
937212	AD2-159 E	12.84
937401	AD2-194 1	6.94
937411	AD2-194 2	7.03
938511	AE1-070 1	8.16
938521	AE1-070 2	7.55
938851	AE1-113 C O1	5.02
938852	AE1-113 E O1	15.79
939321	AE1-163 C O1	2.84
939322	AE1-163 E O1	17.43
939401	AE1-172 C O1	3.31
939402	AE1-172 E O1	15.48
939741	AE1-205 C O1	9.44
939742	AE1-205 E O1	13.03
939861	AE1-222 1	191.92
939871	AE1-222 2	37.43
940101	AE1-252 C O1	5.64
940102	AE1-252 E O1	3.76
951741	J474 C	1.23
951742	J474 E	6.63
952651	J756 C	1.67
952652	J756 E	9.05
954181	J884	6.11
AB2-013	AB2-013	11.51
CARR	CARR	0.16
CBM-S1	CBM-S1	2.68
CBM-S2	CBM-S2	0.28
CBM-W1	CBM-W1	3.41
CBM-W2	CBM-W2	44.28
CIN	CIN	2.13
CPLE	CPLE	0.02
DEARBORN	DEARBORN	0.86
G-007	G-007	0.45
IPL	IPL	0.97
LGEE	LGEE	0.09
MEC	MEC	12.36
O-066	O-066	1.51
RENSSELAER	RENSSELAER	0.13
Z1-043	Z1-043	11.82

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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
231413	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	113.81	114.19	DC	20.41

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	11.75
274722	S-055 E	10.96
274723	RIVER EC ;12	4.32
274792	SE CHICAG;9U	0.96
274793	SE CHICAG;0U	0.96
274794	SE CHICAG;1U	0.96
274795	SE CHICAG;2U	0.96
274832	U4-027	10.31
274859	EASYR;U1 E	10.61
274860	EASYR;U2 E	10.61
274888	PILOT HIL;1E	20.48
274890	CAYUG;1U E	13.4
274891	CAYUG;2U E	13.4
275149	KEMPTON ;1E	20.48
290021	O50 E	18.57
290051	GSG-6; E	10.13
290108	LEEDK;1U E	23.57
293061	N-015 E	14.82
293516	O-009 E1	8.7
293517	O-009 E2	4.42
293518	O-009 E3	4.87
293644	O22 E1	9.26
293645	O22 E2	17.98
293715	O-029 E	9.4
293716	O-029 E	5.15
293717	O-029 E	4.74
293771	O-035 E	6.09
294392	P-010 E	18.82
294763	P-046 E	9.07
295109	WESTBROOK E	5.42
295111	SUBLETTE E	2.5
296125	R-030 C3	3.43
296128	R-030 E3	13.71
296271	R-030 C2	3.39
296272	R-030 E2	13.54
296308	R-030 C1	3.39
296309	R-030 E1	13.54
910541	X3-005 C	0.08
910542	X3-005 E	0.91
914641	Y2-103	43.82
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	4.61
916221	Z1-073 E	5.23
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	8.96
918052	AA1-018 E	16.81
919221	AA1-146	16.93
919581	AA2-030	16.93
920272	AA2-123 E	2.37
924471	AB2-096	41.11
925161	AB2-173	3.02
925302	AB2-191 E	1.34
925881	AC1-067 O1	301.08
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	0.75
926361	AC1-111 2	0.75
926371	AC1-111 3	0.75
926381	AC1-111 4	0.75
926391	AC1-111 5	0.75
926401	AC1-111 6	0.75
926431	AC1-114	2.31
926821	AC1-168 C O1	1.1
926822	AC1-168 E O1	7.36
927091	AC1-204 1	70.09
927101	AC1-204 2	70.14
927201	AC1-214 C O1	1.95
927202	AC1-214 E O1	6.21
927451	AC1-142A 1	4.09
927461	AC1-142A 2	4.09
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	63.73
930501	AB1-091 O1	82.27
930741	AB1-122 1O1	70.02
930751	AB1-122 2O1	70.99
932881	AC2-115 1	2.31
932891	AC2-115 2	2.31

Bus #	Bus	MW Impact
932921	AC2-116	0.81
932931	AC2-117	5.3
933341	AC2-147 C	0.84
933342	AC2-147 E	1.37
933411	AC2-154 C	2.78
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	2.85
933931	AD1-016 C	0.9
933932	AD1-016 E	1.47
934101	AD1-039 1	6.86
934111	AD1-039 2	6.96
934401	AD1-064 C O1	3.11
934402	AD1-064 E O1	14.56
934431	AD1-067 C	0.13
934432	AD1-067 E	0.53
934651	AD1-096 C	0.86
934652	AD1-096 E	1.41
934701	AD1-098 C O1	6.66
934702	AD1-098 E O1	4.86
934721	AD1-100 C	19.54
934722	AD1-100 E	91.19
934871	AD1-116 C	0.98
934872	AD1-116 E	1.6
934881	AD1-117 C	5.18
934882	AD1-117 E	3.46
934971	AD1-129 C	0.88
934972	AD1-129 E	0.58
935001	AD1-133 C O1	20.3
935002	AD1-133 E O1	13.53
936291	AD2-038 C O1	2.33
936292	AD2-038 E O1	15.58
936371	AD2-047 C O1	2.49
936372	AD2-047 E O1	26.77
936461	AD2-060	2.93
936511	AD2-066 C O1	8.14
936512	AD2-066 E O1	5.43
936781	AD2-101 C	4.75
936782	AD2-101 E	22.22
936791	AD2-102 C	11.64
936792	AD2-102 E	11.19
936961	AD2-130	0.56
937001	AD2-134 C	2.65
937002	AD2-134 E	10.94
937031	AD2-137 C O1	3.67
937032	AD2-137 E O1	17.17
937051	AD2-140 C O1	3.72
937052	AD2-140 E O1	17.42
937061	AD2-141 C O1	3.7
937062	AD2-141 E O1	17.44

Bus #	Bus	MW Impact
937071	AD2-142 C O1	7.44
937072	AD2-142 E O1	34.83
937121	AD2-148 C O1	3.94
937122	AD2-148 E O1	18.43
937131	AD2-149 C O1	3.94
937132	AD2-149 E O1	18.43
937141	AD2-150 C O1	3.94
937142	AD2-150 E O1	18.43
937181	AD2-155 C O1	3.94
937182	AD2-155 E O1	18.43
937311	AD2-172 C	2.38
937312	AD2-172 E	3.29
937321	AD2-175 C	18.34
937322	AD2-175 E	12.23
937331	AD2-176 C O1	7.12
937332	AD2-176 E O1	4.75
937401	AD2-194 1	7.54
937411	AD2-194 2	7.54
937531	AD2-214 C	4.24
937532	AD2-214 E	1.99
938012	AE1-002 E O1	7.36
938511	AE1-070 1	8.86
938521	AE1-070 2	8.11
938851	AE1-113 C O1	8.4
938852	AE1-113 E O1	26.41
938861	AE1-114 C O1	3.47
938862	AE1-114 E O1	13.28
939051	AE1-134 1	1.32
939061	AE1-134 2	1.32
939321	AE1-163 C O1	5.85
939322	AE1-163 E O1	35.94
939351	AE1-166 C O1	10.23
939352	AE1-166 E O1	9.45
939401	AE1-172 C O1	6.18
939402	AE1-172 E O1	28.94
939691	AE1-199	2.32
939701	AE1-201 C	1.95
939702	AE1-201 E	0.43
939732	AE1-204 E	0.28
939741	AE1-205 C O1	8.57
939742	AE1-205 E O1	11.84
939861	AE1-222 1	77.33
939871	AE1-222 2	78.4
939921	AE1-228 C O1	9.74
939922	AE1-228 E O1	6.49
939961	AE1-233 C O1	2.26
939962	AE1-233 E O1	9.34
940101	AE1-252 C O1	10.54
940102	AE1-252 E O1	7.02
AB2-013	AB2-013	15.32
AE1-033	AE1-033	17.49
BLUEG	BLUEG	5.47

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.08
CARR	CARR	0.73
CATAWBA	CATAWBA	0.27
CBM-S1	CBM-S1	1.44
CBM-W1	CBM-W1	23.88
CBM-W2	CBM-W2	51.81
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
DEARBORN	DEARBORN	2.93
ELMERSMITH	ELMERSMITH	0.08
G-007	G-007	2.03
GIBSON	GIBSON	0.04
HAMLET	HAMLET	1.05
MEC	MEC	36.09
O-066	O-066	6.84
RENSSELAER	RENSSELAER	0.58
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.65
WEC	WEC	7.74
Z1-043	Z1-043	27.27

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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
231734	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	114.87	117.67	DC	42.48

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.25
274651	KINCAID ;2U	17.28
274853	TWINGROVE;U1	2.5
274854	TWINGROVE;U2	2.5
274863	CAYUGA RI;1U	2.82
274864	CAYUGA RI;2U	2.82
900404	X3-028 C	84.69
905081	W4-005 C	2.39
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.06
924261	AB2-070 C O1	7.65
925771	AC1-053 C	7.49
926841	AC1-171 C O1	0.96
930461	AB1-087	31.05
930471	AB1-088	31.05
933441	AC2-157 C	4.29
935001	AD1-133 C O1	90.83
935141	AD1-148	13.51
936771	AD2-100 C O1	28.25
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.3
939741	AE1-205 C O1	42.48
950291	J291	4.24
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952251	J641	13.5
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43

Bus #	Bus	MW Impact
954181	J884	26.75
954411	J912	14.21
954721	J750 C	3.62
954761	J468 C	4.06
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.61
CBM-N	CBM-N	0.57
CBM-S1	CBM-S1	11.07
CBM-S2	CBM-S2	3.34
CBM-W2	CBM-W2	129.48
CIN	CIN	11.59
CPLE	CPLE	1.17
DEARBORN	DEARBORN	0.85
G-007A	G-007A	1.93
IPL	IPL	6.27
LGEE	LGEE	1.7
MEC	MEC	9.12
NYISO	NYISO	2.48
O-066A	O-066A	0.9
VFT	VFT	5.19

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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
231760	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	112.57	115.37	DC	42.51

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.28
274651	KINCAID ;2U	17.31
274853	TWINGROVE;U1	2.51
274854	TWINGROVE;U2	2.51
900404	X3-028 C	85.17
905081	W4-005 C	2.4
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.07
924261	AB2-070 C O1	7.66
925771	AC1-053 C	7.5
926841	AC1-171 C O1	0.97
930461	AB1-087	31.23
930471	AB1-088	31.23
933441	AC2-157 C	4.32
935001	AD1-133 C O1	90.89
935141	AD1-148	13.53
936771	AD2-100 C O1	28.29
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.31
939741	AE1-205 C O1	42.51
950291	J291	4.24
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952251	J641	13.5
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43
954181	J884	26.75
954411	J912	14.21

Bus #	Bus	MW Impact
954681	J949	18.12
954721	J750 C	3.62
954761	J468 C	4.06
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.67
CBM-N	CBM-N	0.6
CBM-S1	CBM-S1	11.17
CBM-S2	CBM-S2	3.39
CBM-W2	CBM-W2	130.23
CIN	CIN	11.67
CPLE	CPLE	1.19
DEARBORN	DEARBORN	0.82
G-007A	G-007A	2.01
IPL	IPL	6.32
LGEE	LGEE	1.73
MEC	MEC	9.27
NYISO	NYISO	2.59
O-066A	O-066A	0.94
VFT	VFT	5.39

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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
231768	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-B	single	1528.0	101.8	104.37	DC	39.11

Bus #	Bus	MW Impact
274650	KINCAID ;1U	15.48
274651	KINCAID ;2U	15.51
274853	TWINGROVE;U1	2.3
274854	TWINGROVE;U2	2.3
274863	CAYUGA RI;1U	2.14
274864	CAYUGA RI;2U	2.14
900404	X3-028 C	78.36
905081	W4-005 C	2.19
917501	Z2-087 C	1.85
924041	AB2-047 C O1	14.84
924261	AB2-070 C O1	6.98
925771	AC1-053 C	6.83
926841	AC1-171 C O1	0.75
930461	AB1-087	28.73
930471	AB1-088	28.73
933441	AC2-157 C	3.97
935141	AD1-148	12.29
936771	AD2-100 C O1	25.48
937161	AD2-153 C O1	9.91
937171	AD2-154 C O1	9.91
937211	AD2-159 C	10.33
939741	AE1-205 C O1	39.11
950291	J291	3.74
950701	J196 C	1.11
951001	J339	12.11
951741	J474 C	4.81
952271	J644	12.24
952321	J734	10.17
952651	J756 C	4.36
952871	J757 C	5.2
953241	J467 C	1.73
953401	J811	10.29
953651	J815	34.83
953741	J826 C	3.01
953801	J835 C	3.42
953851	J845 C	2.96
953881	J848 C	5.38
954081	J872 C	4.15
954181	J884	24.98
954411	J912	13.29

Bus #	Bus	MW Impact
954681	J949	17.65
954721	J750 C	3.3
954761	J468 C	3.94
AD2-098	AD2-098	0.45
AE1-042	AE1-042	5.79
CBM-N	CBM-N	0.66
CBM-S1	CBM-S1	9.87
CBM-S2	CBM-S2	3.13
CBM-W2	CBM-W2	111.77
CIN	CIN	10.82
CPLE	CPLE	1.12
DEARBORN	DEARBORN	0.52
EDWARDS	EDWARDS	0.05
G-007A	G-007A	2.18
IPL	IPL	5.9
LGEE	LGEE	1.65
MEC	MEC	2.66
NYISO	NYISO	2.85
O-066A	O-066A	1.01
TATANKA	TATANKA	0.42
VFT	VFT	5.85

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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
231103	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.87	167.22	DC	29.71

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.81
274722	S-055 E	13.75
274772	LINCOLN ;3U	3.36
274773	LINCOLN ;4U	3.36
274774	LINCOLN ;5U	3.36
274775	LINCOLN ;6U	3.36
274776	LINCOLN ;7U	3.36
274777	LINCOLN ;8U	3.36
274859	EASYR;U1 E	13.46
274860	EASYR;U2 E	13.46
274888	PILOT HIL;1E	23.62
274890	CAYUG;1U E	20.25
274891	CAYUG;2U E	20.25
275149	KEMPTON ;1E	23.62
290021	O50 E	23.75
290051	GSG-6; E	12.8
290108	LEEDK;1U E	29.74
293061	N-015 E	19.44
293516	O-009 E1	1.0
293517	O-009 E2	0.51
293518	O-009 E3	0.56
293644	O22 E1	12.55
293645	O22 E2	24.37
293715	O-029 E	11.98
293716	O-029 E	6.57
293717	O-029 E	6.04
294392	P-010 E	24.69
294763	P-046 E	11.48
295109	WESTBROOK E	6.85
295111	SUBLETTE E	3.18
296125	R-030 C3	4.98
296128	R-030 E3	19.93
296271	R-030 C2	4.92
296272	R-030 E2	19.7
296308	R-030 C1	4.92
296309	R-030 E1	19.7
910542	X3-005 E	0.9
914641	Y2-103	55.02
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58
915031	Y3-013 3	4.58

Bus #	Bus	MW Impact
916221	Z1-073 E	6.61
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.17
916522	Z1-108 E	3.04
917502	Z2-087 E	25.76
918052	AA1-018 E	20.13
919221	AA1-146	21.54
919581	AA2-030	21.54
920272	AA2-123 E	2.99
924041	AB2-047 C O1	4.75
924042	AB2-047 E O1	31.79
924471	AB2-096	51.84
925161	AB2-173	3.84
925302	AB2-191 E	1.7
925881	AC1-067 O1	168.51
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.33
926341	AC1-110 2	2.33
926351	AC1-111 1	0.94
926361	AC1-111 2	0.94
926371	AC1-111 3	0.94
926381	AC1-111 4	0.94
926391	AC1-111 5	0.94
926401	AC1-111 6	0.94
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.59
927091	AC1-204 1	88.93
927101	AC1-204 2	88.93
927451	AC1-142A 1	5.12
927461	AC1-142A 2	5.12
927511	AC1-113 1	1.46
927521	AC1-113 2	1.46
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	80.5
930501	AB1-091 O1	93.97
930741	AB1-122 1O1	89.35
930751	AB1-122 2O1	90.31
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.52
933341	AC2-147 C	1.07

Bus #	Bus	MW Impact
933342	AC2-147 E	1.74
933411	AC2-154 C	3.21
933412	AC2-154 E	5.23
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.6
933931	AD1-016 C	1.14
933932	AD1-016 E	1.85
934101	AD1-039 1	8.76
934111	AD1-039 2	8.85
934401	AD1-064 C O1	3.92
934402	AD1-064 E O1	18.37
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.43
934702	AD1-098 E O1	6.15
934721	AD1-100 C	29.44
934722	AD1-100 E	137.37
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934881	AD1-117 C	6.58
934882	AD1-117 E	4.39
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.42
935002	AD1-133 E O1	18.28
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.29
936371	AD2-047 C O1	2.87
936372	AD2-047 E O1	30.87
936461	AD2-060	3.37
936511	AD2-066 C O1	10.36
936512	AD2-066 E O1	6.91
936781	AD2-101 C	5.83
936782	AD2-101 E	27.31
936791	AD2-102 C	14.71
936792	AD2-102 E	14.14
936961	AD2-130	0.69
937001	AD2-134 C	3.35
937002	AD2-134 E	13.82
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.59
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.28
937061	AD2-141 C O1	7.49
937062	AD2-141 E O1	35.32
937071	AD2-142 C O1	15.07
937072	AD2-142 E O1	70.55
937121	AD2-148 C O1	4.51

Bus #	Bus	MW Impact
937122	AD2-148 E O1	21.13
937131	AD2-149 C O1	4.51
937132	AD2-149 E O1	21.13
937141	AD2-150 C O1	4.51
937142	AD2-150 E O1	21.13
937181	AD2-155 C O1	4.51
937182	AD2-155 E O1	21.13
937311	AD2-172 C	3.01
937312	AD2-172 E	4.16
937321	AD2-175 C	21.03
937322	AD2-175 E	14.02
937331	AD2-176 C O1	8.97
937332	AD2-176 E O1	5.98
937401	AD2-194 1	9.56
937411	AD2-194 2	9.56
938012	AE1-002 E O1	14.4
938511	AE1-070 1	11.24
938521	AE1-070 2	10.28
938851	AE1-113 C O1	10.75
938852	AE1-113 E O1	33.78
938861	AE1-114 C O1	4.4
938862	AE1-114 E O1	16.84
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.24
939322	AE1-163 E O1	44.49
939351	AE1-166 C O1	14.52
939352	AE1-166 E O1	13.41
939401	AE1-172 C O1	9.52
939402	AE1-172 E O1	44.57
939691	AE1-199	2.93
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.48
939742	AE1-205 E O1	17.23
939861	AE1-222 1	98.68
939871	AE1-222 2	99.73
939921	AE1-228 C O1	12.31
939922	AE1-228 E O1	8.21
939961	AE1-233 C O1	2.85
939962	AE1-233 E O1	11.77
940101	AE1-252 C O1	16.23
940102	AE1-252 E O1	10.82
AB2-013	AB2-013	19.85
AE1-033	AE1-033	22.1
BLUEG	BLUEG	7.86
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.96
CATAWBA	CATAWBA	0.38
CBM-S1	CBM-S1	1.85

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	37.32
CBM-W2	CBM-W2	71.02
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.9
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.69
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.46
MEC	MEC	46.58
O-066	O-066	9.06
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.94
WEC	WEC	9.75
Z1-043	Z1-043	35.51

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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
231105	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.11	165.64	DC	30.31

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.13
274722	S-055 E	14.05
274772	LINCOLN ;3U	3.45
274773	LINCOLN ;4U	3.45
274774	LINCOLN ;5U	3.45
274775	LINCOLN ;6U	3.45
274776	LINCOLN ;7U	3.45
274777	LINCOLN ;8U	3.45
274832	U4-027	6.82
274859	EASYR;U1 E	13.75
274860	EASYR;U2 E	13.75
274888	PILOT HIL;1E	24.11
274890	CAYUG;1U E	20.66
274891	CAYUG;2U E	20.66
275149	KEMPTON ;1E	24.11
290021	O50 E	24.25
290051	GSG-6; E	13.07
290108	LEEDK;1U E	30.37
293061	N-015 E	19.85
293516	O-009 E1	11.37
293517	O-009 E2	5.78
293518	O-009 E3	6.36
293644	O22 E1	12.82
293645	O22 E2	24.89
293715	O-029 E	12.24
293716	O-029 E	6.71
293717	O-029 E	6.17
293771	O-035 E	8.08
294392	P-010 E	25.21
294763	P-046 E	11.72
295109	WESTBROOK E	7.0
295111	SUBLETTE E	3.24
296125	R-030 C3	5.08
296128	R-030 E3	20.34
296271	R-030 C2	5.02
296272	R-030 E2	20.09
296308	R-030 C1	5.02
296309	R-030 E1	20.09
910542	X3-005 E	0.91
914641	Y2-103	56.19
915011	Y3-013 1	4.68

Bus #	Bus	MW Impact
915021	Y3-013 2	4.68
915031	Y3-013 3	4.68
916211	Z1-072 E	6.11
916221	Z1-073 E	6.75
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.11
917502	Z2-087 E	26.28
918052	AA1-018 E	20.57
919221	AA1-146	22.0
919581	AA2-030	22.0
920272	AA2-123 E	3.06
924041	AB2-047 C O1	4.85
924042	AB2-047 E O1	32.43
924471	AB2-096	52.94
925161	AB2-173	3.92
925302	AB2-191 E	1.73
925881	AC1-067 O1	172.23
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	0.96
926361	AC1-111 2	0.96
926371	AC1-111 3	0.96
926381	AC1-111 4	0.96
926391	AC1-111 5	0.96
926401	AC1-111 6	0.96
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.79
927091	AC1-204 1	90.83
927101	AC1-204 2	90.83
927201	AC1-214 C O1	2.59
927202	AC1-214 E O1	8.24
927451	AC1-142A 1	5.23
927461	AC1-142A 2	5.23
927511	AC1-113 1	1.49
927521	AC1-113 2	1.49
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	82.21
930501	AB1-091 O1	95.92
930741	AB1-122 1O1	91.25
930751	AB1-122 2O1	92.24

Bus #	Bus	MW Impact
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.67
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.34
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.68
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.94
934111	AD1-039 2	9.04
934401	AD1-064 C O1	4.01
934402	AD1-064 E O1	18.76
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.82
934701	AD1-098 C O1	8.6
934702	AD1-098 E O1	6.28
934721	AD1-100 C	30.02
934722	AD1-100 E	140.09
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934881	AD1-117 C	6.72
934882	AD1-117 E	4.48
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.99
935002	AD1-133 E O1	18.66
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.7
936371	AD2-047 C O1	2.93
936372	AD2-047 E O1	31.51
936461	AD2-060	3.44
936511	AD2-066 C O1	10.58
936512	AD2-066 E O1	7.05
936781	AD2-101 C	5.95
936782	AD2-101 E	27.88
936791	AD2-102 C	15.03
936792	AD2-102 E	14.44
936961	AD2-130	0.7
937001	AD2-134 C	3.42
937002	AD2-134 E	14.12
937031	AD2-137 C O1	7.31
937032	AD2-137 E O1	34.21
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.93

Bus #	Bus	MW Impact
937061	AD2-141 C O1	7.63
937062	AD2-141 E O1	35.97
937071	AD2-142 C O1	15.35
937072	AD2-142 E O1	71.86
937121	AD2-148 C O1	4.61
937122	AD2-148 E O1	21.57
937131	AD2-149 C O1	4.61
937132	AD2-149 E O1	21.57
937141	AD2-150 C O1	4.61
937142	AD2-150 E O1	21.57
937181	AD2-155 C O1	4.61
937182	AD2-155 E O1	21.57
937311	AD2-172 C	3.08
937312	AD2-172 E	4.25
937321	AD2-175 C	21.46
937322	AD2-175 E	14.31
937331	AD2-176 C O1	9.17
937332	AD2-176 E O1	6.11
937401	AD2-194 1	9.77
937411	AD2-194 2	9.77
938012	AE1-002 E O1	14.67
938511	AE1-070 1	11.48
938521	AE1-070 2	10.5
938851	AE1-113 C O1	10.98
938852	AE1-113 E O1	34.5
938861	AE1-114 C O1	4.5
938862	AE1-114 E O1	17.19
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.4
939322	AE1-163 E O1	45.45
939351	AE1-166 C O1	14.82
939352	AE1-166 E O1	13.68
939401	AE1-172 C O1	9.71
939402	AE1-172 E O1	45.45
939691	AE1-199	2.99
939701	AE1-201 C	2.51
939702	AE1-201 E	0.55
939732	AE1-204 E	0.37
939741	AE1-205 C O1	12.73
939742	AE1-205 E O1	17.58
939861	AE1-222 1	100.77
939871	AE1-222 2	101.86
939921	AE1-228 C O1	12.57
939922	AE1-228 E O1	8.38
939961	AE1-233 C O1	2.91
939962	AE1-233 E O1	12.02
940101	AE1-252 C O1	16.55
940102	AE1-252 E O1	11.03
AB2-013	AB2-013	20.27
AE1-033	AE1-033	22.58
BLUEG	BLUEG	8.03

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.98
CATAWBA	CATAWBA	0.39
CBM-S1	CBM-S1	1.88
CBM-W1	CBM-W1	38.11
CBM-W2	CBM-W2	72.48
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.96
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.75
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.49
MEC	MEC	47.56
O-066	O-066	9.26
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.96
WEC	WEC	9.96
Z1-043	Z1-043	36.25

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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
231102	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.87	167.22	DC	29.71

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.81
274722	S-055 E	13.75
274772	LINCOLN ;3U	3.36
274773	LINCOLN ;4U	3.36
274774	LINCOLN ;5U	3.36
274775	LINCOLN ;6U	3.36
274776	LINCOLN ;7U	3.36
274777	LINCOLN ;8U	3.36
274859	EASYR;U1 E	13.46
274860	EASYR;U2 E	13.46
274888	PILOT HIL;1E	23.62
274890	CAYUG;1U E	20.25
274891	CAYUG;2U E	20.25
275149	KEMPTON ;1E	23.62
290021	O50 E	23.75
290051	GSG-6; E	12.8
290108	LEEDK;1U E	29.74
293061	N-015 E	19.44
293516	O-009 E1	1.0
293517	O-009 E2	0.51
293518	O-009 E3	0.56
293644	O22 E1	12.55
293645	O22 E2	24.37
293715	O-029 E	11.98
293716	O-029 E	6.57
293717	O-029 E	6.04
294392	P-010 E	24.69
294763	P-046 E	11.48
295109	WESTBROOK E	6.85
295111	SUBLETTE E	3.18
296125	R-030 C3	4.98
296128	R-030 E3	19.93
296271	R-030 C2	4.92
296272	R-030 E2	19.7
296308	R-030 C1	4.92
296309	R-030 E1	19.7
910542	X3-005 E	0.9
914641	Y2-103	55.02
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58
915031	Y3-013 3	4.58

Bus #	Bus	MW Impact
916221	Z1-073 E	6.61
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.17
916522	Z1-108 E	3.04
917502	Z2-087 E	25.76
918052	AA1-018 E	20.13
919221	AA1-146	21.54
919581	AA2-030	21.54
920272	AA2-123 E	2.99
924041	AB2-047 C O1	4.75
924042	AB2-047 E O1	31.79
924471	AB2-096	51.84
925161	AB2-173	3.84
925302	AB2-191 E	1.7
925881	AC1-067 O1	168.51
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.33
926341	AC1-110 2	2.33
926351	AC1-111 1	0.94
926361	AC1-111 2	0.94
926371	AC1-111 3	0.94
926381	AC1-111 4	0.94
926391	AC1-111 5	0.94
926401	AC1-111 6	0.94
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.59
927091	AC1-204 1	88.93
927101	AC1-204 2	88.93
927451	AC1-142A 1	5.12
927461	AC1-142A 2	5.12
927511	AC1-113 1	1.46
927521	AC1-113 2	1.46
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	80.5
930501	AB1-091 O1	93.97
930741	AB1-122 1O1	89.35
930751	AB1-122 2O1	90.31
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.52
933341	AC2-147 C	1.07

Bus #	Bus	MW Impact
933342	AC2-147 E	1.74
933411	AC2-154 C	3.21
933412	AC2-154 E	5.23
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.6
933931	AD1-016 C	1.14
933932	AD1-016 E	1.85
934101	AD1-039 1	8.76
934111	AD1-039 2	8.85
934401	AD1-064 C O1	3.92
934402	AD1-064 E O1	18.37
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.43
934702	AD1-098 E O1	6.15
934721	AD1-100 C	29.44
934722	AD1-100 E	137.37
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934881	AD1-117 C	6.58
934882	AD1-117 E	4.39
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.42
935002	AD1-133 E O1	18.28
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.29
936371	AD2-047 C O1	2.87
936372	AD2-047 E O1	30.87
936461	AD2-060	3.37
936511	AD2-066 C O1	10.36
936512	AD2-066 E O1	6.91
936781	AD2-101 C	5.83
936782	AD2-101 E	27.31
936791	AD2-102 C	14.71
936792	AD2-102 E	14.14
936961	AD2-130	0.69
937001	AD2-134 C	3.35
937002	AD2-134 E	13.82
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.59
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.28
937061	AD2-141 C O1	7.49
937062	AD2-141 E O1	35.32
937071	AD2-142 C O1	15.07
937072	AD2-142 E O1	70.55
937121	AD2-148 C O1	4.51

Bus #	Bus	MW Impact
937122	AD2-148 E O1	21.13
937131	AD2-149 C O1	4.51
937132	AD2-149 E O1	21.13
937141	AD2-150 C O1	4.51
937142	AD2-150 E O1	21.13
937181	AD2-155 C O1	4.51
937182	AD2-155 E O1	21.13
937311	AD2-172 C	3.01
937312	AD2-172 E	4.16
937321	AD2-175 C	21.03
937322	AD2-175 E	14.02
937331	AD2-176 C O1	8.97
937332	AD2-176 E O1	5.98
937401	AD2-194 1	9.56
937411	AD2-194 2	9.56
938012	AE1-002 E O1	14.4
938511	AE1-070 1	11.24
938521	AE1-070 2	10.28
938851	AE1-113 C O1	10.75
938852	AE1-113 E O1	33.78
938861	AE1-114 C O1	4.4
938862	AE1-114 E O1	16.84
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.24
939322	AE1-163 E O1	44.49
939351	AE1-166 C O1	14.52
939352	AE1-166 E O1	13.41
939401	AE1-172 C O1	9.52
939402	AE1-172 E O1	44.57
939691	AE1-199	2.93
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.48
939742	AE1-205 E O1	17.23
939861	AE1-222 1	98.68
939871	AE1-222 2	99.73
939921	AE1-228 C O1	12.31
939922	AE1-228 E O1	8.21
939961	AE1-233 C O1	2.85
939962	AE1-233 E O1	11.77
940101	AE1-252 C O1	16.23
940102	AE1-252 E O1	10.82
AB2-013	AB2-013	19.85
AE1-033	AE1-033	22.1
BLUEG	BLUEG	7.86
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.96
CATAWBA	CATAWBA	0.38
CBM-S1	CBM-S1	1.85

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	37.32
CBM-W2	CBM-W2	71.02
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.9
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.69
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.46
MEC	MEC	46.58
O-066	O-066	9.06
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.94
WEC	WEC	9.75
Z1-043	Z1-043	35.51

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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
231107	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.11	165.64	DC	30.31

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.13
274722	S-055 E	14.05
274772	LINCOLN ;3U	3.45
274773	LINCOLN ;4U	3.45
274774	LINCOLN ;5U	3.45
274775	LINCOLN ;6U	3.45
274776	LINCOLN ;7U	3.45
274777	LINCOLN ;8U	3.45
274832	U4-027	6.82
274859	EASYR;U1 E	13.75
274860	EASYR;U2 E	13.75
274888	PILOT HIL;1E	24.11
274890	CAYUG;1U E	20.66
274891	CAYUG;2U E	20.66
275149	KEMPTON ;1E	24.11
290021	O50 E	24.25
290051	GSG-6; E	13.07
290108	LEEDK;1U E	30.37
293061	N-015 E	19.85
293516	O-009 E1	11.37
293517	O-009 E2	5.78
293518	O-009 E3	6.36
293644	O22 E1	12.82
293645	O22 E2	24.89
293715	O-029 E	12.24
293716	O-029 E	6.71
293717	O-029 E	6.17
293771	O-035 E	8.08
294392	P-010 E	25.21
294763	P-046 E	11.72
295109	WESTBROOK E	7.0
295111	SUBLETTE E	3.24
296125	R-030 C3	5.08
296128	R-030 E3	20.34
296271	R-030 C2	5.02
296272	R-030 E2	20.09
296308	R-030 C1	5.02
296309	R-030 E1	20.09
910542	X3-005 E	0.91
914641	Y2-103	56.19
915011	Y3-013 1	4.68

Bus #	Bus	MW Impact
915021	Y3-013 2	4.68
915031	Y3-013 3	4.68
916211	Z1-072 E	6.11
916221	Z1-073 E	6.75
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.11
917502	Z2-087 E	26.28
918052	AA1-018 E	20.57
919221	AA1-146	22.0
919581	AA2-030	22.0
920272	AA2-123 E	3.06
924041	AB2-047 C O1	4.85
924042	AB2-047 E O1	32.43
924471	AB2-096	52.94
925161	AB2-173	3.92
925302	AB2-191 E	1.73
925881	AC1-067 O1	172.23
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	0.96
926361	AC1-111 2	0.96
926371	AC1-111 3	0.96
926381	AC1-111 4	0.96
926391	AC1-111 5	0.96
926401	AC1-111 6	0.96
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.79
927091	AC1-204 1	90.83
927101	AC1-204 2	90.83
927201	AC1-214 C O1	2.59
927202	AC1-214 E O1	8.24
927451	AC1-142A 1	5.23
927461	AC1-142A 2	5.23
927511	AC1-113 1	1.49
927521	AC1-113 2	1.49
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	82.21
930501	AB1-091 O1	95.92
930741	AB1-122 1O1	91.25
930751	AB1-122 2O1	92.24

Bus #	Bus	MW Impact
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.67
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.34
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.68
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.94
934111	AD1-039 2	9.04
934401	AD1-064 C O1	4.01
934402	AD1-064 E O1	18.76
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.82
934701	AD1-098 C O1	8.6
934702	AD1-098 E O1	6.28
934721	AD1-100 C	30.02
934722	AD1-100 E	140.09
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934881	AD1-117 C	6.72
934882	AD1-117 E	4.48
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.99
935002	AD1-133 E O1	18.66
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.7
936371	AD2-047 C O1	2.93
936372	AD2-047 E O1	31.51
936461	AD2-060	3.44
936511	AD2-066 C O1	10.58
936512	AD2-066 E O1	7.05
936781	AD2-101 C	5.95
936782	AD2-101 E	27.88
936791	AD2-102 C	15.03
936792	AD2-102 E	14.44
936961	AD2-130	0.7
937001	AD2-134 C	3.42
937002	AD2-134 E	14.12
937031	AD2-137 C O1	7.31
937032	AD2-137 E O1	34.21
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.93

Bus #	Bus	MW Impact
937061	AD2-141 C O1	7.63
937062	AD2-141 E O1	35.97
937071	AD2-142 C O1	15.35
937072	AD2-142 E O1	71.86
937121	AD2-148 C O1	4.61
937122	AD2-148 E O1	21.57
937131	AD2-149 C O1	4.61
937132	AD2-149 E O1	21.57
937141	AD2-150 C O1	4.61
937142	AD2-150 E O1	21.57
937181	AD2-155 C O1	4.61
937182	AD2-155 E O1	21.57
937311	AD2-172 C	3.08
937312	AD2-172 E	4.25
937321	AD2-175 C	21.46
937322	AD2-175 E	14.31
937331	AD2-176 C O1	9.17
937332	AD2-176 E O1	6.11
937401	AD2-194 1	9.77
937411	AD2-194 2	9.77
938012	AE1-002 E O1	14.67
938511	AE1-070 1	11.48
938521	AE1-070 2	10.5
938851	AE1-113 C O1	10.98
938852	AE1-113 E O1	34.5
938861	AE1-114 C O1	4.5
938862	AE1-114 E O1	17.19
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.4
939322	AE1-163 E O1	45.45
939351	AE1-166 C O1	14.82
939352	AE1-166 E O1	13.68
939401	AE1-172 C O1	9.71
939402	AE1-172 E O1	45.45
939691	AE1-199	2.99
939701	AE1-201 C	2.51
939702	AE1-201 E	0.55
939732	AE1-204 E	0.37
939741	AE1-205 C O1	12.73
939742	AE1-205 E O1	17.58
939861	AE1-222 1	100.77
939871	AE1-222 2	101.86
939921	AE1-228 C O1	12.57
939922	AE1-228 E O1	8.38
939961	AE1-233 C O1	2.91
939962	AE1-233 E O1	12.02
940101	AE1-252 C O1	16.55
940102	AE1-252 E O1	11.03
AB2-013	AB2-013	20.27
AE1-033	AE1-033	22.58
BLUEG	BLUEG	8.03

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.98
CATAWBA	CATAWBA	0.39
CBM-S1	CBM-S1	1.88
CBM-W1	CBM-W1	38.11
CBM-W2	CBM-W2	72.48
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.96
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.75
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.49
MEC	MEC	47.56
O-066	O-066	9.26
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.96
WEC	WEC	9.96
Z1-043	Z1-043	36.25

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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
842595	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P4_#3128_05EUGENE 345_A2	breaker	1466.0	146.76	147.37	DC	19.84

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	6.24
274650	KINCAID ;1U	14.71
274651	KINCAID ;2U	14.73
274832	U4-027	8.54
274853	TWINGROVE;U1	0.74
274854	TWINGROVE;U2	0.74
274859	EASYR;U1 E	6.8
274860	EASYR;U2 E	6.8
274890	CAYUG;1U E	10.14
274891	CAYUG;2U E	10.14
276150	W2-048 E	2.05
290021	O50 E	10.78
290051	GSG-6; E	5.68
290108	LEEDK;1U E	12.4
290261	S-027 E	19.36
290265	S-028 E	19.36
293516	O-009 E1	6.47
293517	O-009 E2	3.29
293518	O-009 E3	3.62
293644	O22 E1	4.9
293645	O22 E2	9.51
293715	O-029 E	6.65
293716	O-029 E	3.65
293717	O-029 E	3.35
293771	O-035 E	5.18
294401	BSHIL;1U E	7.08
294410	BSHIL;2U E	7.08
294763	P-046 E	5.38
295109	WESTBROOK E	3.04
295111	SUBLETTE E	1.65
296125	R-030 C3	3.34
296128	R-030 E3	13.34
296271	R-030 C2	3.3
296272	R-030 E2	13.18
296308	R-030 C1	3.3
296309	R-030 E1	13.18
905081	W4-005 C	0.98
905082	W4-005 E	42.62
909052	X2-022 E	28.51
916211	Z1-072 E	3.92
916221	Z1-073 E	2.93

Bus #	Bus	MW Impact
917502	Z2-087 E	17.32
918052	AA1-018 E	7.91
919221	AA1-146	11.65
919581	AA2-030	11.65
919621	AA2-039 C	1.73
919622	AA2-039 E	11.55
920272	AA2-123 E	1.22
924041	AB2-047 C O1	3.3
924042	AB2-047 E O1	22.1
924261	AB2-070 C O1	3.84
924262	AB2-070 E O1	25.68
924471	AB2-096	21.83
925161	AB2-173	2.08
925302	AB2-191 E	0.75
925581	AC1-033 C	1.16
925582	AC1-033 E	7.76
925771	AC1-053 C	3.87
925772	AC1-053 E	25.93
926431	AC1-114	1.3
926821	AC1-168 C O1	0.83
926822	AC1-168 E O1	5.54
926841	AC1-171 C O1	1.14
926842	AC1-171 E O1	7.61
927201	AC1-214 C O1	1.66
927202	AC1-214 E O1	5.29
927511	AC1-113 1	0.65
927521	AC1-113 2	0.65
927531	AC1-185 1	0.43
927541	AC1-185 2	0.43
927551	AC1-185 3	0.43
927561	AC1-185 4	0.43
927571	AC1-185 5	0.43
927581	AC1-185 6	0.43
927591	AC1-185 7	0.43
927601	AC1-185 8	0.43
930481	AB1-089	35.32
930741	AB1-122 1O1	34.94
932881	AC2-115 1	1.3
932891	AC2-115 2	1.3
932921	AC2-116	0.45
933341	AC2-147 C	0.54
933342	AC2-147 E	0.88
933911	AD1-013 C	0.99
933912	AD1-013 E	1.59
933931	AD1-016 C	0.46
933932	AD1-016 E	0.76
934051	AD1-031 C O1	2.35
934052	AD1-031 E O1	3.84
934101	AD1-039 1	3.42
934401	AD1-064 C O1	1.64
934402	AD1-064 E O1	7.66
934431	AD1-067 C	0.07

Bus #	Bus	MW Impact
934432	AD1-067 E	0.3
934651	AD1-096 C	0.51
934652	AD1-096 E	0.83
934701	AD1-098 C O1	3.77
934702	AD1-098 E O1	2.75
934871	AD1-116 C	0.46
934872	AD1-116 E	0.75
934881	AD1-117 C	3.31
934882	AD1-117 E	2.21
934971	AD1-129 C	0.47
934972	AD1-129 E	0.31
935001	AD1-133 C O1	14.12
935002	AD1-133 E O1	9.41
935141	AD1-148	7.45
936291	AD2-038 C O1	1.34
936292	AD2-038 E O1	8.98
936511	AD2-066 C O1	4.76
936512	AD2-066 E O1	3.17
936771	AD2-100 C O1	21.12
936772	AD2-100 E O1	14.08
936791	AD2-102 C	6.72
936792	AD2-102 E	6.46
936972	AD2-131 E O1	8.38
937001	AD2-134 C	1.48
937002	AD2-134 E	6.13
937161	AD2-153 C O1	3.2
937162	AD2-153 E O1	15.0
937171	AD2-154 C O1	3.2
937172	AD2-154 E O1	15.0
937211	AD2-159 C	4.61
937212	AD2-159 E	21.56
937311	AD2-172 C	1.41
937312	AD2-172 E	1.95
937331	AD2-176 C O1	3.65
937332	AD2-176 E O1	2.44
937531	AD2-214 C	3.23
937532	AD2-214 E	1.52
938851	AE1-113 C O1	4.88
938852	AE1-113 E O1	15.33
938861	AE1-114 C O1	2.16
938862	AE1-114 E O1	8.27
939051	AE1-134 1	0.91
939061	AE1-134 2	0.91
939321	AE1-163 C O1	3.37
939322	AE1-163 E O1	20.72
939401	AE1-172 C O1	4.02
939402	AE1-172 E O1	18.81
939631	AE1-193 C O1	5.75
939632	AE1-193 E O1	38.49
939681	AE1-198 C O1	17.08
939682	AE1-198 E O1	14.51
939691	AE1-199	1.29

Bus #	Bus	MW Impact
939701	AE1-201 C	1.0
939702	AE1-201 E	0.22
939741	AE1-205 C O1	8.33
939742	AE1-205 E O1	11.5
939861	AE1-222 1	38.59
939921	AE1-228 C O1	5.41
939922	AE1-228 E O1	3.61
939961	AE1-233 C O1	1.15
939962	AE1-233 E O1	4.76
940101	AE1-252 C O1	6.85
940102	AE1-252 E O1	4.57
950291	J291	3.2
950701	J196 C	1.33
950702	J196 E	5.3
951001	J339	6.03
951741	J474 C	2.02
951742	J474 E	10.95
952251	J641	10.35
952271	J644	9.57
952321	J734	5.07
952651	J756 C	2.46
952652	J756 E	13.33
952871	J757 C	4.06
952872	J757 E	21.98
953241	J467 C	2.76
953242	J467 E	14.91
953371	J808	9.06
953401	J811	17.76
953431	J853	11.11
953641	J813	43.81
953651	J815	32.11
953671	J817	10.67
953741	J826 C	1.65
953742	J826 E	8.94
953801	J835 C	2.68
953802	J835 E	14.48
953851	J845 C	1.72
953852	J845 E	9.32
953881	J848 C	5.27
953882	J848 E	28.51
953951	J859	9.79
954081	J872 C	4.44
954082	J872 E	24.03
954181	J884	7.67
954411	J912	14.24
954681	J949	38.92
954721	J750 C	2.11
954722	J750 E	11.4
954761	J468 C	7.08
954762	J468 E	28.32
990901	L-005 E	11.18
AB2-013	AB2-013	13.3

Bus #	Bus	MW Impact
AE1-033	AE1-033	10.55
AE1-042	AE1-042	10.08
BLUEG	BLUEG	10.38
CARR	CARR	0.29
CBM-S1	CBM-S1	13.17
CBM-S2	CBM-S2	2.35
CBM-W1	CBM-W1	28.23
CBM-W2	CBM-W2	199.79
CIN	CIN	3.85
CPLE	CPLE	0.56
DEARBORN	DEARBORN	0.69
G-007	G-007	0.8
GIBSON	GIBSON	0.02
MEC	MEC	45.61
O-066	O-066	2.69
RENSSELAER	RENSSELAER	0.23
TRIMBLE	TRIMBLE	1.31
WEC	WEC	4.13
Z1-043	Z1-043	21.97

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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
232441	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	143.05	144.96	DC	35.31

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	33.0
274655	BRAIDWOOD;2U	31.46
274660	LASCO STA;1U	20.77
274661	LASCO STA;2U	20.81
274847	GR RIDGE ;BU	0.46
274853	TWINGROVE;U1	0.88
274854	TWINGROVE;U2	0.88
274863	CAYUGA RI;1U	1.14
274864	CAYUGA RI;2U	1.14
274871	GR RIDGE ;2U	0.59
274881	PLEAS RDG;2U	0.94
274887	PILOT HIL;1U	0.94
274888	PILOT HIL;1E	24.62
274890	CAYUG;1U E	29.8
274891	CAYUG;2U E	29.8
275149	KEMPTON ;1E	24.62
276150	W2-048 E	1.36
290261	S-027 E	23.06
290265	S-028 E	23.06
293061	N-015 E	12.12
294392	P-010 E	15.39
296125	R-030 C3	5.9
296128	R-030 E3	23.58
296271	R-030 C2	5.83
296272	R-030 E2	23.3
296308	R-030 C1	5.83
296309	R-030 E1	23.3
905081	W4-005 C	0.86
905082	W4-005 E	37.37
909052	X2-022 E	18.92
917501	Z2-087 C	0.7
917502	Z2-087 E	30.46
924041	AB2-047 C O1	5.59
924042	AB2-047 E O1	37.43
924261	AB2-070 C O1	2.78
924262	AB2-070 E O1	18.6
925771	AC1-053 C	2.73
925772	AC1-053 E	18.26
925881	AC1-067 O1	219.35
926821	AC1-168 C O1	0.64

Bus #	Bus	MW Impact
926822	AC1-168 E O1	4.29
930501	AB1-091 O1	110.96
933411	AC2-154 C	3.34
933412	AC2-154 E	5.45
934721	AD1-100 C	48.31
934722	AD1-100 E	225.47
935001	AD1-133 C O1	18.1
935002	AD1-133 E O1	12.07
935141	AD1-148	4.94
936371	AD2-047 C O1	2.99
936372	AD2-047 E O1	32.19
936461	AD2-060	3.52
936771	AD2-100 C O1	10.55
936772	AD2-100 E O1	7.04
936781	AD2-101 C	7.11
936782	AD2-101 E	33.27
936972	AD2-131 E O1	2.22
937121	AD2-148 C O1	5.34
937122	AD2-148 E O1	25.01
937131	AD2-149 C O1	5.34
937132	AD2-149 E O1	25.01
937141	AD2-150 C O1	5.34
937142	AD2-150 E O1	25.01
937161	AD2-153 C O1	3.8
937162	AD2-153 E O1	17.78
937171	AD2-154 C O1	3.8
937172	AD2-154 E O1	17.78
937181	AD2-155 C O1	5.34
937182	AD2-155 E O1	25.01
937211	AD2-159 C	4.04
937212	AD2-159 E	18.9
937321	AD2-175 C	24.89
937322	AD2-175 E	16.59
938012	AE1-002 E O1	29.83
939351	AE1-166 C O1	20.52
939352	AE1-166 E O1	18.94
939401	AE1-172 C O1	15.26
939402	AE1-172 E O1	71.45
939741	AE1-205 C O1	14.83
939742	AE1-205 E O1	20.48
940101	AE1-252 C O1	26.01
940102	AE1-252 E O1	17.34
951741	J474 C	1.71
951742	J474 E	9.28
953741	J826 C	1.0
953742	J826 E	5.4
954181	J884	8.88
AB2-013	AB2-013	5.61
BLUEG	BLUEG	0.01
CARR	CARR	0.27
CBM-S1	CBM-S1	2.75
CBM-S2	CBM-S2	0.06

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	5.33
CBM-W2	CBM-W2	48.81
CIN	CIN	2.54
DEARBORN	DEARBORN	1.27
G-007	G-007	0.73
HAMLET	HAMLET	0.06
IPL	IPL	1.1
LGEE	LGEE	0.03
MEC	MEC	13.64
O-066	O-066	2.47
RENSSELAER	RENSSELAER	0.21
TRIMBLE	TRIMBLE	0.04
WEC	WEC	1.22
Z1-043	Z1-043	14.81

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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
231741	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	109.72	112.28	DC	39.11

Bus #	Bus	MW Impact
274650	KINCAID ;1U	15.48
274651	KINCAID ;2U	15.51
274853	TWINGROVE;U1	2.3
274854	TWINGROVE;U2	2.3
274863	CAYUGA RI;1U	2.14
274864	CAYUGA RI;2U	2.14
900404	X3-028 C	78.36
905081	W4-005 C	2.19
917501	Z2-087 C	1.85
924041	AB2-047 C O1	14.84
924261	AB2-070 C O1	6.98
925771	AC1-053 C	6.83
926841	AC1-171 C O1	0.75
930461	AB1-087	28.73
930471	AB1-088	28.73
933441	AC2-157 C	3.97
935001	AD1-133 C O1	120.38
935141	AD1-148	12.29
936771	AD2-100 C O1	25.48
937161	AD2-153 C O1	9.91
937171	AD2-154 C O1	9.91
937211	AD2-159 C	10.33
939401	AE1-172 C O1	24.59
939741	AE1-205 C O1	39.11
940101	AE1-252 C O1	41.91
950701	J196 C	1.11
951001	J339	12.11
951741	J474 C	4.81
952271	J644	12.24
952321	J734	10.17
952651	J756 C	4.36
952871	J757 C	5.2
953241	J467 C	1.73
953401	J811	10.29
953651	J815	34.83
953741	J826 C	3.01
953801	J835 C	3.42
953851	J845 C	2.96
953881	J848 C	5.38
954081	J872 C	4.15

Bus #	Bus	MW Impact
954181	J884	24.98
954411	J912	13.29
954721	J750 C	3.3
954761	J468 C	3.94
AD2-098	AD2-098	0.45
AE1-042	AE1-042	5.79
CBM-N	CBM-N	0.66
CBM-S1	CBM-S1	9.87
CBM-S2	CBM-S2	3.13
CBM-W2	CBM-W2	111.77
CIN	CIN	10.82
CPLE	CPLE	1.12
DEARBORN	DEARBORN	0.52
EDWARDS	EDWARDS	0.05
G-007A	G-007A	2.18
IPL	IPL	5.9
LGEE	LGEE	1.65
MEC	MEC	2.66
NYISO	NYISO	2.85
O-066A	O-066A	1.01
TATANKA	TATANKA	0.42
VFT	VFT	5.85

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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
232415	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	150.23	152.15	DC	35.31

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	33.0
274655	BRAIDWOOD;2U	31.46
274660	LASCO STA;1U	20.77
274661	LASCO STA;2U	20.81
274847	GR RIDGE ;BU	0.46
274853	TWINGROVE;U1	0.88
274854	TWINGROVE;U2	0.88
274863	CAYUGA RI;1U	1.14
274864	CAYUGA RI;2U	1.14
274871	GR RIDGE ;2U	0.59
274881	PLEAS RDG;2U	0.94
274887	PILOT HIL;1U	0.94
274888	PILOT HIL;1E	24.62
274890	CAYUG;1U E	29.8
274891	CAYUG;2U E	29.8
275149	KEMPTON ;1E	24.62
276150	W2-048 E	1.36
290261	S-027 E	23.06
290265	S-028 E	23.06
293061	N-015 E	12.12
294392	P-010 E	15.39
296125	R-030 C3	5.9
296128	R-030 E3	23.58
296271	R-030 C2	5.83
296272	R-030 E2	23.3
296308	R-030 C1	5.83
296309	R-030 E1	23.3
905081	W4-005 C	0.86
905082	W4-005 E	37.37
909052	X2-022 E	18.92
917501	Z2-087 C	0.7
917502	Z2-087 E	30.46
924041	AB2-047 C O1	5.59
924042	AB2-047 E O1	37.43
924261	AB2-070 C O1	2.78
924262	AB2-070 E O1	18.6
925771	AC1-053 C	2.73
925772	AC1-053 E	18.26
925881	AC1-067 O1	219.35
930501	AB1-091 O1	110.96

Bus #	Bus	MW Impact
933411	AC2-154 C	3.34
933412	AC2-154 E	5.45
934721	AD1-100 C	48.31
934722	AD1-100 E	225.47
935001	AD1-133 C O1	18.1
935002	AD1-133 E O1	12.07
935141	AD1-148	4.94
936371	AD2-047 C O1	2.99
936372	AD2-047 E O1	32.19
936461	AD2-060	3.52
936771	AD2-100 C O1	10.55
936772	AD2-100 E O1	7.04
936781	AD2-101 C	7.11
936782	AD2-101 E	33.27
936972	AD2-131 E O1	2.22
937031	AD2-137 C O1	18.53
937032	AD2-137 E O1	86.74
937121	AD2-148 C O1	5.34
937122	AD2-148 E O1	25.01
937131	AD2-149 C O1	5.34
937132	AD2-149 E O1	25.01
937141	AD2-150 C O1	5.34
937142	AD2-150 E O1	25.01
937161	AD2-153 C O1	3.8
937162	AD2-153 E O1	17.78
937171	AD2-154 C O1	3.8
937172	AD2-154 E O1	17.78
937181	AD2-155 C O1	5.34
937182	AD2-155 E O1	25.01
937211	AD2-159 C	4.04
937212	AD2-159 E	18.9
937321	AD2-175 C	24.89
937322	AD2-175 E	16.59
938012	AE1-002 E O1	70.17
939351	AE1-166 C O1	20.52
939352	AE1-166 E O1	18.94
939401	AE1-172 C O1	15.26
939402	AE1-172 E O1	71.45
939741	AE1-205 C O1	14.83
939742	AE1-205 E O1	20.48
940101	AE1-252 C O1	26.01
940102	AE1-252 E O1	17.34
951741	J474 C	1.71
951742	J474 E	9.28
954181	J884	8.88
AB2-013	AB2-013	5.61
BLUEG	BLUEG	0.01
CARR	CARR	0.27
CBM-S1	CBM-S1	2.75
CBM-S2	CBM-S2	0.06
CBM-W1	CBM-W1	5.33
CBM-W2	CBM-W2	48.81

Bus #	Bus	MW Impact
CIN	CIN	2.54
DEARBORN	DEARBORN	1.27
G-007	G-007	0.73
HAMLET	HAMLET	0.06
IPL	IPL	1.1
LGEE	LGEE	0.03
MEC	MEC	13.64
O-066	O-066	2.47
RENSSELAER	RENSSELAER	0.21
TRIMBLE	TRIMBLE	0.04
WEC	WEC	1.22
Z1-043	Z1-043	14.81

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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
231698	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	115.71	118.5	DC	42.48

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.25
274651	KINCAID ;2U	17.28
274853	TWINGROVE;U1	2.5
274854	TWINGROVE;U2	2.5
274863	CAYUGA RI;1U	2.82
274864	CAYUGA RI;2U	2.82
900404	X3-028 C	84.69
905081	W4-005 C	2.39
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.06
924261	AB2-070 C O1	7.65
925771	AC1-053 C	7.49
926841	AC1-171 C O1	0.96
930461	AB1-087	31.05
930471	AB1-088	31.05
933441	AC2-157 C	4.29
935001	AD1-133 C O1	90.83
935141	AD1-148	13.51
936771	AD2-100 C O1	28.25
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.3
939401	AE1-172 C O1	35.5
939741	AE1-205 C O1	42.48
940101	AE1-252 C O1	60.51
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43

Bus #	Bus	MW Impact
954181	J884	26.75
954411	J912	14.21
954721	J750 C	3.62
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.61
CBM-N	CBM-N	0.57
CBM-S1	CBM-S1	11.07
CBM-S2	CBM-S2	3.34
CBM-W2	CBM-W2	129.48
CIN	CIN	11.59
CPLE	CPLE	1.17
DEARBORN	DEARBORN	0.85
G-007A	G-007A	1.93
IPL	IPL	6.27
LGEE	LGEE	1.7
MEC	MEC	9.12
NYISO	NYISO	2.48
O-066A	O-066A	0.9
VFT	VFT	5.19

Affected Systems

MISO

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

Contingency Name	Contingency Definition
COMED_P1-2_345-L11212_B-S-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-A' TRIP BRANCH FROM BUS 270926 TO BUS 937030 CKT 1 / WILTO; B 345 AD2-137 TAP 345 END
AEP_P1-2_#8907	CONTINGENCY 'AEP_P1-2_#8907' OPEN BRANCH FROM BUS 247712 TO BUS 346809 CKT 1 / 247712 05SULLIVAN 345 346809 7CASEY 345 1 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
AEP_P1-2_#286	CONTINGENCY 'AEP_P1-2_#286' OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_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_P1-2_345-L11212_B-S-C-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-C-A' TRIP BRANCH FROM BUS 934720 TO BUS 939400 CKT 1 / AD1-100 TAP 345 AE1-172 TAP 345 END
COMED_P1-2_345-L11212_B-S-C-B	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-C-B' TRIP BRANCH FROM BUS 939400 TO BUS 270704 CKT 1 / AE1-172 TAP 345 LORET; B 345 END
AEP_P4_#3128_05EUGENE 345_A2	CONTINGENCY 'AEP_P4_#3128_05EUGENE 345_A2' OPEN BRANCH FROM BUS 243221 TO BUS 249504 CKT 1 / 243221 05EUGENE 345 249504 08CAYSUB 345 1 OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_P7_345-L2001__B-S_+_345-L2003__R-S	CONTINGENCY 'COMED_P7_345-L2001__B-S_+_345-L2003__R-S' TRIP BRANCH FROM BUS 270670 TO BUS 270728 CKT 1 / BRAID; B 345 E FRA; B 345 TRIP BRANCH FROM BUS 270728 TO BUS 270766 CKT 1 / E FRA; B 345 GOODI;3B 345 TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRA; B 345 CRETE;BP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAID; R 345 E FRA; R 345 END
COMED_P1-2_345-L8014___-S-A	CONTINGENCY 'COMED_P1-2_345-L8014___-S-A' TRIP BRANCH FROM BUS 270853 TO BUS 935000 CKT 1 / PONTIAC ; R 345 AD1-133 TAP 345 END

Contingency Name	Contingency Definition
COMED_P1-2_345-L8014___-S-B	CONTINGENCY 'COMED_P1-2_345-L8014___-S-B' TRIP BRANCH FROM BUS 935000 TO BUS 270717 CKT 1 / AD1-133 TAP 345 DRESDEN ; R 345 END
COMED_P1-2_345-L1223_TR-S	CONTINGENCY 'COMED_P1-2_345-L1223_TR-S' TRIP BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / DRESD; R 345 ELECT;4R 345 TRIP BRANCH FROM BUS 275180 TO BUS 270717 CKT 1 / DRESD;3M 138 DRESD; R 345 TRIP BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / DRESD;3M 138 DRESD; B 138 TRIP BRANCH FROM BUS 275180 TO BUS 275280 CKT 1 / DRESD;3M 138 DRESD;3C 34.5 END
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
Base Case	
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
COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	CONTINGENCY 'COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A' TRIP BRANCH FROM BUS 270675 TO BUS 925880 CKT 1 / BURNHAM ;1R 345 AC1-067 TAP 345 TRIP BRANCH FROM BUS 270662 TO BUS 936780 CKT 1 / BLOOM ; B 345 AD2-101 TAP 345 TRIP BRANCH FROM BUS 270662 TO BUS 271098 TO BUS 275258 CKT 1 / BLOOM ; B 345 BLOOM ; B 138 BLOOM ;4C 34.5 END
COMED_P4_111-45-L1223T_	CONTINGENCY 'COMED_P4_111-45-L1223T_' TRIP BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / DRESDEN ; R 345 ELEC JUNC;4R 345 TRIP BRANCH FROM BUS 275180 TO BUS 270717 CKT 1 / DRESDEN ;3M 138 DRESDEN ; R 345 TRIP BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / DRESDEN ;3M 138 DRESDEN ; B 138 TRIP BRANCH FROM BUS 275180 TO BUS 275280 CKT 1 / DRESDEN ;3M 138 DRESDEN ;3C 34.5 DISCONNECT BUS 270731 / ELEC JUNC;4R 345 DISCONNECT BUS 275184 / ELEC JUNC;4M 138 END
AEP_P4_#8805_05OLIVE 345_D	CONTINGENCY 'AEP_P4_#8805_05OLIVE 345_D' OPEN BRANCH FROM BUS 243229 TO BUS 932600 CKT 1 / 243229 05OLIVE 345 932600 AC2-080 TAP 345 1 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK N;RP 345 1 END
COMED_P4_112-65-BT2-3__	CONTINGENCY 'COMED_P4_112-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END

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_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
AEP_P1-2_#697A	CONTINGENCY 'AEP_P1-2_#697A' OPEN BRANCH FROM BUS 243229 TO BUS 274804 CKT 1 / 243229 05OLIVE 345 274804 UNIV PK N;RP 345 1 END

Short Circuit

No issues identified

Secondary POI Network Impacts

The Queue Project AE1-205 was evaluated as a 200 MW (Capacity 84 MW) injection at the AB2-047 Tap which is a tap of the Pontiac; R to Brokaw 345 kV line in the ComEd area. Project AE1-205 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-205 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

Generation Deliverability

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

None

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
229509	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L6608__R-S	tower	4105.0	102.03	102.29	DC	54.96
555523	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L6608__R-S	tower	4105.0	102.03	102.29	DC	54.96
228332	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	100.54	101.2	DC	22.23
228314	270804	LATHAM ; T	CE	905080	W4-005 TAP	CE	1	COMED_P4_080-45-BT7-8_FSA	breaker	1334.0	99.53	101.75	DC	29.68

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
229507	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.22	105.57	DC	54.72

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
555521	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.22	105.57	DC	54.72
228165	270668	BLUEMOUND ; B	CE	270852	PONTIAC ; B	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1528.0	132.39	134.58	DC	33.5
228168	270668	BLUEMOUND ; B	CE	270852	PONTIAC ; B	CE	1	COMED_P4_080-45-BT7-8_FSA	breaker	1528.0	117.86	119.79	DC	29.55
228639	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	113.97	116.69	DC	41.51
228640	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	108.99	111.71	DC	41.51
228215	270796	KINCAID ; B	CE	347955	7AUSTIN	AMIL	1	COMED_P4_080-45-BT7-8_FSA	breaker	956.0	123.0	126.99	DC	38.29
228216	270796	KINCAID ; B	CE	347955	7AUSTIN	AMIL	1	COMED_P4_080-45-BT4-5__	breaker	956.0	124.45	126.56	DC	20.57
228311	270804	LATHAM ; T	CE	905080	W4-005 TAP	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1334.0	114.23	116.75	DC	33.64
228665	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	112.56	115.3	DC	41.54
228666	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	106.69	109.43	DC	41.54
228672	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	101.97	104.49	DC	38.35
228673	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-B	single	1528.0	100.63	103.15	DC	38.35
228001	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.84	167.18	DC	29.23
228004	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.08	165.6	DC	29.82
228003	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.84	167.18	DC	29.23
228006	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.08	165.6	DC	29.82
553767	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P4_#3128_05EUGENE 345_A2	breaker	1466.0	146.77	148.17	DC	20.33
228146	905080	W4-005 TAP	CE	270668	BLUEMOUND ; B	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1334.0	133.53	136.04	DC	33.59
228149	905080	W4-005 TAP	CE	270668	BLUEMOUND ; B	CE	1	COMED_P4_080-45-BT7-8_FSA	breaker	1334.0	118.0	120.22	DC	29.63
228680	917500	Z2-087 TAP	CE	270853	PONTIAC ; R	CE	1	COMED_P1-2_345-L8002___-S	single	1528.0	113.58	117.29	DC	56.53
228681	917500	Z2-087 TAP	CE	270853	PONTIAC ; R	CE	1	COMED_P1-2_345-L17802__-S	single	1528.0	111.21	114.92	DC	56.55
228695	924040	AB2-047 TAP	CE	917500	Z2-087 TAP	CE	1	COMED_P1-2_345-L8002___-S	single	1528.0	112.86	116.57	DC	56.55
228696	924040	AB2-047 TAP	CE	917500	Z2-087 TAP	CE	1	COMED_P1-2_345-L17802__-S	single	1528.0	110.49	114.2	DC	56.56
229347	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	143.04	144.91	DC	34.42
229348	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S	tower	1846.0	140.46	142.38	DC	35.53
228646	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	109.71	112.23	DC	38.35
228647	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-B	single	1528.0	108.13	110.64	DC	38.35
229316	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	150.23	152.1	DC	34.42
229317	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L2001__B-S_+_345-L2003__R-S	tower	1846.0	147.99	149.92	DC	35.53
228603	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	115.7	118.43	DC	41.51
228604	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-A	single	1528.0	110.38	113.1	DC	41.51

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
229092	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	106.43	106.73	DC	47.52
555020	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	106.43	106.73	DC	47.52
228634	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	201.45	207.92	DC	98.84
228636	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	Base Case	operation	1364.0	150.27	155.2	DC	67.23
229006	270717	DRESDEN ; R	CE	270737	ELWOOD ; R	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1479.0	99.22	100.92	DC	25.04
229037	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P1-2_345-L1223_TR-S	operation	1528.0	100.4	101.06	DC	22.26
228922	270796	KINCAID ; B	CE	347955	7AUSTIN	AMIL	1	COMED_P1-2_345-L11212_B-S-C-A	operation	956.0	121.56	124.34	DC	26.79
228660	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	190.84	197.33	DC	98.9
228662	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	Base Case	operation	1364.0	137.69	142.62	DC	67.29
228667	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-A	operation	1528.0	184.03	190.01	DC	91.3
228671	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	Base Case	operation	1334.0	124.03	128.17	DC	55.25
229119	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	104.73	104.95	DC	18.36
229091	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	106.47	106.8	DC	19.22
554655	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P1-2_#286	operation	1466.0	141.14	142.55	DC	20.36
554656	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	Base Case	operation	1334.0	124.95	125.48	DC	15.5
555130	348885	7BUNSONVILLE	AMIL	243221	05EUGENE	AEP	1	AEP_P1-2_#8907	operation	1793.0	103.13	104.09	DC	22.65
228675	917500	Z2-087 TAP	CE	270853	PONTIAC ; R	CE	1	COMED_P1-2_345-L8002___-S	operation	1528.0	172.06	180.88	DC	134.6
228679	917500	Z2-087 TAP	CE	270853	PONTIAC ; R	CE	1	Base Case	operation	1334.0	139.99	151.12	DC	148.45
228690	924040	AB2-047 TAP	CE	917500	Z2-087 TAP	CE	1	COMED_P1-2_345-L8002___-S	operation	1528.0	163.5	172.32	DC	134.63
228694	924040	AB2-047 TAP	CE	917500	Z2-087 TAP	CE	1	Base Case	operation	1334.0	130.83	141.96	DC	148.47

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
228748	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	158.47	161.46	DC	45.66
228752	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	Base Case	operation	1364.0	141.16	143.52	DC	32.18
229147	934730	AD1-100 TAP	CE	270670	BRAIDWOOD; B	CE	1	COMED_P1-2_345-L11212_B-S-A	operation	1528.0	96.89	99.63	DC	41.97
228641	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	operation	1528.0	197.02	203.0	DC	91.3
228644	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	Base Case	operation	1334.0	136.7	140.84	DC	55.25
228723	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	165.18	168.16	DC	45.66
228727	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	Base Case	operation	1364.0	151.05	153.41	DC	32.18
228598	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	operation	1528.0	213.0	219.47	DC	98.84
228600	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	Base Case	operation	1364.0	162.34	167.27	DC	67.23

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.

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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
555521	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L6607__B-S_+_345-L97008_R-S	tower	4105.0	105.22	105.57	DC	54.72

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	32.21
274722	S-055 E	29.58
274772	LINCOLN ;3U	4.7
274773	LINCOLN ;4U	4.7
274774	LINCOLN ;5U	4.7
274775	LINCOLN ;6U	4.7
274776	LINCOLN ;7U	4.7
274777	LINCOLN ;8U	4.7
274832	U4-027	28.1
274859	EASYR;U1 E	29.17
274860	EASYR;U2 E	29.17
274888	PILOT HIL;1E	44.36
274890	CAYUG;1U E	36.12
274891	CAYUG;2U E	36.12
275149	KEMPTON ;1E	44.36
290021	O50 E	49.31
290051	GSG-6; E	28.12
290108	LEEDK;1U E	65.65
293061	N-015 E	41.27
293516	O-009 E1	23.83
293517	O-009 E2	12.1
293518	O-009 E3	13.33
293644	O22 E1	25.34
293645	O22 E2	49.19
293715	O-029 E	25.82
293716	O-029 E	14.15
293717	O-029 E	13.01
293771	O-035 E	16.52
294392	P-010 E	52.41
294401	BSHIL;1U E	22.13
294410	BSHIL;2U E	22.13
294763	P-046 E	24.91
295109	WESTBROOK E	15.05
295111	SUBLETTE E	6.88
296125	R-030 C3	9.32
296128	R-030 E3	37.3
296271	R-030 C2	9.21
296272	R-030 E2	36.85
296308	R-030 C1	9.21
296309	R-030 E1	36.85

Bus #	Bus	MW Impact
910542	X3-005 E	1.58
914641	Y2-103	118.34
915011	Y3-013 1	9.86
915021	Y3-013 2	9.86
915031	Y3-013 3	9.86
916211	Z1-072 E	12.5
916221	Z1-073 E	14.51
916502	Z1-106 E1	3.41
916504	Z1-106 E2	3.41
916512	Z1-107 E	6.53
916522	Z1-108 E	6.63
917502	Z2-087 E	48.2
918052	AA1-018 E	40.46
919221	AA1-146	46.56
919581	AA2-030	46.56
919621	AA2-039 C	5.39
919622	AA2-039 E	36.1
920272	AA2-123 E	6.51
924041	AB2-047 C O1	8.89
924042	AB2-047 E O1	59.51
924471	AB2-096	112.75
925161	AB2-173	8.3
925302	AB2-191 E	3.72
925581	AC1-033 C	3.62
925582	AC1-033 E	24.26
926311	AC1-109 1	5.22
926321	AC1-109 2	5.22
926331	AC1-110 1	5.13
926341	AC1-110 2	5.13
926351	AC1-111 1	2.07
926361	AC1-111 2	2.07
926371	AC1-111 3	2.07
926381	AC1-111 4	2.07
926391	AC1-111 5	2.07
926401	AC1-111 6	2.07
926431	AC1-114	6.33
926821	AC1-168 C O1	2.99
926822	AC1-168 E O1	20.04
927091	AC1-204 1	184.51
927101	AC1-204 2	184.55
927201	AC1-214 C O1	5.3
927202	AC1-214 E O1	16.85
927451	AC1-142A 1	10.62
927461	AC1-142A 2	10.62
927511	AC1-113 1	3.17
927521	AC1-113 2	3.17
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

Bus #	Bus	MW Impact
927591	AC1-185 7	1.82
927601	AC1-185 8	1.82
930481	AB1-089	175.38
930501	AB1-091 O1	174.2
930741	AB1-122 1O1	195.19
930751	AB1-122 2O1	188.91
932881	AC2-115 1	6.33
932891	AC2-115 2	6.33
932921	AC2-116	2.22
932931	AC2-117	14.97
933341	AC2-147 C	2.31
933342	AC2-147 E	3.78
933411	AC2-154 C	6.02
933412	AC2-154 E	9.82
933431	AC2-156 C O1	2.64
933432	AC2-156 E O1	4.3
933911	AD1-013 C	4.95
933912	AD1-013 E	7.91
933931	AD1-016 C	2.48
933932	AD1-016 E	4.04
934051	AD1-031 C O1	7.36
934052	AD1-031 E O1	12.0
934101	AD1-039 1	19.13
934111	AD1-039 2	18.51
934401	AD1-064 C O1	8.57
934402	AD1-064 E O1	40.14
934431	AD1-067 C	0.35
934432	AD1-067 E	1.48
934651	AD1-096 C	2.37
934652	AD1-096 E	3.87
934701	AD1-098 C O1	18.49
934702	AD1-098 E O1	13.5
934721	AD1-100 C	51.1
934722	AD1-100 E	238.47
934871	AD1-116 C	2.36
934872	AD1-116 E	3.84
934881	AD1-117 C	14.25
934882	AD1-117 E	9.5
934971	AD1-129 C	2.41
934972	AD1-129 E	1.61
935001	AD1-133 C O1	56.03
935002	AD1-133 E O1	37.35
936291	AD2-038 C O1	5.87
936292	AD2-038 E O1	39.26
936371	AD2-047 C O1	5.39
936372	AD2-047 E O1	57.98
936461	AD2-060	6.34
936511	AD2-066 C O1	21.5
936512	AD2-066 E O1	14.33
936781	AD2-101 C	10.69
936782	AD2-101 E	50.05
936791	AD2-102 C	31.93

Bus #	Bus	MW Impact
936792	AD2-102 E	30.68
936961	AD2-130	1.41
937001	AD2-134 C	7.35
937002	AD2-134 E	30.37
937031	AD2-137 C O1	10.27
937032	AD2-137 E O1	48.06
937051	AD2-140 C O1	10.51
937052	AD2-140 E O1	49.22
937061	AD2-141 C O1	10.45
937062	AD2-141 E O1	49.28
937071	AD2-142 C O1	21.03
937072	AD2-142 E O1	98.44
937121	AD2-148 C O1	8.36
937122	AD2-148 E O1	39.16
937131	AD2-149 C O1	8.36
937132	AD2-149 E O1	39.16
937141	AD2-150 C O1	8.36
937142	AD2-150 E O1	39.16
937181	AD2-155 C O1	8.36
937182	AD2-155 E O1	39.16
937311	AD2-172 C	6.54
937312	AD2-172 E	9.03
937321	AD2-175 C	38.97
937322	AD2-175 E	25.98
937331	AD2-176 C O1	19.55
937332	AD2-176 E O1	13.03
937401	AD2-194 1	19.84
937411	AD2-194 2	19.85
937531	AD2-214 C	11.62
937532	AD2-214 E	5.47
938012	AE1-002 E O1	20.61
938511	AE1-070 1	23.31
938521	AE1-070 2	21.33
938851	AE1-113 C O1	21.78
938852	AE1-113 E O1	68.46
938861	AE1-114 C O1	9.47
938862	AE1-114 E O1	36.21
939051	AE1-134 1	3.62
939061	AE1-134 2	3.62
939321	AE1-163 C O1	14.71
939322	AE1-163 E O1	90.37
939351	AE1-166 C O1	26.3
939352	AE1-166 E O1	24.28
939401	AE1-172 C O1	16.59
939402	AE1-172 E O1	77.68
939631	AE1-193 C O1	17.98
939632	AE1-193 E O1	120.33
939681	AE1-198 C O1	53.39
939682	AE1-198 E O1	45.36
939691	AE1-199	6.43
939701	AE1-201 C	5.34
939702	AE1-201 E	1.17

Bus #	Bus	MW Impact
939732	AE1-204 E	0.77
939741	AE1-205 C O1	22.98
939742	AE1-205 E O1	31.74
939861	AE1-222 1	215.56
939871	AE1-222 2	208.62
939921	AE1-228 C O1	26.65
939922	AE1-228 E O1	17.77
939961	AE1-233 C O1	6.29
939962	AE1-233 E O1	26.0
940101	AE1-252 C O1	27.09
940102	AE1-252 E O1	18.06
990901	L-005 E	20.34
AB2-013	AB2-013	41.13
AE1-033	AE1-033	47.76
BLUEG	BLUEG	16.6
CALDERWOOD	CALDERWOOD	0.21
CANNELTON	CANNELTON	0.24
CARR	CARR	1.95
CATAWBA	CATAWBA	0.78
CBM-S1	CBM-S1	3.58
CBM-W1	CBM-W1	77.21
CBM-W2	CBM-W2	141.69
CHEOAH	CHEOAH	0.22
CHILHOWEE	CHILHOWEE	0.06
DEARBORN	DEARBORN	6.39
ELMERSMITH	ELMERSMITH	0.25
G-007	G-007	5.48
GIBSON	GIBSON	0.07
HAMLET	HAMLET	2.97
MEC	MEC	98.4
O-066	O-066	18.45
RENSSELAER	RENSSELAER	1.54
SANTEETLA	SANTEETLA	0.07
TRIMBLE	TRIMBLE	1.97
WEC	WEC	20.97
Z1-043	Z1-043	73.98

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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
228332	270717	DRESDEN ; R	CE	270697	COLLINS ; R	CE	1	COMED_P4_111-45-L1223T_	breaker	1528.0	100.54	101.2	DC	22.23

Bus #	Bus	MW Impact
274659	DRESDEN ;3U	42.28
274729	ELWOOD EC;1P	2.69
274731	ELWOOD EC;2P	2.69
274733	ELWOOD EC;3P	2.69
274735	ELWOOD EC;4P	2.69
274736	ELWOOD EC;9P	2.66
274890	CAYUG;1U E	9.67
274891	CAYUG;2U E	9.67
276150	W2-048 E	0.97
290021	O50 E	11.1
290261	S-027 E	15.15
290265	S-028 E	15.15
296125	R-030 C3	3.8
296128	R-030 E3	15.19
296271	R-030 C2	3.75
296272	R-030 E2	15.01
296308	R-030 C1	3.75
296309	R-030 E1	15.01
905082	W4-005 E	25.39
909052	X2-022 E	13.53
917502	Z2-087 E	19.63
924041	AB2-047 C O1	3.61
924042	AB2-047 E O1	24.18
924261	AB2-070 C O1	1.95
924262	AB2-070 E O1	13.08
925771	AC1-053 C	1.93
925772	AC1-053 E	12.91
926841	AC1-171 C O1	0.6
926842	AC1-171 E O1	4.0
927091	AC1-204 1	64.57
927101	AC1-204 2	65.35
930741	AB1-122 1O1	173.78
930751	AB1-122 2O1	33.89
934101	AD1-039 1	17.03
934111	AD1-039 2	3.32
935001	AD1-133 C O1	39.0
935002	AD1-133 E O1	26.0
935141	AD1-148	3.54
936291	AD2-038 C O1	1.13
936292	AD2-038 E O1	7.56
936771	AD2-100 C O1	7.92

Bus #	Bus	MW Impact
936772	AD2-100 E O1	5.28
936972	AD2-131 E O1	1.67
937161	AD2-153 C O1	2.52
937162	AD2-153 E O1	11.79
937171	AD2-154 C O1	2.52
937172	AD2-154 E O1	11.79
937211	AD2-159 C	2.74
937212	AD2-159 E	12.84
937401	AD2-194 1	6.94
937411	AD2-194 2	7.03
938511	AE1-070 1	8.16
938521	AE1-070 2	7.55
938851	AE1-113 C O1	4.19
938852	AE1-113 E O1	13.18
939321	AE1-163 C O1	3.11
939322	AE1-163 E O1	19.12
939401	AE1-172 C O1	3.31
939402	AE1-172 E O1	15.48
939741	AE1-205 C O1	9.34
939742	AE1-205 E O1	12.89
939861	AE1-222 1	191.92
939871	AE1-222 2	37.43
940101	AE1-252 C O1	7.26
940102	AE1-252 E O1	4.84
951741	J474 C	1.23
951742	J474 E	6.63
952651	J756 C	1.67
952652	J756 E	9.05
954181	J884	6.11
AB2-013	AB2-013	11.51
CARR	CARR	0.16
CBM-S1	CBM-S1	2.68
CBM-S2	CBM-S2	0.28
CBM-W1	CBM-W1	3.41
CBM-W2	CBM-W2	44.28
CIN	CIN	2.13
CPLE	CPLE	0.02
DEARBORN	DEARBORN	0.86
G-007	G-007	0.45
IPL	IPL	0.97
LGEE	LGEE	0.09
MEC	MEC	12.36
O-066	O-066	1.51
RENSSELAER	RENSSELAER	0.13
Z1-043	Z1-043	11.82

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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
228311	270804	LATHAM ; T	CE	905080	W4-005 TAP	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1334.0	114.23	116.75	DC	33.64

Bus #	Bus	MW Impact
274650	KINCAID ;1U	14.5
274651	KINCAID ;2U	14.54
276150	W2-048 E	2.27
909052	X2-022 E	31.55
916512	Z1-107 E	1.34
924041	AB2-047 C O1	5.47
924042	AB2-047 E O1	36.58
924261	AB2-070 C O1	4.38
924262	AB2-070 E O1	29.28
925771	AC1-053 C	4.38
925772	AC1-053 E	29.28
935141	AD1-148	8.25
936771	AD2-100 C O1	25.63
936772	AD2-100 E O1	17.09
936972	AD2-131 E O1	10.17
937161	AD2-153 C O1	4.44
937162	AD2-153 E O1	20.79
937171	AD2-154 C O1	4.44
937172	AD2-154 E O1	20.79
938012	AE1-002 E O1	4.19
939741	AE1-205 C O1	14.13
939742	AE1-205 E O1	19.51
940103	AE1-252 EBAT	14.13
950291	J291	3.48
950701	J196 C	0.8
950702	J196 E	3.21
951001	J339	7.49
951741	J474 C	3.47
951742	J474 E	18.76
952251	J641	11.03
952271	J644	11.28
952321	J734	6.29
952651	J756 C	4.08
952652	J756 E	22.09
952871	J757 C	4.84
952872	J757 E	26.18
953241	J467 C	1.47
953242	J467 E	7.98
953401	J811	9.03
953651	J815	31.39

Bus #	Bus	MW Impact
953741	J826 C	1.93
953742	J826 E	10.44
953801	J835 C	3.19
953802	J835 E	17.25
953851	J845 C	1.89
953852	J845 E	10.25
953881	J848 C	4.84
953882	J848 E	26.16
954081	J872 C	3.71
954082	J872 E	20.05
954181	J884	14.24
954411	J912	11.88
954681	J949	14.32
954721	J750 C	2.93
954722	J750 E	15.83
954761	J468 C	3.11
954762	J468 E	12.45
CBM-N	CBM-N	0.55
CBM-S1	CBM-S1	8.94
CBM-S2	CBM-S2	2.79
CBM-W2	CBM-W2	101.09
CIN	CIN	9.06
CPLE	CPLE	0.99
DEARBORN	DEARBORN	0.52
G-007A	G-007A	1.82
IPL	IPL	4.97
LGEE	LGEE	1.4
MEC	MEC	5.83
NYISO	NYISO	2.37
O-066A	O-066A	0.85
VFT	VFT	4.9

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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
228165	270668	BLUEMOUND; B	CE	270852	PONTIAC ; B	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1528.0	132.39	134.58	DC	33.5

Bus #	Bus	MW Impact
274650	KINCAID ;1U	14.44
274651	KINCAID ;2U	14.48
274853	TWINGROVE;U1	3.46
274854	TWINGROVE;U2	3.46
276150	W2-048 E	2.26
290261	S-027 E	90.33
290265	S-028 E	90.33
905081	W4-005 C	2.96
905082	W4-005 E	129.18
909052	X2-022 E	31.43
916512	Z1-107 E	1.35
924041	AB2-047 C O1	5.44
924042	AB2-047 E O1	36.43
924261	AB2-070 C O1	4.36
924262	AB2-070 E O1	29.16
925771	AC1-053 C	4.36
925772	AC1-053 E	29.16
935141	AD1-148	8.21
936771	AD2-100 C O1	25.55
936772	AD2-100 E O1	17.03
936972	AD2-131 E O1	10.14
937161	AD2-153 C O1	4.42
937162	AD2-153 E O1	20.71
937171	AD2-154 C O1	4.42
937172	AD2-154 E O1	20.71
937211	AD2-159 C	13.96
937212	AD2-159 E	65.35
938012	AE1-002 E O1	4.22
939741	AE1-205 C O1	14.07
939742	AE1-205 E O1	19.43
940103	AE1-252 EBAT	14.18
950291	J291	3.48
950701	J196 C	0.8
950702	J196 E	3.21
951001	J339	7.49
951741	J474 C	3.47
951742	J474 E	18.76
952251	J641	11.03
952271	J644	11.28
952321	J734	6.29
952651	J756 C	4.08

Bus #	Bus	MW Impact
952652	J756 E	22.09
952871	J757 C	4.84
952872	J757 E	26.18
953241	J467 C	1.47
953242	J467 E	7.98
953401	J811	9.03
953651	J815	31.39
953741	J826 C	1.93
953742	J826 E	10.44
953801	J835 C	3.19
953802	J835 E	17.25
953851	J845 C	1.89
953852	J845 E	10.25
953881	J848 C	4.84
953882	J848 E	26.16
954081	J872 C	3.71
954082	J872 E	20.05
954181	J884	14.24
954411	J912	11.88
954681	J949	14.32
954721	J750 C	2.93
954722	J750 E	15.83
954761	J468 C	3.11
954762	J468 E	12.45
CBM-N	CBM-N	0.5
CBM-S1	CBM-S1	8.73
CBM-S2	CBM-S2	2.68
CBM-W2	CBM-W2	99.51
CIN	CIN	8.9
CPLE	CPLE	0.95
DEARBORN	DEARBORN	0.57
G-007A	G-007A	1.66
IPL	IPL	4.86
LGEE	LGEE	1.35
MEC	MEC	5.52
NYISO	NYISO	2.15
O-066A	O-066A	0.77
VFT	VFT	4.46

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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
228639	270704	LORETTO ; B	CE	939400	AE1-172 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	113.97	116.69	DC	41.51

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.25
274651	KINCAID ;2U	17.28
274853	TWINGROVE;U1	2.5
274854	TWINGROVE;U2	2.5
274863	CAYUGA RI;1U	2.82
274864	CAYUGA RI;2U	2.82
900404	X3-028 C	84.69
905081	W4-005 C	2.39
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.06
924261	AB2-070 C O1	7.65
925771	AC1-053 C	7.49
926841	AC1-171 C O1	0.96
930461	AB1-087	31.05
930471	AB1-088	31.05
933441	AC2-157 C	4.29
935001	AD1-133 C O1	90.83
935141	AD1-148	13.51
936771	AD2-100 C O1	28.25
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.3
939741	AE1-205 C O1	41.51
940101	AE1-252 C O1	55.08
950291	J291	4.24
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43

Bus #	Bus	MW Impact
954181	J884	26.75
954411	J912	14.21
954721	J750 C	3.62
954761	J468 C	4.06
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.61
CBM-N	CBM-N	0.57
CBM-S1	CBM-S1	11.07
CBM-S2	CBM-S2	3.34
CBM-W2	CBM-W2	129.48
CIN	CIN	11.59
CPLE	CPLE	1.17
DEARBORN	DEARBORN	0.85
G-007A	G-007A	1.93
IPL	IPL	6.27
LGEE	LGEE	1.7
MEC	MEC	9.12
NYISO	NYISO	2.48
O-066A	O-066A	0.9
VFT	VFT	5.19

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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
228216	270796	KINCAID ; B	CE	347955	7AUSTIN	AMIL	1	COMED_P4_080-45-BT4-5__	breaker	956.0	124.45	126.56	DC	20.57

Bus #	Bus	MW Impact
274650	KINCAID ;1U	34.26
274651	KINCAID ;2U	34.63
274853	TWINGROVE;U1	1.61
274854	TWINGROVE;U2	1.61
276150	W2-048 E	3.12
290261	S-027 E	42.09
290265	S-028 E	42.09
296125	R-030 C3	3.34
296128	R-030 E3	13.36
296271	R-030 C2	3.3
296272	R-030 E2	13.2
296308	R-030 C1	3.3
296309	R-030 E1	13.2
905081	W4-005 C	1.86
905082	W4-005 E	81.14
909052	X2-022 E	43.35
917502	Z2-087 E	17.37
924041	AB2-047 C O1	3.34
924042	AB2-047 E O1	22.37
924261	AB2-070 C O1	5.27
924262	AB2-070 E O1	35.28
925771	AC1-053 C	5.51
925772	AC1-053 E	36.86
935001	AD1-133 C O1	9.65
935002	AD1-133 E O1	6.43
935141	AD1-148	11.33
936771	AD2-100 C O1	45.59
936772	AD2-100 E O1	30.39
936972	AD2-131 E O1	18.09
937161	AD2-153 C O1	3.48
937162	AD2-153 E O1	16.29
937171	AD2-154 C O1	3.48
937172	AD2-154 E O1	16.29
937211	AD2-159 C	8.77
937212	AD2-159 E	41.05
939741	AE1-205 C O1	8.64
939742	AE1-205 E O1	11.93
950701	J196 C	0.78
950702	J196 E	3.1
951001	J339	8.07
951741	J474 C	3.41

Bus #	Bus	MW Impact
951742	J474 E	18.47
952321	J734	6.77
952651	J756 C	2.79
952652	J756 E	15.11
953741	J826 C	2.02
953742	J826 E	10.9
953851	J845 C	2.01
953852	J845 E	10.87
954181	J884	15.94
954761	J468 C	2.12
954762	J468 E	8.49
AE1-080A	AE1-080A	15.68
BAYOU	BAYOU	2.89
BIG_CAJUN1	BIG_CAJUN1	4.17
BIG_CAJUN2	BIG_CAJUN2	8.41
CALDERWOOD	CALDERWOOD	0.67
CANNELTON	CANNELTON	0.08
CARR	CARR	0.07
CATAWBA	CATAWBA	0.29
CHEOAH	CHEOAH	0.61
CHILHOWEE	CHILHOWEE	0.22
CHOCTAW	CHOCTAW	2.43
CIN	CIN	1.85
COFFEEN	COFFEEN	1.96
COTTONWOOD	COTTONWOOD	11.8
DUCKCREEK	DUCKCREEK	11.12
EDWARDS	EDWARDS	1.51
ELMERSMITH	ELMERSMITH	0.23
FARMERCITY	FARMERCITY	1.85
G-007	G-007	0.21
HAMLET	HAMLET	0.88
IPL	IPL	0.76
MECS	MECS	0.64
NEWTON	NEWTON	1.17
O-066	O-066	0.71
PRAIRIE	PRAIRIE	10.49
RENSSELAER	RENSSELAER	0.05
SANTEETLA	SANTEETLA	0.18
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	2.75
TVA	TVA	3.24
UNIONPOWER	UNIONPOWER	1.98

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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
228665	270852	PONTIAC ; B	CE	270704	LORETTO ; B	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	112.56	115.3	DC	41.54

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.28
274651	KINCAID ;2U	17.31
274853	TWINGROVE;U1	2.51
274854	TWINGROVE;U2	2.51
900404	X3-028 C	85.17
905081	W4-005 C	2.4
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.07
924261	AB2-070 C O1	7.66
925771	AC1-053 C	7.5
926841	AC1-171 C O1	0.97
930461	AB1-087	31.23
930471	AB1-088	31.23
933441	AC2-157 C	4.32
935001	AD1-133 C O1	90.89
935141	AD1-148	13.53
936771	AD2-100 C O1	28.29
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.31
939741	AE1-205 C O1	41.54
950291	J291	4.24
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952251	J641	13.5
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43
954181	J884	26.75
954411	J912	14.21

Bus #	Bus	MW Impact
954681	J949	18.12
954721	J750 C	3.62
954761	J468 C	4.06
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.67
CBM-N	CBM-N	0.6
CBM-S1	CBM-S1	11.17
CBM-S2	CBM-S2	3.39
CBM-W2	CBM-W2	130.23
CIN	CIN	11.67
CPLE	CPLE	1.19
DEARBORN	DEARBORN	0.82
G-007A	G-007A	2.01
IPL	IPL	6.32
LGEE	LGEE	1.73
MEC	MEC	9.27
NYISO	NYISO	2.59
O-066A	O-066A	0.94
VFT	VFT	5.39

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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
228672	270853	PONTIAC ; R	CE	935000	AD1-133 TAP	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	101.97	104.49	DC	38.35

Bus #	Bus	MW Impact
274650	KINCAID ;1U	15.48
274651	KINCAID ;2U	15.51
274853	TWINGROVE;U1	2.3
274854	TWINGROVE;U2	2.3
274863	CAYUGA RI;1U	2.14
274864	CAYUGA RI;2U	2.14
900404	X3-028 C	78.36
905081	W4-005 C	2.19
917501	Z2-087 C	1.85
924041	AB2-047 C O1	14.84
924261	AB2-070 C O1	6.98
925771	AC1-053 C	6.83
926841	AC1-171 C O1	0.75
930461	AB1-087	28.73
930471	AB1-088	28.73
933441	AC2-157 C	3.97
935141	AD1-148	12.29
936771	AD2-100 C O1	25.48
937161	AD2-153 C O1	9.91
937171	AD2-154 C O1	9.91
937211	AD2-159 C	10.33
939401	AE1-172 C O1	24.59
939741	AE1-205 C O1	38.35
940101	AE1-252 C O1	41.91
950701	J196 C	1.11
951001	J339	12.11
951741	J474 C	4.81
952271	J644	12.24
952321	J734	10.17
952651	J756 C	4.36
952871	J757 C	5.2
953241	J467 C	1.73
953401	J811	10.29
953651	J815	34.83
953741	J826 C	3.01
953801	J835 C	3.42
953851	J845 C	2.96
953881	J848 C	5.38
954081	J872 C	4.15
954181	J884	24.98

Bus #	Bus	MW Impact
954411	J912	13.29
954721	J750 C	3.3
954761	J468 C	3.94
AD2-098	AD2-098	0.45
AE1-042	AE1-042	5.79
CBM-N	CBM-N	0.66
CBM-S1	CBM-S1	9.87
CBM-S2	CBM-S2	3.13
CBM-W2	CBM-W2	111.77
CIN	CIN	10.82
CPLE	CPLE	1.12
DEARBORN	DEARBORN	0.52
EDWARDS	EDWARDS	0.05
G-007A	G-007A	2.18
IPL	IPL	5.9
LGEE	LGEE	1.65
MEC	MEC	2.66
NYISO	NYISO	2.85
O-066A	O-066A	1.01
TATANKA	TATANKA	0.42
VFT	VFT	5.85

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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
228001	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.84	167.18	DC	29.23

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.81
274722	S-055 E	13.75
274772	LINCOLN ;3U	3.36
274773	LINCOLN ;4U	3.36
274774	LINCOLN ;5U	3.36
274775	LINCOLN ;6U	3.36
274776	LINCOLN ;7U	3.36
274777	LINCOLN ;8U	3.36
274859	EASYR;U1 E	13.46
274860	EASYR;U2 E	13.46
274888	PILOT HIL;1E	23.62
274890	CAYUG;1U E	20.25
274891	CAYUG;2U E	20.25
275149	KEMPTON ;1E	23.62
290021	O50 E	23.75
290051	GSG-6; E	12.8
290108	LEEDK;1U E	29.74
293061	N-015 E	19.44
293516	O-009 E1	1.0
293517	O-009 E2	0.51
293518	O-009 E3	0.56
293644	O22 E1	12.55
293645	O22 E2	24.37
293715	O-029 E	11.98
293716	O-029 E	6.57
293717	O-029 E	6.04
294392	P-010 E	24.69
294763	P-046 E	11.48
295109	WESTBROOK E	6.85
295111	SUBLETTE E	3.18
296125	R-030 C3	4.98
296128	R-030 E3	19.93
296271	R-030 C2	4.92
296272	R-030 E2	19.7
296308	R-030 C1	4.92
296309	R-030 E1	19.7
910542	X3-005 E	0.9
914641	Y2-103	55.02
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58
915031	Y3-013 3	4.58

Bus #	Bus	MW Impact
916221	Z1-073 E	6.61
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.17
916522	Z1-108 E	3.04
917502	Z2-087 E	25.76
918052	AA1-018 E	20.13
919221	AA1-146	21.54
919581	AA2-030	21.54
920272	AA2-123 E	2.99
924041	AB2-047 C O1	4.75
924042	AB2-047 E O1	31.79
924471	AB2-096	51.84
925161	AB2-173	3.84
925302	AB2-191 E	1.7
925881	AC1-067 O1	168.51
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.33
926341	AC1-110 2	2.33
926351	AC1-111 1	0.94
926361	AC1-111 2	0.94
926371	AC1-111 3	0.94
926381	AC1-111 4	0.94
926391	AC1-111 5	0.94
926401	AC1-111 6	0.94
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.59
927091	AC1-204 1	88.93
927101	AC1-204 2	88.93
927451	AC1-142A 1	5.12
927461	AC1-142A 2	5.12
927511	AC1-113 1	1.46
927521	AC1-113 2	1.46
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	80.5
930501	AB1-091 O1	93.97
930741	AB1-122 1O1	89.35
930751	AB1-122 2O1	90.31
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.52
933341	AC2-147 C	1.07

Bus #	Bus	MW Impact
933342	AC2-147 E	1.74
933411	AC2-154 C	3.21
933412	AC2-154 E	5.23
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.6
933931	AD1-016 C	1.14
933932	AD1-016 E	1.85
934101	AD1-039 1	8.76
934111	AD1-039 2	8.85
934401	AD1-064 C O1	3.92
934402	AD1-064 E O1	18.37
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.43
934702	AD1-098 E O1	6.15
934721	AD1-100 C	29.44
934722	AD1-100 E	137.37
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934881	AD1-117 C	6.58
934882	AD1-117 E	4.39
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.42
935002	AD1-133 E O1	18.28
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.29
936371	AD2-047 C O1	2.87
936372	AD2-047 E O1	30.87
936461	AD2-060	3.37
936511	AD2-066 C O1	10.36
936512	AD2-066 E O1	6.91
936781	AD2-101 C	5.83
936782	AD2-101 E	27.31
936791	AD2-102 C	14.71
936792	AD2-102 E	14.14
936961	AD2-130	0.69
937001	AD2-134 C	3.35
937002	AD2-134 E	13.82
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.59
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.28
937061	AD2-141 C O1	7.49
937062	AD2-141 E O1	35.32
937071	AD2-142 C O1	15.07
937072	AD2-142 E O1	70.55
937121	AD2-148 C O1	4.51

Bus #	Bus	MW Impact
937122	AD2-148 E O1	21.13
937131	AD2-149 C O1	4.51
937132	AD2-149 E O1	21.13
937141	AD2-150 C O1	4.51
937142	AD2-150 E O1	21.13
937181	AD2-155 C O1	4.51
937182	AD2-155 E O1	21.13
937311	AD2-172 C	3.01
937312	AD2-172 E	4.16
937321	AD2-175 C	21.03
937322	AD2-175 E	14.02
937331	AD2-176 C O1	8.97
937332	AD2-176 E O1	5.98
937401	AD2-194 1	9.56
937411	AD2-194 2	9.56
938012	AE1-002 E O1	14.4
938511	AE1-070 1	11.24
938521	AE1-070 2	10.28
938851	AE1-113 C O1	10.7
938852	AE1-113 E O1	33.64
938861	AE1-114 C O1	4.37
938862	AE1-114 E O1	16.72
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.21
939322	AE1-163 E O1	44.26
939351	AE1-166 C O1	14.52
939352	AE1-166 E O1	13.41
939401	AE1-172 C O1	9.52
939402	AE1-172 E O1	44.57
939691	AE1-199	2.93
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.28
939742	AE1-205 E O1	16.95
939861	AE1-222 1	98.68
939871	AE1-222 2	99.73
939921	AE1-228 C O1	12.2
939922	AE1-228 E O1	8.13
939961	AE1-233 C O1	2.85
939962	AE1-233 E O1	11.77
940101	AE1-252 C O1	15.19
940102	AE1-252 E O1	10.13
AB2-013	AB2-013	19.85
AE1-033	AE1-033	22.1
BLUEG	BLUEG	7.86
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.96
CATAWBA	CATAWBA	0.38
CBM-S1	CBM-S1	1.85

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	37.32
CBM-W2	CBM-W2	71.02
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.9
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.69
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.46
MEC	MEC	46.58
O-066	O-066	9.06
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.94
WEC	WEC	9.75
Z1-043	Z1-043	35.51

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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
228004	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.08	165.6	DC	29.82

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.13
274722	S-055 E	14.05
274772	LINCOLN ;3U	3.45
274773	LINCOLN ;4U	3.45
274774	LINCOLN ;5U	3.45
274775	LINCOLN ;6U	3.45
274776	LINCOLN ;7U	3.45
274777	LINCOLN ;8U	3.45
274832	U4-027	6.82
274859	EASYR;U1 E	13.75
274860	EASYR;U2 E	13.75
274888	PILOT HIL;1E	24.11
274890	CAYUG;1U E	20.66
274891	CAYUG;2U E	20.66
275149	KEMPTON ;1E	24.11
290021	O50 E	24.25
290051	GSG-6; E	13.07
290108	LEEDK;1U E	30.37
293061	N-015 E	19.85
293516	O-009 E1	11.37
293517	O-009 E2	5.78
293518	O-009 E3	6.36
293644	O22 E1	12.82
293645	O22 E2	24.89
293715	O-029 E	12.24
293716	O-029 E	6.71
293717	O-029 E	6.17
293771	O-035 E	8.08
294392	P-010 E	25.21
294763	P-046 E	11.72
295109	WESTBROOK E	7.0
295111	SUBLETTE E	3.24
296125	R-030 C3	5.08
296128	R-030 E3	20.34
296271	R-030 C2	5.02
296272	R-030 E2	20.09
296308	R-030 C1	5.02
296309	R-030 E1	20.09
910542	X3-005 E	0.91
914641	Y2-103	56.19
915011	Y3-013 1	4.68

Bus #	Bus	MW Impact
915021	Y3-013 2	4.68
915031	Y3-013 3	4.68
916211	Z1-072 E	6.11
916221	Z1-073 E	6.75
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.11
917502	Z2-087 E	26.28
918052	AA1-018 E	20.57
919221	AA1-146	22.0
919581	AA2-030	22.0
920272	AA2-123 E	3.06
924041	AB2-047 C O1	4.85
924042	AB2-047 E O1	32.43
924471	AB2-096	52.94
925161	AB2-173	3.92
925302	AB2-191 E	1.73
925881	AC1-067 O1	172.23
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	0.96
926361	AC1-111 2	0.96
926371	AC1-111 3	0.96
926381	AC1-111 4	0.96
926391	AC1-111 5	0.96
926401	AC1-111 6	0.96
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.79
927091	AC1-204 1	90.83
927101	AC1-204 2	90.83
927201	AC1-214 C O1	2.59
927202	AC1-214 E O1	8.24
927451	AC1-142A 1	5.23
927461	AC1-142A 2	5.23
927511	AC1-113 1	1.49
927521	AC1-113 2	1.49
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	82.21
930501	AB1-091 O1	95.92
930741	AB1-122 1O1	91.25
930751	AB1-122 2O1	92.24

Bus #	Bus	MW Impact
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.67
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.34
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.68
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.94
934111	AD1-039 2	9.04
934401	AD1-064 C O1	4.01
934402	AD1-064 E O1	18.76
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.82
934701	AD1-098 C O1	8.6
934702	AD1-098 E O1	6.28
934721	AD1-100 C	30.02
934722	AD1-100 E	140.09
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934881	AD1-117 C	6.72
934882	AD1-117 E	4.48
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.99
935002	AD1-133 E O1	18.66
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.7
936371	AD2-047 C O1	2.93
936372	AD2-047 E O1	31.51
936461	AD2-060	3.44
936511	AD2-066 C O1	10.58
936512	AD2-066 E O1	7.05
936781	AD2-101 C	5.95
936782	AD2-101 E	27.88
936791	AD2-102 C	15.03
936792	AD2-102 E	14.44
936961	AD2-130	0.7
937001	AD2-134 C	3.42
937002	AD2-134 E	14.12
937031	AD2-137 C O1	7.31
937032	AD2-137 E O1	34.21
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.93

Bus #	Bus	MW Impact
937061	AD2-141 C O1	7.63
937062	AD2-141 E O1	35.97
937071	AD2-142 C O1	15.35
937072	AD2-142 E O1	71.86
937121	AD2-148 C O1	4.61
937122	AD2-148 E O1	21.57
937131	AD2-149 C O1	4.61
937132	AD2-149 E O1	21.57
937141	AD2-150 C O1	4.61
937142	AD2-150 E O1	21.57
937181	AD2-155 C O1	4.61
937182	AD2-155 E O1	21.57
937311	AD2-172 C	3.08
937312	AD2-172 E	4.25
937321	AD2-175 C	21.46
937322	AD2-175 E	14.31
937331	AD2-176 C O1	9.17
937332	AD2-176 E O1	6.11
937401	AD2-194 1	9.77
937411	AD2-194 2	9.77
938012	AE1-002 E O1	14.67
938511	AE1-070 1	11.48
938521	AE1-070 2	10.5
938851	AE1-113 C O1	10.93
938852	AE1-113 E O1	34.37
938861	AE1-114 C O1	4.47
938862	AE1-114 E O1	17.07
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.36
939322	AE1-163 E O1	45.2
939351	AE1-166 C O1	14.82
939352	AE1-166 E O1	13.68
939401	AE1-172 C O1	9.71
939402	AE1-172 E O1	45.45
939691	AE1-199	2.99
939701	AE1-201 C	2.51
939702	AE1-201 E	0.55
939732	AE1-204 E	0.37
939741	AE1-205 C O1	12.53
939742	AE1-205 E O1	17.3
939861	AE1-222 1	100.77
939871	AE1-222 2	101.86
939921	AE1-228 C O1	12.45
939922	AE1-228 E O1	8.3
939961	AE1-233 C O1	2.91
939962	AE1-233 E O1	12.02
940101	AE1-252 C O1	15.49
940102	AE1-252 E O1	10.33
AB2-013	AB2-013	20.27
AE1-033	AE1-033	22.58
BLUEG	BLUEG	8.03

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.98
CATAWBA	CATAWBA	0.39
CBM-S1	CBM-S1	1.88
CBM-W1	CBM-W1	38.11
CBM-W2	CBM-W2	72.48
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.96
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.75
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.49
MEC	MEC	47.56
O-066	O-066	9.26
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.96
WEC	WEC	9.96
Z1-043	Z1-043	36.25

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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
228003	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	166.84	167.18	DC	29.23

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.81
274722	S-055 E	13.75
274772	LINCOLN ;3U	3.36
274773	LINCOLN ;4U	3.36
274774	LINCOLN ;5U	3.36
274775	LINCOLN ;6U	3.36
274776	LINCOLN ;7U	3.36
274777	LINCOLN ;8U	3.36
274859	EASYR;U1 E	13.46
274860	EASYR;U2 E	13.46
274888	PILOT HIL;1E	23.62
274890	CAYUG;1U E	20.25
274891	CAYUG;2U E	20.25
275149	KEMPTON ;1E	23.62
290021	O50 E	23.75
290051	GSG-6; E	12.8
290108	LEEDK;1U E	29.74
293061	N-015 E	19.44
293516	O-009 E1	1.0
293517	O-009 E2	0.51
293518	O-009 E3	0.56
293644	O22 E1	12.55
293645	O22 E2	24.37
293715	O-029 E	11.98
293716	O-029 E	6.57
293717	O-029 E	6.04
294392	P-010 E	24.69
294763	P-046 E	11.48
295109	WESTBROOK E	6.85
295111	SUBLETTE E	3.18
296125	R-030 C3	4.98
296128	R-030 E3	19.93
296271	R-030 C2	4.92
296272	R-030 E2	19.7
296308	R-030 C1	4.92
296309	R-030 E1	19.7
910542	X3-005 E	0.9
914641	Y2-103	55.02
915011	Y3-013 1	4.58
915021	Y3-013 2	4.58
915031	Y3-013 3	4.58

Bus #	Bus	MW Impact
916221	Z1-073 E	6.61
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.17
916522	Z1-108 E	3.04
917502	Z2-087 E	25.76
918052	AA1-018 E	20.13
919221	AA1-146	21.54
919581	AA2-030	21.54
920272	AA2-123 E	2.99
924041	AB2-047 C O1	4.75
924042	AB2-047 E O1	31.79
924471	AB2-096	51.84
925161	AB2-173	3.84
925302	AB2-191 E	1.7
925881	AC1-067 O1	168.51
926311	AC1-109 1	2.34
926321	AC1-109 2	2.34
926331	AC1-110 1	2.33
926341	AC1-110 2	2.33
926351	AC1-111 1	0.94
926361	AC1-111 2	0.94
926371	AC1-111 3	0.94
926381	AC1-111 4	0.94
926391	AC1-111 5	0.94
926401	AC1-111 6	0.94
926431	AC1-114	2.91
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.59
927091	AC1-204 1	88.93
927101	AC1-204 2	88.93
927451	AC1-142A 1	5.12
927461	AC1-142A 2	5.12
927511	AC1-113 1	1.46
927521	AC1-113 2	1.46
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	80.5
930501	AB1-091 O1	93.97
930741	AB1-122 1O1	89.35
930751	AB1-122 2O1	90.31
932881	AC2-115 1	2.91
932891	AC2-115 2	2.91
932921	AC2-116	1.02
932931	AC2-117	6.52
933341	AC2-147 C	1.07

Bus #	Bus	MW Impact
933342	AC2-147 E	1.74
933411	AC2-154 C	3.21
933412	AC2-154 E	5.23
933431	AC2-156 C O1	1.17
933432	AC2-156 E O1	1.91
933911	AD1-013 C	2.25
933912	AD1-013 E	3.6
933931	AD1-016 C	1.14
933932	AD1-016 E	1.85
934101	AD1-039 1	8.76
934111	AD1-039 2	8.85
934401	AD1-064 C O1	3.92
934402	AD1-064 E O1	18.37
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.09
934652	AD1-096 E	1.78
934701	AD1-098 C O1	8.43
934702	AD1-098 E O1	6.15
934721	AD1-100 C	29.44
934722	AD1-100 E	137.37
934871	AD1-116 C	1.17
934872	AD1-116 E	1.91
934881	AD1-117 C	6.58
934882	AD1-117 E	4.39
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.42
935002	AD1-133 E O1	18.28
936291	AD2-038 C O1	2.88
936292	AD2-038 E O1	19.29
936371	AD2-047 C O1	2.87
936372	AD2-047 E O1	30.87
936461	AD2-060	3.37
936511	AD2-066 C O1	10.36
936512	AD2-066 E O1	6.91
936781	AD2-101 C	5.83
936782	AD2-101 E	27.31
936791	AD2-102 C	14.71
936792	AD2-102 E	14.14
936961	AD2-130	0.69
937001	AD2-134 C	3.35
937002	AD2-134 E	13.82
937031	AD2-137 C O1	7.17
937032	AD2-137 E O1	33.59
937051	AD2-140 C O1	7.53
937052	AD2-140 E O1	35.28
937061	AD2-141 C O1	7.49
937062	AD2-141 E O1	35.32
937071	AD2-142 C O1	15.07
937072	AD2-142 E O1	70.55
937121	AD2-148 C O1	4.51

Bus #	Bus	MW Impact
937122	AD2-148 E O1	21.13
937131	AD2-149 C O1	4.51
937132	AD2-149 E O1	21.13
937141	AD2-150 C O1	4.51
937142	AD2-150 E O1	21.13
937181	AD2-155 C O1	4.51
937182	AD2-155 E O1	21.13
937311	AD2-172 C	3.01
937312	AD2-172 E	4.16
937321	AD2-175 C	21.03
937322	AD2-175 E	14.02
937331	AD2-176 C O1	8.97
937332	AD2-176 E O1	5.98
937401	AD2-194 1	9.56
937411	AD2-194 2	9.56
938012	AE1-002 E O1	14.4
938511	AE1-070 1	11.24
938521	AE1-070 2	10.28
938851	AE1-113 C O1	10.7
938852	AE1-113 E O1	33.64
938861	AE1-114 C O1	4.37
938862	AE1-114 E O1	16.72
939051	AE1-134 1	1.67
939061	AE1-134 2	1.67
939321	AE1-163 C O1	7.21
939322	AE1-163 E O1	44.26
939351	AE1-166 C O1	14.52
939352	AE1-166 E O1	13.41
939401	AE1-172 C O1	9.52
939402	AE1-172 E O1	44.57
939691	AE1-199	2.93
939701	AE1-201 C	2.45
939702	AE1-201 E	0.54
939732	AE1-204 E	0.36
939741	AE1-205 C O1	12.28
939742	AE1-205 E O1	16.95
939861	AE1-222 1	98.68
939871	AE1-222 2	99.73
939921	AE1-228 C O1	12.2
939922	AE1-228 E O1	8.13
939961	AE1-233 C O1	2.85
939962	AE1-233 E O1	11.77
940101	AE1-252 C O1	15.19
940102	AE1-252 E O1	10.13
AB2-013	AB2-013	19.85
AE1-033	AE1-033	22.1
BLUEG	BLUEG	7.86
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.96
CATAWBA	CATAWBA	0.38
CBM-S1	CBM-S1	1.85

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	37.32
CBM-W2	CBM-W2	71.02
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.9
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.69
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.46
MEC	MEC	46.58
O-066	O-066	9.06
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.94
WEC	WEC	9.75
Z1-043	Z1-043	35.51

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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
228006	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	165.08	165.6	DC	29.82

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.13
274722	S-055 E	14.05
274772	LINCOLN ;3U	3.45
274773	LINCOLN ;4U	3.45
274774	LINCOLN ;5U	3.45
274775	LINCOLN ;6U	3.45
274776	LINCOLN ;7U	3.45
274777	LINCOLN ;8U	3.45
274832	U4-027	6.82
274859	EASYR;U1 E	13.75
274860	EASYR;U2 E	13.75
274888	PILOT HIL;1E	24.11
274890	CAYUG;1U E	20.66
274891	CAYUG;2U E	20.66
275149	KEMPTON ;1E	24.11
290021	O50 E	24.25
290051	GSG-6; E	13.07
290108	LEEDK;1U E	30.37
293061	N-015 E	19.85
293516	O-009 E1	11.37
293517	O-009 E2	5.78
293518	O-009 E3	6.36
293644	O22 E1	12.82
293645	O22 E2	24.89
293715	O-029 E	12.24
293716	O-029 E	6.71
293717	O-029 E	6.17
293771	O-035 E	8.08
294392	P-010 E	25.21
294763	P-046 E	11.72
295109	WESTBROOK E	7.0
295111	SUBLETTE E	3.24
296125	R-030 C3	5.08
296128	R-030 E3	20.34
296271	R-030 C2	5.02
296272	R-030 E2	20.09
296308	R-030 C1	5.02
296309	R-030 E1	20.09
910542	X3-005 E	0.91
914641	Y2-103	56.19
915011	Y3-013 1	4.68

Bus #	Bus	MW Impact
915021	Y3-013 2	4.68
915031	Y3-013 3	4.68
916211	Z1-072 E	6.11
916221	Z1-073 E	6.75
916502	Z1-106 E1	1.58
916504	Z1-106 E2	1.58
916512	Z1-107 E	3.23
916522	Z1-108 E	3.11
917502	Z2-087 E	26.28
918052	AA1-018 E	20.57
919221	AA1-146	22.0
919581	AA2-030	22.0
920272	AA2-123 E	3.06
924041	AB2-047 C O1	4.85
924042	AB2-047 E O1	32.43
924471	AB2-096	52.94
925161	AB2-173	3.92
925302	AB2-191 E	1.73
925881	AC1-067 O1	172.23
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	0.96
926361	AC1-111 2	0.96
926371	AC1-111 3	0.96
926381	AC1-111 4	0.96
926391	AC1-111 5	0.96
926401	AC1-111 6	0.96
926431	AC1-114	2.97
926821	AC1-168 C O1	1.46
926822	AC1-168 E O1	9.79
927091	AC1-204 1	90.83
927101	AC1-204 2	90.83
927201	AC1-214 C O1	2.59
927202	AC1-214 E O1	8.24
927451	AC1-142A 1	5.23
927461	AC1-142A 2	5.23
927511	AC1-113 1	1.49
927521	AC1-113 2	1.49
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	82.21
930501	AB1-091 O1	95.92
930741	AB1-122 1O1	91.25
930751	AB1-122 2O1	92.24

Bus #	Bus	MW Impact
932881	AC2-115 1	2.97
932891	AC2-115 2	2.97
932921	AC2-116	1.04
932931	AC2-117	6.67
933341	AC2-147 C	1.09
933342	AC2-147 E	1.78
933411	AC2-154 C	3.27
933412	AC2-154 E	5.34
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.95
933911	AD1-013 C	2.3
933912	AD1-013 E	3.68
933931	AD1-016 C	1.16
933932	AD1-016 E	1.89
934101	AD1-039 1	8.94
934111	AD1-039 2	9.04
934401	AD1-064 C O1	4.01
934402	AD1-064 E O1	18.76
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.11
934652	AD1-096 E	1.82
934701	AD1-098 C O1	8.6
934702	AD1-098 E O1	6.28
934721	AD1-100 C	30.02
934722	AD1-100 E	140.09
934871	AD1-116 C	1.2
934872	AD1-116 E	1.95
934881	AD1-117 C	6.72
934882	AD1-117 E	4.48
934971	AD1-129 C	1.13
934972	AD1-129 E	0.75
935001	AD1-133 C O1	27.99
935002	AD1-133 E O1	18.66
936291	AD2-038 C O1	2.94
936292	AD2-038 E O1	19.7
936371	AD2-047 C O1	2.93
936372	AD2-047 E O1	31.51
936461	AD2-060	3.44
936511	AD2-066 C O1	10.58
936512	AD2-066 E O1	7.05
936781	AD2-101 C	5.95
936782	AD2-101 E	27.88
936791	AD2-102 C	15.03
936792	AD2-102 E	14.44
936961	AD2-130	0.7
937001	AD2-134 C	3.42
937002	AD2-134 E	14.12
937031	AD2-137 C O1	7.31
937032	AD2-137 E O1	34.21
937051	AD2-140 C O1	7.67
937052	AD2-140 E O1	35.93

Bus #	Bus	MW Impact
937061	AD2-141 C O1	7.63
937062	AD2-141 E O1	35.97
937071	AD2-142 C O1	15.35
937072	AD2-142 E O1	71.86
937121	AD2-148 C O1	4.61
937122	AD2-148 E O1	21.57
937131	AD2-149 C O1	4.61
937132	AD2-149 E O1	21.57
937141	AD2-150 C O1	4.61
937142	AD2-150 E O1	21.57
937181	AD2-155 C O1	4.61
937182	AD2-155 E O1	21.57
937311	AD2-172 C	3.08
937312	AD2-172 E	4.25
937321	AD2-175 C	21.46
937322	AD2-175 E	14.31
937331	AD2-176 C O1	9.17
937332	AD2-176 E O1	6.11
937401	AD2-194 1	9.77
937411	AD2-194 2	9.77
938012	AE1-002 E O1	14.67
938511	AE1-070 1	11.48
938521	AE1-070 2	10.5
938851	AE1-113 C O1	10.93
938852	AE1-113 E O1	34.37
938861	AE1-114 C O1	4.47
938862	AE1-114 E O1	17.07
939051	AE1-134 1	1.71
939061	AE1-134 2	1.71
939321	AE1-163 C O1	7.36
939322	AE1-163 E O1	45.2
939351	AE1-166 C O1	14.82
939352	AE1-166 E O1	13.68
939401	AE1-172 C O1	9.71
939402	AE1-172 E O1	45.45
939691	AE1-199	2.99
939701	AE1-201 C	2.51
939702	AE1-201 E	0.55
939732	AE1-204 E	0.37
939741	AE1-205 C O1	12.53
939742	AE1-205 E O1	17.3
939861	AE1-222 1	100.77
939871	AE1-222 2	101.86
939921	AE1-228 C O1	12.45
939922	AE1-228 E O1	8.3
939961	AE1-233 C O1	2.91
939962	AE1-233 E O1	12.02
940101	AE1-252 C O1	15.49
940102	AE1-252 E O1	10.33
AB2-013	AB2-013	20.27
AE1-033	AE1-033	22.58
BLUEG	BLUEG	8.03

Bus #	Bus	MW Impact
CALDERWOOD	CALDERWOOD	0.1
CANNELTON	CANNELTON	0.09
CARR	CARR	0.98
CATAWBA	CATAWBA	0.39
CBM-S1	CBM-S1	1.88
CBM-W1	CBM-W1	38.11
CBM-W2	CBM-W2	72.48
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.96
ELMERSMITH	ELMERSMITH	0.07
G-007	G-007	2.75
GIBSON	GIBSON	0.0
HAMLET	HAMLET	1.49
MEC	MEC	47.56
O-066	O-066	9.26
RENSSELAER	RENSSELAER	0.77
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.96
WEC	WEC	9.96
Z1-043	Z1-043	36.25

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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
553767	346809	7CASEY	AMIL	247712	05SULLIVAN	AEP	1	AEP_P4_#3128_05EUGENE 345_A2	breaker	1466.0	146.77	148.17	DC	20.33

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	6.24
274650	KINCAID ;1U	14.71
274651	KINCAID ;2U	14.73
274832	U4-027	8.54
274853	TWINGROVE;U1	0.74
274854	TWINGROVE;U2	0.74
274859	EASYR;U1 E	6.8
274860	EASYR;U2 E	6.8
274890	CAYUG;1U E	10.14
274891	CAYUG;2U E	10.14
276150	W2-048 E	2.05
290021	O50 E	10.78
290051	GSG-6; E	5.68
290108	LEEDK;1U E	12.4
290261	S-027 E	19.36
290265	S-028 E	19.36
293516	O-009 E1	6.47
293517	O-009 E2	3.29
293518	O-009 E3	3.62
293644	O22 E1	4.9
293645	O22 E2	9.51
293715	O-029 E	6.65
293716	O-029 E	3.65
293717	O-029 E	3.35
293771	O-035 E	5.18
294401	BSHIL;1U E	7.08
294410	BSHIL;2U E	7.08
294763	P-046 E	5.38
295109	WESTBROOK E	3.04
295111	SUBLETTE E	1.65
296125	R-030 C3	3.34
296128	R-030 E3	13.34
296271	R-030 C2	3.3
296272	R-030 E2	13.18
296308	R-030 C1	3.3
296309	R-030 E1	13.18
905081	W4-005 C	0.98
905082	W4-005 E	42.62
909052	X2-022 E	28.51
916211	Z1-072 E	3.92
916221	Z1-073 E	2.93

Bus #	Bus	MW Impact
917502	Z2-087 E	17.32
918052	AA1-018 E	7.91
919221	AA1-146	11.65
919581	AA2-030	11.65
919621	AA2-039 C	1.73
919622	AA2-039 E	11.55
920272	AA2-123 E	1.22
924041	AB2-047 C O1	3.3
924042	AB2-047 E O1	22.1
924261	AB2-070 C O1	3.84
924262	AB2-070 E O1	25.68
924471	AB2-096	21.83
925161	AB2-173	2.08
925302	AB2-191 E	0.75
925581	AC1-033 C	1.16
925582	AC1-033 E	7.76
925771	AC1-053 C	3.87
925772	AC1-053 E	25.93
926431	AC1-114	1.3
926821	AC1-168 C O1	0.83
926822	AC1-168 E O1	5.54
926841	AC1-171 C O1	1.14
926842	AC1-171 E O1	7.61
927201	AC1-214 C O1	1.66
927202	AC1-214 E O1	5.29
927511	AC1-113 1	0.65
927521	AC1-113 2	0.65
927531	AC1-185 1	0.43
927541	AC1-185 2	0.43
927551	AC1-185 3	0.43
927561	AC1-185 4	0.43
927571	AC1-185 5	0.43
927581	AC1-185 6	0.43
927591	AC1-185 7	0.43
927601	AC1-185 8	0.43
930481	AB1-089	35.32
930741	AB1-122 1O1	34.94
932881	AC2-115 1	1.3
932891	AC2-115 2	1.3
932921	AC2-116	0.45
933341	AC2-147 C	0.54
933342	AC2-147 E	0.88
933911	AD1-013 C	0.99
933912	AD1-013 E	1.59
933931	AD1-016 C	0.46
933932	AD1-016 E	0.76
934051	AD1-031 C O1	2.35
934052	AD1-031 E O1	3.84
934101	AD1-039 1	3.42
934401	AD1-064 C O1	1.64
934402	AD1-064 E O1	7.66
934431	AD1-067 C	0.07

Bus #	Bus	MW Impact
934432	AD1-067 E	0.3
934651	AD1-096 C	0.51
934652	AD1-096 E	0.83
934701	AD1-098 C O1	3.77
934702	AD1-098 E O1	2.75
934871	AD1-116 C	0.46
934872	AD1-116 E	0.75
934881	AD1-117 C	3.31
934882	AD1-117 E	2.21
934971	AD1-129 C	0.47
934972	AD1-129 E	0.31
935001	AD1-133 C O1	14.12
935002	AD1-133 E O1	9.41
935141	AD1-148	7.45
936291	AD2-038 C O1	1.34
936292	AD2-038 E O1	8.98
936511	AD2-066 C O1	4.76
936512	AD2-066 E O1	3.17
936771	AD2-100 C O1	21.12
936772	AD2-100 E O1	14.08
936791	AD2-102 C	6.72
936792	AD2-102 E	6.46
936972	AD2-131 E O1	8.38
937001	AD2-134 C	1.48
937002	AD2-134 E	6.13
937161	AD2-153 C O1	3.2
937162	AD2-153 E O1	15.0
937171	AD2-154 C O1	3.2
937172	AD2-154 E O1	15.0
937211	AD2-159 C	4.61
937212	AD2-159 E	21.56
937311	AD2-172 C	1.41
937312	AD2-172 E	1.95
937331	AD2-176 C O1	3.65
937332	AD2-176 E O1	2.44
937531	AD2-214 C	3.23
937532	AD2-214 E	1.52
938851	AE1-113 C O1	4.98
938852	AE1-113 E O1	15.67
938861	AE1-114 C O1	2.2
938862	AE1-114 E O1	8.42
939051	AE1-134 1	0.91
939061	AE1-134 2	0.91
939321	AE1-163 C O1	3.4
939322	AE1-163 E O1	20.86
939401	AE1-172 C O1	4.02
939402	AE1-172 E O1	18.81
939631	AE1-193 C O1	5.75
939632	AE1-193 E O1	38.49
939681	AE1-198 C O1	17.08
939682	AE1-198 E O1	14.51
939691	AE1-199	1.29

Bus #	Bus	MW Impact
939701	AE1-201 C	1.0
939702	AE1-201 E	0.22
939741	AE1-205 C O1	8.54
939742	AE1-205 E O1	11.79
939861	AE1-222 1	38.59
939921	AE1-228 C O1	5.53
939922	AE1-228 E O1	3.68
939961	AE1-233 C O1	1.15
939962	AE1-233 E O1	4.76
940101	AE1-252 C O1	7.6
940102	AE1-252 E O1	5.07
950291	J291	3.2
950701	J196 C	1.33
950702	J196 E	5.3
951001	J339	6.03
951741	J474 C	2.02
951742	J474 E	10.95
952251	J641	10.35
952271	J644	9.57
952321	J734	5.07
952651	J756 C	2.46
952652	J756 E	13.33
952871	J757 C	4.06
952872	J757 E	21.98
953241	J467 C	2.76
953242	J467 E	14.91
953371	J808	9.06
953401	J811	17.76
953431	J853	11.11
953641	J813	43.81
953651	J815	32.11
953671	J817	10.67
953741	J826 C	1.65
953742	J826 E	8.94
953801	J835 C	2.68
953802	J835 E	14.48
953851	J845 C	1.72
953852	J845 E	9.32
953881	J848 C	5.27
953882	J848 E	28.51
953951	J859	9.79
954081	J872 C	4.44
954082	J872 E	24.03
954181	J884	7.67
954411	J912	14.24
954681	J949	38.92
954721	J750 C	2.11
954722	J750 E	11.4
954761	J468 C	7.08
954762	J468 E	28.32
990901	L-005 E	11.18
AB2-013	AB2-013	13.3

Bus #	Bus	MW Impact
AE1-033	AE1-033	10.55
AE1-042	AE1-042	10.08
BLUEG	BLUEG	10.38
CARR	CARR	0.29
CBM-S1	CBM-S1	13.17
CBM-S2	CBM-S2	2.35
CBM-W1	CBM-W1	28.23
CBM-W2	CBM-W2	199.79
CIN	CIN	3.85
CPLE	CPLE	0.56
DEARBORN	DEARBORN	0.69
G-007	G-007	0.8
GIBSON	GIBSON	0.02
MEC	MEC	45.61
O-066	O-066	2.69
RENSSELAER	RENSSELAER	0.23
TRIMBLE	TRIMBLE	1.31
WEC	WEC	4.13
Z1-043	Z1-043	21.97

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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
228146	905080	W4-005 TAP	CE	270668	BLUEMOUND; B	CE	1	COMED_P4_080-45-BT8-13_FSA	breaker	1334.0	133.53	136.04	DC	33.59

Bus #	Bus	MW Impact
274650	KINCAID ;1U	14.48
274651	KINCAID ;2U	14.52
276150	W2-048 E	2.27
905081	W4-005 C	2.96
905082	W4-005 E	129.31
909052	X2-022 E	31.51
916512	Z1-107 E	1.35
924041	AB2-047 C O1	5.46
924042	AB2-047 E O1	36.53
924261	AB2-070 C O1	4.37
924262	AB2-070 E O1	29.24
925771	AC1-053 C	4.37
925772	AC1-053 E	29.24
935141	AD1-148	8.23
936771	AD2-100 C O1	25.6
936772	AD2-100 E O1	17.07
936972	AD2-131 E O1	10.16
937161	AD2-153 C O1	4.43
937162	AD2-153 E O1	20.76
937171	AD2-154 C O1	4.43
937172	AD2-154 E O1	20.76
937211	AD2-159 C	13.97
937212	AD2-159 E	65.42
938012	AE1-002 E O1	4.2
939741	AE1-205 C O1	14.11
939742	AE1-205 E O1	19.48
940103	AE1-252 EBAT	14.15
950291	J291	3.48
950701	J196 C	0.8
950702	J196 E	3.21
951001	J339	7.49
951741	J474 C	3.47
951742	J474 E	18.76
952251	J641	11.03
952271	J644	11.28
952321	J734	6.29
952651	J756 C	4.08
952652	J756 E	22.09
952871	J757 C	4.84
952872	J757 E	26.18

Bus #	Bus	MW Impact
953241	J467 C	1.47
953242	J467 E	7.98
953401	J811	9.03
953651	J815	31.39
953741	J826 C	1.93
953742	J826 E	10.44
953801	J835 C	3.19
953802	J835 E	17.25
953851	J845 C	1.89
953852	J845 E	10.25
953881	J848 C	4.84
953882	J848 E	26.16
953951	J859	9.51
954081	J872 C	3.71
954082	J872 E	20.05
954181	J884	14.24
954411	J912	11.88
954681	J949	14.32
954721	J750 C	2.93
954722	J750 E	15.83
954761	J468 C	3.11
954762	J468 E	12.45
CBM-N	CBM-N	0.53
CBM-S1	CBM-S1	8.86
CBM-S2	CBM-S2	2.75
CBM-W2	CBM-W2	100.52
CIN	CIN	9.01
CPLE	CPLE	0.97
DEARBORN	DEARBORN	0.54
G-007A	G-007A	1.76
IPL	IPL	4.93
LGEE	LGEE	1.38
MEC	MEC	5.72
NYISO	NYISO	2.29
O-066A	O-066A	0.82
VFT	VFT	4.74

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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
228680	917500	Z2-087 TAP	CE	270853	PONTIAC ; R	CE	1	COMED_P1-2_345-L8002___-S	single	1528.0	113.58	117.29	DC	56.53

Bus #	Bus	MW Impact
274650	KINCAID ;1U	16.48
274651	KINCAID ;2U	16.49
274853	TWINGROVE;U1	1.37
274854	TWINGROVE;U2	1.37
900404	X3-028 C	87.28
905081	W4-005 C	1.58
917501	Z2-087 C	2.74
924041	AB2-047 C O1	21.87
924261	AB2-070 C O1	8.98
925771	AC1-053 C	8.73
926841	AC1-171 C O1	1.02
930461	AB1-087	32.0
930471	AB1-088	32.0
933441	AC2-157 C	4.42
935141	AD1-148	15.44
936771	AD2-100 C O1	25.6
937161	AD2-153 C O1	14.03
937171	AD2-154 C O1	14.03
937211	AD2-159 C	7.44
939741	AE1-205 C O1	56.53
950291	J291	4.04
950701	J196 C	1.28
951001	J339	15.22
951741	J474 C	5.73
952271	J644	13.06
952321	J734	12.78
952651	J756 C	4.6
952871	J757 C	5.52
953241	J467 C	1.85
953401	J811	10.85
953651	J815	36.65
953741	J826 C	3.74
953801	J835 C	3.64
953851	J845 C	3.66
953881	J848 C	5.65
954081	J872 C	4.37
954181	J884	32.61
954411	J912	13.99
954681	J949	19.06
954721	J750 C	3.58

Bus #	Bus	MW Impact
954761	J468 C	4.33
AD2-098	AD2-098	0.43
AE1-042	AE1-042	6.52
CBM-N	CBM-N	0.68
CBM-S1	CBM-S1	11.06
CBM-S2	CBM-S2	3.45
CBM-W2	CBM-W2	127.76
CIN	CIN	12.11
CPLE	CPLE	1.23
DEARBORN	DEARBORN	0.68
G-007A	G-007A	2.27
IPL	IPL	6.56
LGEE	LGEE	1.81
MEC	MEC	6.06
NYISO	NYISO	2.95
O-066A	O-066A	1.06
TATANKA	TATANKA	0.01
VFT	VFT	6.1

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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
228695	924040	AB2-047 TAP	CE	917500	Z2-087 TAP	CE	1	COMED_P1-2_345-L8002___-S	single	1528.0	112.86	116.57	DC	56.55

Bus #	Bus	MW Impact
274650	KINCAID ;1U	16.5
274651	KINCAID ;2U	16.5
274853	TWINGROVE;U1	1.37
274854	TWINGROVE;U2	1.37
900404	X3-028 C	87.48
905081	W4-005 C	1.58
924041	AB2-047 C O1	21.88
924261	AB2-070 C O1	8.98
925771	AC1-053 C	8.73
926841	AC1-171 C O1	1.02
930461	AB1-087	32.08
930471	AB1-088	32.08
933441	AC2-157 C	4.43
935141	AD1-148	15.44
936771	AD2-100 C O1	25.62
937161	AD2-153 C O1	14.04
937171	AD2-154 C O1	14.04
937211	AD2-159 C	7.45
939741	AE1-205 C O1	56.55
950291	J291	4.04
950701	J196 C	1.28
951001	J339	15.22
951741	J474 C	5.73
952251	J641	12.82
952271	J644	13.06
952321	J734	12.78
952651	J756 C	4.6
952871	J757 C	5.52
953241	J467 C	1.85
953401	J811	10.85
953651	J815	36.65
953741	J826 C	3.74
953801	J835 C	3.64
953851	J845 C	3.66
953881	J848 C	5.65
954081	J872 C	4.37
954181	J884	32.61
954411	J912	13.99
954681	J949	19.06
954721	J750 C	3.58

Bus #	Bus	MW Impact
954761	J468 C	4.33
AD2-098	AD2-098	0.43
AE1-042	AE1-042	6.54
CBM-N	CBM-N	0.69
CBM-S1	CBM-S1	11.1
CBM-S2	CBM-S2	3.47
CBM-W2	CBM-W2	128.09
CIN	CIN	12.15
CPLE	CPLE	1.24
DEARBORN	DEARBORN	0.67
G-007A	G-007A	2.3
IPL	IPL	6.58
LGEE	LGEE	1.82
MEC	MEC	6.12
NYISO	NYISO	3.0
O-066A	O-066A	1.07
TATANKA	TATANKA	0.0
VFT	VFT	6.19

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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
229347	934720	AD1-100 TAP	CE	937030	AD2-137 TAP	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	143.04	144.91	DC	34.42

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	33.0
274655	BRAIDWOOD;2U	31.46
274660	LASCO STA;1U	20.77
274661	LASCO STA;2U	20.81
274847	GR RIDGE ;BU	0.46
274853	TWINGROVE;U1	0.88
274854	TWINGROVE;U2	0.88
274863	CAYUGA RI;1U	1.14
274864	CAYUGA RI;2U	1.14
274871	GR RIDGE ;2U	0.59
274881	PLEAS RDG;2U	0.94
274887	PILOT HIL;1U	0.94
274888	PILOT HIL;1E	24.62
274890	CAYUG;1U E	29.8
274891	CAYUG;2U E	29.8
275149	KEMPTON ;1E	24.62
276150	W2-048 E	1.36
290261	S-027 E	23.06
290265	S-028 E	23.06
293061	N-015 E	12.12
294392	P-010 E	15.39
296125	R-030 C3	5.9
296128	R-030 E3	23.58
296271	R-030 C2	5.83
296272	R-030 E2	23.3
296308	R-030 C1	5.83
296309	R-030 E1	23.3
905081	W4-005 C	0.86
905082	W4-005 E	37.37
909052	X2-022 E	18.92
917501	Z2-087 C	0.7
917502	Z2-087 E	30.46
924041	AB2-047 C O1	5.59
924042	AB2-047 E O1	37.43
924261	AB2-070 C O1	2.78
924262	AB2-070 E O1	18.6
925771	AC1-053 C	2.73
925772	AC1-053 E	18.26
925881	AC1-067 O1	219.35
926821	AC1-168 C O1	0.64

Bus #	Bus	MW Impact
926822	AC1-168 E O1	4.29
930501	AB1-091 O1	110.96
933411	AC2-154 C	3.34
933412	AC2-154 E	5.45
934721	AD1-100 C	48.31
934722	AD1-100 E	225.47
935001	AD1-133 C O1	18.1
935002	AD1-133 E O1	12.07
935141	AD1-148	4.94
936371	AD2-047 C O1	2.99
936372	AD2-047 E O1	32.19
936461	AD2-060	3.52
936771	AD2-100 C O1	10.55
936772	AD2-100 E O1	7.04
936781	AD2-101 C	7.11
936782	AD2-101 E	33.27
936972	AD2-131 E O1	2.22
937121	AD2-148 C O1	5.34
937122	AD2-148 E O1	25.01
937131	AD2-149 C O1	5.34
937132	AD2-149 E O1	25.01
937141	AD2-150 C O1	5.34
937142	AD2-150 E O1	25.01
937161	AD2-153 C O1	3.8
937162	AD2-153 E O1	17.78
937171	AD2-154 C O1	3.8
937172	AD2-154 E O1	17.78
937181	AD2-155 C O1	5.34
937182	AD2-155 E O1	25.01
937211	AD2-159 C	4.04
937212	AD2-159 E	18.9
937321	AD2-175 C	24.89
937322	AD2-175 E	16.59
938012	AE1-002 E O1	29.83
939351	AE1-166 C O1	20.52
939352	AE1-166 E O1	18.94
939401	AE1-172 C O1	15.26
939402	AE1-172 E O1	71.45
939741	AE1-205 C O1	14.46
939742	AE1-205 E O1	19.96
940101	AE1-252 C O1	22.35
940102	AE1-252 E O1	14.9
951741	J474 C	1.71
951742	J474 E	9.28
953741	J826 C	1.0
953742	J826 E	5.4
954181	J884	8.88
AB2-013	AB2-013	5.61
BLUEG	BLUEG	0.01
CARR	CARR	0.27
CBM-S1	CBM-S1	2.75
CBM-S2	CBM-S2	0.06

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	5.33
CBM-W2	CBM-W2	48.81
CIN	CIN	2.54
DEARBORN	DEARBORN	1.27
G-007	G-007	0.73
HAMLET	HAMLET	0.06
IPL	IPL	1.1
LGEE	LGEE	0.03
MEC	MEC	13.64
O-066	O-066	2.47
RENSSELAER	RENSSELAER	0.21
TRIMBLE	TRIMBLE	0.04
WEC	WEC	1.22
Z1-043	Z1-043	14.81

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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
228646	935000	AD1-133 TAP	CE	270717	DRESDEN ; R	CE	1	COMED_P1-2_345-L11212_B-S-C-A	single	1528.0	109.71	112.23	DC	38.35

Bus #	Bus	MW Impact
274650	KINCAID ;1U	15.48
274651	KINCAID ;2U	15.51
274853	TWINGROVE;U1	2.3
274854	TWINGROVE;U2	2.3
274863	CAYUGA RI;1U	2.14
274864	CAYUGA RI;2U	2.14
900404	X3-028 C	78.36
905081	W4-005 C	2.19
917501	Z2-087 C	1.85
924041	AB2-047 C O1	14.84
924261	AB2-070 C O1	6.98
925771	AC1-053 C	6.83
926841	AC1-171 C O1	0.75
930461	AB1-087	28.73
930471	AB1-088	28.73
933441	AC2-157 C	3.97
935001	AD1-133 C O1	120.38
935141	AD1-148	12.29
936771	AD2-100 C O1	25.48
937161	AD2-153 C O1	9.91
937171	AD2-154 C O1	9.91
937211	AD2-159 C	10.33
939401	AE1-172 C O1	24.59
939741	AE1-205 C O1	38.35
940101	AE1-252 C O1	41.91
950701	J196 C	1.11
951001	J339	12.11
951741	J474 C	4.81
952271	J644	12.24
952321	J734	10.17
952651	J756 C	4.36
952871	J757 C	5.2
953241	J467 C	1.73
953401	J811	10.29
953651	J815	34.83
953741	J826 C	3.01
953801	J835 C	3.42
953851	J845 C	2.96
953881	J848 C	5.38
954081	J872 C	4.15

Bus #	Bus	MW Impact
954181	J884	24.98
954411	J912	13.29
954721	J750 C	3.3
954761	J468 C	3.94
AD2-098	AD2-098	0.45
AE1-042	AE1-042	5.79
CBM-N	CBM-N	0.66
CBM-S1	CBM-S1	9.87
CBM-S2	CBM-S2	3.13
CBM-W2	CBM-W2	111.77
CIN	CIN	10.82
CPLE	CPLE	1.12
DEARBORN	DEARBORN	0.52
EDWARDS	EDWARDS	0.05
G-007A	G-007A	2.18
IPL	IPL	5.9
LGEE	LGEE	1.65
MEC	MEC	2.66
NYISO	NYISO	2.85
O-066A	O-066A	1.01
TATANKA	TATANKA	0.42
VFT	VFT	5.85

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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
229316	937030	AD2-137 TAP	CE	270926	WILTON ; B	CE	1	COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	tower	1846.0	150.23	152.1	DC	34.42

Bus #	Bus	MW Impact
274654	BRAIDWOOD;1U	33.0
274655	BRAIDWOOD;2U	31.46
274660	LASCO STA;1U	20.77
274661	LASCO STA;2U	20.81
274847	GR RIDGE ;BU	0.46
274853	TWINGROVE;U1	0.88
274854	TWINGROVE;U2	0.88
274863	CAYUGA RI;1U	1.14
274864	CAYUGA RI;2U	1.14
274871	GR RIDGE ;2U	0.59
274881	PLEAS RDG;2U	0.94
274887	PILOT HIL;1U	0.94
274888	PILOT HIL;1E	24.62
274890	CAYUG;1U E	29.8
274891	CAYUG;2U E	29.8
275149	KEMPTON ;1E	24.62
276150	W2-048 E	1.36
290261	S-027 E	23.06
290265	S-028 E	23.06
293061	N-015 E	12.12
294392	P-010 E	15.39
296125	R-030 C3	5.9
296128	R-030 E3	23.58
296271	R-030 C2	5.83
296272	R-030 E2	23.3
296308	R-030 C1	5.83
296309	R-030 E1	23.3
905081	W4-005 C	0.86
905082	W4-005 E	37.37
909052	X2-022 E	18.92
917501	Z2-087 C	0.7
917502	Z2-087 E	30.46
924041	AB2-047 C O1	5.59
924042	AB2-047 E O1	37.43
924261	AB2-070 C O1	2.78
924262	AB2-070 E O1	18.6
925771	AC1-053 C	2.73
925772	AC1-053 E	18.26
925881	AC1-067 O1	219.35
930501	AB1-091 O1	110.96

Bus #	Bus	MW Impact
933411	AC2-154 C	3.34
933412	AC2-154 E	5.45
934721	AD1-100 C	48.31
934722	AD1-100 E	225.47
935001	AD1-133 C O1	18.1
935002	AD1-133 E O1	12.07
935141	AD1-148	4.94
936371	AD2-047 C O1	2.99
936372	AD2-047 E O1	32.19
936461	AD2-060	3.52
936771	AD2-100 C O1	10.55
936772	AD2-100 E O1	7.04
936781	AD2-101 C	7.11
936782	AD2-101 E	33.27
936972	AD2-131 E O1	2.22
937031	AD2-137 C O1	18.53
937032	AD2-137 E O1	86.74
937121	AD2-148 C O1	5.34
937122	AD2-148 E O1	25.01
937131	AD2-149 C O1	5.34
937132	AD2-149 E O1	25.01
937141	AD2-150 C O1	5.34
937142	AD2-150 E O1	25.01
937161	AD2-153 C O1	3.8
937162	AD2-153 E O1	17.78
937171	AD2-154 C O1	3.8
937172	AD2-154 E O1	17.78
937181	AD2-155 C O1	5.34
937182	AD2-155 E O1	25.01
937211	AD2-159 C	4.04
937212	AD2-159 E	18.9
937321	AD2-175 C	24.89
937322	AD2-175 E	16.59
938012	AE1-002 E O1	70.17
939351	AE1-166 C O1	20.52
939352	AE1-166 E O1	18.94
939401	AE1-172 C O1	15.26
939402	AE1-172 E O1	71.45
939741	AE1-205 C O1	14.46
939742	AE1-205 E O1	19.96
940101	AE1-252 C O1	22.35
940102	AE1-252 E O1	14.9
951741	J474 C	1.71
951742	J474 E	9.28
954181	J884	8.88
AB2-013	AB2-013	5.61
BLUEG	BLUEG	0.01
CARR	CARR	0.27
CBM-S1	CBM-S1	2.75
CBM-S2	CBM-S2	0.06
CBM-W1	CBM-W1	5.33
CBM-W2	CBM-W2	48.81

Bus #	Bus	MW Impact
CIN	CIN	2.54
DEARBORN	DEARBORN	1.27
G-007	G-007	0.73
HAMLET	HAMLET	0.06
IPL	IPL	1.1
LGEE	LGEE	0.03
MEC	MEC	13.64
O-066	O-066	2.47
RENSSELAER	RENSSELAER	0.21
TRIMBLE	TRIMBLE	0.04
WEC	WEC	1.22
Z1-043	Z1-043	14.81

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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
228603	939400	AE1-172 TAP	CE	934720	AD1-100 TAP	CE	1	COMED_P1-2_345-L8014___-S-B	single	1528.0	115.7	118.43	DC	41.51

Bus #	Bus	MW Impact
274650	KINCAID ;1U	17.25
274651	KINCAID ;2U	17.28
274853	TWINGROVE;U1	2.5
274854	TWINGROVE;U2	2.5
274863	CAYUGA RI;1U	2.82
274864	CAYUGA RI;2U	2.82
900404	X3-028 C	84.69
905081	W4-005 C	2.39
917501	Z2-087 C	2.01
924041	AB2-047 C O1	16.06
924261	AB2-070 C O1	7.65
925771	AC1-053 C	7.49
926841	AC1-171 C O1	0.96
930461	AB1-087	31.05
930471	AB1-088	31.05
933441	AC2-157 C	4.29
935001	AD1-133 C O1	90.83
935141	AD1-148	13.51
936771	AD2-100 C O1	28.25
937161	AD2-153 C O1	10.77
937171	AD2-154 C O1	10.77
937211	AD2-159 C	11.3
939401	AE1-172 C O1	35.5
939741	AE1-205 C O1	41.51
940101	AE1-252 C O1	55.08
950701	J196 C	1.14
951001	J339	12.81
951741	J474 C	5.17
952271	J644	13.59
952321	J734	10.76
952651	J756 C	4.83
952871	J757 C	5.78
953241	J467 C	1.82
953401	J811	10.88
953651	J815	37.45
953741	J826 C	3.19
953801	J835 C	3.81
953851	J845 C	3.12
953881	J848 C	5.76
954081	J872 C	4.43

Bus #	Bus	MW Impact
954181	J884	26.75
954411	J912	14.21
954721	J750 C	3.62
AD2-098	AD2-098	0.36
AE1-042	AE1-042	6.61
CBM-N	CBM-N	0.57
CBM-S1	CBM-S1	11.07
CBM-S2	CBM-S2	3.34
CBM-W2	CBM-W2	129.48
CIN	CIN	11.59
CPLE	CPLE	1.17
DEARBORN	DEARBORN	0.85
G-007A	G-007A	1.93
IPL	IPL	6.27
LGEE	LGEE	1.7
MEC	MEC	9.12
NYISO	NYISO	2.48
O-066A	O-066A	0.9
VFT	VFT	5.19

Affected Systems

MISO

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

Contingency Name	Contingency Definition
COMED_P4_080-45-BT4-5__	CONTINGENCY 'COMED_P4_080-45-BT4-5__' TRIP BRANCH FROM BUS 270852 TO BUS 270668 CKT 1 / PONTI; B 345 BLUEM; B 345 TRIP BRANCH FROM BUS 270852 TO BUS 270704 CKT 1 / PONTI; B 345 LORET; B 345 END
COMED_P4_080-45-BT7-8_FSA	CONTINGENCY 'COMED_P4_080-45-BT7-8_FSA' TRIP BRANCH FROM BUS 270853 TO BUS 917500 CKT 1 / PONTIAC ; R 345 Z2-087 TAP 345 TRIP BRANCH FROM BUS 270853 TO BUS 935000 CKT 1 / PONTIAC ; R 345 AD1-133 TAP 345 /* CONTINGENCY LINE ADDED FOR AE1 BUILD END
COMED_P1-2_345-L11212_B-S-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-A' TRIP BRANCH FROM BUS 270926 TO BUS 937030 CKT 1 / WILTO; B 345 AD2-137 TAP 345 END
AEP_P1-2_#8907	CONTINGENCY 'AEP_P1-2_#8907' OPEN BRANCH FROM BUS 247712 TO BUS 346809 CKT 1 / 247712 05SULLIVAN 345 346809 7CASEY 345 1 END
COMED_P7_345-L6607__B-S_+_345-L6608__R-S	CONTINGENCY 'COMED_P7_345-L6607__B-S_+_345-L6608__R-S' TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRA; B 345 CRETE;BP 345 TRIP BRANCH FROM BUS 270729 TO BUS 274804 CKT 1 / E FRA; R 345 UPNOR;RP 345 END
COMED_P1-2_345-L8002___-S	CONTINGENCY 'COMED_P1-2_345-L8002___-S' TRIP BRANCH FROM BUS 270852 TO BUS 270668 CKT 1 / PONTI; B 345 BLUEM; B 345 END
AEP_P1-2_#286	CONTINGENCY 'AEP_P1-2_#286' OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_P1-2_345-L11212_B-S-C-A	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-C-A' TRIP BRANCH FROM BUS 934720 TO BUS 939400 CKT 1 / AD1-100 TAP 345 AE1-172 TAP 345 END
COMED_P4_080-45-BT8-13_FSA	CONTINGENCY 'COMED_P4_080-45-BT8-13_FSA' TRIP BRANCH FROM BUS 270853 TO BUS 917500 CKT 1 / PONTIAC ; R 345 Z2-087 TAP 345 TRIP BRANCH FROM BUS 917500 TO BUS 924040 CKT 1 / Z2-087 TAP 345 AB2-047 TAP 345 /* CONTINGENCY LINE ADDED FOR AE1 BUILD TRIP BRANCH FROM BUS 272260 TO BUS 270852 TO BUS 275356 CKT 1 / PONTI; B 138 PONTI; B 345 PONTI;1C 34.5 CLOSE BRANCH FROM BUS 272260 TO BUS 272261 CKT 1 / PONTI; B 138 PONTI; R 138 END

Contingency Name	Contingency Definition
COMED_P1-2_345-L11212_B-S-C-B	CONTINGENCY 'COMED_P1-2_345-L11212_B-S-C-B' TRIP BRANCH FROM BUS 939400 TO BUS 270704 CKT 1 / AE1-172 TAP 345 LORET; B 345 END
AEP_P4_#3128_05EUGENE 345_A2	CONTINGENCY 'AEP_P4_#3128_05EUGENE 345_A2' OPEN BRANCH FROM BUS 243221 TO BUS 249504 CKT 1 / 243221 05EUGENE 345 249504 08CAYSUB 345 1 OPEN BRANCH FROM BUS 243221 TO BUS 348885 CKT 1 / 243221 05EUGENE 345 348885 7BUNSONVILLE 345 1 END
COMED_P7_345-L2001__B-S_+_345-L2003__R-S	CONTINGENCY 'COMED_P7_345-L2001__B-S_+_345-L2003__R-S' TRIP BRANCH FROM BUS 270670 TO BUS 270728 CKT 1 / BRAID; B 345 E FRA; B 345 TRIP BRANCH FROM BUS 270728 TO BUS 270766 CKT 1 / E FRA; B 345 GOODI;3B 345 TRIP BRANCH FROM BUS 270728 TO BUS 274750 CKT 1 / E FRA; B 345 CRETE;BP 345 TRIP BRANCH FROM BUS 270671 TO BUS 270729 CKT 1 / BRAID; R 345 E FRA; R 345 END
COMED_P1-2_345-L8014___-S-A	CONTINGENCY 'COMED_P1-2_345-L8014___-S-A' TRIP BRANCH FROM BUS 270853 TO BUS 935000 CKT 1 / PONTIAC ; R 345 AD1-133 TAP 345 END
COMED_P1-2_345-L8014___-S-B	CONTINGENCY 'COMED_P1-2_345-L8014___-S-B' TRIP BRANCH FROM BUS 935000 TO BUS 270717 CKT 1 / AD1-133 TAP 345 DRESDEN ; R 345 END
COMED_P1-2_345-L1223_TR-S	CONTINGENCY 'COMED_P1-2_345-L1223_TR-S' TRIP BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / DRESD; R 345 ELECT;4R 345 TRIP BRANCH FROM BUS 275180 TO BUS 270717 CKT 1 / DRESD;3M 138 DRESD; R 345 TRIP BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / DRESD;3M 138 DRESD; B 138 TRIP BRANCH FROM BUS 275180 TO BUS 275280 CKT 1 / DRESD;3M 138 DRESD;3C 34.5 END
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
Base Case	
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
COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A	CONTINGENCY 'COMED_P7_345-L17704AR-S_+_345-L17907TB-S-A' TRIP BRANCH FROM BUS 270675 TO BUS 925880 CKT 1 / BURNHAM ;1R 345 AC1-067 TAP 345 TRIP BRANCH FROM BUS 270662 TO BUS 936780 CKT 1 / BLOOM ; B 345 AD2-101 TAP 345 TRIP BRANCH FROM BUS 270662 TO BUS 271098 TO BUS 275258 CKT 1 / BLOOM ; B 345 BLOOM ; B 138 BLOOM ;4C 34.5 END

Contingency Name	Contingency Definition
COMED_P4_111-45-L1223T_	CONTINGENCY 'COMED_P4_111-45-L1223T_' TRIP BRANCH FROM BUS 270717 TO BUS 270731 CKT 1 / DRESDEN ; R 345 ELEC JUNC;4R 345 TRIP BRANCH FROM BUS 275180 TO BUS 270717 CKT 1 / DRESDEN ;3M 138 DRESDEN ; R 345 TRIP BRANCH FROM BUS 275180 TO BUS 271336 CKT 1 / DRESDEN ;3M 138 DRESDEN ; B 138 TRIP BRANCH FROM BUS 275180 TO BUS 275280 CKT 1 / DRESDEN ;3M 138 DRESDEN ;3C 34.5 DISCONNECT BUS 270731 / ELEC JUNC;4R 345 DISCONNECT BUS 275184 / ELEC JUNC;4M 138 END
COMED_P1-2_345-L17802__-S	CONTINGENCY 'COMED_P1-2_345-L17802__-S' TRIP BRANCH FROM BUS 270668 TO BUS 905080 CKT 1 / BLUEM; B 345 W4-005 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-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

Short Circuit

Short Circuit

No issues identified