Generation Interconnection

Feasibility Study Report

for

Queue Project AE1-194

CRETE

65 MW Capacity / 500 MW Energy

June, 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 Wind generating facility located in Will County, Illinois. The installed facilities will have a total capability of 500 MW with 65.0 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 9/01/2021. This study does not imply a TO commitment to this in-service date.

Queue Number	**AE1-194**
Project Name	CRETE
State	None
County	Will
Transmission Owner	ComEd
MFO	500
MWE	500
MWC	65
Fuel	Wind
Basecase Study Year	2022

Primary Point of Interconnection

Queue Position AE1-194, a 500 MW windfarm facility, proposes to interconnect with the ComEd transmission system at the existing 345kV substation, TSS 945 Crete.

Cost Summary

The AE1-194 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	$ 13,000,000
Total Costs	$14,000,000

In addition, the AE1-194 project may be responsible for a contribution to the following costs (see later sections of this report.

Description	Total Cost
System Upgrades	$76,450,960

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

Interconnected Transmission Owner Scope of Work

Attachment Facilities

The AE1-194 generator lead will interconnect to 345kV bus at TSS 945 Crete (see details in Direct Connection section below). The required Attachment Facilities are one 345kV line MODs, one dead-end structure and one 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

None

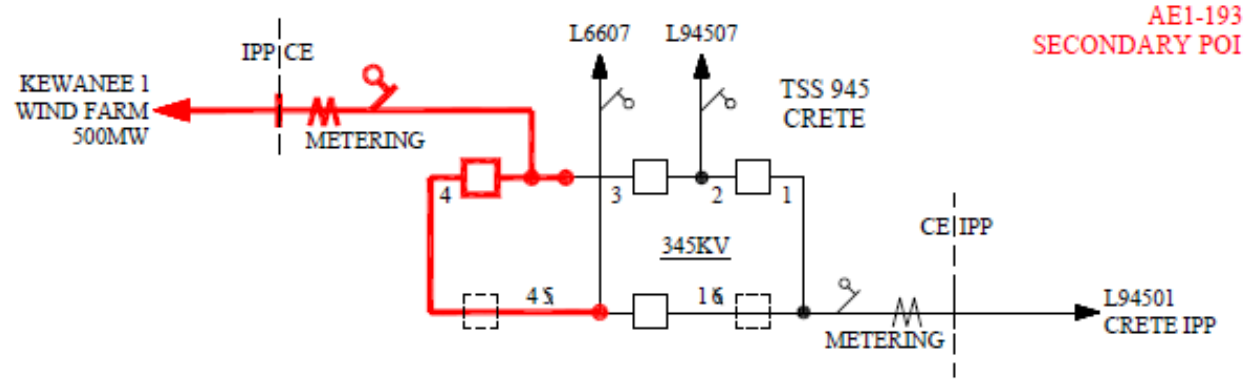
Non-Direct Connection Cost Estimate

In order to accommodate interconnection of AE1-194, Crete TSS 945 would need to be expanded to create a bus position.

A prior PJM queue AE1-193 has chosen to interconnect at Crete TSS 945 as its secondary POI. In case AE1-193 does not choose secondary POI, the scope of work for AE1-194 would be the same as the secondary POI for AE1-193.

In order to accommodate interconnection of AE1-193, Crete TSS 945 would need to be expanded to create a bus position.

The scope of work includes installation of one 345kV circuit breaker converting Crete TSS 945 into breaker-and-a-half bus configuration, to create a line position for AE1-193 generator lead, as shown in the one-line diagram below



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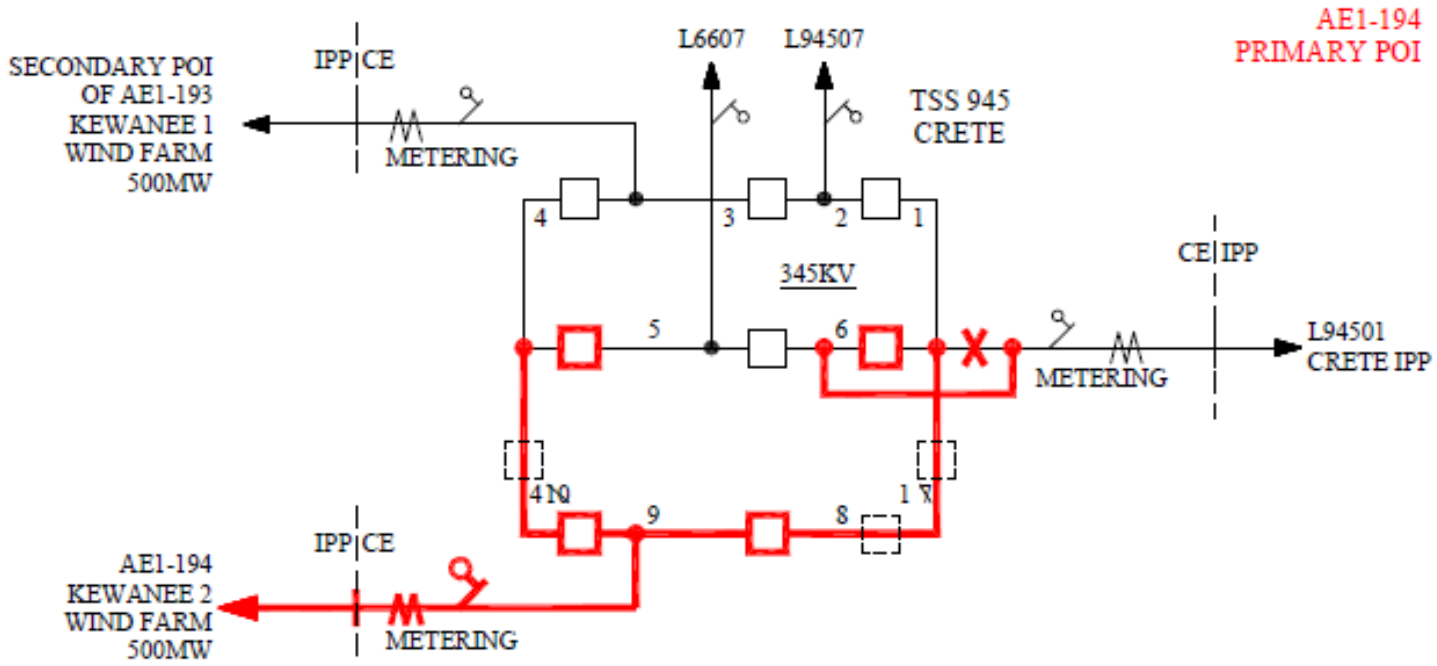
The Interconnection Customer ("IC") is responsible for constructing all the facilities on the Interconnection Customer side of the Point of Interconnection (POI).

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

Scope of Work	Cost Estimate
Installation of one 345kV circuit breaker at 345kV TSS 945 Crete.	$4,000,000
Total Cost Estimate (see notes below on cost estimate)	$4,000,000

However, if AE1-193 chooses its secondary POI, then the scope of work would include installation of four 345kV circuit breakers and relocating L94501 termination, to create a line position for AE1-194 generator lead, as shown in the one-line diagram below.



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

ComEd would design, engineer and construct expansion of Crete TSS 945.

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

Scope of Work	Cost Estimate
Installation of four 345kV circuit breaker at 345kV TSS 945 Crete and relocating L94501 termination	$13,000,000
Total Cost Estimate (see notes below on cost estimate)	$13,000,000

Schedule

Normally it takes about 24-months to engineer, design, procure material and construct 345kV facilities after 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 AE1-194 was evaluated as a 500 MW (Capacity 65 MW) injection at Crete EC; BP 345 kV substation in the ComEd area. Project AE1-194 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-194 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)

None

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
211660	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P4_#6189_05HANGR 765_D1	breaker	2354.0	107.28	107.69	DC	52.21
821557	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P4_#6189_05HANGR 765_D1	breaker	2354.0	107.28	107.69	DC	52.21
821715	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	118.06	119.44	DC	43.12
821716	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	COMED_P4_112-65-BT4-5__	breaker	1409.0	108.98	110.13	DC	48.13
821717	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	COMED_P4_112-65-BT3-4__	breaker	1409.0	108.98	110.13	DC	48.13
821718	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	COMED_P4_023-65-BT2-3__	breaker	1409.0	108.98	110.13	DC	48.12
211833	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	103.92	109.08	DC	83.72
211662	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	109.87	120.94	DC	145.3
211663	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.12	122.35	DC	145.82
211664	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	110.07	120.92	DC	145.82
211665	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	110.06	120.92	DC	145.83

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
821390	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	175.14	176.55	DC	78.79
211613	264612	19MON12	ITCT	241901	02LALLENDORF	ATSI	1	ATSI-P2-3-TE-345-016T	breaker	1702.0	119.79	120.47	DC	25.24
213029	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	105.16	106.08	DC	162.35
823243	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	105.16	106.08	DC	162.35
211704	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	116.74	122.54	DC	83.72
821654	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	116.74	122.54	DC	83.72
211667	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	109.87	120.94	DC	145.3
211668	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.12	122.35	DC	145.82
211669	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	110.07	120.92	DC	145.82
211670	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	110.06	120.92	DC	145.83
211560	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	125.44	141.5	DC	249.12
211561	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1399.0	124.86	140.94	DC	249.59
211562	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	124.8	140.88	DC	249.6
211563	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	124.8	140.88	DC	249.6
821963	932800	AC2-104 TAP	AEP	242928	05MARYSV	AEP	1	AEP_P4_#7334_05JEFRSO 765_A2	breaker	4571.0	103.44	103.61	DC	131.25
821640	938670	AE1-089 TAP	AEP	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	126.44	127.83	DC	43.12

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
212644	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P1-2_#709	operation	2354.0	106.13	106.47	DC	52.35
822833	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P1-2_#709	operation	2354.0	106.13	106.47	DC	52.35

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
822679	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	AEP_P1-2_#695A	operation	1409.0	108.98	110.12	DC	48.13
212564	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P1-2_#695A	operation	1091.0	102.64	107.86	DC	84.49
212370	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	AEP_P1-2_#695A	operation	1091.0	110.05	120.91	DC	145.83
822214	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	operation	1409.0	171.68	173.16	DC	81.92
822220	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	Base Case	operation	1409.0	112.24	113.36	DC	60.07
212659	270728	E FRANKFO; B	CE	270766	GOODINGS ;3B	CE	1	Base Case	operation	1334.0	76.39	90.49	DC	188.08
212660	270728	E FRANKFO; B	CE	270766	GOODINGS ;3B	CE	1	COMED_P1-2_345-L94507_B-S	operation	1726.0	61.33	82.01	DC	356.93
212419	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	115.3	121.17	DC	84.49
822459	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	115.3	121.17	DC	84.49
212366	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	AEP_P1-2_#695A	operation	1091.0	110.05	120.91	DC	145.83
212288	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P1-2_#695A	operation	1399.0	124.76	140.84	DC	249.61
212289	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	Base Case	operation	1091.0	80.62	102.14	DC	234.11
822542	938670	AE1-089 TAP	AEP	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	operation	1409.0	117.32	118.88	DC	48.13

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
821963	11	AC2-104 TAP 765.0 kV - 05MARYSV 765.0 kV Ckt 1	**AEP** Description : Replace three 3000A wavetraps at Marysville. Estimated cost: $675,000 Time Estimate : 24-36 Months Cost : $675,000	$675,000
821715,821716,821717,821718	2	05ELDERBRYSS 345.0 kV - AE1-089 TAP 345.0 kV Ckt 1	**AEP** Description : 1) A Sag Study will be required on the 7.2 miles of ACSR ~ 954 ~ 45/7 ~ RAIL - Conductor section 1 conductor to mitigate the overload. The new ratings after sag study will be: S/N: 1409 MVA, S/E: 1888 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between $28,800 (no remediation required, just sag study) and $14.4million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Time Estimate : 6-12 Months Cost : $28,800	$28,800
821640	12	AE1-089 TAP 345.0 kV - 05DUMONT 345.0 kV Ckt 1		
211660,821557	1	05JEFRSO 345.0 kV - 06CLIFTY 345.0 kV Ckt Z1	**AEP** Description : Current AEP End Ratings : S/N : 1740 MVA S/E: 2034 MVA 1) Replace 9 CLifty Creek Risers (Sub cond 2-1700 kcm AAC 61 Str) at Clifty station - Estimated Cost : $ 175,000. 2) Replace 4 Clifty Switches , Estimated cost : $2,000,000. 3) 0.75 miles of ACSR ~ 2156 ~ 84/19 ~ BLUEBIRD @ 284 °F - Conductor section 1 needs to be rebuilt/reconductored , Estimated cost : 1,500,000. Time Estimate : 24-36 Months Cost : $3,675,000 **OVEC** Description : OVEC will not evaluate this violation until the impact study phase.	$3,675,000
211560,211561,211562,211563	10	CRETE EC ;BP 345.0 kV - 17STJOHN 345.0 kV Ckt 1	**CE** Description : The upgrade will be to re-conductor the line and upgrade station conductor. Time Estimate : 24-30 Months Cost : $5,500,000 **NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase	$5,500,000

ID	Index	Facility	Upgrade Description	Cost
821390	5	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	**AEP** Description : 1) Rebuild / reconductor 8.58 miles of conductor (ACSR ~ 954 ~ 45/7 ~ RAIL - Conductor section 1), Estimated Cost : $17.16 million . 2) Replace Dumont Wavetrap , Estimated Cost : $200k. 3) An Engineering study will need to be conducted to determine if the CT Thermal Limits can be adjusted to mitigate the overload. Estimated Cost: $25,000. 4) Replace two Dumont Breakers , Estimated Cost: $2.4 million 5)Replace 11 Dumont risers (11 Sub cond 2-1700 kcm AAC 61 Str.- Dumont) , Estimated Cost : $ 175,000 6) Replace four 3000 A Dumont Switches , Estimated Cost : $2,000,000 7) An Engineering study will need to be conducted to determine if the CT Thermal Limit settings can be adjusted to mitigate the overload. Estimated Cost: $25,000. New relay package will be required if the settings cannot be adjusted, Estimated Cost: $600,000. Time Estimate : 24-36 Months Cost : $21,985,000 **NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.	$21,985,000
211667,211668,211669,211670	9	ST JOHN ; T 345.0 kV - 17GREEN_ACRE 345.0 kV Ckt 1	**CE** Description : The upgrade will be to mitigate the sag on the line. Note, the estimate provided does not include potential transmission tower pole upgrades. This cost will be determined during the Facilities Studies. Time Estimate : 24-30 Months Cost : $2,600,000 **NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.	$2,600,000
211664,211665,211662,211663	4	17STJOHN 345.0 kV - ST JOHN ; T 345.0 kV Ckt 1		
211833	3	17GREEN_ACRE 345.0 kV - GREENACRE; T 345.0 kV Ckt 1		
823243,213029	7	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

ID	Index	Facility	Upgrade Description	Cost
211704,821654	8	**GREENACRE; T 345.0 kV - 05OLIVE 345.0 kV Ckt 1**	**CE** Description : Sag mitigation of line. Additional tower work may be required. Scope and cost for tower work will be deteermined during the Facilities Study phase. Time Estimate : 30.0 Months Cost : $26,300,000 **AEP** Description : 1) A Sag Study will be required on the 40.64 miles of ACSR/PE 1414 62/19 conductor to mitigate the overload. The new ratings after sag study will be: S/N: 971 MVA, S/E: 1419 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between $162,560 (no remediation required, just sag study) and $81.28 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. 2) Replace 5 Jumpers (Sub cond 2156 ACSR 84/19 STD at Olive station, estimated cost : $175,000 3) An engineering study will need to be conducted to determine if the Olive station Relay Compliance Trip limits settings (Existing Trip Limit 2293 Amps - Olive) can be adjusted to mitigate the overload. Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated Cost: $600,000. Time Estimate : 24-30 Months Cost : $362,560	$26,662,560
211613	6	**19MON12 345.0 kV - 02LALLENDORF 345.0 kV Ckt 1**	**ATSI** Description : a) Reconductor the existing 6.5 miles of Lallendorf-Monroe 345kV line with bundled (2) 795 26/7 ACSS. b) Replace substation conductor, Line Drop, Wave Trap, Bitronics Meter for the Monroe 345kV exit at Lallendorf substation to increase the Summer Emergency rating to 2578 MVA or greater. c) ITC would need to reconductor their portion of the transmission line (approx 16 miles) in order to mitigate 2505 MVA for SE Time Estimate : 16.0 Months Cost : $12,324,600 **ITC** Description : The external (i.e. Non-PJM) Transmission Owner, ITC, will not evaluate this violation until the impact study phase.	$12,324,600
			TOTAL COST	**$76,450,960**

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
821557	242865	05JEFRSO	AEP	248000	06CLIFTY	OVEC	Z1	AEP_P4_#6189_05HANGR 765_D1	breaker	2354.0	107.28	107.69	DC	52.21

Bus #	Bus	MW Impact
243441	05CKG2	19.52
243442	05RKG1	66.58
243443	05RKG2	63.83
243859	05FR-11G C	0.41
243862	05FR-12G C	0.4
243864	05FR-21G C	0.43
243866	05FR-22G C	0.41
243870	05FR-3G C	0.83
243873	05FR-4G C	0.64
246909	05MDL-1G C	0.86
246910	05MDL-2G C	0.43
246976	05MDL-3G C	0.43
246979	05MDL-4G C	0.86
247556	T-127 C	0.42
247900	05FR-11G E	10.64
247901	05FR-12G E	10.46
247902	05FR-21G E	11.18
247903	05FR-22G E	10.71
247904	05FR-3G E	21.69
247905	05FR-4G E	16.31
247906	05MDL-1G E	22.31
247907	05MDL-2G E	11.07
247912	05MDL-3G E	11.57
247913	05MDL-4G E	11.18
247943	T-127 E	11.18
274888	PILOT HIL;1E	14.45
275149	KEMPTON ;1E	14.45
900404	X3-028 C	257.79
900405	X3-028 E	343.72
909145	X2-052	11.25
910542	X3-005 E	0.58
915662	Y3-099 E	0.24
915672	Y3-100 E	0.24
916182	Z1-065 E	0.65
916512	Z1-107 E	2.04
917712	Z2-114 E	0.26
925242	AB2-178 E	2.39
925881	AC1-067 O1	113.32
927091	AC1-204 1	29.61
927101	AC1-204 2	29.61
930041	AB1-006 C	0.56

Bus #	Bus	MW Impact
930042	AB1-006 E	24.31
930391	AB1-080	0.67
930461	AB1-087	94.52
930471	AB1-088	94.52
930501	AB1-091 O1	56.81
932601	AC2-080 C O1	3.53
932602	AC2-080 E O1	23.6
932931	AC2-117	4.77
933281	AC2-140 C	4.21
933282	AC2-140 E	0.22
933411	AC2-154 C	1.96
933412	AC2-154 E	3.2
933441	AC2-157 C	13.06
933442	AC2-157 E	21.31
934721	AD1-100 C	15.48
934722	AD1-100 E	72.25
935271	AD1-137 C	8.83
935272	AD1-137 E	59.11
936371	AD2-047 C O1	1.75
936372	AD2-047 E O1	18.88
936461	AD2-060	2.06
936781	AD2-101 C	3.64
936782	AD2-101 E	17.04
936961	AD2-130	0.44
936981	AD2-132 C	4.77
936982	AD2-132 E	22.36
937031	AD2-137 C O1	2.76
937032	AD2-137 E O1	12.91
937041	AD2-138 C	4.77
937042	AD2-138 E	22.36
937051	AD2-140 C O1	2.76
937052	AD2-140 E O1	12.94
937061	AD2-141 C O1	2.75
937062	AD2-141 E O1	12.96
937071	AD2-142 C O1	5.53
937072	AD2-142 E O1	25.89
937121	AD2-148 C O1	2.73
937122	AD2-148 E O1	12.77
937131	AD2-149 C O1	2.73
937132	AD2-149 E O1	12.77
937141	AD2-150 C O1	2.73
937142	AD2-150 E O1	12.77
937181	AD2-155 C O1	2.73
937182	AD2-155 E O1	12.77
937321	AD2-175 C	12.7
937322	AD2-175 E	8.47
937401	AD2-194 1	6.13
937411	AD2-194 2	6.13
938012	AE1-002 E O1	5.54
938511	AE1-070 1	7.2
938521	AE1-070 2	6.59
938671	AE1-089 C	14.05

Bus #	Bus	MW Impact
938672	AE1-089 E	19.29
939351	AE1-166 C O1	8.05
939352	AE1-166 E O1	7.43
939641	AE1-194 C	6.79
939642	AE1-194 E	45.43
939651	AE1-195 C	6.79
939652	AE1-195 E	45.43
940093	AE1-251 EBAT	13.54
AB2-013	AB2-013	14.05
AE1-033	AE1-033	14.5
BLUEG	BLUEG	104.11
CALDERWOOD	CALDERWOOD	1.39
CANNELTON	CANNELTON	1.9
CARR	CARR	0.72
CATAWBA	CATAWBA	0.85
CBM-W1	CBM-W1	38.85
CBM-W2	CBM-W2	60.81
CHEOAH	CHEOAH	1.27
CHILHOWEE	CHILHOWEE	0.45
CHOCTAW	CHOCTAW	0.16
CIN	CIN	6.53
ELMERSMITH	ELMERSMITH	3.09
G-007	G-007	2.17
HAMLET	HAMLET	2.78
IPL	IPL	3.72
MEC	MEC	33.99
MECS	MECS	18.41
O-066	O-066	7.27
RENSSELAER	RENSSELAER	0.57
SANTEETLA	SANTEETLA	0.37
TRIMBLE	TRIMBLE	12.55
TVA	TVA	1.91
WEC	WEC	6.3
Z1-043	Z1-043	24.71

Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
821715	243918	05ELDERBRYSS	AEP	938670	AE1-089 TAP	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	118.06	119.44	DC	43.12

Bus #	Bus	MW Impact
247900	05FR-11G E	6.85
247901	05FR-12G E	6.74
247902	05FR-21G E	7.2
247903	05FR-22G E	6.89
247904	05FR-3G E	13.96
247905	05FR-4G E	10.5
247906	05MDL-1G E	15.63
247907	05MDL-2G E	7.75
247912	05MDL-3G E	8.11
247913	05MDL-4G E	7.83
247943	T-127 E	7.83
270859	PWR VTR EC;R	7.11
274722	S-055 E	6.55
274809	UNIV PK N;5U	0.8
274811	UNIV PK N;7U	0.8
274812	UNIV PK N;8U	0.8
274814	UNIV PK N;0U	0.8
274815	UNIV PK N;XU	0.8
274859	EASYR;U1 E	5.56
274860	EASYR;U2 E	5.56
274888	PILOT HIL;1E	10.32
274890	CAYUG;1U E	8.28
274891	CAYUG;2U E	8.28
275149	KEMPTON ;1E	10.32
290021	O50 E	11.46
290051	GSG-6; E	6.16
290108	LEEDK;1U E	14.23
293061	N-015 E	8.96
293644	O22 E1	5.93
293645	O22 E2	11.51
294392	P-010 E	11.37
294763	P-046 E	5.56
295109	WESTBROOK E	3.3
909145	X2-052	36.23
914641	Y2-103	26.18
915011	Y3-013 1	2.18
915021	Y3-013 2	2.18
915031	Y3-013 3	2.18
916221	Z1-073 E	3.18
916502	Z1-106 E1	0.73

Bus #	Bus	MW Impact
916504	Z1-106 E2	0.73
916512	Z1-107 E	1.5
916522	Z1-108 E	1.45
917711	Z2-114 C	0.06
917712	Z2-114 E	0.4
918052	AA1-018 E	9.8
920272	AA2-123 E	1.43
924471	AB2-096	24.87
925302	AB2-191 E	0.82
926311	AC1-109 1	1.1
926321	AC1-109 2	1.1
926331	AC1-110 1	1.1
926341	AC1-110 2	1.1
926351	AC1-111 1	0.44
926361	AC1-111 2	0.44
926371	AC1-111 3	0.44
926381	AC1-111 4	0.44
926391	AC1-111 5	0.44
926401	AC1-111 6	0.44
926431	AC1-114	1.4
926821	AC1-168 C O1	0.7
926822	AC1-168 E O1	4.71
927091	AC1-204 1	41.9
927101	AC1-204 2	41.91
927451	AC1-142A 1	2.42
927461	AC1-142A 2	2.42
927511	AC1-113 1	0.7
927521	AC1-113 2	0.7
927531	AC1-185 1	0.41
927541	AC1-185 2	0.41
927551	AC1-185 3	0.41
927561	AC1-185 4	0.41
927571	AC1-185 5	0.41
927581	AC1-185 6	0.41
927591	AC1-185 7	0.41
927601	AC1-185 8	0.41
930042	AB1-006 E	17.03
930391	AB1-080	2.15
930481	AB1-089	38.75
930501	AB1-091 O1	40.14
930741	AB1-122 1O1	41.99
930751	AB1-122 2O1	42.66
932601	AC2-080 C O1	3.72
932602	AC2-080 E O1	24.91
932881	AC2-115 1	1.4
932891	AC2-115 2	1.4
932921	AC2-116	0.49
932931	AC2-117	5.17
933341	AC2-147 C	0.52
933342	AC2-147 E	0.85
933411	AC2-154 C	1.4
933412	AC2-154 E	2.28

Bus #	Bus	MW Impact
933431	AC2-156 C O1	0.55
933432	AC2-156 E O1	0.9
933911	AD1-013 C	1.08
933912	AD1-013 E	1.73
933931	AD1-016 C	0.54
933932	AD1-016 E	0.89
934101	AD1-039 1	4.12
934111	AD1-039 2	4.18
934401	AD1-064 C O1	1.88
934402	AD1-064 E O1	8.8
934431	AD1-067 C	0.08
934432	AD1-067 E	0.33
934651	AD1-096 C	0.53
934652	AD1-096 E	0.86
934701	AD1-098 C O1	4.06
934702	AD1-098 E O1	2.96
934721	AD1-100 C	11.12
934722	AD1-100 E	51.9
934871	AD1-116 C	0.57
934872	AD1-116 E	0.93
934881	AD1-117 C	3.21
934882	AD1-117 E	2.14
934971	AD1-129 C	0.53
934972	AD1-129 E	0.35
935001	AD1-133 C O1	12.63
935002	AD1-133 E O1	8.42
935271	AD1-137 C	5.69
935272	AD1-137 E	38.05
936291	AD2-038 C O1	1.41
936292	AD2-038 E O1	9.44
936371	AD2-047 C O1	1.25
936372	AD2-047 E O1	13.49
936461	AD2-060	1.47
936511	AD2-066 C O1	4.99
936512	AD2-066 E O1	3.33
936781	AD2-101 C	2.48
936782	AD2-101 E	11.59
936791	AD2-102 C	7.12
936792	AD2-102 E	6.84
936961	AD2-130	0.32
936981	AD2-132 C	5.04
936982	AD2-132 E	23.6
937001	AD2-134 C	1.61
937002	AD2-134 E	6.66
937031	AD2-137 C O1	1.92
937032	AD2-137 E O1	9.0
937041	AD2-138 C	5.04
937042	AD2-138 E	23.6
937051	AD2-140 C O1	1.92
937052	AD2-140 E O1	8.99
937061	AD2-141 C O1	1.91
937062	AD2-141 E O1	9.0

Bus #	Bus	MW Impact
937071	AD2-142 C O1	3.84
937072	AD2-142 E O1	17.98
937121	AD2-148 C O1	1.93
937122	AD2-148 E O1	9.02
937131	AD2-149 C O1	1.93
937132	AD2-149 E O1	9.02
937141	AD2-150 C O1	1.93
937142	AD2-150 E O1	9.02
937181	AD2-155 C O1	1.93
937182	AD2-155 E O1	9.02
937311	AD2-172 C	1.46
937312	AD2-172 E	2.02
937321	AD2-175 C	8.98
937322	AD2-175 E	5.98
937331	AD2-176 C O1	4.29
937332	AD2-176 E O1	2.86
937401	AD2-194 1	4.51
937411	AD2-194 2	4.51
938012	AE1-002 E O1	3.86
938511	AE1-070 1	5.29
938521	AE1-070 2	4.84
938851	AE1-113 C O1	5.18
938852	AE1-113 E O1	16.3
938861	AE1-114 C O1	2.14
938862	AE1-114 E O1	8.19
939321	AE1-163 C O1	3.54
939322	AE1-163 E O1	21.77
939351	AE1-166 C O1	5.85
939352	AE1-166 E O1	5.4
939401	AE1-172 C O1	3.71
939402	AE1-172 E O1	17.38
939641	AE1-194 C	5.61
939642	AE1-194 E	37.52
939651	AE1-195 C	5.61
939652	AE1-195 E	37.52
939691	AE1-199	1.41
939701	AE1-201 C	1.17
939702	AE1-201 E	0.26
939732	AE1-204 E	0.17
939861	AE1-222 1	46.37
939871	AE1-222 2	47.11
939921	AE1-228 C O1	5.92
939922	AE1-228 E O1	3.95
939961	AE1-233 C O1	1.36
939962	AE1-233 E O1	5.62
940101	AE1-252 C O1	6.33
940102	AE1-252 E O1	4.22
AB2-013	AB2-013	10.01
AE1-033	AE1-033	10.77
CARR	CARR	0.59
CATAWBA	CATAWBA	0.05
CBM-S1	CBM-S1	4.6

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	19.73
CBM-W2	CBM-W2	68.15
CIN	CIN	7.05
DEARBORN	DEARBORN	1.82
G-007	G-007	1.64
HAMLET	HAMLET	0.34
IPL	IPL	3.28
LGEE	LGEE	0.73
MEC	MEC	25.32
O-066	O-066	5.54
RENSSELAER	RENSSELAER	0.47
WEC	WEC	4.7
Z1-043	Z1-043	17.65

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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
211833	255104	17GREEN_ACRE	NIPS	270771	GREENACRE; T	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1091.0	103.92	109.08	DC	83.72

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	8.06
274722	S-055 E	7.52
274751	CRETE EC ;1U	1.93
274752	CRETE EC ;2U	1.93
274753	CRETE EC ;3U	1.93
274754	CRETE EC ;4U	1.93
274832	U4-027	7.11
274859	EASYR;U1 E	7.3
274860	EASYR;U2 E	7.3
274888	PILOT HIL;1E	12.4
274890	CAYUG;1U E	8.92
274891	CAYUG;2U E	8.92
275149	KEMPTON ;1E	12.4
290021	O50 E	12.98
290051	GSG-6; E	6.94
290108	LEEDK;1U E	16.14
293061	N-015 E	10.24
293516	O-009 E1	5.99
293517	O-009 E2	3.04
293518	O-009 E3	3.35
293644	O22 E1	7.24
293645	O22 E2	14.06
293715	O-029 E	6.47
293716	O-029 E	3.55
293717	O-029 E	3.26
294392	P-010 E	13.0
294763	P-046 E	6.23
295109	WESTBROOK E	3.72
295111	SUBLETTE E	1.72
910542	X3-005 E	0.52
914641	Y2-103	30.09
915011	Y3-013 1	2.51
915021	Y3-013 2	2.51
915031	Y3-013 3	2.51
916221	Z1-073 E	3.58
916502	Z1-106 E1	0.84
916504	Z1-106 E2	0.84
916512	Z1-107 E	1.71
916522	Z1-108 E	1.66
918052	AA1-018 E	10.62
919221	AA1-146	11.67

Bus #	Bus	MW Impact
919581	AA2-030	11.67
920272	AA2-123 E	1.63
924471	AB2-096	28.21
925161	AB2-173	2.08
925302	AB2-191 E	0.92
925881	AC1-067 O1	102.57
926311	AC1-109 1	1.27
926321	AC1-109 2	1.27
926331	AC1-110 1	1.27
926341	AC1-110 2	1.27
926351	AC1-111 1	0.51
926361	AC1-111 2	0.51
926371	AC1-111 3	0.51
926381	AC1-111 4	0.51
926391	AC1-111 5	0.51
926401	AC1-111 6	0.51
926431	AC1-114	1.58
926821	AC1-168 C O1	0.76
926822	AC1-168 E O1	5.08
927091	AC1-204 1	48.76
927101	AC1-204 2	48.73
927201	AC1-214 C O1	0.74
927202	AC1-214 E O1	2.34
927451	AC1-142A 1	2.83
927461	AC1-142A 2	2.83
927511	AC1-113 1	0.79
927521	AC1-113 2	0.79
927531	AC1-185 1	0.46
927541	AC1-185 2	0.46
927551	AC1-185 3	0.46
927561	AC1-185 4	0.46
927571	AC1-185 5	0.46
927581	AC1-185 6	0.46
927591	AC1-185 7	0.46
927601	AC1-185 8	0.46
930481	AB1-089	43.76
930501	AB1-091 O1	49.15
930741	AB1-122 1O1	47.58
930751	AB1-122 2O1	49.75
932881	AC2-115 1	1.58
932891	AC2-115 2	1.58
932921	AC2-116	0.55
933341	AC2-147 C	0.58
933342	AC2-147 E	0.94
933411	AC2-154 C	1.68
933412	AC2-154 E	2.75
933431	AC2-156 C O1	0.64
933432	AC2-156 E O1	1.04
933911	AD1-013 C	1.22
933912	AD1-013 E	1.95
933931	AD1-016 C	0.62
933932	AD1-016 E	1.01

Bus #	Bus	MW Impact
934101	AD1-039 1	4.66
934111	AD1-039 2	4.88
934401	AD1-064 C O1	2.13
934402	AD1-064 E O1	9.99
934431	AD1-067 C	0.09
934432	AD1-067 E	0.37
934651	AD1-096 C	0.59
934652	AD1-096 E	0.97
934701	AD1-098 C O1	4.57
934702	AD1-098 E O1	3.34
934721	AD1-100 C	12.94
934722	AD1-100 E	60.39
934871	AD1-116 C	0.62
934872	AD1-116 E	1.01
934881	AD1-117 C	3.57
934882	AD1-117 E	2.38
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	13.73
935002	AD1-133 E O1	9.15
936291	AD2-038 C O1	1.54
936292	AD2-038 E O1	10.32
936371	AD2-047 C O1	1.51
936372	AD2-047 E O1	16.21
936461	AD2-060	1.77
936511	AD2-066 C O1	5.56
936512	AD2-066 E O1	3.71
936781	AD2-101 C	3.17
936782	AD2-101 E	14.84
936791	AD2-102 C	8.0
936792	AD2-102 E	7.69
936961	AD2-130	0.38
937001	AD2-134 C	1.82
937002	AD2-134 E	7.5
937031	AD2-137 C O1	2.31
937032	AD2-137 E O1	10.8
937051	AD2-140 C O1	2.32
937052	AD2-140 E O1	10.87
937061	AD2-141 C O1	2.31
937062	AD2-141 E O1	10.88
937071	AD2-142 C O1	4.64
937072	AD2-142 E O1	21.73
937121	AD2-148 C O1	2.36
937122	AD2-148 E O1	11.04
937131	AD2-149 C O1	2.36
937132	AD2-149 E O1	11.04
937141	AD2-150 C O1	2.36
937142	AD2-150 E O1	11.04
937181	AD2-155 C O1	2.36
937182	AD2-155 E O1	11.04
937311	AD2-172 C	1.64
937312	AD2-172 E	2.26

Bus #	Bus	MW Impact
937321	AD2-175 C	10.99
937322	AD2-175 E	7.33
937331	AD2-176 C O1	4.89
937332	AD2-176 E O1	3.26
937401	AD2-194 1	5.24
937411	AD2-194 2	5.24
937531	AD2-214 C	2.92
937532	AD2-214 E	1.37
938012	AE1-002 E O1	4.63
938511	AE1-070 1	6.16
938521	AE1-070 2	5.63
938851	AE1-113 C O1	5.88
938852	AE1-113 E O1	18.47
938861	AE1-114 C O1	2.39
938862	AE1-114 E O1	9.13
939051	AE1-134 1	0.91
939061	AE1-134 2	0.91
939321	AE1-163 C O1	3.87
939322	AE1-163 E O1	23.79
939351	AE1-166 C O1	6.84
939352	AE1-166 E O1	6.31
939401	AE1-172 C O1	4.1
939402	AE1-172 E O1	19.18
939641	AE1-194 C	10.88
939642	AE1-194 E	72.84
939651	AE1-195 C	10.88
939652	AE1-195 E	72.84
939691	AE1-199	1.59
939701	AE1-201 C	1.34
939702	AE1-201 E	0.29
939732	AE1-204 E	0.2
939861	AE1-222 1	52.55
939871	AE1-222 2	54.95
939921	AE1-228 C O1	6.68
939922	AE1-228 E O1	4.45
939961	AE1-233 C O1	1.55
939962	AE1-233 E O1	6.39
940101	AE1-252 C O1	6.98
940102	AE1-252 E O1	4.65
951721	J643	15.51
952581	J740 C	3.4
952582	J740 E	18.42
953871	J847	8.38
AB2-013	AB2-013	10.64
AE1-033	AE1-033	12.03
BLUEG	BLUEG	2.86
CANNELTON	CANNELTON	0.0
CARR	CARR	0.5
CATAWBA	CATAWBA	0.16
CBM-S1	CBM-S1	1.36
CBM-W1	CBM-W1	19.98
CBM-W2	CBM-W2	38.44

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.29
G-007	G-007	1.38
HAMLET	HAMLET	0.65
MEC	MEC	25.05
O-066	O-066	4.65
RENSSELAER	RENSSELAER	0.39
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.34
WEC	WEC	5.32
Z1-043	Z1-043	18.82

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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
211663	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.12	122.35	DC	145.82

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.04
274654	BRAIDWOOD;1U	19.05
274655	BRAIDWOOD;2U	18.24
274661	LASCO STA;2U	17.6
274687	WILL CNTY;4U	8.03
274704	KENDALL ;1C	2.81
274705	KENDALL ;1S	1.88
274706	KENDALL ;2C	2.81
274707	KENDALL ;2S	1.88
274722	S-055 E	8.45
274751	CRETE EC ;1U	3.36
274752	CRETE EC ;2U	3.36
274753	CRETE EC ;3U	3.36
274754	CRETE EC ;4U	3.36
274859	EASYR;U1 E	8.17
274860	EASYR;U2 E	8.17
274861	TOP CROP ;1U	0.33
274862	TOP CROP ;2U	0.63
274888	PILOT HIL;1E	12.81
274890	CAYUG;1U E	9.74
274891	CAYUG;2U E	9.74
275149	KEMPTON ;1E	12.81
290021	O50 E	14.65
290051	GSG-6; E	7.78
290108	LEEDK;1U E	18.09
293061	N-015 E	11.61
293516	O-009 E1	6.69
293517	O-009 E2	3.4
293518	O-009 E3	3.74
293644	O22 E1	8.5
293645	O22 E2	16.51
293715	O-029 E	7.24
293716	O-029 E	3.97
293717	O-029 E	3.65
294392	P-010 E	14.75
294763	P-046 E	6.98
295109	WESTBROOK E	4.16
295111	SUBLETTE E	1.92
914641	Y2-103	33.8
915011	Y3-013 1	2.82

Bus #	Bus	MW Impact
915021	Y3-013 2	2.82
915031	Y3-013 3	2.82
916221	Z1-073 E	4.01
916502	Z1-106 E1	0.94
916504	Z1-106 E2	0.94
916512	Z1-107 E	1.85
916522	Z1-108 E	1.86
918052	AA1-018 E	11.64
919221	AA1-146	13.04
919581	AA2-030	13.04
920272	AA2-123 E	1.83
924471	AB2-096	31.63
925161	AB2-173	2.33
925302	AB2-191 E	1.03
926311	AC1-109 1	1.42
926321	AC1-109 2	1.42
926331	AC1-110 1	1.42
926341	AC1-110 2	1.42
926351	AC1-111 1	0.57
926361	AC1-111 2	0.57
926371	AC1-111 3	0.57
926381	AC1-111 4	0.57
926391	AC1-111 5	0.57
926401	AC1-111 6	0.57
926431	AC1-114	1.77
926821	AC1-168 C O1	0.85
926822	AC1-168 E O1	5.68
927091	AC1-204 1	55.19
927101	AC1-204 2	55.12
927451	AC1-142A 1	3.2
927461	AC1-142A 2	3.2
927511	AC1-113 1	0.89
927521	AC1-113 2	0.89
927531	AC1-185 1	0.51
927541	AC1-185 2	0.51
927551	AC1-185 3	0.51
927561	AC1-185 4	0.51
927571	AC1-185 5	0.51
927581	AC1-185 6	0.51
927591	AC1-185 7	0.51
927601	AC1-185 8	0.51
930481	AB1-089	49.05
930501	AB1-091 O1	50.61
930741	AB1-122 1O1	52.99
930751	AB1-122 2O1	56.33
932881	AC2-115 1	1.77
932891	AC2-115 2	1.77
932921	AC2-116	0.62
933341	AC2-147 C	0.65
933342	AC2-147 E	1.06
933411	AC2-154 C	1.74
933412	AC2-154 E	2.84

Bus #	Bus	MW Impact
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.16
933911	AD1-013 C	1.37
933912	AD1-013 E	2.19
933931	AD1-016 C	0.69
933932	AD1-016 E	1.13
934101	AD1-039 1	5.19
934111	AD1-039 2	5.52
934401	AD1-064 C O1	2.39
934402	AD1-064 E O1	11.2
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.66
934652	AD1-096 E	1.08
934701	AD1-098 C O1	5.12
934702	AD1-098 E O1	3.74
934721	AD1-100 C	14.27
934722	AD1-100 E	66.6
934871	AD1-116 C	0.68
934872	AD1-116 E	1.11
934881	AD1-117 C	3.99
934882	AD1-117 E	2.66
934971	AD1-129 C	0.67
934972	AD1-129 E	0.45
935001	AD1-133 C O1	15.16
935002	AD1-133 E O1	10.11
936291	AD2-038 C O1	1.71
936292	AD2-038 E O1	11.45
936371	AD2-047 C O1	1.56
936372	AD2-047 E O1	16.75
936461	AD2-060	1.83
936511	AD2-066 C O1	6.19
936512	AD2-066 E O1	4.13
936781	AD2-101 C	3.09
936782	AD2-101 E	14.46
936791	AD2-102 C	8.96
936792	AD2-102 E	8.61
936961	AD2-130	0.42
937001	AD2-134 C	2.03
937002	AD2-134 E	8.4
937031	AD2-137 C O1	2.44
937032	AD2-137 E O1	11.43
937051	AD2-140 C O1	2.44
937052	AD2-140 E O1	11.42
937061	AD2-141 C O1	2.43
937062	AD2-141 E O1	11.44
937071	AD2-142 C O1	4.88
937072	AD2-142 E O1	22.85
937121	AD2-148 C O1	2.43
937122	AD2-148 E O1	11.37
937131	AD2-149 C O1	2.43
937132	AD2-149 E O1	11.37

Bus #	Bus	MW Impact
937141	AD2-150 C O1	2.43
937142	AD2-150 E O1	11.37
937181	AD2-155 C O1	2.43
937182	AD2-155 E O1	11.37
937311	AD2-172 C	1.83
937312	AD2-172 E	2.53
937321	AD2-175 C	11.32
937322	AD2-175 E	7.55
937331	AD2-176 C O1	5.48
937332	AD2-176 E O1	3.65
937401	AD2-194 1	5.94
937411	AD2-194 2	5.93
937531	AD2-214 C	0.8
937532	AD2-214 E	0.38
938012	AE1-002 E O1	4.9
938511	AE1-070 1	6.97
938521	AE1-070 2	6.37
938851	AE1-113 C O1	6.63
938852	AE1-113 E O1	20.84
938861	AE1-114 C O1	2.67
938862	AE1-114 E O1	10.22
939051	AE1-134 1	1.01
939061	AE1-134 2	1.01
939321	AE1-163 C O1	4.3
939322	AE1-163 E O1	26.41
939351	AE1-166 C O1	7.6
939352	AE1-166 E O1	7.02
939401	AE1-172 C O1	4.47
939402	AE1-172 E O1	20.95
939641	AE1-194 C	18.96
939642	AE1-194 E	126.86
939651	AE1-195 C	18.96
939652	AE1-195 E	126.86
939691	AE1-199	1.78
939701	AE1-201 C	1.5
939702	AE1-201 E	0.33
939732	AE1-204 E	0.22
939861	AE1-222 1	58.52
939871	AE1-222 2	62.2
939921	AE1-228 C O1	7.48
939922	AE1-228 E O1	4.99
939961	AE1-233 C O1	1.73
939962	AE1-233 E O1	7.16
940101	AE1-252 C O1	7.63
940102	AE1-252 E O1	5.08
AB2-013	AB2-013	11.87
AE1-033	AE1-033	13.47
BLUEG	BLUEG	5.05
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.11
CARR	CARR	0.56
CATAWBA	CATAWBA	0.23

Bus #	Bus	MW Impact
CBM-S1	CBM-S1	0.77
CBM-W1	CBM-W1	20.04
CBM-W2	CBM-W2	37.14
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.24
ELMERSMITH	ELMERSMITH	0.14
G-007	G-007	1.57
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.87
MEC	MEC	27.58
O-066	O-066	5.3
RENSSELAER	RENSSELAER	0.45
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.59
WEC	WEC	5.97
Z1-043	Z1-043	20.98

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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
821390	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	175.14	176.55	DC	78.79

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	13.92
274722	S-055 E	12.95
274724	RIVER EC ;11	4.75
274788	SE CHICAG;5U	1.14
274789	SE CHICAG;6U	1.14
274790	SE CHICAG;7U	1.14
274791	SE CHICAG;8U	1.14
274795	SE CHICAG;2U	1.12
274832	U4-027	12.45
274859	EASYR;U1 E	12.67
274860	EASYR;U2 E	12.67
274888	PILOT HIL;1E	22.3
274890	CAYUG;1U E	15.76
274891	CAYUG;2U E	15.76
275149	KEMPTON ;1E	22.3
290021	O50 E	22.31
290051	GSG-6; E	12.02
290108	LEEDK;1U E	27.92
293061	N-015 E	17.54
293516	O-009 E1	10.45
293517	O-009 E2	5.31
293518	O-009 E3	5.85
293644	O22 E1	11.95
293645	O22 E2	23.2
293715	O-029 E	11.27
293716	O-029 E	6.18
293717	O-029 E	5.68
293771	O-035 E	7.36
294392	P-010 E	22.27
294763	P-046 E	10.8
295109	WESTBROOK E	6.44
295111	SUBLETTE E	2.99
910542	X3-005 E	1.0
914641	Y2-103	51.8
915011	Y3-013 1	4.32
915021	Y3-013 2	4.32
915031	Y3-013 3	4.32
916211	Z1-072 E	5.57
916221	Z1-073 E	6.2
916502	Z1-106 E1	1.45
916504	Z1-106 E2	1.45

Bus #	Bus	MW Impact
916512	Z1-107 E	3.03
916522	Z1-108 E	2.86
918052	AA1-018 E	18.74
919221	AA1-146	20.28
919581	AA2-030	20.28
920272	AA2-123 E	2.81
924471	AB2-096	48.73
925161	AB2-173	3.62
925302	AB2-191 E	1.59
925581	AC1-033 C	1.61
925582	AC1-033 E	10.81
925881	AC1-067 O1	198.49
926311	AC1-109 1	2.19
926321	AC1-109 2	2.19
926331	AC1-110 1	2.18
926341	AC1-110 2	2.18
926351	AC1-111 1	0.88
926361	AC1-111 2	0.88
926371	AC1-111 3	0.88
926381	AC1-111 4	0.88
926391	AC1-111 5	0.88
926401	AC1-111 6	0.88
926431	AC1-114	2.74
926821	AC1-168 C O1	1.32
926822	AC1-168 E O1	8.85
927091	AC1-204 1	83.26
927101	AC1-204 2	83.23
927201	AC1-214 C O1	2.36
927202	AC1-214 E O1	7.51
927451	AC1-142A 1	4.83
927461	AC1-142A 2	4.84
927511	AC1-113 1	1.37
927521	AC1-113 2	1.37
927531	AC1-185 1	0.79
927541	AC1-185 2	0.79
927551	AC1-185 3	0.79
927561	AC1-185 4	0.79
927571	AC1-185 5	0.79
927581	AC1-185 6	0.79
927591	AC1-185 7	0.79
927601	AC1-185 8	0.79
930481	AB1-089	75.67
930501	AB1-091 O1	88.22
930741	AB1-122 1O1	82.42
930751	AB1-122 2O1	84.95
932881	AC2-115 1	2.74
932891	AC2-115 2	2.74
932921	AC2-116	0.96
932931	AC2-117	5.81
933341	AC2-147 C	1.0
933342	AC2-147 E	1.64
933411	AC2-154 C	3.03

Bus #	Bus	MW Impact
933412	AC2-154 E	4.94
933431	AC2-156 C O1	1.1
933432	AC2-156 E O1	1.79
933911	AD1-013 C	2.12
933912	AD1-013 E	3.38
933931	AD1-016 C	1.07
933932	AD1-016 E	1.74
934101	AD1-039 1	8.08
934111	AD1-039 2	8.33
934401	AD1-064 C O1	3.69
934402	AD1-064 E O1	17.25
934431	AD1-067 C	0.15
934432	AD1-067 E	0.63
934651	AD1-096 C	1.03
934652	AD1-096 E	1.67
934701	AD1-098 C O1	7.91
934702	AD1-098 E O1	5.78
934721	AD1-100 C	22.45
934722	AD1-100 E	104.76
934871	AD1-116 C	1.09
934872	AD1-116 E	1.78
934881	AD1-117 C	6.19
934882	AD1-117 E	4.13
934971	AD1-129 C	1.04
934972	AD1-129 E	0.69
935001	AD1-133 C O1	24.06
935002	AD1-133 E O1	16.04
936291	AD2-038 C O1	2.69
936292	AD2-038 E O1	18.02
936371	AD2-047 C O1	2.71
936372	AD2-047 E O1	29.15
936461	AD2-060	3.19
936511	AD2-066 C O1	9.67
936512	AD2-066 E O1	6.45
936781	AD2-101 C	5.9
936782	AD2-101 E	27.62
936791	AD2-102 C	13.85
936792	AD2-102 E	13.3
936961	AD2-130	0.66
937001	AD2-134 C	3.14
937002	AD2-134 E	12.98
937031	AD2-137 C O1	4.08
937032	AD2-137 E O1	19.09
937051	AD2-140 C O1	4.11
937052	AD2-140 E O1	19.25
937061	AD2-141 C O1	4.09
937062	AD2-141 E O1	19.27
937071	AD2-142 C O1	8.22
937072	AD2-142 E O1	38.5
937121	AD2-148 C O1	4.23
937122	AD2-148 E O1	19.82
937131	AD2-149 C O1	4.23

Bus #	Bus	MW Impact
937132	AD2-149 E O1	19.82
937141	AD2-150 C O1	4.23
937142	AD2-150 E O1	19.82
937181	AD2-155 C O1	4.23
937182	AD2-155 E O1	19.82
937311	AD2-172 C	2.83
937312	AD2-172 E	3.91
937321	AD2-175 C	19.73
937322	AD2-175 E	13.15
937331	AD2-176 C O1	8.43
937332	AD2-176 E O1	5.62
937401	AD2-194 1	8.95
937411	AD2-194 2	8.95
937531	AD2-214 C	5.1
937532	AD2-214 E	2.4
938012	AE1-002 E O1	8.18
938511	AE1-070 1	10.52
938521	AE1-070 2	9.62
938851	AE1-113 C O1	10.1
938852	AE1-113 E O1	31.74
938861	AE1-114 C O1	4.14
938862	AE1-114 E O1	15.83
939051	AE1-134 1	1.58
939061	AE1-134 2	1.58
939321	AE1-163 C O1	6.77
939322	AE1-163 E O1	41.57
939351	AE1-166 C O1	11.8
939352	AE1-166 E O1	10.89
939401	AE1-172 C O1	7.21
939402	AE1-172 E O1	33.74
939631	AE1-193 C O1	4.73
939632	AE1-193 E O1	31.63
939641	AE1-194 C	10.24
939642	AE1-194 E	68.55
939651	AE1-195 C	10.24
939652	AE1-195 E	68.55
939681	AE1-198 C O1	23.78
939682	AE1-198 E O1	20.2
939691	AE1-199	2.75
939701	AE1-201 C	2.31
939702	AE1-201 E	0.51
939732	AE1-204 E	0.34
939861	AE1-222 1	91.02
939871	AE1-222 2	93.81
939921	AE1-228 C O1	11.56
939922	AE1-228 E O1	7.71
939961	AE1-233 C O1	2.67
939962	AE1-233 E O1	11.05
940101	AE1-252 C O1	12.28
940102	AE1-252 E O1	8.19
951721	J643	25.73
952581	J740 C	4.3

Bus #	Bus	MW Impact
952582	J740 E	23.28
953871	J847	13.1
954751	J351	434.54
AB2-013	AB2-013	18.6
AE1-033	AE1-033	20.85
BLUEG	BLUEG	1.07
CARR	CARR	0.9
CATAWBA	CATAWBA	0.22
CBM-S1	CBM-S1	3.95
CBM-W1	CBM-W1	35.83
CBM-W2	CBM-W2	81.92
CIN	CIN	3.3
DEARBORN	DEARBORN	4.0
G-007	G-007	2.51
HAMLET	HAMLET	0.96
IPL	IPL	1.12
MEC	MEC	44.69
O-066	O-066	8.44
RENSSELAER	RENSSELAER	0.71
TRIMBLE	TRIMBLE	0.16
WEC	WEC	9.2
Z1-043	Z1-043	32.93

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
211613	264612	19MON12	ITCT	241901	02LALLENDORF	ATSI	1	ATSI-P2-3-TE-345-016T	breaker	1702.0	119.79	120.47	DC	25.24

Bus #	Bus	MW Impact
246397	05ELKHART HY	0.24
246431	05BUCHANAN	0.28
246536	05MOTTVILL	0.11
247528	05COVRT1	3.55
247529	05COVRT2	3.55
247530	05COVRT3	3.55
247531	05COVRT4	2.13
247532	05COVRT5	2.13
247533	05COVRT6	2.13
247969	Z2-116 E	0.08
917702	Z2-113 E	0.18
917712	Z2-114 E	0.15
920211	AA2-116	67.76
925961	AC1-072	0.33
926581	AC1-141	6.2
933281	AC2-140 C	2.13
933282	AC2-140 E	0.11
936141	AD2-020 C O1	4.51
936142	AD2-020 E O1	2.77
936601	AD2-075	15.58
936631	AD2-079 C O1	0.76
936632	AD2-079 E O1	0.51
938261	AE1-039	0.07
938671	AE1-089 C	7.48
938672	AE1-089 E	10.27
939391	AE1-170 C O1	4.35
939392	AE1-170 E O1	6.0
939641	AE1-194 C	3.28
939642	AE1-194 E	21.96
939651	AE1-195 C	3.28
939652	AE1-195 E	21.96
950031	J301 C	3.94
950032	J301 E	15.76
950041	J308 C	12.27
950042	J308 E	49.09
950121	J392	44.18
950241	J419	17.27
950311	G934 C	3.42
950312	G934 E	13.7
950351	J466	5.67

Bus #	Bus	MW Impact
950361	J469	0.25
950791	J201 C	0.67
950792	J201 E	2.68
950871	J246 C	0.22
950872	J246 E	0.87
950942	J325 E	0.78
950951	J327 C	5.86
950952	J327 E	17.57
951011	J340 C	3.9
951012	J340 E	11.71
951051	J354 C	2.03
951052	J354 E	6.09
951531	J533 C	5.01
951532	J533 E	20.02
951571	J538 C	2.42
951572	J538 E	9.69
951581	J540	5.15
951941	J602 C	4.92
951942	J602 E	26.61
952161	J571	0.39
952201	J589 C	4.26
952202	J589 E	23.05
952312	J646 E	0.34
952401	J752 C	2.88
952402	J752 E	15.58
952611	J717 C	4.68
952612	J717 E	25.33
952761	J728 C	4.36
952762	J728 E	23.58
952881	J758	16.49
952941	J921 C	1.62
952942	J921 E	8.77
952961	J203 C	6.36
952962	J203 E	34.41
952971	J793	282.56
953071	J794 C	0.28
953072	J794 E	1.51
953271	J701 C	1.39
953272	J701 E	7.52
953291	J796	37.17
953321	J799	35.81
953361	J806	14.74
953381	J809	6.69
953421	J841	110.24
953771	J832	12.64
953781	J833	17.27
953811	J839	20.62
953861	J846	10.35
953941	J857	11.03
954011	J865	17.12
954111	J875	17.13
954231	J890 C	1.94

Bus #	Bus	MW Impact
954232	J890 E	10.5
954381	J906 C	1.19
954382	J906 E	6.42
954431	J914	2.54
954541	J931 C	1.71
954542	J931 E	9.27
954581	J936	49.54
AB2-013	AB2-013	6.55
AE1-033	AE1-033	6.99
CARR	CARR	0.56
CBM-S1	CBM-S1	5.57
CBM-S2	CBM-S2	0.85
CBM-W1	CBM-W1	64.87
CBM-W2	CBM-W2	59.59
CIN	CIN	7.08
CPLE	CPLE	0.17
G-007	G-007	1.37
IPL	IPL	4.32
LGEE	LGEE	1.31
MEC	MEC	17.4
MECS	MECS	92.37
O-066	O-066	4.64
RENSSELAER	RENSSELAER	0.44
WEC	WEC	3.03
Z1-043	Z1-043	11.49

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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
823243	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	COMED_P7_345-L94507_B-S_+_345-L97008_R-S	tower	4105.0	105.16	106.08	DC	162.35

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
821654	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	116.74	122.54	DC	83.72

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	8.06
274722	S-055 E	7.52
274751	CRETE EC ;1U	1.93
274752	CRETE EC ;2U	1.93
274753	CRETE EC ;3U	1.93
274754	CRETE EC ;4U	1.93
274832	U4-027	7.11
274859	EASYR;U1 E	7.3
274860	EASYR;U2 E	7.3
274888	PILOT HIL;1E	12.4
274890	CAYUG;1U E	8.92
274891	CAYUG;2U E	8.92
275149	KEMPTON ;1E	12.4
290021	O50 E	12.98
290051	GSG-6; E	6.94
290108	LEEDK;1U E	16.14
293061	N-015 E	10.24
293516	O-009 E1	5.99
293517	O-009 E2	3.04
293518	O-009 E3	3.35
293644	O22 E1	7.24
293645	O22 E2	14.06
293715	O-029 E	6.47
293716	O-029 E	3.55
293717	O-029 E	3.26
294392	P-010 E	13.0
294763	P-046 E	6.23
295109	WESTBROOK E	3.72
295111	SUBLETTE E	1.72
910542	X3-005 E	0.52
914641	Y2-103	30.09
915011	Y3-013 1	2.51
915021	Y3-013 2	2.51
915031	Y3-013 3	2.51
916221	Z1-073 E	3.58
916502	Z1-106 E1	0.84
916504	Z1-106 E2	0.84
916512	Z1-107 E	1.71
916522	Z1-108 E	1.66
918052	AA1-018 E	10.62
919221	AA1-146	11.67

Bus #	Bus	MW Impact
919581	AA2-030	11.67
920272	AA2-123 E	1.63
924471	AB2-096	28.21
925161	AB2-173	2.08
925302	AB2-191 E	0.92
925881	AC1-067 O1	102.57
926311	AC1-109 1	1.27
926321	AC1-109 2	1.27
926331	AC1-110 1	1.27
926341	AC1-110 2	1.27
926351	AC1-111 1	0.51
926361	AC1-111 2	0.51
926371	AC1-111 3	0.51
926381	AC1-111 4	0.51
926391	AC1-111 5	0.51
926401	AC1-111 6	0.51
926431	AC1-114	1.58
926821	AC1-168 C O1	0.76
926822	AC1-168 E O1	5.08
927091	AC1-204 1	48.76
927101	AC1-204 2	48.73
927201	AC1-214 C O1	0.74
927202	AC1-214 E O1	2.34
927451	AC1-142A 1	2.83
927461	AC1-142A 2	2.83
927511	AC1-113 1	0.79
927521	AC1-113 2	0.79
927531	AC1-185 1	0.46
927541	AC1-185 2	0.46
927551	AC1-185 3	0.46
927561	AC1-185 4	0.46
927571	AC1-185 5	0.46
927581	AC1-185 6	0.46
927591	AC1-185 7	0.46
927601	AC1-185 8	0.46
930481	AB1-089	43.76
930501	AB1-091 O1	49.15
930741	AB1-122 1O1	47.58
930751	AB1-122 2O1	49.75
932881	AC2-115 1	1.58
932891	AC2-115 2	1.58
932921	AC2-116	0.55
933341	AC2-147 C	0.58
933342	AC2-147 E	0.94
933411	AC2-154 C	1.68
933412	AC2-154 E	2.75
933431	AC2-156 C O1	0.64
933432	AC2-156 E O1	1.04
933911	AD1-013 C	1.22
933912	AD1-013 E	1.95
933931	AD1-016 C	0.62
933932	AD1-016 E	1.01

Bus #	Bus	MW Impact
934101	AD1-039 1	4.66
934111	AD1-039 2	4.88
934401	AD1-064 C O1	2.13
934402	AD1-064 E O1	9.99
934431	AD1-067 C	0.09
934432	AD1-067 E	0.37
934651	AD1-096 C	0.59
934652	AD1-096 E	0.97
934701	AD1-098 C O1	4.57
934702	AD1-098 E O1	3.34
934721	AD1-100 C	12.94
934722	AD1-100 E	60.39
934871	AD1-116 C	0.62
934872	AD1-116 E	1.01
934881	AD1-117 C	3.57
934882	AD1-117 E	2.38
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	13.73
935002	AD1-133 E O1	9.15
936291	AD2-038 C O1	1.54
936292	AD2-038 E O1	10.32
936371	AD2-047 C O1	1.51
936372	AD2-047 E O1	16.21
936461	AD2-060	1.77
936511	AD2-066 C O1	5.56
936512	AD2-066 E O1	3.71
936781	AD2-101 C	3.17
936782	AD2-101 E	14.84
936791	AD2-102 C	8.0
936792	AD2-102 E	7.69
936961	AD2-130	0.38
937001	AD2-134 C	1.82
937002	AD2-134 E	7.5
937031	AD2-137 C O1	2.31
937032	AD2-137 E O1	10.8
937051	AD2-140 C O1	2.32
937052	AD2-140 E O1	10.87
937061	AD2-141 C O1	2.31
937062	AD2-141 E O1	10.88
937071	AD2-142 C O1	4.64
937072	AD2-142 E O1	21.73
937121	AD2-148 C O1	2.36
937122	AD2-148 E O1	11.04
937131	AD2-149 C O1	2.36
937132	AD2-149 E O1	11.04
937141	AD2-150 C O1	2.36
937142	AD2-150 E O1	11.04
937181	AD2-155 C O1	2.36
937182	AD2-155 E O1	11.04
937311	AD2-172 C	1.64
937312	AD2-172 E	2.26

Bus #	Bus	MW Impact
937321	AD2-175 C	10.99
937322	AD2-175 E	7.33
937331	AD2-176 C O1	4.89
937332	AD2-176 E O1	3.26
937401	AD2-194 1	5.24
937411	AD2-194 2	5.24
937531	AD2-214 C	2.92
937532	AD2-214 E	1.37
938012	AE1-002 E O1	4.63
938511	AE1-070 1	6.16
938521	AE1-070 2	5.63
938851	AE1-113 C O1	5.88
938852	AE1-113 E O1	18.47
938861	AE1-114 C O1	2.39
938862	AE1-114 E O1	9.13
939051	AE1-134 1	0.91
939061	AE1-134 2	0.91
939321	AE1-163 C O1	3.87
939322	AE1-163 E O1	23.79
939351	AE1-166 C O1	6.84
939352	AE1-166 E O1	6.31
939401	AE1-172 C O1	4.1
939402	AE1-172 E O1	19.18
939641	AE1-194 C	10.88
939642	AE1-194 E	72.84
939651	AE1-195 C	10.88
939652	AE1-195 E	72.84
939691	AE1-199	1.59
939701	AE1-201 C	1.34
939702	AE1-201 E	0.29
939732	AE1-204 E	0.2
939861	AE1-222 1	52.55
939871	AE1-222 2	54.95
939921	AE1-228 C O1	6.68
939922	AE1-228 E O1	4.45
939961	AE1-233 C O1	1.55
939962	AE1-233 E O1	6.39
940101	AE1-252 C O1	6.98
940102	AE1-252 E O1	4.65
951721	J643	15.51
952581	J740 C	3.4
952582	J740 E	18.42
953871	J847	8.38
AB2-013	AB2-013	10.64
AE1-033	AE1-033	12.03
BLUEG	BLUEG	2.86
CANNELTON	CANNELTON	0.0
CARR	CARR	0.5
CATAWBA	CATAWBA	0.16
CBM-S1	CBM-S1	1.36
CBM-W1	CBM-W1	19.98
CBM-W2	CBM-W2	38.44

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.29
G-007	G-007	1.38
HAMLET	HAMLET	0.65
MEC	MEC	25.05
O-066	O-066	4.65
RENSSELAER	RENSSELAER	0.39
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.34
WEC	WEC	5.32
Z1-043	Z1-043	18.82

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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
211668	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.12	122.35	DC	145.82

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.04
274654	BRAIDWOOD;1U	19.05
274655	BRAIDWOOD;2U	18.24
274661	LASCO STA;2U	17.6
274687	WILL CNTY;4U	8.03
274704	KENDALL ;1C	2.81
274705	KENDALL ;1S	1.88
274706	KENDALL ;2C	2.81
274707	KENDALL ;2S	1.88
274722	S-055 E	8.45
274751	CRETE EC ;1U	3.36
274752	CRETE EC ;2U	3.36
274753	CRETE EC ;3U	3.36
274754	CRETE EC ;4U	3.36
274859	EASYR;U1 E	8.17
274860	EASYR;U2 E	8.17
274861	TOP CROP ;1U	0.33
274862	TOP CROP ;2U	0.63
274888	PILOT HIL;1E	12.81
274890	CAYUG;1U E	9.74
274891	CAYUG;2U E	9.74
275149	KEMPTON ;1E	12.81
290021	O50 E	14.65
290051	GSG-6; E	7.78
290108	LEEDK;1U E	18.09
293061	N-015 E	11.61
293516	O-009 E1	6.69
293517	O-009 E2	3.4
293518	O-009 E3	3.74
293644	O22 E1	8.5
293645	O22 E2	16.51
293715	O-029 E	7.24
293716	O-029 E	3.97
293717	O-029 E	3.65
294392	P-010 E	14.75
294763	P-046 E	6.98
295109	WESTBROOK E	4.16
295111	SUBLETTE E	1.92
914641	Y2-103	33.8
915011	Y3-013 1	2.82

Bus #	Bus	MW Impact
915021	Y3-013 2	2.82
915031	Y3-013 3	2.82
916221	Z1-073 E	4.01
916502	Z1-106 E1	0.94
916504	Z1-106 E2	0.94
916512	Z1-107 E	1.85
916522	Z1-108 E	1.86
918052	AA1-018 E	11.64
919221	AA1-146	13.04
919581	AA2-030	13.04
920272	AA2-123 E	1.83
924471	AB2-096	31.63
925161	AB2-173	2.33
925302	AB2-191 E	1.03
926311	AC1-109 1	1.42
926321	AC1-109 2	1.42
926331	AC1-110 1	1.42
926341	AC1-110 2	1.42
926351	AC1-111 1	0.57
926361	AC1-111 2	0.57
926371	AC1-111 3	0.57
926381	AC1-111 4	0.57
926391	AC1-111 5	0.57
926401	AC1-111 6	0.57
926431	AC1-114	1.77
926821	AC1-168 C O1	0.85
926822	AC1-168 E O1	5.68
927091	AC1-204 1	55.19
927101	AC1-204 2	55.12
927451	AC1-142A 1	3.2
927461	AC1-142A 2	3.2
927511	AC1-113 1	0.89
927521	AC1-113 2	0.89
927531	AC1-185 1	0.51
927541	AC1-185 2	0.51
927551	AC1-185 3	0.51
927561	AC1-185 4	0.51
927571	AC1-185 5	0.51
927581	AC1-185 6	0.51
927591	AC1-185 7	0.51
927601	AC1-185 8	0.51
930481	AB1-089	49.05
930501	AB1-091 O1	50.61
930741	AB1-122 1O1	52.99
930751	AB1-122 2O1	56.33
932881	AC2-115 1	1.77
932891	AC2-115 2	1.77
932921	AC2-116	0.62
933341	AC2-147 C	0.65
933342	AC2-147 E	1.06
933411	AC2-154 C	1.74
933412	AC2-154 E	2.84

Bus #	Bus	MW Impact
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.16
933911	AD1-013 C	1.37
933912	AD1-013 E	2.19
933931	AD1-016 C	0.69
933932	AD1-016 E	1.13
934101	AD1-039 1	5.19
934111	AD1-039 2	5.52
934401	AD1-064 C O1	2.39
934402	AD1-064 E O1	11.2
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.66
934652	AD1-096 E	1.08
934701	AD1-098 C O1	5.12
934702	AD1-098 E O1	3.74
934721	AD1-100 C	14.27
934722	AD1-100 E	66.6
934871	AD1-116 C	0.68
934872	AD1-116 E	1.11
934881	AD1-117 C	3.99
934882	AD1-117 E	2.66
934971	AD1-129 C	0.67
934972	AD1-129 E	0.45
935001	AD1-133 C O1	15.16
935002	AD1-133 E O1	10.11
936291	AD2-038 C O1	1.71
936292	AD2-038 E O1	11.45
936371	AD2-047 C O1	1.56
936372	AD2-047 E O1	16.75
936461	AD2-060	1.83
936511	AD2-066 C O1	6.19
936512	AD2-066 E O1	4.13
936781	AD2-101 C	3.09
936782	AD2-101 E	14.46
936791	AD2-102 C	8.96
936792	AD2-102 E	8.61
936961	AD2-130	0.42
937001	AD2-134 C	2.03
937002	AD2-134 E	8.4
937031	AD2-137 C O1	2.44
937032	AD2-137 E O1	11.43
937051	AD2-140 C O1	2.44
937052	AD2-140 E O1	11.42
937061	AD2-141 C O1	2.43
937062	AD2-141 E O1	11.44
937071	AD2-142 C O1	4.88
937072	AD2-142 E O1	22.85
937121	AD2-148 C O1	2.43
937122	AD2-148 E O1	11.37
937131	AD2-149 C O1	2.43
937132	AD2-149 E O1	11.37

Bus #	Bus	MW Impact
937141	AD2-150 C O1	2.43
937142	AD2-150 E O1	11.37
937181	AD2-155 C O1	2.43
937182	AD2-155 E O1	11.37
937311	AD2-172 C	1.83
937312	AD2-172 E	2.53
937321	AD2-175 C	11.32
937322	AD2-175 E	7.55
937331	AD2-176 C O1	5.48
937332	AD2-176 E O1	3.65
937401	AD2-194 1	5.94
937411	AD2-194 2	5.93
937531	AD2-214 C	0.8
937532	AD2-214 E	0.38
938012	AE1-002 E O1	4.9
938511	AE1-070 1	6.97
938521	AE1-070 2	6.37
938851	AE1-113 C O1	6.63
938852	AE1-113 E O1	20.84
938861	AE1-114 C O1	2.67
938862	AE1-114 E O1	10.22
939051	AE1-134 1	1.01
939061	AE1-134 2	1.01
939321	AE1-163 C O1	4.3
939322	AE1-163 E O1	26.41
939351	AE1-166 C O1	7.6
939352	AE1-166 E O1	7.02
939401	AE1-172 C O1	4.47
939402	AE1-172 E O1	20.95
939641	AE1-194 C	18.96
939642	AE1-194 E	126.86
939651	AE1-195 C	18.96
939652	AE1-195 E	126.86
939691	AE1-199	1.78
939701	AE1-201 C	1.5
939702	AE1-201 E	0.33
939732	AE1-204 E	0.22
939861	AE1-222 1	58.52
939871	AE1-222 2	62.2
939921	AE1-228 C O1	7.48
939922	AE1-228 E O1	4.99
939961	AE1-233 C O1	1.73
939962	AE1-233 E O1	7.16
940101	AE1-252 C O1	7.63
940102	AE1-252 E O1	5.08
AB2-013	AB2-013	11.87
AE1-033	AE1-033	13.47
BLUEG	BLUEG	5.05
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.11
CARR	CARR	0.56
CATAWBA	CATAWBA	0.23

Bus #	Bus	MW Impact
CBM-S1	CBM-S1	0.77
CBM-W1	CBM-W1	20.04
CBM-W2	CBM-W2	37.14
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	2.24
ELMERSMITH	ELMERSMITH	0.14
G-007	G-007	1.57
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.87
MEC	MEC	27.58
O-066	O-066	5.3
RENSSELAER	RENSSELAER	0.45
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.59
WEC	WEC	5.97
Z1-043	Z1-043	20.98

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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
211560	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	125.44	141.5	DC	249.12

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	12.57
274654	BRAIDWOOD;1U	26.97
274655	BRAIDWOOD;2U	25.8
274661	LASCO STA;2U	24.66
274687	WILL CNTY;4U	11.24
274704	KENDALL ;1C	3.96
274705	KENDALL ;1S	2.64
274706	KENDALL ;2C	3.96
274707	KENDALL ;2S	2.64
274722	S-055 E	11.77
274751	CRETE EC ;1U	5.74
274752	CRETE EC ;2U	5.74
274753	CRETE EC ;3U	5.74
274754	CRETE EC ;4U	5.74
274859	EASYR;U1 E	11.37
274860	EASYR;U2 E	11.37
274861	TOP CROP ;1U	0.47
274862	TOP CROP ;2U	0.91
274888	PILOT HIL;1E	16.88
274890	CAYUG;1U E	13.45
274891	CAYUG;2U E	13.45
275149	KEMPTON ;1E	16.88
290021	O50 E	20.54
290051	GSG-6; E	10.8
290108	LEEDK;1U E	25.11
293061	N-015 E	16.24
293516	O-009 E1	9.32
293517	O-009 E2	4.73
293518	O-009 E3	5.21
293644	O22 E1	12.21
293645	O22 E2	23.71
293715	O-029 E	10.07
293716	O-029 E	5.52
293717	O-029 E	5.08
294392	P-010 E	20.62
294763	P-046 E	9.71
295109	WESTBROOK E	5.78
295111	SUBLETTE E	2.68
914641	Y2-103	47.06
915011	Y3-013 1	3.92
915021	Y3-013 2	3.92

Bus #	Bus	MW Impact
915031	Y3-013 3	3.92
916221	Z1-073 E	5.57
916502	Z1-106 E1	1.31
916504	Z1-106 E2	1.31
916512	Z1-107 E	2.52
916522	Z1-108 E	2.59
918052	AA1-018 E	15.99
919221	AA1-146	18.16
919581	AA2-030	18.16
920272	AA2-123 E	2.54
924471	AB2-096	43.99
925161	AB2-173	3.24
925302	AB2-191 E	1.43
926311	AC1-109 1	1.97
926321	AC1-109 2	1.97
926331	AC1-110 1	1.98
926341	AC1-110 2	1.98
926351	AC1-111 1	0.79
926361	AC1-111 2	0.79
926371	AC1-111 3	0.79
926381	AC1-111 4	0.79
926391	AC1-111 5	0.79
926401	AC1-111 6	0.79
926431	AC1-114	2.47
926821	AC1-168 C O1	1.18
926822	AC1-168 E O1	7.92
927091	AC1-204 1	77.42
927101	AC1-204 2	77.29
927451	AC1-142A 1	4.48
927461	AC1-142A 2	4.48
927511	AC1-113 1	1.23
927521	AC1-113 2	1.23
927531	AC1-185 1	0.71
927541	AC1-185 2	0.71
927551	AC1-185 3	0.71
927561	AC1-185 4	0.71
927571	AC1-185 5	0.71
927581	AC1-185 6	0.71
927591	AC1-185 7	0.71
927601	AC1-185 8	0.71
930481	AB1-089	68.22
930501	AB1-091 O1	66.51
930741	AB1-122 1O1	73.76
930751	AB1-122 2O1	78.95
932881	AC2-115 1	2.47
932891	AC2-115 2	2.47
932921	AC2-116	0.86
933341	AC2-147 C	0.9
933342	AC2-147 E	1.47
933411	AC2-154 C	2.29
933412	AC2-154 E	3.74
933431	AC2-156 C O1	0.99

Bus #	Bus	MW Impact
933432	AC2-156 E O1	1.61
933911	AD1-013 C	1.9
933912	AD1-013 E	3.04
933931	AD1-016 C	0.97
933932	AD1-016 E	1.58
934101	AD1-039 1	7.23
934111	AD1-039 2	7.74
934401	AD1-064 C O1	3.33
934402	AD1-064 E O1	15.58
934431	AD1-067 C	0.14
934432	AD1-067 E	0.57
934651	AD1-096 C	0.92
934652	AD1-096 E	1.51
934701	AD1-098 C O1	7.11
934702	AD1-098 E O1	5.19
934721	AD1-100 C	19.71
934722	AD1-100 E	91.99
934871	AD1-116 C	0.93
934872	AD1-116 E	1.52
934881	AD1-117 C	5.55
934882	AD1-117 E	3.7
934971	AD1-129 C	0.94
934972	AD1-129 E	0.63
935001	AD1-133 C O1	21.05
935002	AD1-133 E O1	14.03
936291	AD2-038 C O1	2.37
936292	AD2-038 E O1	15.89
936371	AD2-047 C O1	2.05
936372	AD2-047 E O1	22.06
936461	AD2-060	2.41
936511	AD2-066 C O1	8.6
936512	AD2-066 E O1	5.74
936781	AD2-101 C	3.03
936782	AD2-101 E	14.16
936791	AD2-102 C	12.47
936792	AD2-102 E	11.98
936961	AD2-130	0.59
937001	AD2-134 C	2.82
937002	AD2-134 E	11.67
937031	AD2-137 C O1	3.3
937032	AD2-137 E O1	15.44
937051	AD2-140 C O1	3.28
937052	AD2-140 E O1	15.37
937061	AD2-141 C O1	3.27
937062	AD2-141 E O1	15.39
937071	AD2-142 C O1	6.57
937072	AD2-142 E O1	30.75
937121	AD2-148 C O1	3.19
937122	AD2-148 E O1	14.95
937131	AD2-149 C O1	3.19
937132	AD2-149 E O1	14.95
937141	AD2-150 C O1	3.19

Bus #	Bus	MW Impact
937142	AD2-150 E O1	14.95
937181	AD2-155 C O1	3.19
937182	AD2-155 E O1	14.95
937311	AD2-172 C	2.55
937312	AD2-172 E	3.52
937321	AD2-175 C	14.88
937322	AD2-175 E	9.92
937331	AD2-176 C O1	7.62
937332	AD2-176 E O1	5.08
937401	AD2-194 1	8.33
937411	AD2-194 2	8.31
937531	AD2-214 C	4.54
937532	AD2-214 E	2.14
938012	AE1-002 E O1	6.62
938511	AE1-070 1	9.78
938521	AE1-070 2	8.93
938851	AE1-113 C O1	9.29
938852	AE1-113 E O1	29.21
938861	AE1-114 C O1	3.72
938862	AE1-114 E O1	14.22
939051	AE1-134 1	1.41
939061	AE1-134 2	1.41
939321	AE1-163 C O1	5.97
939322	AE1-163 E O1	36.64
939351	AE1-166 C O1	10.54
939352	AE1-166 E O1	9.73
939401	AE1-172 C O1	6.17
939402	AE1-172 E O1	28.89
939641	AE1-194 C	32.38
939642	AE1-194 E	216.73
939651	AE1-195 C	32.38
939652	AE1-195 E	216.73
939691	AE1-199	2.47
939701	AE1-201 C	2.08
939702	AE1-201 E	0.46
939732	AE1-204 E	0.31
939861	AE1-222 1	81.46
939871	AE1-222 2	87.19
939921	AE1-228 C O1	10.39
939922	AE1-228 E O1	6.93
939961	AE1-233 C O1	2.41
939962	AE1-233 E O1	9.95
940101	AE1-252 C O1	10.52
940102	AE1-252 E O1	7.01
AB2-013	AB2-013	16.6
AE1-033	AE1-033	18.74
BLUEG	BLUEG	6.66
CALDERWOOD	CALDERWOOD	0.12
CANNELTON	CANNELTON	0.14
CARR	CARR	0.8
CATAWBA	CATAWBA	0.32
CBM-S1	CBM-S1	1.14

Bus #	Bus	MW Impact
CBM-W1	CBM-W1	25.55
CBM-W2	CBM-W2	51.99
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
DEARBORN	DEARBORN	3.16
ELMERSMITH	ELMERSMITH	0.17
G-007	G-007	2.23
GIBSON	GIBSON	0.08
HAMLET	HAMLET	1.22
MEC	MEC	38.45
O-066	O-066	7.49
RENSSELAER	RENSSELAER	0.63
SANTEETLA	SANTEETLA	0.04
TRIMBLE	TRIMBLE	0.78
WEC	WEC	8.32
Z1-043	Z1-043	29.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
821963	932800	AC2-104 TAP	AEP	242928	05MARYSV	AEP	1	AEP_P4_#7334_05JEFRSO 765_A2	breaker	4571.0	103.44	103.61	DC	131.25

Bus #	Bus	MW Impact
243440	05CKG1	42.14
243441	05CKG2	52.39
246397	05ELKHART HY	1.01
246416	05TWIN BRCH1	0.2
246422	05MAYFLWER	0.26
246431	05BUCHANAN	1.1
246536	05MOTTVILL	0.42
247643	Z2-116 C	0.05
247906	05MDL-1G E	39.75
247907	05MDL-2G E	19.72
247912	05MDL-3G E	20.61
247913	05MDL-4G E	19.91
247943	T-127 E	19.91
247969	Z2-116 E	0.35
274722	S-055 E	22.69
274774	LINCOLN ;5U	3.14
274775	LINCOLN ;6U	3.14
274776	LINCOLN ;7U	3.14
274777	LINCOLN ;8U	3.14
274888	PILOT HIL;1E	36.41
275149	KEMPTON ;1E	36.41
290108	LEEDK;1U E	49.86
293061	N-015 E	30.86
293644	O22 E1	20.61
293645	O22 E2	40.01
294392	P-010 E	39.19
909145	X2-052	28.34
910542	X3-005 E	1.47
914641	Y2-103	90.77
915011	Y3-013 1	7.56
915021	Y3-013 2	7.56
915031	Y3-013 3	7.56
916502	Z1-106 E1	2.55
916504	Z1-106 E2	2.55
916512	Z1-107 E	5.16
916522	Z1-108 E	5.04
917702	Z2-113 E	0.6
917711	Z2-114 C	0.1
917712	Z2-114 E	0.68
918052	AA1-018 E	32.95

Bus #	Bus	MW Impact
920211	AA2-116	268.49
920272	AA2-123 E	4.99
925881	AC1-067 O1	286.39
926311	AC1-109 1	3.84
926321	AC1-109 2	3.84
926331	AC1-110 1	3.82
926341	AC1-110 2	3.82
926351	AC1-111 1	1.54
926361	AC1-111 2	1.54
926371	AC1-111 3	1.54
926381	AC1-111 4	1.54
926391	AC1-111 5	1.54
926401	AC1-111 6	1.54
926581	AC1-141	24.58
927091	AC1-204 1	143.52
927101	AC1-204 2	143.52
927451	AC1-142A 1	8.26
927461	AC1-142A 2	8.26
930042	AB1-006 E	43.31
930391	AB1-080	1.68
930501	AB1-091 O1	143.18
930741	AB1-122 1O1	146.79
930751	AB1-122 2O1	147.02
932601	AC2-080 C O1	6.66
932602	AC2-080 E O1	44.56
932801	AC2-104 C	35.99
932802	AC2-104 E	240.86
932931	AC2-117	12.03
933281	AC2-140 C	11.31
933282	AC2-140 E	0.6
933411	AC2-154 C	4.94
933412	AC2-154 E	8.06
933431	AC2-156 C O1	1.94
933432	AC2-156 E O1	3.16
933931	AD1-016 C	1.9
933932	AD1-016 E	3.09
934101	AD1-039 1	14.39
934111	AD1-039 2	14.41
934721	AD1-100 C	38.86
934722	AD1-100 E	181.34
934771	AD1-104 C	29.01
934772	AD1-104 E	194.13
934871	AD1-116 C	1.92
934872	AD1-116 E	3.13
935001	AD1-133 C O1	44.87
935002	AD1-133 E O1	29.91
936141	AD2-020 C O1	16.34
936142	AD2-020 E O1	10.06
936371	AD2-047 C O1	4.42
936372	AD2-047 E O1	47.59
936461	AD2-060	5.2
936511	AD2-066 C O1	17.37

Bus #	Bus	MW Impact
936512	AD2-066 E O1	11.58
936631	AD2-079 C O1	3.23
936632	AD2-079 E O1	2.15
936781	AD2-101 C	9.18
936782	AD2-101 E	43.0
936961	AD2-130	1.11
936981	AD2-132 C	9.01
936982	AD2-132 E	42.2
937031	AD2-137 C O1	7.0
937032	AD2-137 E O1	32.75
937041	AD2-138 C	9.01
937042	AD2-138 E	42.2
937051	AD2-140 C O1	7.03
937052	AD2-140 E O1	32.91
937061	AD2-141 C O1	6.99
937062	AD2-141 E O1	32.95
937071	AD2-142 C O1	14.06
937072	AD2-142 E O1	65.83
937121	AD2-148 C O1	6.87
937122	AD2-148 E O1	32.18
937131	AD2-149 C O1	6.87
937132	AD2-149 E O1	32.18
937141	AD2-150 C O1	6.87
937142	AD2-150 E O1	32.18
937181	AD2-155 C O1	6.87
937182	AD2-155 E O1	32.18
937321	AD2-175 C	32.02
937322	AD2-175 E	21.35
937331	AD2-176 C O1	14.97
937332	AD2-176 E O1	9.98
937401	AD2-194 1	15.43
937411	AD2-194 2	15.43
938012	AE1-002 E O1	14.04
938261	AE1-039	0.21
938511	AE1-070 1	18.13
938521	AE1-070 2	16.59
938671	AE1-089 C	36.65
938672	AE1-089 E	50.31
938851	AE1-113 C O1	5.1
938852	AE1-113 E O1	16.03
939351	AE1-166 C O1	20.24
939352	AE1-166 E O1	18.68
939391	AE1-170 C O1	16.87
939392	AE1-170 E O1	23.3
939401	AE1-172 C O1	13.26
939402	AE1-172 E O1	62.09
939641	AE1-194 C	17.06
939642	AE1-194 E	114.19
939651	AE1-195 C	17.06
939652	AE1-195 E	114.19
939701	AE1-201 C	4.09
939702	AE1-201 E	0.9

Bus #	Bus	MW Impact
939732	AE1-204 E	0.59
939861	AE1-222 1	162.11
939871	AE1-222 2	162.36
939961	AE1-233 C O1	4.76
939962	AE1-233 E O1	19.65
940101	AE1-252 C O1	22.6
940102	AE1-252 E O1	15.07
AB2-013	AB2-013	35.55
AE1-033	AE1-033	37.8
AE1-042	AE1-042	10.86
CARR	CARR	2.36
CATAWBA	CATAWBA	0.63
CBM-S1	CBM-S1	20.07
CBM-W1	CBM-W1	112.29
CBM-W2	CBM-W2	293.15
CIN	CIN	39.78
G-007	G-007	6.85
HAMLET	HAMLET	2.77
IPL	IPL	24.98
LGEE	LGEE	4.88
MEC	MEC	92.49
MECS	MECS	52.19
O-066	O-066	23.05
RENSSELAER	RENSSELAER	1.87
WEC	WEC	16.38
Z1-043	Z1-043	62.52

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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
821640	938670	AE1-089 TAP	AEP	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	126.44	127.83	DC	43.12

Bus #	Bus	MW Impact
247900	05FR-11G E	6.85
247901	05FR-12G E	6.74
247902	05FR-21G E	7.2
247903	05FR-22G E	6.89
247904	05FR-3G E	13.96
247905	05FR-4G E	10.5
247906	05MDL-1G E	15.63
247907	05MDL-2G E	7.75
247912	05MDL-3G E	8.11
247913	05MDL-4G E	7.83
247943	T-127 E	7.83
270859	PWR VTR EC;R	7.11
274722	S-055 E	6.55
274809	UNIV PK N;5U	0.8
274811	UNIV PK N;7U	0.8
274812	UNIV PK N;8U	0.8
274814	UNIV PK N;0U	0.8
274815	UNIV PK N;XU	0.8
274888	PILOT HIL;1E	10.32
275149	KEMPTON ;1E	10.32
290021	O50 E	11.46
290051	GSG-6; E	6.16
290108	LEEDK;1U E	14.23
293061	N-015 E	8.96
293644	O22 E1	5.93
293645	O22 E2	11.51
294392	P-010 E	11.37
295109	WESTBROOK E	3.3
909145	X2-052	36.23
914641	Y2-103	26.18
915011	Y3-013 1	2.18
915021	Y3-013 2	2.18
915031	Y3-013 3	2.18
916221	Z1-073 E	3.18
916502	Z1-106 E1	0.73
916504	Z1-106 E2	0.73
916512	Z1-107 E	1.5
916522	Z1-108 E	1.45
917711	Z2-114 C	0.06
917712	Z2-114 E	0.4

Bus #	Bus	MW Impact
918052	AA1-018 E	9.8
920272	AA2-123 E	1.43
924471	AB2-096	24.87
925302	AB2-191 E	0.82
926311	AC1-109 1	1.1
926321	AC1-109 2	1.1
926331	AC1-110 1	1.1
926341	AC1-110 2	1.1
926351	AC1-111 1	0.44
926361	AC1-111 2	0.44
926371	AC1-111 3	0.44
926381	AC1-111 4	0.44
926391	AC1-111 5	0.44
926401	AC1-111 6	0.44
926431	AC1-114	1.4
927091	AC1-204 1	41.9
927101	AC1-204 2	41.91
927451	AC1-142A 1	2.42
927461	AC1-142A 2	2.42
927511	AC1-113 1	0.7
927521	AC1-113 2	0.7
930042	AB1-006 E	17.03
930391	AB1-080	2.15
930481	AB1-089	38.75
930501	AB1-091 O1	40.14
930741	AB1-122 1O1	41.99
930751	AB1-122 2O1	42.66
932601	AC2-080 C O1	3.72
932602	AC2-080 E O1	24.91
932881	AC2-115 1	1.4
932891	AC2-115 2	1.4
932921	AC2-116	0.49
932931	AC2-117	5.17
933411	AC2-154 C	1.4
933412	AC2-154 E	2.28
933431	AC2-156 C O1	0.55
933432	AC2-156 E O1	0.9
933911	AD1-013 C	1.08
933912	AD1-013 E	1.73
933931	AD1-016 C	0.54
933932	AD1-016 E	0.89
934101	AD1-039 1	4.12
934111	AD1-039 2	4.18
934401	AD1-064 C O1	1.88
934402	AD1-064 E O1	8.8
934431	AD1-067 C	0.08
934432	AD1-067 E	0.33
934701	AD1-098 C O1	4.06
934702	AD1-098 E O1	2.96
934721	AD1-100 C	11.12
934722	AD1-100 E	51.9
934871	AD1-116 C	0.57

Bus #	Bus	MW Impact
934872	AD1-116 E	0.93
934971	AD1-129 C	0.53
934972	AD1-129 E	0.35
935001	AD1-133 C O1	12.63
935002	AD1-133 E O1	8.42
935271	AD1-137 C	5.69
935272	AD1-137 E	38.05
936291	AD2-038 C O1	1.41
936292	AD2-038 E O1	9.44
936371	AD2-047 C O1	1.25
936372	AD2-047 E O1	13.49
936461	AD2-060	1.47
936511	AD2-066 C O1	4.99
936512	AD2-066 E O1	3.33
936781	AD2-101 C	2.48
936782	AD2-101 E	11.59
936961	AD2-130	0.32
936981	AD2-132 C	5.04
936982	AD2-132 E	23.6
937001	AD2-134 C	1.61
937002	AD2-134 E	6.66
937031	AD2-137 C O1	1.92
937032	AD2-137 E O1	9.0
937041	AD2-138 C	5.04
937042	AD2-138 E	23.6
937051	AD2-140 C O1	1.92
937052	AD2-140 E O1	8.99
937061	AD2-141 C O1	1.91
937062	AD2-141 E O1	9.0
937071	AD2-142 C O1	3.84
937072	AD2-142 E O1	17.98
937121	AD2-148 C O1	1.93
937122	AD2-148 E O1	9.02
937131	AD2-149 C O1	1.93
937132	AD2-149 E O1	9.02
937141	AD2-150 C O1	1.93
937142	AD2-150 E O1	9.02
937181	AD2-155 C O1	1.93
937182	AD2-155 E O1	9.02
937321	AD2-175 C	8.98
937322	AD2-175 E	5.98
937331	AD2-176 C O1	4.29
937332	AD2-176 E O1	2.86
937401	AD2-194 1	4.51
937411	AD2-194 2	4.51
938012	AE1-002 E O1	3.86
938511	AE1-070 1	5.29
938521	AE1-070 2	4.84
938671	AE1-089 C	74.55
938672	AE1-089 E	102.34
938851	AE1-113 C O1	5.18
938852	AE1-113 E O1	16.3

Bus #	Bus	MW Impact
939321	AE1-163 C O1	3.54
939322	AE1-163 E O1	21.77
939351	AE1-166 C O1	5.85
939352	AE1-166 E O1	5.4
939401	AE1-172 C O1	3.71
939402	AE1-172 E O1	17.38
939641	AE1-194 C	5.61
939642	AE1-194 E	37.52
939651	AE1-195 C	5.61
939652	AE1-195 E	37.52
939691	AE1-199	1.41
939701	AE1-201 C	1.17
939702	AE1-201 E	0.26
939732	AE1-204 E	0.17
939861	AE1-222 1	46.37
939871	AE1-222 2	47.11
939921	AE1-228 C O1	5.92
939922	AE1-228 E O1	3.95
939961	AE1-233 C O1	1.36
939962	AE1-233 E O1	5.62
940101	AE1-252 C O1	6.33
940102	AE1-252 E O1	4.22
AB2-013	AB2-013	10.01
AE1-033	AE1-033	10.77
CARR	CARR	0.59
CATAWBA	CATAWBA	0.05
CBM-S1	CBM-S1	4.6
CBM-W1	CBM-W1	19.73
CBM-W2	CBM-W2	68.15
CIN	CIN	7.05
DEARBORN	DEARBORN	1.82
G-007	G-007	1.64
HAMLET	HAMLET	0.34
IPL	IPL	3.28
LGEE	LGEE	0.73
MEC	MEC	25.32
O-066	O-066	5.54
RENSSELAER	RENSSELAER	0.47
WEC	WEC	4.7
Z1-043	Z1-043	17.65

Affected Systems

LG&E

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

MISO

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

TVA

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

Duke Energy Progress

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

NYISO

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

Contingency Name	Contingency Definition
AEP_P1-2_#695A	CONTINGENCY 'AEP_P1-2_#695A' OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
COMED_P7_345-L94507_B-S_+_345-L97008_R-S	CONTINGENCY 'COMED_P7_345-L94507_B-S_+_345-L97008_R-S' TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345 TRIP BRANCH FROM BUS 274804 TO BUS 243229 CKT 1 / UPNOR;RP 345 05OLIVE 345 END
ATSI-P2-3-TE-345-016T	CONTINGENCY 'ATSI-P2-3-TE-345-016T' /* LEMOYNE BK-34506 345 DISCONNECT BRANCH FROM BUS 238889 TO BUS 264599 CKT 1 /* 02LEMOYN 345 19MAJTC 345 DISCONNECT BRANCH FROM BUS 238889 TO BUS 242936 CKT 1 /* 02LEMOYN 345 05FOSTOR 345 END
AEP_P1-2_#709	CONTINGENCY 'AEP_P1-2_#709' OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 END
AEP_P4_#6189_05HANG R 765_D1	CONTINGENCY 'AEP_P4_#6189_05HANG R 765_D1' OPEN BRANCH FROM BUS 242921 TO BUS 242924 CKT 1 / 242921 05CORNU 765 242924 05HANG R 765 1 OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 OPEN BRANCH FROM BUS 242921 TO BUS 242934 CKT 1 / 242921 05CORNU 765 242934 05CORNU 345 1 REMOVE UNIT 1A FROM BUS 247245 / 247245 05HRKG1A 18.0 REMOVE UNIT 1B FROM BUS 247246 / 247246 05HRKG1B 18.0 REMOVE UNIT 1S FROM BUS 247247 / 247247 05HRKG1S 18.0 REMOVE UNIT 2A FROM BUS 247248 / 247248 05HRKG2A 18.0 REMOVE UNIT 2B FROM BUS 247249 / 247249 05HRKG2B 18.0 REMOVE UNIT 2S FROM BUS 247250 / 247250 05HRKG2S 18.0 END
AEP_P4_#7334_05JEFRSO 765_A2	CONTINGENCY 'AEP_P4_#7334_05JEFRSO 765_A2' OPEN BRANCH FROM BUS 242924 TO BUS 243208 CKT 1 / 242924 05HANG R 765 243208 05JEFRSO 765 1 OPEN BRANCH FROM BUS 243208 TO BUS 242865 CKT 2 / 243208 05JEFRSO 765 242865 05JEFRSO 345 2 OPEN BRANCH FROM BUS 242865 TO BUS 248000 CKT Z1 / 242865 05JEFRSO 345 248000 06CLIFTY 345 Z1 END
COMED_P4_112-65-BT3-4__	CONTINGENCY 'COMED_P4_112-65-BT3-4__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275232 TO BUS 270644 CKT 1 / WILTO;3M 345 WILTO; 765 TRIP BRANCH FROM BUS 275232 TO BUS 270926 CKT 1 / WILTO;3M 345 WILTO; B 345 TRIP BRANCH FROM BUS 275232 TO BUS 275332 CKT 1 / WILTO;3M 345 WILTO;3C 33 END

Contingency Name	Contingency Definition
AEP_P4_#2978_05DUMONT 765_B	CONTINGENCY 'AEP_P4_#2978_05DUMONT 765_B' OPEN BRANCH FROM BUS 243206 TO BUS 243207 CKT 1 / 243206 05DUMONT 765 243207 05GRNTWN 765 1 OPEN BRANCH FROM BUS 243206 TO BUS 270644 CKT 1 / 243206 05DUMONT 765 270644 WILTON ; 765 1 END
Base Case	
COMED_P4_023-65-BT2-3__	CONTINGENCY 'COMED_P4_023-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END
COMED_P1-2_345-L94507_B-S	CONTINGENCY 'COMED_P1-2_345-L94507_B-S' TRIP BRANCH FROM BUS 274750 TO BUS 255112 CKT 1 / CRETE;BP 345 17STJOHN 345 END
COMED_P4_112-65-BT4-5__	CONTINGENCY 'COMED_P4_112-65-BT4-5__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END