Generation Interconnection

Feasibility Study Report

for

Queue Project AE1-070

ELWOOD 345 KV

135 MW Capacity / 135 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.

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

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 an uprate to an existing Natural Gas generating facility located in Will, Elwood, Illinois. This projects requests an increase to the install capability of 135 of uprate MW with 135 of uprate MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 12/31/2020. This study does not imply a TO commitment to this in-service date.

Queue Number	AE1-070
Project Name	ELWOOD 345 KV
State	Illinois
County	Will
Transmission Owner	ComEd
MFO	1485
MWE	135
MWC	135
Fuel	Natural Gas
Basecase Study Year	2022

Point of Interconnection

AE1-070 is an uprate to the existing Elwood Energy Units which interconnect with the ComEd transmission system at the Elwood 345 kV substation. Queue Position AE1-070 proposes an uprate of 135 MW to the existing Elwood generator, interconnected to 345kV bus at TSS 900 Elwood.

Cost Summary

The AE1-070 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	None
Direct Connection Network Upgrade	None
Non Direct Connection Network Upgrades	None
Total Costs	None

In addition, the AE1-070 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	None

Transmission Owner Scope of Work

Not applicable.

Attachment Facilities

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

Description	Total Cost
Not applicable	None
Total Attachment Facility Costs	None

Direct Connection Cost Estimate

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

Description	Total Cost
Not applicable	None
Total Direct Connection Facility Costs	None

Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below.

Description	Total Cost
Not applicable	None
Total Non-Direct Connection Facility Costs	None

Incremental Capacity Transfer Rights (ICTRs)

Will be determined at a later study phase

Revenue Metering and SCADA Requirements

Existing metering meets all requirements.

Network Impacts

The Queue Project AE1-070 was evaluated as a 135 MW (Capacity 135 MW) uprate to the existing Elwood Energy units which have injections into Elwood 345 kV substation in the ComEd area. Project AE1-070 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-070 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)

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
120786	274702	KENDALL ;BU	CE	270810	LOCKPORT ; B	CE	1	COMED_P1-2_345-L11620_B-S	single	1479.0	100.0	101.04	DC	15.33

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
120350	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.77	113.34	DC	13.4
120351	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	110.14	110.71	DC	13.4
120352	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	110.14	110.7	DC	13.4
120140	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	165.53	166.18	DC	20.22
120544	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	single	1409.0	106.49	107.16	DC	20.82
120373	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	108.87	109.4	DC	17.02
120922	270716	DRESDEN ; B	CE	274702	KENDALL ;BU	CE	1	COMED_P7_345-L11620_B-S_+_345-L11622_R-S	tower	1195.0	110.1	111.68	DC	25.5

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
120364	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	110.31	110.95	DC	19.0
120365	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_023-65-BT2-3__	breaker	1399.0	109.79	110.43	DC	19.08
120366	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	109.72	110.36	DC	19.1
120367	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	109.71	110.35	DC	19.1
120041	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P2-2_116_GG-345R__2_NO_FSA	bus	1479.0	112.89	115.1	DC	44.19
120042	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P2-2_116_GG-345R__2_FSA	bus	1479.0	112.84	115.05	DC	44.19
120336	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P4_116-45-L11614_	breaker	1479.0	113.73	115.93	DC	44.18
120337	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P4_116-45-L9801_FSA	breaker	1479.0	112.89	115.1	DC	44.19
120710	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P1-2_345-L11622_R-S	single	1479.0	117.83	120.82	DC	44.18
120712	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P1-2_345-L10805_B-S	single	1479.0	105.98	108.32	DC	34.65
120713	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	Base Case	single	1201.0	105.12	107.82	DC	32.49
120033	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P2-2_116_GG-345B__4	bus	1479.0	115.32	117.53	DC	45.32
120324	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P4_116-45-L11613_	breaker	1479.0	116.14	118.35	DC	45.3
120325	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P4_116-45-L11617_	breaker	1479.0	115.32	117.53	DC	45.32
120326	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P4_116-45-TR84___	breaker	1479.0	115.32	117.53	DC	45.32
120686	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P1-2_345-L11620_B-S	single	1479.0	119.5	122.5	DC	44.38
120688	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	Base Case	single	1201.0	109.02	111.76	DC	32.91
120048	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P2-2_116_GG-345R__2_NO_FSA	bus	1802.0	111.2	112.34	DC	27.87
120049	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P2-2_116_GG-345R__2_FSA	bus	1802.0	109.98	111.13	DC	27.88
120329	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_116-45-L11614_	breaker	1802.0	115.76	116.91	DC	27.81
120330	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_116-45-L9801_FSA	breaker	1802.0	111.2	112.34	DC	27.87
120331	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_116-45-TR82___	breaker	1802.0	111.16	112.31	DC	27.87
120332	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_112-45-BT4-5__	breaker	1802.0	105.48	106.55	DC	25.89
120378	270771	GREENACRE ; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	108.75	109.31	DC	11.84
120355	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.77	113.34	DC	13.4
120356	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1091.0	110.14	110.7	DC	13.4
120357	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1091.0	110.13	110.7	DC	13.4
120151	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	159.28	159.98	DC	21.59
120158	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	155.63	156.35	DC	22.05
120975	274702	KENDALL ;BU	CE	270810	LOCKPORT ; B	CE	1	COMED_P7_345-L11620_B-S_+_345-L11622_R-S	tower	1768.0	103.4	104.05	DC	25.07
120308	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	121.54	122.16	DC	18.79
120309	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1399.0	120.97	121.6	DC	18.87
120310	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT4-5__	breaker	1399.0	120.91	121.54	DC	18.89

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
120311	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	120.91	121.54	DC	18.89
120319	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	120.66	121.33	DC	14.37
120320	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_023-65-BT2-3__	breaker	971.0	119.43	120.1	DC	14.5
120321	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_112-65-BT3-4__	breaker	971.0	119.42	120.1	DC	14.5
120322	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_112-65-BT4-5__	breaker	971.0	119.42	120.1	DC	14.5
120323	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	COMED_P4_023-65-BT4-5__	breaker	971.0	119.42	120.1	DC	14.5
120150	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	159.28	159.98	DC	21.59
120160	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	155.63	156.35	DC	22.05

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
120750	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	AEP_P1-2_#695A	operation	1091.0	110.13	110.69	DC	13.4
120539	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P1-2_#695A	operation	1409.0	162.09	162.75	DC	20.82
120814	270644	WILTON ;	CE	243206	05DUMONT	AEP	1	Base Case	operation	3555.0	100.39	100.87	DC	37.81
120763	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P1-2_#695A	operation	1441.0	108.08	108.61	DC	17.15
120756	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	AEP_P1-2_#695A	operation	1399.0	109.68	110.32	DC	19.09
120711	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P1-2_345-L11622_R-S	operation	1479.0	108.67	110.88	DC	44.18
120687	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P1-2_345-L11620_B-S	operation	1479.0	110.1	112.24	DC	44.38
120690	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	Base Case	operation	1201.0	100.38	102.34	DC	32.91
120765	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	107.32	107.88	DC	11.98
120749	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	AEP_P1-2_#695A	operation	1091.0	110.13	110.69	DC	13.4
120816	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P1-	operation	1379.0	99.99	100.43	DC	13.54

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
								2_765-L11216__-S						
120815	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P1-2_765-L11216__-S	operation	1379.0	100.36	100.82	DC	14.23
120709	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P1-2_#695A	operation	1399.0	120.88	121.51	DC	18.88
120719	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P1-2_#695A	operation	971.0	119.41	120.09	DC	14.5

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
120373	4	BURNHAM ;0R 345.0 kV - 17MUNSTER 345.0 kV Ckt 1	**NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase. **CE** Description : The upgrade will be to replace 2-345kV circuit breakers & re-conductor the line. Note that the 345kV towers may also require upgrades due to the re-conductor work. This cost will be determined during the Facilities Study Time Estimate : 24-30 Months Cost : $11,600,000	$11,600,000
120329,120330,120331,120332,120048,120049	9	GOODINGS ;4B 345.0 kV - GOODINGS ;3B 345.0 kV Ckt 1	**CE** Description : The upgrade will be to replace the existing 345kV circuit breaker and associated equipment. Note, the estimate provided does not include potential transmission tower pole upgrades. Time Estimate : 24-30 Months Cost : $3,200,000	$3,200,000
120710,120712,120041,120042,120336,120337,120713	7	ELWOOD ; B 345.0 kV - GOODINGS ;4B 345.0 kV Ckt 1	**CE** Description : The upgrade will be to mitigate sag on portions of the line along with re-conductor work 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 : $17,700,000	$17,700,000
120160	17	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). Time Estimate : 24-30 Months Cost : $11,000,000	$11,000,000
120151	12	WILTON ; B 345.0 kV - WILTON ;3M 345.0 kV Ckt 1		
120158	13	WILTON ; R 345.0 kV - WILTON ;4M 345.0 kV Ckt 1		
120150	16	WILTON ;3M 345.0 kV - WILTON ; 765.0 kV Ckt 1		

ID	Index	Facility	Upgrade Description	Cost
120544,120140	3	17STILLWELL 345.0 kV - 05DUMONT 345.0 kV Ckt 1	**AEP** Description : a) Reconductor / rebuild 8.58 miles of conductor, Estimated Cost : $17.16 million b) Replace Dumont Wavetrap , estimated Cost : $200k. c) An Engineering study will need to be conducted to determine if the CT Thermal Limits (Dumont) can be adjusted to mitigate the overload. Estimated Cost: $25,000. d) Replace two Dumont Breakers , Estimated Cost: $2.4 million e) Replace 11 Dumont risers , Estimated Cost : $ 175,000 f) Replace four Dumont Switches , Estimated Cost : $2,000,000. 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 : 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
120364,120365,120366,120367	6	E FRANKFO; B 345.0 kV - CRETE EC ;BP 345.0 kV Ckt 1	**CE** Description : The upgrade will be to re-conductor the line. 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 : 24-30 Months Cost : $11,300,000	$11,300,000
120320,120321,120322,120323,120319	15	UNIV PK N;RP 345.0 kV - 05OLIVE 345.0 kV Ckt 1	**AEP** Description : Replace ACSR/PE 1414 62/19 - Conductor Section 1. A Sag Study will be required on the 40.64 miles of conductor to mitigate the overload. The new ratings after sag study will be: S/N: 971 MVA, S/E: 1419 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between $162,560 (no remediation required, just sag study) and $81.28 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Time Estimate : 24-36 Months Cost : $81,280,000 **CE** Description : The upgrade will be to mitigate the line sag. 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 : 30.0 Months Cost : $13,800,000	$95,080,000

ID	Index	Facility	Upgrade Description	Cost
120922	5	DRESDEN ; B 345.0 kV - KENDALL ;BU 345.0 kV Ckt 1	**CE** Description : The upgrade will be to mitigate line sag. Note that the 345kV towers may also require upgrades due to the re-conductor work. This cost will be determined during the Facilities Study Time Estimate : 24-30 Months Cost : $3,200,000	$3,200,000
120355,120356,120357	11	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
120352,120350,120351	2	17STJOHN 345.0 kV - ST JOHN ; T 345.0 kV Ckt 1		
120786,120975	1	KENDALL ;BU 345.0 kV - LOCKPORT ; B 345.0 kV Ckt 1	**CE** Description : No Violation. ComEd 345kV L10805 ALDR ratings is 2033 MVA. No upgrade is required.	$0
120308,120309,120310,120311	14	CRETE EC ;BP 345.0 kV - 17STJOHN 345.0 kV Ckt 1	**CE** Description : The upgrade will be to re-conductor the line. 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 : 24-30 Months Cost : $5,200,000 **NIPS** Description : The external (i.e. Non-PJM) Transmission Owner, NIPS, will not evaluate this violation until the impact study phase.	$5,200,000
120378	10	GREENACRE; T 345.0 kV - 05OLIVE 345.0 kV Ckt 1	**CE** Description : ComEd 345kV SSTE rating is 1134 MVA. No upgrade is required. **AEP** Description : Replace ACSR/PE 1414 62/19 - Conductor Section 1. A Sag Study will be required on the 40.64 miles of conductor to mitigate the overload. The new ratings after sag study will be: S/N: 971 MVA, S/E: 1419 MVA, Depending on the sag study results, the cost for this upgrade is expected to be between $162,560 (no remediation required, just sag study) and $81.28 million (complete line Reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Time Estimate : 24-36 Months Cost : $81,280,000	$81,280,000

ID	Index	Facility	Upgrade Description	Cost
120033,120324,120325,120326,120686,120688	8	**ELWOOD ; R 345.0 kV - GOODINGS ;2R 345.0 kV Ckt 1**	**CE** Description : The upgrade will be to mitigate sag on portions of the line along with re-conductor work on the line and station conductor replacement. 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 : $19,500,000	$19,500,000
			TOTAL COST	**$283,645,000**

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
120975	274702	KENDALL ;BU	CE	270810	LOCKPORT ; B	CE	1	COMED_P7_345-L11620_B-S_+_345-L11622_R-S	tower	1768.0	103.4	104.05	DC	25.07

Bus #	Bus	MW Impact
274658	DRESDEN ;2U	46.08
274704	KENDALL ;1C	14.97
274705	KENDALL ;1S	9.98
274706	KENDALL ;2C	14.97
274707	KENDALL ;2S	9.98
274728	ELWOOD EC;5P	4.81
274730	ELWOOD EC;6P	4.81
274732	ELWOOD EC;7P	4.81
274734	ELWOOD EC;8P	4.81
274736	ELWOOD EC;9P	4.81
290021	O50 E	26.21
927091	AC1-204 1	103.97
927101	AC1-204 2	103.25
930741	AB1-122 1O1	45.21
930751	AB1-122 2O1	167.85
934101	AD1-039 1	4.43
934111	AD1-039 2	16.45
936511	AD2-066 C O1	8.99
936512	AD2-066 E O1	5.99
937401	AD2-194 1	11.18
937411	AD2-194 2	11.1
938511	AE1-070 1	13.14
938521	AE1-070 2	11.94
AB2-013	AB2-013	7.31
BLUEG	BLUEG	1.76
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.04
CARR	CARR	0.2
CATAWBA	CATAWBA	0.09
CBM-S1	CBM-S1	0.13
CBM-W2	CBM-W2	12.73
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02
DEARBORN	DEARBORN	0.79
ELMERSMITH	ELMERSMITH	0.05
G-007	G-007	0.56
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.33
MEC	MEC	6.54
O-066	O-066	1.89

Bus #	Bus	MW Impact
RENSSELAER	RENSSELAER	0.16
SANTEETLA	SANTEETLA	0.01
TRIMBLE	TRIMBLE	0.21
Z1-043	Z1-043	12.59

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
120350	255112	17STJOHN	NIPS	270886	ST JOHN ; T	CE	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.77	113.34	DC	13.4

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.07
274654	BRAIDWOOD;1U	21.46
274655	BRAIDWOOD;2U	20.55
274661	LASCO STA;2U	19.83
274687	WILL CNTY;4U	9.05
274704	KENDALL ;1C	3.17
274705	KENDALL ;1S	2.11
274706	KENDALL ;2C	3.17
274707	KENDALL ;2S	2.11
274722	S-055 E	8.48
274751	CRETE EC ;1U	3.78
274752	CRETE EC ;2U	3.78
274753	CRETE EC ;3U	3.78
274754	CRETE EC ;4U	3.78
274832	U4-027	7.97
274859	EASYR;U1 E	8.2
274860	EASYR;U2 E	8.2
274861	TOP CROP ;1U	0.37
274862	TOP CROP ;2U	0.71
274888	PILOT HIL;1E	12.86
274890	CAYUG;1U E	9.78
274891	CAYUG;2U E	9.78
275149	KEMPTON ;1E	12.86
290021	O50 E	14.71
290051	GSG-6; E	7.81
290108	LEEDK;1U E	18.16
293061	N-015 E	11.66
293516	O-009 E1	6.72
293517	O-009 E2	3.42
293518	O-009 E3	3.76
293644	O22 E1	8.53
293645	O22 E2	16.56
293715	O-029 E	7.27
293716	O-029 E	3.98
293717	O-029 E	3.66
293771	O-035 E	4.7
294392	P-010 E	14.81
294401	BSHIL;1U E	6.29
294410	BSHIL;2U E	6.29
294763	P-046 E	7.01

Bus #	Bus	MW Impact
295109	WESTBROOK E	4.18
295111	SUBLETTE E	1.93
296125	R-030 C3	2.53
296128	R-030 E3	10.11
296271	R-030 C2	2.5
296272	R-030 E2	9.99
296308	R-030 C1	2.5
296309	R-030 E1	9.99
910542	X3-005 E	0.45
914641	Y2-103	33.93
915011	Y3-013 1	2.83
915021	Y3-013 2	2.83
915031	Y3-013 3	2.83
916211	Z1-072 E	3.55
916221	Z1-073 E	4.03
916502	Z1-106 E1	0.95
916504	Z1-106 E2	0.95
916512	Z1-107 E	1.86
916522	Z1-108 E	1.87
917502	Z2-087 E	13.06
918052	AA1-018 E	11.69
919221	AA1-146	13.1
919581	AA2-030	13.1
919621	AA2-039 C	1.53
919622	AA2-039 E	10.26
920272	AA2-123 E	1.83
924041	AB2-047 C O1	2.41
924042	AB2-047 E O1	16.13
924471	AB2-096	31.76
925161	AB2-173	2.34
925302	AB2-191 E	1.03
925581	AC1-033 C	1.03
925582	AC1-033 E	6.89
925881	AC1-067 O1	81.17
926311	AC1-109 1	1.43
926321	AC1-109 2	1.43
926331	AC1-110 1	1.43
926341	AC1-110 2	1.43
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	1.78
926821	AC1-168 C O1	0.85
926822	AC1-168 E O1	5.7
927091	AC1-204 1	55.4
927101	AC1-204 2	55.32
927201	AC1-214 C O1	1.51
927202	AC1-214 E O1	4.79
927451	AC1-142A 1	3.21

Bus #	Bus	MW Impact
927461	AC1-142A 2	3.21
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	49.25
930501	AB1-091 O1	50.75
930741	AB1-122 1O1	53.19
930751	AB1-122 2O1	56.53
932881	AC2-115 1	1.78
932891	AC2-115 2	1.78
932921	AC2-116	0.62
932931	AC2-117	3.38
933341	AC2-147 C	0.65
933342	AC2-147 E	1.06
933411	AC2-154 C	1.74
933412	AC2-154 E	2.85
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.17
933911	AD1-013 C	1.37
933912	AD1-013 E	2.2
933931	AD1-016 C	0.7
933932	AD1-016 E	1.14
934051	AD1-031 C O1	2.09
934052	AD1-031 E O1	3.41
934101	AD1-039 1	5.21
934111	AD1-039 2	5.54
934401	AD1-064 C O1	2.4
934402	AD1-064 E O1	11.25
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.67
934652	AD1-096 E	1.09
934701	AD1-098 C O1	5.14
934702	AD1-098 E O1	3.75
934721	AD1-100 C	14.33
934722	AD1-100 E	66.86
934871	AD1-116 C	0.68
934872	AD1-116 E	1.11
934881	AD1-117 C	4.01
934882	AD1-117 E	2.67
934971	AD1-129 C	0.68
934972	AD1-129 E	0.45
935001	AD1-133 C O1	15.22
935002	AD1-133 E O1	10.15
936291	AD2-038 C O1	1.72

Bus #	Bus	MW Impact
936292	AD2-038 E O1	11.5
936371	AD2-047 C O1	1.56
936372	AD2-047 E O1	16.81
936461	AD2-060	1.84
936511	AD2-066 C O1	6.22
936512	AD2-066 E O1	4.15
936781	AD2-101 C	3.1
936782	AD2-101 E	14.53
936791	AD2-102 C	9.0
936792	AD2-102 E	8.65
936961	AD2-130	0.43
937001	AD2-134 C	2.04
937002	AD2-134 E	8.43
937031	AD2-137 C O1	2.45
937032	AD2-137 E O1	11.48
937051	AD2-140 C O1	2.45
937052	AD2-140 E O1	11.47
937061	AD2-141 C O1	2.44
937062	AD2-141 E O1	11.48
937071	AD2-142 C O1	4.9
937072	AD2-142 E O1	22.94
937121	AD2-148 C O1	2.44
937122	AD2-148 E O1	11.43
937131	AD2-149 C O1	2.44
937132	AD2-149 E O1	11.43
937141	AD2-150 C O1	2.44
937142	AD2-150 E O1	11.43
937181	AD2-155 C O1	2.44
937182	AD2-155 E O1	11.43
937311	AD2-172 C	1.84
937312	AD2-172 E	2.54
937321	AD2-175 C	11.38
937322	AD2-175 E	7.58
937331	AD2-176 C O1	5.5
937332	AD2-176 E O1	3.67
937401	AD2-194 1	5.96
937411	AD2-194 2	5.95
937531	AD2-214 C	3.28
937532	AD2-214 E	1.54
938012	AE1-002 E O1	4.92
938511	AE1-070 1	7.0
938521	AE1-070 2	6.4
990901	L-005 E	9.19
AB2-013	AB2-013	11.93
AE1-033	AE1-033	13.52
BLUEG	BLUEG	4.86
CALDERWOOD	CALDERWOOD	0.07
CANNELTON	CANNELTON	0.1
CARR	CARR	0.55
CATAWBA	CATAWBA	0.22
CBM-S1	CBM-S1	0.88
CBM-W1	CBM-W1	20.25

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	37.99
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02
DEARBORN	DEARBORN	2.21
ELMERSMITH	ELMERSMITH	0.12
G-007	G-007	1.54
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.83
MEC	MEC	27.75
O-066	O-066	5.17
RENSSELAER	RENSSELAER	0.43
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.57
WEC	WEC	6.0
Z1-043	Z1-043	21.08

Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
120140	255113	17STILLWELL	NIPS	243219	05DUMONT	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1409.0	165.53	166.18	DC	20.22

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	13.98
274722	S-055 E	13.0
274724	RIVER EC ;11	5.35
274788	SE CHICAG;5U	1.28
274789	SE CHICAG;6U	1.28
274790	SE CHICAG;7U	1.28
274791	SE CHICAG;8U	1.28
274795	SE CHICAG;2U	1.26
274832	U4-027	12.51
274859	EASYR;U1 E	12.73
274860	EASYR;U2 E	12.73
274888	PILOT HIL;1E	22.41
274890	CAYUG;1U E	15.82
274891	CAYUG;2U E	15.82
275149	KEMPTON ;1E	22.41
290021	O50 E	22.41
290051	GSG-6; E	12.08
290108	LEEDK;1U E	28.04
293061	N-015 E	17.61
293516	O-009 E1	10.5
293517	O-009 E2	5.33
293518	O-009 E3	5.87
293644	O22 E1	12.0
293645	O22 E2	23.29
293715	O-029 E	11.32
293716	O-029 E	6.21
293717	O-029 E	5.7
293771	O-035 E	7.4
294392	P-010 E	22.36
294401	BSHIL;1U E	9.9
294410	BSHIL;2U E	9.9
294763	P-046 E	10.84
295109	WESTBROOK E	6.47
295111	SUBLETTE E	3.0
296125	R-030 C3	4.12
296128	R-030 E3	16.5
296271	R-030 C2	4.08
296272	R-030 E2	16.3
296308	R-030 C1	4.08
296309	R-030 E1	16.3
910542	X3-005 E	1.0

Bus #	Bus	MW Impact
914641	Y2-103	52.01
915011	Y3-013 1	4.33
915021	Y3-013 2	4.33
915031	Y3-013 3	4.33
916211	Z1-072 E	5.6
916221	Z1-073 E	6.23
916502	Z1-106 E1	1.46
916504	Z1-106 E2	1.46
916512	Z1-107 E	3.05
916522	Z1-108 E	2.87
917502	Z2-087 E	21.33
918052	AA1-018 E	18.82
919221	AA1-146	20.37
919581	AA2-030	20.37
919621	AA2-039 C	2.41
919622	AA2-039 E	16.15
920272	AA2-123 E	2.82
924041	AB2-047 C O1	3.94
924042	AB2-047 E O1	26.39
924471	AB2-096	48.94
925161	AB2-173	3.63
925302	AB2-191 E	1.6
925581	AC1-033 C	1.62
925582	AC1-033 E	10.86
925881	AC1-067 O1	199.38
926311	AC1-109 1	2.2
926321	AC1-109 2	2.2
926331	AC1-110 1	2.19
926341	AC1-110 2	2.19
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	2.75
926821	AC1-168 C O1	1.33
926822	AC1-168 E O1	8.89
927091	AC1-204 1	83.59
927101	AC1-204 2	83.56
927201	AC1-214 C O1	2.37
927202	AC1-214 E O1	7.55
927451	AC1-142A 1	4.85
927461	AC1-142A 2	4.85
927511	AC1-113 1	1.38
927521	AC1-113 2	1.38
927531	AC1-185 1	0.8
927541	AC1-185 2	0.8
927551	AC1-185 3	0.8
927561	AC1-185 4	0.8
927571	AC1-185 5	0.8
927581	AC1-185 6	0.8

Bus #	Bus	MW Impact
927591	AC1-185 7	0.8
927601	AC1-185 8	0.8
930481	AB1-089	75.99
930501	AB1-091 O1	88.96
930741	AB1-122 1O1	82.76
930751	AB1-122 2O1	85.3
932881	AC2-115 1	2.75
932891	AC2-115 2	2.75
932921	AC2-116	0.96
932931	AC2-117	5.84
933341	AC2-147 C	1.01
933342	AC2-147 E	1.65
933411	AC2-154 C	3.04
933412	AC2-154 E	4.96
933431	AC2-156 C O1	1.1
933432	AC2-156 E O1	1.8
933911	AD1-013 C	2.13
933912	AD1-013 E	3.4
933931	AD1-016 C	1.07
933932	AD1-016 E	1.75
934051	AD1-031 C O1	3.29
934052	AD1-031 E O1	5.37
934101	AD1-039 1	8.11
934111	AD1-039 2	8.36
934401	AD1-064 C O1	3.7
934402	AD1-064 E O1	17.33
934431	AD1-067 C	0.15
934432	AD1-067 E	0.64
934651	AD1-096 C	1.03
934652	AD1-096 E	1.68
934701	AD1-098 C O1	7.95
934702	AD1-098 E O1	5.8
934721	AD1-100 C	22.52
934722	AD1-100 E	105.11
934871	AD1-116 C	1.1
934872	AD1-116 E	1.79
934881	AD1-117 C	6.22
934882	AD1-117 E	4.14
934971	AD1-129 C	1.04
934972	AD1-129 E	0.7
935001	AD1-133 C O1	24.17
935002	AD1-133 E O1	16.11
936291	AD2-038 C O1	2.7
936292	AD2-038 E O1	18.1
936371	AD2-047 C O1	2.72
936372	AD2-047 E O1	29.29
936461	AD2-060	3.2
936511	AD2-066 C O1	9.72
936512	AD2-066 E O1	6.48
936781	AD2-101 C	5.9
936782	AD2-101 E	27.64
936791	AD2-102 C	13.91

Bus #	Bus	MW Impact
936792	AD2-102 E	13.36
936961	AD2-130	0.66
937001	AD2-134 C	3.16
937002	AD2-134 E	13.04
937031	AD2-137 C O1	4.09
937032	AD2-137 E O1	19.16
937051	AD2-140 C O1	4.13
937052	AD2-140 E O1	19.32
937061	AD2-141 C O1	4.1
937062	AD2-141 E O1	19.34
937071	AD2-142 C O1	8.25
937072	AD2-142 E O1	38.64
937121	AD2-148 C O1	4.23
937122	AD2-148 E O1	19.81
937131	AD2-149 C O1	4.23
937132	AD2-149 E O1	19.81
937141	AD2-150 C O1	4.23
937142	AD2-150 E O1	19.81
937181	AD2-155 C O1	4.23
937182	AD2-155 E O1	19.81
937311	AD2-172 C	2.85
937312	AD2-172 E	3.93
937321	AD2-175 C	19.71
937322	AD2-175 E	13.14
937331	AD2-176 C O1	8.47
937332	AD2-176 E O1	5.65
937401	AD2-194 1	8.99
937411	AD2-194 2	8.99
937531	AD2-214 C	5.12
937532	AD2-214 E	2.41
938012	AE1-002 E O1	8.21
938511	AE1-070 1	10.56
938521	AE1-070 2	9.66
951721	J643	25.73
952581	J740 C	4.3
952582	J740 E	23.28
953871	J847	13.1
954751	J351	434.55
990901	L-005 E	14.55
AB2-013	AB2-013	18.69
AE1-033	AE1-033	20.94
BLUEG	BLUEG	0.77
CARR	CARR	0.88
CATAWBA	CATAWBA	0.2
CBM-S1	CBM-S1	4.14
CBM-W1	CBM-W1	36.18
CBM-W2	CBM-W2	83.33
CIN	CIN	3.45
DEARBORN	DEARBORN	3.95
G-007	G-007	2.44
HAMLET	HAMLET	0.89
IPL	IPL	1.21

Bus #	Bus	MW Impact
MEC	MEC	44.97
O-066	O-066	8.23
RENSSELAER	RENSSELAER	0.7
TRIMBLE	TRIMBLE	0.13
WEC	WEC	9.24
Z1-043	Z1-043	33.09

Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
120373	270677	BURNHAM ;0R	CE	255109	17MUNSTER	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1441.0	108.87	109.4	DC	17.02

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	11.79
274722	S-055 E	11.0
274723	RIVER EC ;12	4.88
274792	SE CHICAG;9U	1.08
274793	SE CHICAG;0U	1.08
274794	SE CHICAG;1U	1.08
274795	SE CHICAG;2U	1.08
274832	U4-027	10.35
274859	EASYR;U1 E	10.65
274860	EASYR;U2 E	10.65
274881	PLEAS RDG;2U	0.92
274887	PILOT HIL;1U	0.92
274888	PILOT HIL;1E	21.28
274890	CAYUG;1U E	13.27
274891	CAYUG;2U E	13.27
275149	KEMPTON ;1E	21.28
290021	O50 E	18.64
290051	GSG-6; E	10.17
290108	LEEDK;1U E	23.67
293061	N-015 E	14.93
293516	O-009 E1	8.73
293517	O-009 E2	4.44
293518	O-009 E3	4.89
293644	O22 E1	9.29
293645	O22 E2	18.04
293715	O-029 E	9.44
293716	O-029 E	5.17
293717	O-029 E	4.76
293771	O-035 E	6.11
294392	P-010 E	18.96
294401	BSHIL;1U E	8.17
294410	BSHIL;2U E	8.17
294763	P-046 E	9.11
295109	WESTBROOK E	5.44
295111	SUBLETTE E	2.51
296125	R-030 C3	3.41
296128	R-030 E3	13.63
296271	R-030 C2	3.37
296272	R-030 E2	13.46
296308	R-030 C1	3.37
296309	R-030 E1	13.46

Bus #	Bus	MW Impact
910541	X3-005 C	0.1
910542	X3-005 E	0.91
914641	Y2-103	44.0
915011	Y3-013 1	3.67
915021	Y3-013 2	3.67
915031	Y3-013 3	3.67
916211	Z1-072 E	4.63
916221	Z1-073 E	5.25
916502	Z1-106 E1	1.24
916504	Z1-106 E2	1.24
916512	Z1-107 E	2.6
916522	Z1-108 E	2.43
917502	Z2-087 E	17.61
918052	AA1-018 E	16.88
919221	AA1-146	17.0
919581	AA2-030	17.0
919621	AA2-039 C	1.99
919622	AA2-039 E	13.33
920272	AA2-123 E	2.38
924041	AB2-047 C O1	3.25
924042	AB2-047 E O1	21.74
924471	AB2-096	41.28
925161	AB2-173	3.03
925302	AB2-191 E	1.35
925581	AC1-033 C	1.34
925582	AC1-033 E	8.96
925881	AC1-067 O1	307.99
926311	AC1-109 1	1.87
926321	AC1-109 2	1.87
926331	AC1-110 1	1.86
926341	AC1-110 2	1.86
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	2.32
926821	AC1-168 C O1	1.1
926822	AC1-168 E O1	7.4
927091	AC1-204 1	70.34
927101	AC1-204 2	70.39
927201	AC1-214 C O1	1.96
927202	AC1-214 E O1	6.24
927451	AC1-142A 1	4.11
927461	AC1-142A 2	4.11
927511	AC1-113 1	1.16
927521	AC1-113 2	1.16
927531	AC1-185 1	0.67
927541	AC1-185 2	0.67
927551	AC1-185 3	0.67
927561	AC1-185 4	0.67

Bus #	Bus	MW Impact
927571	AC1-185 5	0.67
927581	AC1-185 6	0.67
927591	AC1-185 7	0.67
927601	AC1-185 8	0.67
930481	AB1-089	63.99
930501	AB1-091 O1	93.6
930741	AB1-122 1O1	70.2
930751	AB1-122 2O1	71.31
932881	AC2-115 1	2.32
932891	AC2-115 2	2.32
932921	AC2-116	0.81
932931	AC2-117	5.34
933341	AC2-147 C	0.85
933342	AC2-147 E	1.38
933411	AC2-154 C	2.89
933412	AC2-154 E	4.72
933431	AC2-156 C O1	0.94
933432	AC2-156 E O1	1.53
933911	AD1-013 C	1.79
933912	AD1-013 E	2.86
933931	AD1-016 C	0.91
933932	AD1-016 E	1.48
934051	AD1-031 C O1	2.72
934052	AD1-031 E O1	4.43
934101	AD1-039 1	6.88
934111	AD1-039 2	6.99
934401	AD1-064 C O1	3.12
934402	AD1-064 E O1	14.62
934431	AD1-067 C	0.13
934432	AD1-067 E	0.54
934651	AD1-096 C	0.87
934652	AD1-096 E	1.41
934701	AD1-098 C O1	6.69
934702	AD1-098 E O1	4.88
934721	AD1-100 C	19.19
934722	AD1-100 E	89.54
934871	AD1-116 C	0.98
934872	AD1-116 E	1.6
934881	AD1-117 C	5.21
934882	AD1-117 E	3.47
934971	AD1-129 C	0.88
934972	AD1-129 E	0.59
935001	AD1-133 C O1	20.28
935002	AD1-133 E O1	13.52
936291	AD2-038 C O1	2.34
936292	AD2-038 E O1	15.64
936371	AD2-047 C O1	2.59
936372	AD2-047 E O1	27.84
936461	AD2-060	3.04
936511	AD2-066 C O1	8.2
936512	AD2-066 E O1	5.46
936781	AD2-101 C	4.29

Bus #	Bus	MW Impact
936782	AD2-101 E	20.09
936791	AD2-102 C	11.69
936792	AD2-102 E	11.23
936961	AD2-130	0.56
937001	AD2-134 C	2.66
937002	AD2-134 E	10.98
937031	AD2-137 C O1	3.65
937032	AD2-137 E O1	17.09
937051	AD2-140 C O1	3.71
937052	AD2-140 E O1	17.37
937061	AD2-141 C O1	3.69
937062	AD2-141 E O1	17.39
937071	AD2-142 C O1	7.42
937072	AD2-142 E O1	34.73
937121	AD2-148 C O1	3.44
937122	AD2-148 E O1	16.12
937131	AD2-149 C O1	3.44
937132	AD2-149 E O1	16.12
937141	AD2-150 C O1	3.44
937142	AD2-150 E O1	16.12
937181	AD2-155 C O1	3.44
937182	AD2-155 E O1	16.12
937311	AD2-172 C	2.39
937312	AD2-172 E	3.3
937321	AD2-175 C	16.04
937322	AD2-175 E	10.69
937331	AD2-176 C O1	7.15
937332	AD2-176 E O1	4.77
937401	AD2-194 1	7.56
937411	AD2-194 2	7.57
937531	AD2-214 C	4.25
937532	AD2-214 E	2.0
938012	AE1-002 E O1	7.33
938511	AE1-070 1	8.89
938521	AE1-070 2	8.14
990901	L-005 E	11.96
AB2-013	AB2-013	15.37
AE1-033	AE1-033	17.56
BLUEG	BLUEG	5.27
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.07
CARR	CARR	0.71
CATAWBA	CATAWBA	0.26
CBM-S1	CBM-S1	1.56
CBM-W1	CBM-W1	24.14
CBM-W2	CBM-W2	52.61
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
DEARBORN	DEARBORN	2.88
ELMERSMITH	ELMERSMITH	0.06
G-007	G-007	1.98
GIBSON	GIBSON	0.03

Bus #	Bus	MW Impact
HAMLET	HAMLET	1.0
MEC	MEC	36.26
O-066	O-066	6.68
RENSSELAER	RENSSELAER	0.56
SANTEETLA	SANTEETLA	0.01
TRIMBLE	TRIMBLE	0.62
WEC	WEC	7.78
Z1-043	Z1-043	27.4

Index 5

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
120922	270716	DRESDEN ; B	CE	274702	KENDALL ;BU	CE	1	COMED_P7_345-L11620_B-S_+_345-L11622_R-S	tower	1195.0	110.1	111.68	DC	25.5

Bus #	Bus	MW Impact
274658	DRESDEN ;2U	46.57
274728	ELWOOD EC;5P	4.89
274730	ELWOOD EC;6P	4.89
274732	ELWOOD EC;7P	4.89
274734	ELWOOD EC;8P	4.89
274736	ELWOOD EC;9P	4.89
290021	O50 E	26.72
927091	AC1-204 1	105.74
927101	AC1-204 2	105.02
930741	AB1-122 1O1	47.03
930751	AB1-122 2O1	169.67
934101	AD1-039 1	4.61
934111	AD1-039 2	16.63
936511	AD2-066 C O1	9.21
936512	AD2-066 E O1	6.14
937401	AD2-194 1	11.37
937411	AD2-194 2	11.29
938511	AE1-070 1	13.36
938521	AE1-070 2	12.14
AB2-013	AB2-013	7.79
BLUEG	BLUEG	0.16
CARR	CARR	0.08
CBM-S1	CBM-S1	1.16
CBM-S2	CBM-S2	0.11
CBM-W1	CBM-W1	0.59
CBM-W2	CBM-W2	20.28
CIN	CIN	0.49
CPLE	CPLE	0.0
DEARBORN	DEARBORN	0.51
G-007	G-007	0.22
IPL	IPL	0.19
MEC	MEC	8.02
O-066	O-066	0.76
RENSSELAER	RENSSELAER	0.07
TRIMBLE	TRIMBLE	0.03
Z1-043	Z1-043	13.43

Index 6

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
120367	270728	E FRANKFO; B	CE	274750	CRETE EC ;BP	CE	1	COMED_P4_112-65-BT3-4__	breaker	1399.0	109.71	110.35	DC	19.1

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	12.85
274654	BRAIDWOOD;1U	30.85
274655	BRAIDWOOD;2U	29.51
274660	LASCO STA;1U	28.2
274661	LASCO STA;2U	28.25
274675	JOLIET 29;7U	12.74
274676	JOLIET 29;8U	12.75
274687	WILL CNTY;4U	12.87
274704	KENDALL ;1C	4.53
274705	KENDALL ;1S	3.02
274706	KENDALL ;2C	4.53
274707	KENDALL ;2S	3.02
274722	S-055 E	12.02
274736	ELWOOD EC;9P	3.66
274832	U4-027	11.3
274859	EASYR;U1 E	11.62
274860	EASYR;U2 E	11.62
274861	TOP CROP ;1U	0.54
274862	TOP CROP ;2U	1.04
274888	PILOT HIL;1E	17.23
274890	CAYUG;1U E	13.75
274891	CAYUG;2U E	13.75
275149	KEMPTON ;1E	17.23
290021	O50 E	20.97
290051	GSG-6; E	11.04
290108	LEEDK;1U E	25.67
293061	N-015 E	16.57
293516	O-009 E1	9.53
293517	O-009 E2	4.84
293518	O-009 E3	5.33
293644	O22 E1	12.44
293645	O22 E2	24.14
293715	O-029 E	10.3
293716	O-029 E	5.65
293717	O-029 E	5.19
293771	O-035 E	6.66
294392	P-010 E	21.05
294401	BSHIL;1U E	8.92
294410	BSHIL;2U E	8.92
294763	P-046 E	9.92

Bus #	Bus	MW Impact
295109	WESTBROOK E	5.91
295111	SUBLETTE E	2.74
296125	R-030 C3	3.56
296128	R-030 E3	14.24
296271	R-030 C2	3.52
296272	R-030 E2	14.07
296308	R-030 C1	3.52
296309	R-030 E1	14.07
914641	Y2-103	48.07
915011	Y3-013 1	4.01
915021	Y3-013 2	4.01
915031	Y3-013 3	4.01
916211	Z1-072 E	5.04
916221	Z1-073 E	5.7
916502	Z1-106 E1	1.34
916504	Z1-106 E2	1.34
916512	Z1-107 E	2.57
916522	Z1-108 E	2.65
917502	Z2-087 E	18.4
918052	AA1-018 E	16.34
919221	AA1-146	18.56
919581	AA2-030	18.56
919621	AA2-039 C	2.17
919622	AA2-039 E	14.55
920272	AA2-123 E	2.6
924041	AB2-047 C O1	3.4
924042	AB2-047 E O1	22.72
924471	AB2-096	44.96
925161	AB2-173	3.31
925302	AB2-191 E	1.46
925581	AC1-033 C	1.46
925582	AC1-033 E	9.78
926311	AC1-109 1	2.02
926321	AC1-109 2	2.02
926331	AC1-110 1	2.02
926341	AC1-110 2	2.02
926351	AC1-111 1	0.81
926361	AC1-111 2	0.81
926371	AC1-111 3	0.81
926381	AC1-111 4	0.81
926391	AC1-111 5	0.81
926401	AC1-111 6	0.81
926431	AC1-114	2.52
926821	AC1-168 C O1	1.21
926822	AC1-168 E O1	8.09
927091	AC1-204 1	79.01
927101	AC1-204 2	78.87
927201	AC1-214 C O1	2.14
927202	AC1-214 E O1	6.8
927451	AC1-142A 1	4.57
927461	AC1-142A 2	4.58
927511	AC1-113 1	1.26

Bus #	Bus	MW Impact
927521	AC1-113 2	1.26
927531	AC1-185 1	0.73
927541	AC1-185 2	0.73
927551	AC1-185 3	0.73
927561	AC1-185 4	0.73
927571	AC1-185 5	0.73
927581	AC1-185 6	0.73
927591	AC1-185 7	0.73
927601	AC1-185 8	0.73
930481	AB1-089	69.72
930501	AB1-091 O1	67.33
930741	AB1-122 1O1	75.38
930751	AB1-122 2O1	80.56
932881	AC2-115 1	2.52
932891	AC2-115 2	2.52
932921	AC2-116	0.88
932931	AC2-117	4.89
933341	AC2-147 C	0.92
933342	AC2-147 E	1.5
933411	AC2-154 C	2.34
933412	AC2-154 E	3.81
933431	AC2-156 C O1	1.01
933432	AC2-156 E O1	1.64
933911	AD1-013 C	1.94
933912	AD1-013 E	3.11
933931	AD1-016 C	0.99
933932	AD1-016 E	1.61
934051	AD1-031 C O1	2.97
934052	AD1-031 E O1	4.84
934101	AD1-039 1	7.39
934111	AD1-039 2	7.9
934401	AD1-064 C O1	3.4
934402	AD1-064 E O1	15.92
934431	AD1-067 C	0.14
934432	AD1-067 E	0.58
934651	AD1-096 C	0.94
934652	AD1-096 E	1.54
934701	AD1-098 C O1	7.27
934702	AD1-098 E O1	5.31
934721	AD1-100 C	20.14
934722	AD1-100 E	93.98
934871	AD1-116 C	0.95
934872	AD1-116 E	1.55
934881	AD1-117 C	5.68
934882	AD1-117 E	3.78
934971	AD1-129 C	0.96
934972	AD1-129 E	0.64
935001	AD1-133 C O1	21.52
935002	AD1-133 E O1	14.35
936291	AD2-038 C O1	2.43
936292	AD2-038 E O1	16.23
936371	AD2-047 C O1	2.09

Bus #	Bus	MW Impact
936372	AD2-047 E O1	22.52
936461	AD2-060	2.46
936511	AD2-066 C O1	8.79
936512	AD2-066 E O1	5.86
936781	AD2-101 C	4.04
936782	AD2-101 E	18.93
936791	AD2-102 C	12.74
936792	AD2-102 E	12.24
936961	AD2-130	0.6
937001	AD2-134 C	2.89
937002	AD2-134 E	11.92
937031	AD2-137 C O1	3.37
937032	AD2-137 E O1	15.76
937051	AD2-140 C O1	3.35
937052	AD2-140 E O1	15.68
937061	AD2-141 C O1	3.33
937062	AD2-141 E O1	15.7
937071	AD2-142 C O1	6.7
937072	AD2-142 E O1	31.36
937121	AD2-148 C O1	3.3
937122	AD2-148 E O1	15.46
937131	AD2-149 C O1	3.3
937132	AD2-149 E O1	15.46
937141	AD2-150 C O1	3.3
937142	AD2-150 E O1	15.46
937181	AD2-155 C O1	3.3
937182	AD2-155 E O1	15.46
937311	AD2-172 C	2.61
937312	AD2-172 E	3.6
937321	AD2-175 C	15.38
937322	AD2-175 E	10.25
937331	AD2-176 C O1	7.79
937332	AD2-176 E O1	5.19
937401	AD2-194 1	8.5
937411	AD2-194 2	8.48
937531	AD2-214 C	4.64
937532	AD2-214 E	2.18
938012	AE1-002 E O1	6.76
938511	AE1-070 1	9.98
938521	AE1-070 2	9.12
990901	L-005 E	13.04
AB2-013	AB2-013	16.97
AE1-033	AE1-033	19.16
BLUEG	BLUEG	6.41
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.12
CARR	CARR	0.72
CATAWBA	CATAWBA	0.27
CBM-S1	CBM-S1	1.54
CBM-W1	CBM-W1	27.16
CBM-W2	CBM-W2	55.18
CHEOAH	CHEOAH	0.04

Bus #	Bus	MW Impact
CHILHOWEE	CHILHOWEE	0.01
DEARBORN	DEARBORN	2.87
ELMERSMITH	ELMERSMITH	0.13
G-007	G-007	2.01
GIBSON	GIBSON	0.07
HAMLET	HAMLET	1.03
MEC	MEC	39.44
O-066	O-066	6.77
RENSSELAER	RENSSELAER	0.57
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.76
WEC	WEC	8.5
Z1-043	Z1-043	29.91

Index 7

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
120710	270736	ELWOOD ; B	CE	270770	GOODINGS ;4B	CE	1	COMED_P1-2_345-L11622_R-S	single	1479.0	117.83	120.82	DC	44.18

Bus #	Bus	MW Impact
274658	DRESDEN ;2U	22.65
274659	DRESDEN ;3U	21.98
274704	KENDALL ;1C	2.8
274705	KENDALL ;1S	1.87
274706	KENDALL ;2C	2.8
274707	KENDALL ;2S	1.87
274728	ELWOOD EC;5P	8.48
274729	ELWOOD EC;1P	8.42
274730	ELWOOD EC;6P	8.48
274731	ELWOOD EC;2P	8.42
274732	ELWOOD EC;7P	8.48
274733	ELWOOD EC;3P	8.42
274734	ELWOOD EC;8P	8.48
274735	ELWOOD EC;4P	8.42
274736	ELWOOD EC;9P	8.48
274836	EQUISTAR ; R	1.41
274837	EQUISTAR ; B	0.8
274879	MINONK ;1U	0.58
904211	W3-135	0.2
905493	W4-086	0.03
927091	AC1-204 1	183.19
927101	AC1-204 2	181.95
930741	AB1-122 1O1	80.47
930751	AB1-122 2O1	82.55
934101	AD1-039 1	7.89
934111	AD1-039 2	8.09
935001	AD1-133 C O1	17.35
936511	AD2-066 C O1	5.14
937401	AD2-194 1	19.7
937411	AD2-194 2	19.57
938511	AE1-070 1	23.15
938521	AE1-070 2	21.03
AB2-013	AB2-013	5.8
BLUEG	BLUEG	1.68
CALDERWOOD	CALDERWOOD	0.0
CANNELTON	CANNELTON	0.02
CARR	CARR	0.21
CATAWBA	CATAWBA	0.08
CBM-S1	CBM-S1	0.53
CBM-W1	CBM-W1	3.53

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	17.66
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
DEARBORN	DEARBORN	0.93
ELMERSMITH	ELMERSMITH	0.01
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.29
MEC	MEC	9.78
RENSSELAER	RENSSELAER	0.17
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.2
WEC	WEC	1.01
Z1-043	Z1-043	9.78

Index 8

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
120686	270737	ELWOOD ; R	CE	270769	GOODINGS ;2R	CE	1	COMED_P1-2_345-L11620_B-S	single	1479.0	119.5	122.5	DC	44.38

Bus #	Bus	MW Impact
274658	DRESDEN ;2U	23.95
274659	DRESDEN ;3U	21.57
274704	KENDALL ;1C	3.35
274705	KENDALL ;1S	2.23
274706	KENDALL ;2C	3.35
274707	KENDALL ;2S	2.23
274728	ELWOOD EC;5P	8.46
274729	ELWOOD EC;1P	8.52
274730	ELWOOD EC;6P	8.46
274731	ELWOOD EC;2P	8.52
274732	ELWOOD EC;7P	8.46
274733	ELWOOD EC;3P	8.52
274734	ELWOOD EC;8P	8.46
274735	ELWOOD EC;4P	8.52
274736	ELWOOD EC;9P	8.46
274836	EQUISTAR ; R	1.44
274837	EQUISTAR ; B	0.77
274879	MINONK ;1U	0.61
904211	W3-135	0.19
905493	W4-086	0.03
927091	AC1-204 1	182.87
927101	AC1-204 2	184.01
930741	AB1-122 1O1	79.01
930751	AB1-122 2O1	87.33
934101	AD1-039 1	7.74
934111	AD1-039 2	8.56
935001	AD1-133 C O1	17.0
936511	AD2-066 C O1	5.21
937401	AD2-194 1	19.67
937411	AD2-194 2	19.79
938511	AE1-070 1	23.11
938521	AE1-070 2	21.27
AB2-013	AB2-013	6.07
BLUEG	BLUEG	1.66
CANNELTON	CANNELTON	0.01
CARR	CARR	0.21
CATAWBA	CATAWBA	0.07
CBM-S1	CBM-S1	0.57
CBM-W1	CBM-W1	3.94
CBM-W2	CBM-W2	18.23

Bus #	Bus	MW Impact
CHEOAH	CHEOAH	0.0
DEARBORN	DEARBORN	0.94
ELMERSMITH	ELMERSMITH	0.0
HAMLET	HAMLET	0.29
MEC	MEC	10.12
RENSSELAER	RENSSELAER	0.17
SANTEETLA	SANTEETLA	0.0
TRIMBLE	TRIMBLE	0.2
WEC	WEC	1.05
Z1-043	Z1-043	9.97

Index 9

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
120329	270770	GOODINGS ;4B	CE	270766	GOODINGS ;3B	CE	1	COMED_P4_116-45-L11614_	breaker	1802.0	115.76	116.91	DC	27.81

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	7.97
274722	S-055 E	7.4
274728	ELWOOD EC;5P	5.33
274730	ELWOOD EC;6P	5.33
274732	ELWOOD EC;7P	5.33
274734	ELWOOD EC;8P	5.33
274735	ELWOOD EC;4P	5.3
274736	ELWOOD EC;9P	5.33
274832	U4-027	8.23
274859	EASYR;U1 E	7.74
274860	EASYR;U2 E	7.74
274861	TOP CROP ;1U	1.07
274862	TOP CROP ;2U	2.07
290021	O50 E	25.69
290051	GSG-6; E	6.68
290108	LEEDK;1U E	14.96
293516	O-009 E1	6.68
293517	O-009 E2	3.39
293518	O-009 E3	3.74
293644	O22 E1	24.79
293645	O22 E2	48.13
293715	O-029 E	7.09
293716	O-029 E	3.89
293717	O-029 E	3.57
293771	O-035 E	4.75
294401	BSHIL;1U E	6.62
294410	BSHIL;2U E	6.62
294763	P-046 E	6.38
295109	WESTBROOK E	3.58
295111	SUBLETTE E	1.83
914641	Y2-103	29.58
915011	Y3-013 1	2.47
915021	Y3-013 2	2.47
915031	Y3-013 3	2.47
916211	Z1-072 E	3.59
916221	Z1-073 E	3.45
916502	Z1-106 E1	0.78
916504	Z1-106 E2	0.78
916522	Z1-108 E	1.6
918052	AA1-018 E	19.62
919221	AA1-146	12.73

Bus #	Bus	MW Impact
919581	AA2-030	12.73
919621	AA2-039 C	1.61
919622	AA2-039 E	10.81
920272	AA2-123 E	1.6
924471	AB2-096	27.91
925161	AB2-173	2.27
925302	AB2-191 E	0.88
925581	AC1-033 C	1.08
925582	AC1-033 E	7.26
926331	AC1-110 1	1.21
926341	AC1-110 2	1.21
926431	AC1-114	1.59
926841	AC1-171 C O1	0.79
926842	AC1-171 E O1	5.27
927091	AC1-204 1	115.24
927101	AC1-204 2	114.6
927201	AC1-214 C O1	1.52
927202	AC1-214 E O1	4.85
927451	AC1-142A 1	3.64
927461	AC1-142A 2	3.68
927511	AC1-113 1	0.8
927521	AC1-113 2	0.8
927531	AC1-185 1	0.48
927541	AC1-185 2	0.48
927551	AC1-185 3	0.48
927561	AC1-185 4	0.48
927571	AC1-185 5	0.48
927581	AC1-185 6	0.48
927591	AC1-185 7	0.48
927601	AC1-185 8	0.48
930481	AB1-089	44.01
930741	AB1-122 1O1	65.48
930751	AB1-122 2O1	95.43
932881	AC2-115 1	1.59
932891	AC2-115 2	1.59
932921	AC2-116	0.56
933341	AC2-147 C	0.61
933342	AC2-147 E	0.99
933911	AD1-013 C	1.17
933912	AD1-013 E	1.87
933931	AD1-016 C	0.61
933932	AD1-016 E	0.99
934051	AD1-031 C O1	2.2
934052	AD1-031 E O1	3.59
934101	AD1-039 1	6.42
934111	AD1-039 2	9.35
934401	AD1-064 C O1	2.11
934402	AD1-064 E O1	9.89
934431	AD1-067 C	0.08
934432	AD1-067 E	0.35
934651	AD1-096 C	0.61
934652	AD1-096 E	0.99

Bus #	Bus	MW Impact
934701	AD1-098 C O1	4.42
934702	AD1-098 E O1	3.23
934871	AD1-116 C	1.14
934872	AD1-116 E	1.86
934881	AD1-117 C	3.75
934882	AD1-117 E	2.5
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	14.82
935002	AD1-133 E O1	9.88
936291	AD2-038 C O1	2.98
936292	AD2-038 E O1	19.96
936511	AD2-066 C O1	6.45
936512	AD2-066 E O1	4.3
936791	AD2-102 C	8.12
936792	AD2-102 E	7.8
937001	AD2-134 C	1.75
937002	AD2-134 E	7.21
937311	AD2-172 C	1.68
937312	AD2-172 E	2.31
937331	AD2-176 C O1	4.79
937332	AD2-176 E O1	3.19
937401	AD2-194 1	12.39
937411	AD2-194 2	12.32
937531	AD2-214 C	3.28
937532	AD2-214 E	1.54
938511	AE1-070 1	14.56
938521	AE1-070 2	13.25
990901	L-005 E	9.78
AB2-013	AB2-013	17.79
AE1-033	AE1-033	12.34
BLUEG	BLUEG	2.73
CARR	CARR	0.35
CATAWBA	CATAWBA	0.05
CBM-S1	CBM-S1	2.23
CBM-W1	CBM-W1	18.2
CBM-W2	CBM-W2	46.71
DEARBORN	DEARBORN	1.8
G-007	G-007	0.96
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.25
MEC	MEC	29.65
O-066	O-066	3.24
RENSSELAER	RENSSELAER	0.28
TRIMBLE	TRIMBLE	0.33
WEC	WEC	5.38
Z1-043	Z1-043	19.74

Index 10

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
120378	270771	GREENACRE; T	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	108.75	109.31	DC	11.84

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	8.09
274722	S-055 E	7.55
274751	CRETE EC ;1U	2.17
274752	CRETE EC ;2U	2.17
274753	CRETE EC ;3U	2.17
274754	CRETE EC ;4U	2.17
274832	U4-027	7.15
274859	EASYR;U1 E	7.33
274860	EASYR;U2 E	7.33
274888	PILOT HIL;1E	12.47
274890	CAYUG;1U E	8.95
274891	CAYUG;2U E	8.95
275149	KEMPTON ;1E	12.47
290021	O50 E	13.04
290051	GSG-6; E	6.97
290108	LEEDK;1U E	16.21
293061	N-015 E	10.28
293516	O-009 E1	6.02
293517	O-009 E2	3.06
293518	O-009 E3	3.37
293644	O22 E1	7.27
293645	O22 E2	14.11
293715	O-029 E	6.5
293716	O-029 E	3.57
293717	O-029 E	3.28
293771	O-035 E	4.22
294392	P-010 E	13.05
294401	BSHIL;1U E	5.65
294410	BSHIL;2U E	5.65
294763	P-046 E	6.26
295109	WESTBROOK E	3.73
295111	SUBLETTE E	1.73
296125	R-030 C3	2.31
296128	R-030 E3	9.26
296271	R-030 C2	2.29
296272	R-030 E2	9.15
296308	R-030 C1	2.29
296309	R-030 E1	9.15
910542	X3-005 E	0.52
914641	Y2-103	30.2
915011	Y3-013 1	2.52

Bus #	Bus	MW Impact
915021	Y3-013 2	2.52
915031	Y3-013 3	2.52
916211	Z1-072 E	3.19
916221	Z1-073 E	3.6
916502	Z1-106 E1	0.84
916504	Z1-106 E2	0.84
916512	Z1-107 E	1.72
916522	Z1-108 E	1.67
917502	Z2-087 E	11.96
918052	AA1-018 E	10.66
919221	AA1-146	11.72
919581	AA2-030	11.72
919621	AA2-039 C	1.38
919622	AA2-039 E	9.21
920272	AA2-123 E	1.64
924041	AB2-047 C O1	2.21
924042	AB2-047 E O1	14.78
924471	AB2-096	28.32
925161	AB2-173	2.09
925302	AB2-191 E	0.92
925581	AC1-033 C	0.92
925582	AC1-033 E	6.19
925881	AC1-067 O1	103.15
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	1.59
926821	AC1-168 C O1	0.76
926822	AC1-168 E O1	5.1
927091	AC1-204 1	48.95
927101	AC1-204 2	48.9
927201	AC1-214 C O1	1.35
927202	AC1-214 E O1	4.3
927451	AC1-142A 1	2.84
927461	AC1-142A 2	2.84
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

Bus #	Bus	MW Impact
930481	AB1-089	43.93
930501	AB1-091 O1	49.72
930741	AB1-122 1O1	47.77
930751	AB1-122 2O1	49.94
932881	AC2-115 1	1.59
932891	AC2-115 2	1.59
932921	AC2-116	0.56
933341	AC2-147 C	0.58
933342	AC2-147 E	0.95
933411	AC2-154 C	1.69
933412	AC2-154 E	2.76
933431	AC2-156 C O1	0.64
933432	AC2-156 E O1	1.04
933911	AD1-013 C	1.23
933912	AD1-013 E	1.96
933931	AD1-016 C	0.62
933932	AD1-016 E	1.01
934051	AD1-031 C O1	1.88
934052	AD1-031 E O1	3.06
934101	AD1-039 1	4.68
934111	AD1-039 2	4.89
934401	AD1-064 C O1	2.14
934402	AD1-064 E O1	10.03
934431	AD1-067 C	0.09
934432	AD1-067 E	0.37
934651	AD1-096 C	0.6
934652	AD1-096 E	0.97
934701	AD1-098 C O1	4.59
934702	AD1-098 E O1	3.35
934721	AD1-100 C	12.97
934722	AD1-100 E	60.54
934871	AD1-116 C	0.62
934872	AD1-116 E	1.01
934881	AD1-117 C	3.58
934882	AD1-117 E	2.39
934971	AD1-129 C	0.6
934972	AD1-129 E	0.4
935001	AD1-133 C O1	13.78
935002	AD1-133 E O1	9.19
936291	AD2-038 C O1	1.55
936292	AD2-038 E O1	10.36
936371	AD2-047 C O1	1.51
936372	AD2-047 E O1	16.3
936461	AD2-060	1.78
936511	AD2-066 C O1	5.59
936512	AD2-066 E O1	3.72
936781	AD2-101 C	3.16
936782	AD2-101 E	14.81
936791	AD2-102 C	8.03
936792	AD2-102 E	7.72
936961	AD2-130	0.38
937001	AD2-134 C	1.82

Bus #	Bus	MW Impact
937002	AD2-134 E	7.53
937031	AD2-137 C O1	2.31
937032	AD2-137 E O1	10.84
937051	AD2-140 C O1	2.33
937052	AD2-140 E O1	10.9
937061	AD2-141 C O1	2.32
937062	AD2-141 E O1	10.92
937071	AD2-142 C O1	4.66
937072	AD2-142 E O1	21.81
937121	AD2-148 C O1	2.35
937122	AD2-148 E O1	11.0
937131	AD2-149 C O1	2.35
937132	AD2-149 E O1	11.0
937141	AD2-150 C O1	2.35
937142	AD2-150 E O1	11.0
937181	AD2-155 C O1	2.35
937182	AD2-155 E O1	11.0
937311	AD2-172 C	1.64
937312	AD2-172 E	2.27
937321	AD2-175 C	10.94
937322	AD2-175 E	7.3
937331	AD2-176 C O1	4.91
937332	AD2-176 E O1	3.27
937401	AD2-194 1	5.26
937411	AD2-194 2	5.26
937531	AD2-214 C	2.93
937532	AD2-214 E	1.38
938012	AE1-002 E O1	4.65
938511	AE1-070 1	6.18
938521	AE1-070 2	5.65
951721	J643	15.51
952581	J740 C	3.41
952582	J740 E	18.42
953871	J847	8.38
990901	L-005 E	8.27
AB2-013	AB2-013	10.69
AE1-033	AE1-033	12.08
BLUEG	BLUEG	2.7
CARR	CARR	0.48
CATAWBA	CATAWBA	0.15
CBM-S1	CBM-S1	1.46
CBM-W1	CBM-W1	20.16
CBM-W2	CBM-W2	39.17
CIN	CIN	0.2
DEARBORN	DEARBORN	2.26
G-007	G-007	1.35
HAMLET	HAMLET	0.61
MEC	MEC	25.2
O-066	O-066	4.53
RENSSELAER	RENSSELAER	0.38
TRIMBLE	TRIMBLE	0.33
WEC	WEC	5.35

Bus #	Bus	MW Impact
Z1-043	Z1-043	18.9

Index 11

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
120355	270886	ST JOHN ; T	CE	255104	17GREEN_ACRE	NIPS	1	COMED_P4_023-65-BT2-3__	breaker	1091.0	112.77	113.34	DC	13.4

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.07
274654	BRAIDWOOD;1U	21.46
274655	BRAIDWOOD;2U	20.55
274661	LASCO STA;2U	19.83
274687	WILL CNTY;4U	9.05
274704	KENDALL ;1C	3.17
274705	KENDALL ;1S	2.11
274706	KENDALL ;2C	3.17
274707	KENDALL ;2S	2.11
274722	S-055 E	8.48
274751	CRETE EC ;1U	3.78
274752	CRETE EC ;2U	3.78
274753	CRETE EC ;3U	3.78
274754	CRETE EC ;4U	3.78
274832	U4-027	7.97
274859	EASYR;U1 E	8.2
274860	EASYR;U2 E	8.2
274861	TOP CROP ;1U	0.37
274862	TOP CROP ;2U	0.71
274888	PILOT HIL;1E	12.86
274890	CAYUG;1U E	9.78
274891	CAYUG;2U E	9.78
275149	KEMPTON ;1E	12.86
290021	O50 E	14.71
290051	GSG-6; E	7.81
290108	LEEDK;1U E	18.16
293061	N-015 E	11.66
293516	O-009 E1	6.72
293517	O-009 E2	3.42
293518	O-009 E3	3.76
293644	O22 E1	8.53
293645	O22 E2	16.56
293715	O-029 E	7.27
293716	O-029 E	3.98
293717	O-029 E	3.66
293771	O-035 E	4.7
294392	P-010 E	14.81
294401	BSHIL;1U E	6.29
294410	BSHIL;2U E	6.29
294763	P-046 E	7.01

Bus #	Bus	MW Impact
295109	WESTBROOK E	4.18
295111	SUBLETTE E	1.93
296125	R-030 C3	2.53
296128	R-030 E3	10.11
296271	R-030 C2	2.5
296272	R-030 E2	9.99
296308	R-030 C1	2.5
296309	R-030 E1	9.99
910542	X3-005 E	0.45
914641	Y2-103	33.93
915011	Y3-013 1	2.83
915021	Y3-013 2	2.83
915031	Y3-013 3	2.83
916211	Z1-072 E	3.55
916221	Z1-073 E	4.03
916502	Z1-106 E1	0.95
916504	Z1-106 E2	0.95
916512	Z1-107 E	1.86
916522	Z1-108 E	1.87
917502	Z2-087 E	13.06
918052	AA1-018 E	11.69
919221	AA1-146	13.1
919581	AA2-030	13.1
919621	AA2-039 C	1.53
919622	AA2-039 E	10.26
920272	AA2-123 E	1.83
924041	AB2-047 C O1	2.41
924042	AB2-047 E O1	16.13
924471	AB2-096	31.76
925161	AB2-173	2.34
925302	AB2-191 E	1.03
925581	AC1-033 C	1.03
925582	AC1-033 E	6.89
925881	AC1-067 O1	81.17
926311	AC1-109 1	1.43
926321	AC1-109 2	1.43
926331	AC1-110 1	1.43
926341	AC1-110 2	1.43
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	1.78
926821	AC1-168 C O1	0.85
926822	AC1-168 E O1	5.7
927091	AC1-204 1	55.4
927101	AC1-204 2	55.32
927201	AC1-214 C O1	1.51
927202	AC1-214 E O1	4.79
927451	AC1-142A 1	3.21

Bus #	Bus	MW Impact
927461	AC1-142A 2	3.21
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	49.25
930501	AB1-091 O1	50.75
930741	AB1-122 1O1	53.19
930751	AB1-122 2O1	56.53
932881	AC2-115 1	1.78
932891	AC2-115 2	1.78
932921	AC2-116	0.62
932931	AC2-117	3.38
933341	AC2-147 C	0.65
933342	AC2-147 E	1.06
933411	AC2-154 C	1.74
933412	AC2-154 E	2.85
933431	AC2-156 C O1	0.71
933432	AC2-156 E O1	1.17
933911	AD1-013 C	1.37
933912	AD1-013 E	2.2
933931	AD1-016 C	0.7
933932	AD1-016 E	1.14
934051	AD1-031 C O1	2.09
934052	AD1-031 E O1	3.41
934101	AD1-039 1	5.21
934111	AD1-039 2	5.54
934401	AD1-064 C O1	2.4
934402	AD1-064 E O1	11.25
934431	AD1-067 C	0.1
934432	AD1-067 E	0.41
934651	AD1-096 C	0.67
934652	AD1-096 E	1.09
934701	AD1-098 C O1	5.14
934702	AD1-098 E O1	3.75
934721	AD1-100 C	14.33
934722	AD1-100 E	66.86
934871	AD1-116 C	0.68
934872	AD1-116 E	1.11
934881	AD1-117 C	4.01
934882	AD1-117 E	2.67
934971	AD1-129 C	0.68
934972	AD1-129 E	0.45
935001	AD1-133 C O1	15.22
935002	AD1-133 E O1	10.15
936291	AD2-038 C O1	1.72

Bus #	Bus	MW Impact
936292	AD2-038 E O1	11.5
936371	AD2-047 C O1	1.56
936372	AD2-047 E O1	16.81
936461	AD2-060	1.84
936511	AD2-066 C O1	6.22
936512	AD2-066 E O1	4.15
936781	AD2-101 C	3.1
936782	AD2-101 E	14.53
936791	AD2-102 C	9.0
936792	AD2-102 E	8.65
936961	AD2-130	0.43
937001	AD2-134 C	2.04
937002	AD2-134 E	8.43
937031	AD2-137 C O1	2.45
937032	AD2-137 E O1	11.48
937051	AD2-140 C O1	2.45
937052	AD2-140 E O1	11.47
937061	AD2-141 C O1	2.44
937062	AD2-141 E O1	11.48
937071	AD2-142 C O1	4.9
937072	AD2-142 E O1	22.94
937121	AD2-148 C O1	2.44
937122	AD2-148 E O1	11.43
937131	AD2-149 C O1	2.44
937132	AD2-149 E O1	11.43
937141	AD2-150 C O1	2.44
937142	AD2-150 E O1	11.43
937181	AD2-155 C O1	2.44
937182	AD2-155 E O1	11.43
937311	AD2-172 C	1.84
937312	AD2-172 E	2.54
937321	AD2-175 C	11.38
937322	AD2-175 E	7.58
937331	AD2-176 C O1	5.5
937332	AD2-176 E O1	3.67
937401	AD2-194 1	5.96
937411	AD2-194 2	5.95
937531	AD2-214 C	3.28
937532	AD2-214 E	1.54
938012	AE1-002 E O1	4.92
938511	AE1-070 1	7.0
938521	AE1-070 2	6.4
990901	L-005 E	9.19
AB2-013	AB2-013	11.93
AE1-033	AE1-033	13.52
BLUEG	BLUEG	4.86
CALDERWOOD	CALDERWOOD	0.07
CANNELTON	CANNELTON	0.1
CARR	CARR	0.55
CATAWBA	CATAWBA	0.22
CBM-S1	CBM-S1	0.88
CBM-W1	CBM-W1	20.25

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	37.99
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02
DEARBORN	DEARBORN	2.21
ELMERSMITH	ELMERSMITH	0.12
G-007	G-007	1.54
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.83
MEC	MEC	27.75
O-066	O-066	5.17
RENSSELAER	RENSSELAER	0.43
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.57
WEC	WEC	6.0
Z1-043	Z1-043	21.08

Index 12

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
120151	270926	WILTON ; B	CE	275232	WILTON ;3M	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	159.28	159.98	DC	21.59

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.87
274722	S-055 E	13.8
274772	LINCOLN ;3U	3.78
274773	LINCOLN ;4U	3.78
274774	LINCOLN ;5U	3.78
274775	LINCOLN ;6U	3.78
274776	LINCOLN ;7U	3.78
274777	LINCOLN ;8U	3.78
274832	U4-027	13.38
274859	EASYR;U1 E	13.52
274860	EASYR;U2 E	13.52
274888	PILOT HIL;1E	23.54
274890	CAYUG;1U E	20.36
274891	CAYUG;2U E	20.36
275149	KEMPTON ;1E	23.54
290021	O50 E	23.84
290051	GSG-6; E	12.85
290108	LEEDK;1U E	29.85
290261	S-027 E	20.53
290265	S-028 E	20.53
293061	N-015 E	19.5
293516	O-009 E1	11.19
293517	O-009 E2	5.68
293518	O-009 E3	6.26
293644	O22 E1	12.6
293645	O22 E2	24.46
293715	O-029 E	12.03
293716	O-029 E	6.6
293717	O-029 E	6.06
293771	O-035 E	7.95
294392	P-010 E	24.76
294401	BSHIL;1U E	10.61
294410	BSHIL;2U E	10.61
294763	P-046 E	11.52
295109	WESTBROOK E	6.88
295111	SUBLETTE E	3.19
296125	R-030 C3	5.01
296128	R-030 E3	20.04
296271	R-030 C2	4.95
296272	R-030 E2	19.8
296308	R-030 C1	4.95

Bus #	Bus	MW Impact
296309	R-030 E1	19.8
910542	X3-005 E	0.9
914641	Y2-103	55.21
915011	Y3-013 1	4.6
915021	Y3-013 2	4.6
915031	Y3-013 3	4.6
916211	Z1-072 E	6.01
916221	Z1-073 E	6.63
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.18
916522	Z1-108 E	3.06
917502	Z2-087 E	25.9
918052	AA1-018 E	20.2
919221	AA1-146	21.63
919581	AA2-030	21.63
919621	AA2-039 C	2.59
919622	AA2-039 E	17.31
920272	AA2-123 E	3.0
924041	AB2-047 C O1	4.78
924042	AB2-047 E O1	31.96
924471	AB2-096	52.03
925161	AB2-173	3.86
925302	AB2-191 E	1.7
925581	AC1-033 C	1.74
925582	AC1-033 E	11.64
925881	AC1-067 O1	167.74
926311	AC1-109 1	2.35
926321	AC1-109 2	2.35
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	2.92
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.63
927091	AC1-204 1	89.24
927101	AC1-204 2	89.24
927201	AC1-214 C O1	2.55
927202	AC1-214 E O1	8.11
927451	AC1-142A 1	5.14
927461	AC1-142A 2	5.14
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

Bus #	Bus	MW Impact
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	80.8
930501	AB1-091 O1	91.89
930741	AB1-122 1O1	89.69
930751	AB1-122 2O1	90.62
932881	AC2-115 1	2.92
932891	AC2-115 2	2.92
932921	AC2-116	1.02
932931	AC2-117	6.55
933341	AC2-147 C	1.07
933342	AC2-147 E	1.75
933411	AC2-154 C	3.19
933412	AC2-154 E	5.21
933431	AC2-156 C O1	1.18
933432	AC2-156 E O1	1.92
933911	AD1-013 C	2.26
933912	AD1-013 E	3.61
933931	AD1-016 C	1.14
933932	AD1-016 E	1.86
934051	AD1-031 C O1	3.53
934052	AD1-031 E O1	5.76
934101	AD1-039 1	8.79
934111	AD1-039 2	8.88
934401	AD1-064 C O1	3.94
934402	AD1-064 E O1	18.43
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.1
934652	AD1-096 E	1.79
934701	AD1-098 C O1	8.46
934702	AD1-098 E O1	6.17
934721	AD1-100 C	29.61
934722	AD1-100 E	138.19
934871	AD1-116 C	1.18
934872	AD1-116 E	1.92
934881	AD1-117 C	6.61
934882	AD1-117 E	4.4
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.54
935002	AD1-133 E O1	18.36
936291	AD2-038 C O1	2.89
936292	AD2-038 E O1	19.36
936371	AD2-047 C O1	2.86
936372	AD2-047 E O1	30.76
936461	AD2-060	3.36
936511	AD2-066 C O1	10.39
936512	AD2-066 E O1	6.93
936781	AD2-101 C	5.96

Bus #	Bus	MW Impact
936782	AD2-101 E	27.88
936791	AD2-102 C	14.77
936792	AD2-102 E	14.19
936961	AD2-130	0.69
937001	AD2-134 C	3.36
937002	AD2-134 E	13.88
937031	AD2-137 C O1	7.2
937032	AD2-137 E O1	33.69
937051	AD2-140 C O1	7.56
937052	AD2-140 E O1	35.37
937061	AD2-141 C O1	7.51
937062	AD2-141 E O1	35.42
937071	AD2-142 C O1	15.11
937072	AD2-142 E O1	70.75
937121	AD2-148 C O1	4.64
937122	AD2-148 E O1	21.71
937131	AD2-149 C O1	4.64
937132	AD2-149 E O1	21.71
937141	AD2-150 C O1	4.64
937142	AD2-150 E O1	21.71
937161	AD2-153 C O1	3.4
937162	AD2-153 E O1	15.94
937171	AD2-154 C O1	3.4
937172	AD2-154 E O1	15.94
937181	AD2-155 C O1	4.64
937182	AD2-155 E O1	21.71
937311	AD2-172 C	3.02
937312	AD2-172 E	4.18
937321	AD2-175 C	21.61
937322	AD2-175 E	14.41
937331	AD2-176 C O1	9.01
937332	AD2-176 E O1	6.01
937401	AD2-194 1	9.6
937411	AD2-194 2	9.6
937531	AD2-214 C	5.43
937532	AD2-214 E	2.56
938012	AE1-002 E O1	14.45
938511	AE1-070 1	11.28
938521	AE1-070 2	10.32
990901	L-005 E	15.61
AB2-013	AB2-013	19.94
AE1-033	AE1-033	22.19
BLUEG	BLUEG	7.55
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.07
CARR	CARR	0.94
CATAWBA	CATAWBA	0.36
CBM-S1	CBM-S1	2.05
CBM-W1	CBM-W1	37.66
CBM-W2	CBM-W2	72.51
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.85
ELMERSMITH	ELMERSMITH	0.04
G-007	G-007	2.63
HAMLET	HAMLET	1.39
MEC	MEC	46.86
O-066	O-066	8.85
RENSSELAER	RENSSELAER	0.74
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.9
WEC	WEC	9.79
Z1-043	Z1-043	35.65

Index 13

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
120158	270927	WILTON ; R	CE	275233	WILTON ;4M	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	155.63	156.35	DC	22.05

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.18
274722	S-055 E	14.1
274772	LINCOLN ;3U	3.88
274773	LINCOLN ;4U	3.88
274774	LINCOLN ;5U	3.88
274775	LINCOLN ;6U	3.88
274776	LINCOLN ;7U	3.88
274777	LINCOLN ;8U	3.88
274832	U4-027	13.66
274859	EASYR;U1 E	13.8
274860	EASYR;U2 E	13.8
274888	PILOT HIL;1E	24.03
274890	CAYUG;1U E	20.77
274891	CAYUG;2U E	20.77
275149	KEMPTON ;1E	24.03
290021	O50 E	24.35
290051	GSG-6; E	13.12
290108	LEEDK;1U E	30.49
290261	S-027 E	20.95
290265	S-028 E	20.95
293061	N-015 E	19.91
293516	O-009 E1	11.42
293517	O-009 E2	5.8
293518	O-009 E3	6.39
293644	O22 E1	12.87
293645	O22 E2	24.98
293715	O-029 E	12.29
293716	O-029 E	6.74
293717	O-029 E	6.19
293771	O-035 E	8.11
294392	P-010 E	25.28
294401	BSHIL;1U E	10.84
294410	BSHIL;2U E	10.84
294763	P-046 E	11.77
295109	WESTBROOK E	7.03
295111	SUBLETTE E	3.26
296125	R-030 C3	5.11
296128	R-030 E3	20.44
296271	R-030 C2	5.05
296272	R-030 E2	20.2
296308	R-030 C1	5.05

Bus #	Bus	MW Impact
296309	R-030 E1	20.2
910542	X3-005 E	0.92
914641	Y2-103	56.39
915011	Y3-013 1	4.7
915021	Y3-013 2	4.7
915031	Y3-013 3	4.7
916211	Z1-072 E	6.14
916221	Z1-073 E	6.77
916502	Z1-106 E1	1.59
916504	Z1-106 E2	1.59
916512	Z1-107 E	3.24
916522	Z1-108 E	3.12
917502	Z2-087 E	26.42
918052	AA1-018 E	20.64
919221	AA1-146	22.09
919581	AA2-030	22.09
919621	AA2-039 C	2.64
919622	AA2-039 E	17.68
920272	AA2-123 E	3.07
924041	AB2-047 C O1	4.87
924042	AB2-047 E O1	32.61
924471	AB2-096	53.14
925161	AB2-173	3.94
925302	AB2-191 E	1.74
925581	AC1-033 C	1.77
925582	AC1-033 E	11.88
925881	AC1-067 O1	171.47
926311	AC1-109 1	2.4
926321	AC1-109 2	2.4
926331	AC1-110 1	2.38
926341	AC1-110 2	2.38
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	2.99
926821	AC1-168 C O1	1.47
926822	AC1-168 E O1	9.83
927091	AC1-204 1	91.15
927101	AC1-204 2	91.15
927201	AC1-214 C O1	2.6
927202	AC1-214 E O1	8.28
927451	AC1-142A 1	5.25
927461	AC1-142A 2	5.25
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

Bus #	Bus	MW Impact
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	82.52
930501	AB1-091 O1	93.82
930741	AB1-122 1O1	91.59
930751	AB1-122 2O1	92.55
932881	AC2-115 1	2.99
932891	AC2-115 2	2.99
932921	AC2-116	1.05
932931	AC2-117	6.69
933341	AC2-147 C	1.1
933342	AC2-147 E	1.79
933411	AC2-154 C	3.26
933412	AC2-154 E	5.32
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.96
933911	AD1-013 C	2.31
933912	AD1-013 E	3.69
933931	AD1-016 C	1.17
933932	AD1-016 E	1.9
934051	AD1-031 C O1	3.6
934052	AD1-031 E O1	5.88
934101	AD1-039 1	8.98
934111	AD1-039 2	9.07
934401	AD1-064 C O1	4.02
934402	AD1-064 E O1	18.83
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.12
934652	AD1-096 E	1.83
934701	AD1-098 C O1	8.64
934702	AD1-098 E O1	6.31
934721	AD1-100 C	30.2
934722	AD1-100 E	140.93
934871	AD1-116 C	1.2
934872	AD1-116 E	1.96
934881	AD1-117 C	6.75
934882	AD1-117 E	4.5
934971	AD1-129 C	1.13
934972	AD1-129 E	0.76
935001	AD1-133 C O1	28.11
935002	AD1-133 E O1	18.74
936291	AD2-038 C O1	2.96
936292	AD2-038 E O1	19.78
936371	AD2-047 C O1	2.92
936372	AD2-047 E O1	31.4
936461	AD2-060	3.43
936511	AD2-066 C O1	10.61
936512	AD2-066 E O1	7.08
936781	AD2-101 C	6.08

Bus #	Bus	MW Impact
936782	AD2-101 E	28.46
936791	AD2-102 C	15.08
936792	AD2-102 E	14.49
936961	AD2-130	0.71
937001	AD2-134 C	3.43
937002	AD2-134 E	14.17
937031	AD2-137 C O1	7.33
937032	AD2-137 E O1	34.31
937051	AD2-140 C O1	7.7
937052	AD2-140 E O1	36.03
937061	AD2-141 C O1	7.65
937062	AD2-141 E O1	36.07
937071	AD2-142 C O1	15.39
937072	AD2-142 E O1	72.05
937121	AD2-148 C O1	4.73
937122	AD2-148 E O1	22.16
937131	AD2-149 C O1	4.73
937132	AD2-149 E O1	22.16
937141	AD2-150 C O1	4.73
937142	AD2-150 E O1	22.16
937161	AD2-153 C O1	3.47
937162	AD2-153 E O1	16.26
937171	AD2-154 C O1	3.47
937172	AD2-154 E O1	16.26
937181	AD2-155 C O1	4.73
937182	AD2-155 E O1	22.16
937311	AD2-172 C	3.09
937312	AD2-172 E	4.27
937321	AD2-175 C	22.05
937322	AD2-175 E	14.7
937331	AD2-176 C O1	9.2
937332	AD2-176 E O1	6.13
937401	AD2-194 1	9.8
937411	AD2-194 2	9.8
937531	AD2-214 C	5.55
937532	AD2-214 E	2.61
938012	AE1-002 E O1	14.71
938511	AE1-070 1	11.52
938521	AE1-070 2	10.54
990901	L-005 E	15.94
AB2-013	AB2-013	20.36
AE1-033	AE1-033	22.67
BLUEG	BLUEG	7.71
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.07
CARR	CARR	0.96
CATAWBA	CATAWBA	0.37
CBM-S1	CBM-S1	2.09
CBM-W1	CBM-W1	38.46
CBM-W2	CBM-W2	74.02
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.91
ELMERSMITH	ELMERSMITH	0.04
G-007	G-007	2.68
HAMLET	HAMLET	1.42
MEC	MEC	47.84
O-066	O-066	9.03
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.92
WEC	WEC	9.99
Z1-043	Z1-043	36.4

Index 14

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
120308	274750	CRETE EC ;BP	CE	255112	17STJOHN	NIPS	1	AEP_P4_#2978_05DUMONT 765_B	breaker	1399.0	121.54	122.16	DC	18.79

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	12.62
274654	BRAIDWOOD;1U	30.37
274655	BRAIDWOOD;2U	29.06
274661	LASCO STA;2U	27.78
274687	WILL CNTY;4U	12.67
274704	KENDALL ;1C	4.46
274705	KENDALL ;1S	2.97
274706	KENDALL ;2C	4.46
274707	KENDALL ;2S	2.97
274722	S-055 E	11.81
274751	CRETE EC ;1U	6.46
274752	CRETE EC ;2U	6.46
274753	CRETE EC ;3U	6.46
274754	CRETE EC ;4U	6.46
274832	U4-027	11.1
274859	EASYR;U1 E	11.42
274860	EASYR;U2 E	11.42
274861	TOP CROP ;1U	0.53
274862	TOP CROP ;2U	1.02
274888	PILOT HIL;1E	16.9
274890	CAYUG;1U E	13.53
274891	CAYUG;2U E	13.53
275149	KEMPTON ;1E	16.9
290021	O50 E	20.62
290051	GSG-6; E	10.85
290108	LEEDK;1U E	25.21
293061	N-015 E	16.3
293516	O-009 E1	9.36
293517	O-009 E2	4.76
293518	O-009 E3	5.24
293644	O22 E1	12.26
293645	O22 E2	23.79
293715	O-029 E	10.12
293716	O-029 E	5.55
293717	O-029 E	5.1
293771	O-035 E	6.55
294392	P-010 E	20.7
294401	BSHIL;1U E	8.77
294410	BSHIL;2U E	8.77
294763	P-046 E	9.75
295109	WESTBROOK E	5.81

Bus #	Bus	MW Impact
295111	SUBLETTE E	2.69
296125	R-030 C3	3.5
296128	R-030 E3	14.0
296271	R-030 C2	3.46
296272	R-030 E2	13.84
296308	R-030 C1	3.46
296309	R-030 E1	13.84
914641	Y2-103	47.25
915011	Y3-013 1	3.94
915021	Y3-013 2	3.94
915031	Y3-013 3	3.94
916211	Z1-072 E	4.96
916221	Z1-073 E	5.6
916502	Z1-106 E1	1.32
916504	Z1-106 E2	1.32
916512	Z1-107 E	2.53
916522	Z1-108 E	2.6
917502	Z2-087 E	18.1
918052	AA1-018 E	16.05
919221	AA1-146	18.24
919581	AA2-030	18.24
919621	AA2-039 C	2.14
919622	AA2-039 E	14.3
920272	AA2-123 E	2.55
924471	AB2-096	44.18
925161	AB2-173	3.25
925302	AB2-191 E	1.44
925581	AC1-033 C	1.44
925582	AC1-033 E	9.61
926311	AC1-109 1	1.98
926321	AC1-109 2	1.98
926331	AC1-110 1	1.98
926341	AC1-110 2	1.98
926351	AC1-111 1	0.79
926361	AC1-111 2	0.79
926371	AC1-111 3	0.79
926381	AC1-111 4	0.79
926391	AC1-111 5	0.79
926401	AC1-111 6	0.79
926431	AC1-114	2.48
926821	AC1-168 C O1	1.19
926822	AC1-168 E O1	7.95
927091	AC1-204 1	77.71
927101	AC1-204 2	77.58
927201	AC1-214 C O1	2.1
927202	AC1-214 E O1	6.68
927451	AC1-142A 1	4.5
927461	AC1-142A 2	4.5
927511	AC1-113 1	1.24
927521	AC1-113 2	1.24
927531	AC1-185 1	0.71
927541	AC1-185 2	0.71

Bus #	Bus	MW Impact
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	68.5
930501	AB1-091 O1	66.04
930741	AB1-122 1O1	74.06
930751	AB1-122 2O1	79.23
932881	AC2-115 1	2.48
932891	AC2-115 2	2.48
932921	AC2-116	0.87
932931	AC2-117	4.78
933341	AC2-147 C	0.91
933342	AC2-147 E	1.48
933411	AC2-154 C	2.29
933412	AC2-154 E	3.74
933431	AC2-156 C O1	0.99
933432	AC2-156 E O1	1.62
933911	AD1-013 C	1.91
933912	AD1-013 E	3.05
933931	AD1-016 C	0.97
933932	AD1-016 E	1.58
934051	AD1-031 C O1	2.92
934052	AD1-031 E O1	4.76
934101	AD1-039 1	7.26
934111	AD1-039 2	7.76
934401	AD1-064 C O1	3.34
934402	AD1-064 E O1	15.64
934431	AD1-067 C	0.14
934432	AD1-067 E	0.57
934651	AD1-096 C	0.93
934652	AD1-096 E	1.51
934701	AD1-098 C O1	7.14
934702	AD1-098 E O1	5.21
934721	AD1-100 C	19.82
934722	AD1-100 E	92.49
934871	AD1-116 C	0.93
934872	AD1-116 E	1.53
934881	AD1-117 C	5.58
934882	AD1-117 E	3.72
934971	AD1-129 C	0.94
934972	AD1-129 E	0.63
935001	AD1-133 C O1	21.15
935002	AD1-133 E O1	14.1
936291	AD2-038 C O1	2.38
936292	AD2-038 E O1	15.95
936371	AD2-047 C O1	2.05
936372	AD2-047 E O1	22.09
936461	AD2-060	2.41
936511	AD2-066 C O1	8.64

Bus #	Bus	MW Impact
936512	AD2-066 E O1	5.76
936781	AD2-101 C	3.96
936782	AD2-101 E	18.54
936791	AD2-102 C	12.52
936792	AD2-102 E	12.03
936961	AD2-130	0.59
937001	AD2-134 C	2.84
937002	AD2-134 E	11.72
937031	AD2-137 C O1	3.31
937032	AD2-137 E O1	15.52
937051	AD2-140 C O1	3.3
937052	AD2-140 E O1	15.44
937061	AD2-141 C O1	3.28
937062	AD2-141 E O1	15.46
937071	AD2-142 C O1	6.6
937072	AD2-142 E O1	30.89
937121	AD2-148 C O1	3.24
937122	AD2-148 E O1	15.17
937131	AD2-149 C O1	3.24
937132	AD2-149 E O1	15.17
937141	AD2-150 C O1	3.24
937142	AD2-150 E O1	15.17
937181	AD2-155 C O1	3.24
937182	AD2-155 E O1	15.17
937311	AD2-172 C	2.56
937312	AD2-172 E	3.53
937321	AD2-175 C	15.1
937322	AD2-175 E	10.07
937331	AD2-176 C O1	7.65
937332	AD2-176 E O1	5.1
937401	AD2-194 1	8.36
937411	AD2-194 2	8.34
937531	AD2-214 C	4.56
937532	AD2-214 E	2.15
938012	AE1-002 E O1	6.65
938511	AE1-070 1	9.82
938521	AE1-070 2	8.97
990901	L-005 E	12.81
AB2-013	AB2-013	16.68
AE1-033	AE1-033	18.82
BLUEG	BLUEG	6.4
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.12
CARR	CARR	0.78
CATAWBA	CATAWBA	0.3
CBM-S1	CBM-S1	1.3
CBM-W1	CBM-W1	25.85
CBM-W2	CBM-W2	53.22
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03
DEARBORN	DEARBORN	3.12
ELMERSMITH	ELMERSMITH	0.14

Bus #	Bus	MW Impact
G-007	G-007	2.17
GIBSON	GIBSON	0.07
HAMLET	HAMLET	1.16
MEC	MEC	38.69
O-066	O-066	7.31
RENSSELAER	RENSSELAER	0.61
SANTEETLA	SANTEETLA	0.03
TRIMBLE	TRIMBLE	0.75
WEC	WEC	8.35
Z1-043	Z1-043	29.39

Index 15

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
120319	274804	UNIV PK N;RP	CE	243229	05OLIVE	AEP	1	AEP_P4_#2978_05DUMONT 765_B	breaker	971.0	120.66	121.33	DC	14.37

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	9.83
274722	S-055 E	9.18
274808	UNIV PK N;4U	1.82
274809	UNIV PK N;5U	1.82
274811	UNIV PK N;7U	1.82
274812	UNIV PK N;8U	1.82
274814	UNIV PK N;0U	1.82
274815	UNIV PK N;XU	1.82
274832	U4-027	8.65
274859	EASYR;U1 E	8.88
274860	EASYR;U2 E	8.88
274888	PILOT HIL;1E	14.94
274890	CAYUG;1U E	10.74
274891	CAYUG;2U E	10.74
275149	KEMPTON ;1E	14.94
290021	O50 E	15.68
290051	GSG-6; E	8.46
290108	LEEDK;1U E	19.69
293061	N-015 E	12.65
293516	O-009 E1	7.29
293517	O-009 E2	3.7
293518	O-009 E3	4.08
293644	O22 E1	7.91
293645	O22 E2	15.36
293715	O-029 E	7.87
293716	O-029 E	4.32
293717	O-029 E	3.97
293771	O-035 E	5.11
294392	P-010 E	16.07
294401	BSHIL;1U E	6.84
294410	BSHIL;2U E	6.84
294763	P-046 E	7.59
295109	WESTBROOK E	4.53
295111	SUBLETTE E	2.09
910542	X3-005 E	0.52
914641	Y2-103	36.73
915011	Y3-013 1	3.06
915021	Y3-013 2	3.06
915031	Y3-013 3	3.06
916211	Z1-072 E	3.87

Bus #	Bus	MW Impact
916221	Z1-073 E	4.37
916502	Z1-106 E1	1.03
916504	Z1-106 E2	1.03
916512	Z1-107 E	2.18
916522	Z1-108 E	2.03
918052	AA1-018 E	14.35
919221	AA1-146	14.18
919581	AA2-030	14.18
919621	AA2-039 C	1.67
919622	AA2-039 E	11.15
920272	AA2-123 E	1.99
924471	AB2-096	34.41
925161	AB2-173	2.53
925302	AB2-191 E	1.12
925581	AC1-033 C	1.12
925582	AC1-033 E	7.49
925881	AC1-067 O1	98.12
926311	AC1-109 1	1.56
926321	AC1-109 2	1.56
926331	AC1-110 1	1.54
926341	AC1-110 2	1.54
926351	AC1-111 1	0.62
926361	AC1-111 2	0.62
926371	AC1-111 3	0.62
926381	AC1-111 4	0.62
926391	AC1-111 5	0.62
926401	AC1-111 6	0.62
926431	AC1-114	1.93
926821	AC1-168 C O1	0.92
926822	AC1-168 E O1	6.21
927091	AC1-204 1	59.39
927101	AC1-204 2	59.43
927201	AC1-214 C O1	1.64
927202	AC1-214 E O1	5.22
927451	AC1-142A 1	3.47
927461	AC1-142A 2	3.46
927511	AC1-113 1	0.97
927521	AC1-113 2	0.97
927531	AC1-185 1	0.56
927541	AC1-185 2	0.56
927551	AC1-185 3	0.56
927561	AC1-185 4	0.56
927571	AC1-185 5	0.56
927581	AC1-185 6	0.56
927591	AC1-185 7	0.56
927601	AC1-185 8	0.56
930481	AB1-089	53.33
930501	AB1-091 O1	57.76
930741	AB1-122 1O1	58.43
930751	AB1-122 2O1	59.91
932881	AC2-115 1	1.93
932891	AC2-115 2	1.93

Bus #	Bus	MW Impact
932921	AC2-116	0.68
932931	AC2-117	10.41
933341	AC2-147 C	0.7
933342	AC2-147 E	1.15
933411	AC2-154 C	2.03
933412	AC2-154 E	3.31
933431	AC2-156 C O1	0.78
933432	AC2-156 E O1	1.27
933911	AD1-013 C	1.49
933912	AD1-013 E	2.38
933931	AD1-016 C	0.76
933932	AD1-016 E	1.23
934051	AD1-031 C O1	2.27
934052	AD1-031 E O1	3.71
934101	AD1-039 1	5.73
934111	AD1-039 2	5.87
934401	AD1-064 C O1	2.6
934402	AD1-064 E O1	12.18
934431	AD1-067 C	0.11
934432	AD1-067 E	0.45
934651	AD1-096 C	0.72
934652	AD1-096 E	1.18
934701	AD1-098 C O1	5.57
934702	AD1-098 E O1	4.07
934721	AD1-100 C	15.62
934722	AD1-100 E	72.9
934871	AD1-116 C	0.84
934872	AD1-116 E	1.36
934881	AD1-117 C	4.34
934882	AD1-117 E	2.89
934971	AD1-129 C	0.73
934972	AD1-129 E	0.49
935001	AD1-133 C O1	16.74
935002	AD1-133 E O1	11.16
936291	AD2-038 C O1	1.98
936292	AD2-038 E O1	13.24
936371	AD2-047 C O1	1.81
936372	AD2-047 E O1	19.53
936461	AD2-060	2.13
936511	AD2-066 C O1	6.85
936512	AD2-066 E O1	4.57
936781	AD2-101 C	3.5
936782	AD2-101 E	16.39
936791	AD2-102 C	9.75
936792	AD2-102 E	9.37
936961	AD2-130	0.46
937001	AD2-134 C	2.21
937002	AD2-134 E	9.14
937031	AD2-137 C O1	2.7
937032	AD2-137 E O1	12.65
937051	AD2-140 C O1	2.7
937052	AD2-140 E O1	12.66

Bus #	Bus	MW Impact
937061	AD2-141 C O1	2.69
937062	AD2-141 E O1	12.67
937071	AD2-142 C O1	5.41
937072	AD2-142 E O1	25.32
937121	AD2-148 C O1	2.73
937122	AD2-148 E O1	12.79
937131	AD2-149 C O1	2.73
937132	AD2-149 E O1	12.79
937141	AD2-150 C O1	2.73
937142	AD2-150 E O1	12.79
937181	AD2-155 C O1	2.73
937182	AD2-155 E O1	12.79
937311	AD2-172 C	1.99
937312	AD2-172 E	2.75
937321	AD2-175 C	12.73
937322	AD2-175 E	8.49
937331	AD2-176 C O1	5.96
937332	AD2-176 E O1	3.97
937401	AD2-194 1	6.39
937411	AD2-194 2	6.39
937531	AD2-214 C	3.55
937532	AD2-214 E	1.67
938012	AE1-002 E O1	5.42
938511	AE1-070 1	7.5
938521	AE1-070 2	6.87
990901	L-005 E	10.0
AB2-013	AB2-013	12.9
AE1-033	AE1-033	14.65
BLUEG	BLUEG	4.21
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.05
CARR	CARR	0.6
CATAWBA	CATAWBA	0.22
CBM-S1	CBM-S1	1.35
CBM-W1	CBM-W1	22.13
CBM-W2	CBM-W2	44.14
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
DEARBORN	DEARBORN	2.59
ELMERSMITH	ELMERSMITH	0.03
G-007	G-007	1.67
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.83
MEC	MEC	30.27
O-066	O-066	5.63
RENSSELAER	RENSSELAER	0.47
SANTEETLA	SANTEETLA	0.01
TRIMBLE	TRIMBLE	0.5
WEC	WEC	6.49
Z1-043	Z1-043	22.96

Index 16

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
120150	275232	WILTON ;3M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT5-6__	breaker	1379.0	159.28	159.98	DC	21.59

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	14.87
274722	S-055 E	13.8
274772	LINCOLN ;3U	3.78
274773	LINCOLN ;4U	3.78
274774	LINCOLN ;5U	3.78
274775	LINCOLN ;6U	3.78
274776	LINCOLN ;7U	3.78
274777	LINCOLN ;8U	3.78
274832	U4-027	13.38
274859	EASYR;U1 E	13.52
274860	EASYR;U2 E	13.52
274888	PILOT HIL;1E	23.54
274890	CAYUG;1U E	20.36
274891	CAYUG;2U E	20.36
275149	KEMPTON ;1E	23.54
290021	O50 E	23.84
290051	GSG-6; E	12.85
290108	LEEDK;1U E	29.85
290261	S-027 E	20.53
290265	S-028 E	20.53
293061	N-015 E	19.5
293516	O-009 E1	11.19
293517	O-009 E2	5.68
293518	O-009 E3	6.26
293644	O22 E1	12.6
293645	O22 E2	24.46
293715	O-029 E	12.03
293716	O-029 E	6.6
293717	O-029 E	6.06
293771	O-035 E	7.95
294392	P-010 E	24.76
294401	BSHIL;1U E	10.61
294410	BSHIL;2U E	10.61
294763	P-046 E	11.52
295109	WESTBROOK E	6.88
295111	SUBLETTE E	3.19
296125	R-030 C3	5.01
296128	R-030 E3	20.04
296271	R-030 C2	4.95
296272	R-030 E2	19.8
296308	R-030 C1	4.95

Bus #	Bus	MW Impact
296309	R-030 E1	19.8
910542	X3-005 E	0.9
914641	Y2-103	55.21
915011	Y3-013 1	4.6
915021	Y3-013 2	4.6
915031	Y3-013 3	4.6
916211	Z1-072 E	6.01
916221	Z1-073 E	6.63
916502	Z1-106 E1	1.55
916504	Z1-106 E2	1.55
916512	Z1-107 E	3.18
916522	Z1-108 E	3.06
917502	Z2-087 E	25.9
918052	AA1-018 E	20.2
919221	AA1-146	21.63
919581	AA2-030	21.63
919621	AA2-039 C	2.59
919622	AA2-039 E	17.31
920272	AA2-123 E	3.0
924041	AB2-047 C O1	4.78
924042	AB2-047 E O1	31.96
924471	AB2-096	52.03
925161	AB2-173	3.86
925302	AB2-191 E	1.7
925581	AC1-033 C	1.74
925582	AC1-033 E	11.64
925881	AC1-067 O1	167.74
926311	AC1-109 1	2.35
926321	AC1-109 2	2.35
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	2.92
926821	AC1-168 C O1	1.43
926822	AC1-168 E O1	9.63
927091	AC1-204 1	89.24
927101	AC1-204 2	89.24
927201	AC1-214 C O1	2.55
927202	AC1-214 E O1	8.11
927451	AC1-142A 1	5.14
927461	AC1-142A 2	5.14
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

Bus #	Bus	MW Impact
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	80.8
930501	AB1-091 O1	91.89
930741	AB1-122 1O1	89.69
930751	AB1-122 2O1	90.62
932881	AC2-115 1	2.92
932891	AC2-115 2	2.92
932921	AC2-116	1.02
932931	AC2-117	6.55
933341	AC2-147 C	1.07
933342	AC2-147 E	1.75
933411	AC2-154 C	3.19
933412	AC2-154 E	5.21
933431	AC2-156 C O1	1.18
933432	AC2-156 E O1	1.92
933911	AD1-013 C	2.26
933912	AD1-013 E	3.61
933931	AD1-016 C	1.14
933932	AD1-016 E	1.86
934051	AD1-031 C O1	3.53
934052	AD1-031 E O1	5.76
934101	AD1-039 1	8.79
934111	AD1-039 2	8.88
934401	AD1-064 C O1	3.94
934402	AD1-064 E O1	18.43
934431	AD1-067 C	0.16
934432	AD1-067 E	0.68
934651	AD1-096 C	1.1
934652	AD1-096 E	1.79
934701	AD1-098 C O1	8.46
934702	AD1-098 E O1	6.17
934721	AD1-100 C	29.61
934722	AD1-100 E	138.19
934871	AD1-116 C	1.18
934872	AD1-116 E	1.92
934881	AD1-117 C	6.61
934882	AD1-117 E	4.4
934971	AD1-129 C	1.11
934972	AD1-129 E	0.74
935001	AD1-133 C O1	27.54
935002	AD1-133 E O1	18.36
936291	AD2-038 C O1	2.89
936292	AD2-038 E O1	19.36
936371	AD2-047 C O1	2.86
936372	AD2-047 E O1	30.76
936461	AD2-060	3.36
936511	AD2-066 C O1	10.39
936512	AD2-066 E O1	6.93
936781	AD2-101 C	5.96

Bus #	Bus	MW Impact
936782	AD2-101 E	27.88
936791	AD2-102 C	14.77
936792	AD2-102 E	14.19
936961	AD2-130	0.69
937001	AD2-134 C	3.36
937002	AD2-134 E	13.88
937031	AD2-137 C O1	7.2
937032	AD2-137 E O1	33.69
937051	AD2-140 C O1	7.56
937052	AD2-140 E O1	35.37
937061	AD2-141 C O1	7.51
937062	AD2-141 E O1	35.42
937071	AD2-142 C O1	15.11
937072	AD2-142 E O1	70.75
937121	AD2-148 C O1	4.64
937122	AD2-148 E O1	21.71
937131	AD2-149 C O1	4.64
937132	AD2-149 E O1	21.71
937141	AD2-150 C O1	4.64
937142	AD2-150 E O1	21.71
937161	AD2-153 C O1	3.4
937162	AD2-153 E O1	15.94
937171	AD2-154 C O1	3.4
937172	AD2-154 E O1	15.94
937181	AD2-155 C O1	4.64
937182	AD2-155 E O1	21.71
937311	AD2-172 C	3.02
937312	AD2-172 E	4.18
937321	AD2-175 C	21.61
937322	AD2-175 E	14.41
937331	AD2-176 C O1	9.01
937332	AD2-176 E O1	6.01
937401	AD2-194 1	9.6
937411	AD2-194 2	9.6
937531	AD2-214 C	5.43
937532	AD2-214 E	2.56
938012	AE1-002 E O1	14.45
938511	AE1-070 1	11.28
938521	AE1-070 2	10.32
990901	L-005 E	15.61
AB2-013	AB2-013	19.94
AE1-033	AE1-033	22.19
BLUEG	BLUEG	7.55
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.07
CARR	CARR	0.94
CATAWBA	CATAWBA	0.36
CBM-S1	CBM-S1	2.05
CBM-W1	CBM-W1	37.66
CBM-W2	CBM-W2	72.51
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.85
ELMERSMITH	ELMERSMITH	0.04
G-007	G-007	2.63
HAMLET	HAMLET	1.39
MEC	MEC	46.86
O-066	O-066	8.85
RENSSELAER	RENSSELAER	0.74
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.9
WEC	WEC	9.79
Z1-043	Z1-043	35.65

Index 17

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
120160	275233	WILTON ;4M	CE	270644	WILTON ;	CE	1	COMED_P4_112-65-BT2-3__	breaker	1379.0	155.63	156.35	DC	22.05

Bus #	Bus	MW Impact
270859	PWR VTR EC;R	15.18
274722	S-055 E	14.1
274772	LINCOLN ;3U	3.88
274773	LINCOLN ;4U	3.88
274774	LINCOLN ;5U	3.88
274775	LINCOLN ;6U	3.88
274776	LINCOLN ;7U	3.88
274777	LINCOLN ;8U	3.88
274832	U4-027	13.66
274859	EASYR;U1 E	13.8
274860	EASYR;U2 E	13.8
274888	PILOT HIL;1E	24.03
274890	CAYUG;1U E	20.77
274891	CAYUG;2U E	20.77
275149	KEMPTON ;1E	24.03
290021	O50 E	24.35
290051	GSG-6; E	13.12
290108	LEEDK;1U E	30.49
290261	S-027 E	20.95
290265	S-028 E	20.95
293061	N-015 E	19.91
293516	O-009 E1	11.42
293517	O-009 E2	5.8
293518	O-009 E3	6.39
293644	O22 E1	12.87
293645	O22 E2	24.98
293715	O-029 E	12.29
293716	O-029 E	6.74
293717	O-029 E	6.19
293771	O-035 E	8.11
294392	P-010 E	25.28
294401	BSHIL;1U E	10.84
294410	BSHIL;2U E	10.84
294763	P-046 E	11.77
295109	WESTBROOK E	7.03
295111	SUBLETTE E	3.26
296125	R-030 C3	5.11
296128	R-030 E3	20.44
296271	R-030 C2	5.05
296272	R-030 E2	20.2
296308	R-030 C1	5.05

Bus #	Bus	MW Impact
296309	R-030 E1	20.2
910542	X3-005 E	0.92
914641	Y2-103	56.39
915011	Y3-013 1	4.7
915021	Y3-013 2	4.7
915031	Y3-013 3	4.7
916211	Z1-072 E	6.14
916221	Z1-073 E	6.77
916502	Z1-106 E1	1.59
916504	Z1-106 E2	1.59
916512	Z1-107 E	3.24
916522	Z1-108 E	3.12
917502	Z2-087 E	26.42
918052	AA1-018 E	20.64
919221	AA1-146	22.09
919581	AA2-030	22.09
919621	AA2-039 C	2.64
919622	AA2-039 E	17.68
920272	AA2-123 E	3.07
924041	AB2-047 C O1	4.87
924042	AB2-047 E O1	32.61
924471	AB2-096	53.14
925161	AB2-173	3.94
925302	AB2-191 E	1.74
925581	AC1-033 C	1.77
925582	AC1-033 E	11.88
925881	AC1-067 O1	171.47
926311	AC1-109 1	2.4
926321	AC1-109 2	2.4
926331	AC1-110 1	2.38
926341	AC1-110 2	2.38
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	2.99
926821	AC1-168 C O1	1.47
926822	AC1-168 E O1	9.83
927091	AC1-204 1	91.15
927101	AC1-204 2	91.15
927201	AC1-214 C O1	2.6
927202	AC1-214 E O1	8.28
927451	AC1-142A 1	5.25
927461	AC1-142A 2	5.25
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

Bus #	Bus	MW Impact
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	82.52
930501	AB1-091 O1	93.82
930741	AB1-122 1O1	91.59
930751	AB1-122 2O1	92.55
932881	AC2-115 1	2.99
932891	AC2-115 2	2.99
932921	AC2-116	1.05
932931	AC2-117	6.69
933341	AC2-147 C	1.1
933342	AC2-147 E	1.79
933411	AC2-154 C	3.26
933412	AC2-154 E	5.32
933431	AC2-156 C O1	1.2
933432	AC2-156 E O1	1.96
933911	AD1-013 C	2.31
933912	AD1-013 E	3.69
933931	AD1-016 C	1.17
933932	AD1-016 E	1.9
934051	AD1-031 C O1	3.6
934052	AD1-031 E O1	5.88
934101	AD1-039 1	8.98
934111	AD1-039 2	9.07
934401	AD1-064 C O1	4.02
934402	AD1-064 E O1	18.83
934431	AD1-067 C	0.16
934432	AD1-067 E	0.69
934651	AD1-096 C	1.12
934652	AD1-096 E	1.83
934701	AD1-098 C O1	8.64
934702	AD1-098 E O1	6.31
934721	AD1-100 C	30.2
934722	AD1-100 E	140.93
934871	AD1-116 C	1.2
934872	AD1-116 E	1.96
934881	AD1-117 C	6.75
934882	AD1-117 E	4.5
934971	AD1-129 C	1.13
934972	AD1-129 E	0.76
935001	AD1-133 C O1	28.11
935002	AD1-133 E O1	18.74
936291	AD2-038 C O1	2.96
936292	AD2-038 E O1	19.78
936371	AD2-047 C O1	2.92
936372	AD2-047 E O1	31.4
936461	AD2-060	3.43
936511	AD2-066 C O1	10.61
936512	AD2-066 E O1	7.08
936781	AD2-101 C	6.08

Bus #	Bus	MW Impact
936782	AD2-101 E	28.46
936791	AD2-102 C	15.08
936792	AD2-102 E	14.49
936961	AD2-130	0.71
937001	AD2-134 C	3.43
937002	AD2-134 E	14.17
937031	AD2-137 C O1	7.33
937032	AD2-137 E O1	34.31
937051	AD2-140 C O1	7.7
937052	AD2-140 E O1	36.03
937061	AD2-141 C O1	7.65
937062	AD2-141 E O1	36.07
937071	AD2-142 C O1	15.39
937072	AD2-142 E O1	72.05
937121	AD2-148 C O1	4.73
937122	AD2-148 E O1	22.16
937131	AD2-149 C O1	4.73
937132	AD2-149 E O1	22.16
937141	AD2-150 C O1	4.73
937142	AD2-150 E O1	22.16
937161	AD2-153 C O1	3.47
937162	AD2-153 E O1	16.26
937171	AD2-154 C O1	3.47
937172	AD2-154 E O1	16.26
937181	AD2-155 C O1	4.73
937182	AD2-155 E O1	22.16
937311	AD2-172 C	3.09
937312	AD2-172 E	4.27
937321	AD2-175 C	22.05
937322	AD2-175 E	14.7
937331	AD2-176 C O1	9.2
937332	AD2-176 E O1	6.13
937401	AD2-194 1	9.8
937411	AD2-194 2	9.8
937531	AD2-214 C	5.55
937532	AD2-214 E	2.61
938012	AE1-002 E O1	14.71
938511	AE1-070 1	11.52
938521	AE1-070 2	10.54
990901	L-005 E	15.94
AB2-013	AB2-013	20.36
AE1-033	AE1-033	22.67
BLUEG	BLUEG	7.71
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.07
CARR	CARR	0.96
CATAWBA	CATAWBA	0.37
CBM-S1	CBM-S1	2.09
CBM-W1	CBM-W1	38.46
CBM-W2	CBM-W2	74.02
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
CIN	CIN	0.12
DEARBORN	DEARBORN	2.91
ELMERSMITH	ELMERSMITH	0.04
G-007	G-007	2.68
HAMLET	HAMLET	1.42
MEC	MEC	47.84
O-066	O-066	9.03
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.02
TRIMBLE	TRIMBLE	0.92
WEC	WEC	9.99
Z1-043	Z1-043	36.4

Affected Systems

MISO

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

Contingency Name	Contingency Definition
COMED_P1-2_345-L11620_B-S	CONTINGENCY 'COMED_P1-2_345-L11620_B-S' TRIP BRANCH FROM BUS 270736 TO BUS 270770 CKT 1 / ELWOO; B 345 GOODI;3B 345 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
COMED_P4_023-65-BT2-3__	CONTINGENCY 'COMED_P4_023-65-BT2-3__' TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 TRIP BRANCH FROM BUS 270607 TO BUS 270630 CKT 1 / COLLI; 765 PLANO; 765 END
COMED_P4_116-45-TR82___	CONTINGENCY 'COMED_P4_116-45-TR82___' TRIP BRANCH FROM BUS 270769 TO BUS 271565 TO BUS 275324 CKT 1 / GOODINGS ;2R 345 GOODINGS ; R 138 GOODINGS ;2C 34.5 DISCONNECT BUS 270769 / GOODINGS ;2R 345 END
COMED_P4_112-45-BT4-5__	CONTINGENCY 'COMED_P4_112-45-BT4-5__' TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / B ISL;BT 345 B ISL; B 345 TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / B ISL;BT 345 WILTO; B 345 TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 / GOODI;4B 345 B ISL;BT 345 TRIP BRANCH FROM BUS 270852 TO BUS 270704 CKT 1 / PONTI; B 345 LORET; B 345 END
COMED_P4_116-45-L11613_	CONTINGENCY 'COMED_P4_116-45-L11613_' TRIP BRANCH FROM BUS 270666 TO BUS 270664 CKT 1 / B ISL;BT 345 B ISL; B 345 TRIP BRANCH FROM BUS 270666 TO BUS 270926 CKT 1 / B ISL;BT 345 WILTO; B 345 TRIP BRANCH FROM BUS 270770 TO BUS 270666 CKT 1 / GOODI;4B 345 B ISL;BT 345 DISCONNECT BUS 270770 / GOODI;4B 345 END
COMED_P4_116-45-L11617_	CONTINGENCY 'COMED_P4_116-45-L11617_' TRIP BRANCH FROM BUS 270770 TO BUS 270810 CKT 1 / GOODI;4B 345 LOCKP; B 345 DISCONNECT BUS 270770 / GOODI;4B 345 END
COMED_P7_345-L11620_B-S_+_345-L11622_R-S	CONTINGENCY 'COMED_P7_345-L11620_B-S_+_345-L11622_R-S' TRIP BRANCH FROM BUS 270736 TO BUS 270770 CKT 1 / ELWOO; B 345 GOODI;3B 345 TRIP BRANCH FROM BUS 270737 TO BUS 270769 CKT 1 / ELWOO; R 345 GOODI;1R 345 END
COMED_P2-2_116_GG-345R__2_NO_FSA	CONTINGENCY 'COMED_P2-2_116_GG-345R__2_NO_FSA' DISCONNECT BUS 270769 / GOODI;2R 345 END

Contingency Name	Contingency Definition
COMED_P4_023-65-BT4-5__	CONTINGENCY 'COMED_P4_023-65-BT4-5__' TRIP BRANCH FROM BUS 275168 TO BUS 270607 CKT 1 / COLLI;2M 345 COLLI; 765 TRIP BRANCH FROM BUS 275168 TO BUS 270697 CKT 1 / COLLI;2M 345 COLLI; R 345 TRIP BRANCH FROM BUS 275168 TO BUS 275268 CKT 1 / COLLI;2M 345 COLLI;2C 33 TRIP BRANCH FROM BUS 270644 TO BUS 243206 CKT 1 / WILTO; 765 05DUMONT 765 END
COMED_P4_116-45-TR84___	CONTINGENCY 'COMED_P4_116-45-TR84___' TRIP BRANCH FROM BUS 270770 TO BUS 271564 TO BUS 275368 CKT 1 / GOODINGS ;4B 345 GOODINGS ; B 138 GOODINGS ;4C 34.5 DISCONNECT BUS 270770 / GOODINGS ;4B 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
COMED_P4_116-45-L9801_FSA	CONTINGENCY 'COMED_P4_116-45-L9801_FSA' TRIP BRANCH FROM BUS 918050 TO BUS 270769 CKT 1 / AA1-018 GOODINGS ;2R 345 DISCONNECT BUS 270769 / GOODI;2R 345 END
COMED_P2-2_116_GG-345B__4	CONTINGENCY 'COMED_P2-2_116_GG-345B__4' DISCONNECT BUS 270770 / GOODI;4B 345 END
COMED_P4_116-45-L11614_	CONTINGENCY 'COMED_P4_116-45-L11614_' TRIP BRANCH FROM BUS 270667 TO BUS 270665 CKT 1 / B ISL;RT 345 B ISL; R 345 TRIP BRANCH FROM BUS 270667 TO BUS 270927 CKT 1 / B ISL;RT 345 WILTO; R 345 TRIP BRANCH FROM BUS 270769 TO BUS 270667 CKT 1 / GOODI;2R 345 B ISL;RT 345 DISCONNECT BUS 270769 / GOODI;2R 345 END
COMED_P2-2_116_GG-345R__2_FSA	CONTINGENCY 'COMED_P2-2_116_GG-345R__2_FSA' DISCONNECT BUS 270769 / GOODI;2R 345 DISCONNECT BUS 918050 / AA1-018 TAP /ADDED FOR NO FSA CASE 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_P1-2_345-L10805_B-S	CONTINGENCY 'COMED_P1-2_345-L10805_B-S' TRIP BRANCH FROM BUS 270810 TO BUS 274702 CKT 1 / LOCKP; B 345 KEND

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_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_P1-2_345-L11622_R-S	CONTINGENCY 'COMED_P1-2_345-L11622_R-S' TRIP BRANCH FROM BUS 270737 TO BUS 270769 CKT 1 / ELWOO; R 345 GOODI;1R 345 END
COMED_P4_112-65-BT5-6__	CONTINGENCY 'COMED_P4_112-65-BT5-6__' TRIP BRANCH FROM BUS 270644 TO BUS 270607 CKT 1 / WILTO; 765 COLLI; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270644 CKT 1 / WILTO;4M 345 WILTO; 765 TRIP BRANCH FROM BUS 275233 TO BUS 270927 CKT 1 / WILTO;4M 345 WILTO; R 345 TRIP BRANCH FROM BUS 275233 TO BUS 275333 CKT 1 / WILTO;4M 345 WILTO;4C 33 END
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

Short Circuit

Since this is an uprate to an existing facility, with no electrical changes to the generator, no short circuit analysis was required.