



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE1-072
SHAWBORO-SLIGO 230 KV
98.6 MW Capacity / 150 MW Energy**

January, 2019

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Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

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

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

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

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

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

The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

General

The IC has proposed a solar generating facility located in Currituck County, Virginia. The installed facilities will have a capability of 150 MW with 98.6 MW of this output being recognized by PJM as Capacity. The proposed in-service date for the AE1-072 project is 12/31/2019. This study does not imply an ITO commitment to either in-service date.

Queue Number	AE1-072
Project Name	SHAWBORO-SLIGO 230 KV
Interconnection Customer	
State	North Carolina
County	Currituck
Transmission Owner	Dominion
MFO	150
MWE	150
MWC	98.6
Fuel	Solar
Basecase Study Year	2022

Point of Interconnection

Primary Point of Interconnection

AE1-072 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Shawboro to Sligo 230 kV line # 269. See one line in **Attachment 1**.

Secondary Point of Interconnection

AE1-072 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Shawboro to Sligo 230 kV line # 2192.

Cost Summary

The AE1-072 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$1,800,000
Direct Connection Network Upgrade	\$6,300,000
Non Direct Connection Network Upgrades	\$1,000,000
Total Costs	\$9,100,000

In addition, the AE1-072 project may be responsible for a contribution to the following costs

(Reference System Reinforcements in the Network Impacts section for details):

Description	Total Cost
System Upgrades	\$349,830,000

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

Note: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The

System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

- (a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;
- (b) the time required to complete detailed design and construction of the facilities and upgrades; and
- (c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

Transmission Owner Scope of Work

Attachment Facilities

Generation Substation: Install metering and associated protection equipment. Estimated Cost is \$600,000.

Transmission: Construct approximately one span of 230 kV Attachment line between the generation substation and a new AE1-072 Switching Station. The estimated cost for this work is \$1,200,000.

The estimated total cost of the Attachment Facilities is \$1,800,000. It is estimated to take 18-24 months to complete this work. These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. 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
Substation	\$ 600,000
Transmission	\$1,200,000
Total Attachment Facility Costs	\$1,800,000

Direct Connection Cost Estimate

Substation: Establish the new 230 kV AE1-072 Switching Substation (interconnection substation). The estimated cost of this work scope is \$6,300,000. It is estimated to take 24-36 months to complete this work.

Non-Direct Connection Cost Estimate

Transmission: Install transmission structure in-line with transmission line to allow the proposed interconnection switching station to be interconnected with the transmission system. Estimated cost is \$1,000,000 and is estimated to take 24-30 months to complete.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

Interconnection Customer Requirements

ITO's Facility Connection Requirements as posted on PJM's website

<http://www.pjm.com/~media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx>

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Revenue Metering and SCADA Requirements

PJM Requirements

The IC will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O Appendix 2.

Meteorological Data Reporting Requirement

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

Network Impacts - Option 1

The Queue Project AE1-072 was evaluated as a 150 MW (Capacity 98.6 MW) injection tapping the Shawboro to Sligo 230 kV line # 269 in the ITO area. Project AE1-072 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-072 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
123962	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	101.34	103.16	DC	7.99

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123607	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	128.87	129.4	DC	45.92
123608	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	121.47	121.98	DC	44.34

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
123959	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	154.03	155.63	DC	7.04
123553	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	138.12	139.18	DC	24.33
123988	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	142.64	144.24	DC	7.04
123983	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	146.26	147.86	DC	7.04
124068	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	127.52	129.12	DC	7.04
123664	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P4-2: 246T2034	breaker	239.0	114.67	116.27	DC	8.39
123589	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	134.27	134.97	DC	48.0
123590	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	130.89	131.57	DC	46.99
123970	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	127.69	128.93	DC	30.08

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
123971	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	127.62	128.87	DC	30.14
123530	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	145.65	146.3	DC	47.93
123531	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	145.65	146.3	DC	47.93
123848	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	157.36	157.95	DC	31.51
123851	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	142.44	142.95	DC	27.08
123540	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	140.52	140.95	DC	47.27
123872	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	134.96	136.12	DC	28.13
123875	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	125.61	126.74	DC	27.43

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
123958	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	166.01	167.11	DC	10.72
124389	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	99.34	100.15	DC	15.56
123987	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	154.62	155.73	DC	10.72
123982	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	158.25	159.35	DC	10.72
124067	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	139.51	140.61	DC	10.72
124363	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2072	operation	598.78	103.5	104.4	DC	11.98
124240	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P1-2: LN 2025	operation	740.72	115.44	116.08	DC	11.3

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
124003	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	125.86	126.72	DC	8.49
124040	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	145.9	147.25	DC	43.22
123964	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	165.96	166.81	DC	45.76
123969	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	132.13	132.81	DC	36.57
124009	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	151.86	152.41	DC	29.13
123845	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	199.71	200.61	DC	47.94
123852	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	131.98	132.57	DC	31.39
124103	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	137.02	137.52	DC	29.6
123868	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	190.57	191.26	DC	42.79
123874	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	127.4	127.98	DC	31.41
124200	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	124.97	125.43	DC	32.58
124291	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	109.21	110.01	DC	42.98

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
123664	7	3POPLR C 115.0 kV - 3EVERETS 115.0 kV Ckt 1	Description : Replace Relay at Everetts 115kV substation. Time Estimate : 14-16 Months Cost : \$200,000	\$200,000
123553	3	6ELMONT 230.0 kV - 8ELMONT 230.0 kV Ckt 1	Description : Add 3rd 500-230kV Tx; Site Expansion Time Estimate : 24-30 Months Cost : \$30,000,000	\$30,000,000
123608,123607	2	8CARSON 500.0 kV - 8MDLTHAN 500.0 kV Ckt 1	Description : Wreck & Rebuild 39 miles of 500kV Line # 563 between Carson and Midlothian substations. A VA CPCN will be required. Time Estimate : 44-48 Months Cost : \$112,230,000	\$112,230,000
123872,123875,1235 40	10	8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1	Description : Rebuild / Uprate 41.13 miles of 500kV Line # 576 between Midlothian and North Anna substations. A VA CPCN will be required. Time Estimate : 24-30 Months Cost : \$123,400,000	\$123,400,000
123970,123971,1235 89,123590	8	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	Description : Rebuild / Uprate 28 miles of 500kV Line # 557 between Chickahominy and Elmont substations. A VA CPCN will be required. Time Estimate : 36-44 Months Cost : \$84,000,000	\$84,000,000
123962,123959	1	6SKIFF CREEK 230.0 kV - 6KINGS M 230.0 kV Ckt 1	Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
123983	5	6KINGS M 230.0 kV - 6PENNIMAN 230.0 kV Ckt 1	Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0

ID	Index	Facility	Upgrade Description	Cost
123988	4	6PENNIMAN 230.0 kV - 6WALR209 230.0 kV Ckt 1	Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
123848,123530,123531,123851	9	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	Description : PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has an projected in-service date of 12/31/2022.	\$0
124068	6	6WALR209 230.0 kV - 6LIGH209 230.0 kV Ckt 1	Description : PJM baseline upgrade b3056: Partial Rebuild 230 kV Line #2113 Waller to Lightfoot. The baseline project has an projected in-service date of 12/30/2024.	\$0
			TOTAL COST	\$349,830,000

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 gauge 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
123959	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	154.03	155.63	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123607	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	128.87	129.4	DC	45.92

Bus #	Bus	MW Impact
314539	3UNCAMP	3.9
314541	3WATKINS	1.1
314554	3BTLEBRO	1.2
314557	3BETHEL	1.22
314566	3CRESWEL	3.95
314572	3EMPORIA	0.62
314574	6EVERETS	6.48
314578	3HORNRTN	4.99
314582	3KELFORD	5.44
314594	6PLYMOTH	1.38
314603	3SCOT NK	5.06
314617	3TUNIS	1.32
314620	6CASHIE	1.36
314623	3WITAKRS	2.03
314648	6SUNBURY	1.5
314651	6WINFALL	2.97
315090	1YORKTN1	40.62
315091	1YORKTN2	42.16
315102	1BRUNSWICKG1	16.87
315103	1BRUNSWICKG2	16.87
315104	1BRUNSWICKG3	16.87
315105	1BRUNSWICKS1	35.05
315108	1ELIZAR1	5.8
315109	1ELIZAR2	5.7
315110	1ELIZAR3	5.87
315131	1EDGECEMA	13.89
315132	1EDGECEMB	13.89
315150	1BUGGS 1	14.89
315151	1BUGGS 2	14.89
315233	1SURRY 2	45.77
900672	V4-068 E	0.47
901082	W1-029 E	77.64
907092	X1-038 E	9.75
913392	Y1-086 E	3.75
916042	Z1-036 E	76.32
916191	Z1-068 C	0.08
916192	Z1-068 E	3.24
916301	Z1-086 C	102.98
916302	Z1-086 E	18.72
917122	Z2-027 E	1.8

Bus #	Bus	MW Impact
917332	Z2-043 E	1.55
917342	Z2-044 E	0.87
917512	Z2-088 E OP1	5.99
918492	AA1-063AE OP	6.12
918512	AA1-065 E OP	7.02
918532	AA1-067 E	1.14
918562	AA1-072 E	0.26
919151	AA1-139 C	4.44
919152	AA1-139 E	11.05
919692	AA2-053 E	5.69
919701	AA2-057 C	10.73
919702	AA2-057 E	5.36
920042	AA2-088 E OP	16.58
920592	AA2-165 E	0.71
920672	AA2-174 E	0.66
920692	AA2-178 E	6.77
923801	AB2-015 C O1	13.82
923802	AB2-015 E O1	11.33
923832	AB2-022 E	2.12
923852	AB2-025 E	1.64
923911	AB2-031 C O1	3.35
923912	AB2-031 E O1	1.65
923941	AB2-035 C	0.51
923942	AB2-035 E	0.22
923992	AB2-040 E O1	8.99
924022	AB2-043 E O1	6.43
924152	AB2-059 E O1	8.13
924162	AB2-060 E O1	5.28
924241	AB2-068 O1	333.94
924302	AB2-077 E O1	1.67
924312	AB2-078 E O1	1.67
924322	AB2-079 E O1	1.67
924391	AB2-088 C	0.66
924392	AB2-088 E	0.32
924401	AB2-089 C	2.95
924402	AB2-089 E	1.52
924491	AB2-098 C	0.89
924492	AB2-098 E	0.38
924501	AB2-099 C	0.92
924502	AB2-099 E	0.39
924511	AB2-100 C	17.28
924512	AB2-100 E	8.51
924812	AB2-134 E O1	14.4
925061	AB2-161 C O1	4.86
925062	AB2-161 E O1	7.93
925122	AB2-169 E	9.3
925171	AB2-174 C O1	10.49
925172	AB2-174 E O1	9.49
925281	AB2-186 C	1.03
925282	AB2-186 E	0.44
925291	AB2-188 C O1	3.89
925292	AB2-188 E O1	1.75

Bus #	Bus	MW Impact
925331	AB2-190 C	22.91
925332	AB2-190 E	9.82
925521	AC1-027 C	0.59
925522	AC1-027 E	1.97
925591	AC1-034 C	10.22
925592	AC1-034 E	7.71
925781	AC1-054 C O1	10.09
925782	AC1-054 E O1	4.65
926071	AC1-086 C	31.41
926072	AC1-086 E	14.3
926201	AC1-098 C	9.4
926202	AC1-098 E	5.6
926211	AC1-099 C	3.15
926212	AC1-099 E	1.85
926271	AC1-105 C O1	7.5
926272	AC1-105 E O1	3.73
926291	AC1-107 O1	504.06
926662	AC1-147 E	2.27
926751	AC1-161 C O1	55.61
926752	AC1-161 E O1	23.74
927021	AC1-189 C	13.41
927022	AC1-189 E	6.68
927141	AC1-208 C	13.7
927142	AC1-208 E	6.09
927221	AC1-216 C O1	11.57
927222	AC1-216 E O1	9.1
927251	AC1-221 C	3.14
927252	AC1-221 E	3.14
927261	AC1-222 C	4.86
927262	AC1-222 E	4.63
930402	AB1-081 E O1	5.74
930862	AB1-132 E O1	9.14
931232	AB1-173 E	1.57
931242	AB1-173AE	1.57
932041	AC2-012 C	17.47
932042	AC2-012 E	28.5
932581	AC2-078 C O1	5.18
932582	AC2-078 E O1	8.44
932591	AC2-079 C O1	8.83
932592	AC2-079 E O1	14.41
932631	AC2-084 C	13.41
932632	AC2-084 E	6.6
932761	AC2-100 C	7.23
932762	AC2-100 E	3.53
933291	AC2-141 C	55.61
933292	AC2-141 E	23.74
933731	AC2-196 C	0.53
933732	AC2-196 E	2.07
933991	AD1-023 C	21.24
933992	AD1-023 E	11.56
934011	AD1-025 C	19.89
934012	AD1-025 E	11.78

Bus #	Bus	MW Impact
934061	AD1-033 C	13.01
934062	AD1-033 E	8.68
934201	AD1-047 C	11.99
934202	AD1-047 E	7.99
934231	AD1-050 C	6.51
934232	AD1-050 E	3.56
934311	AD1-055 C	3.38
934312	AD1-055 E	0.87
934331	AD1-057 C O1	15.07
934332	AD1-057 E O1	8.04
934341	AD1-058 C	7.87
934342	AD1-058 E	2.0
934521	AD1-076 C	88.52
934522	AD1-076 E	45.07
934571	AD1-082 C	11.07
934572	AD1-082 E	6.31
934611	AD1-087 C O1	12.77
934612	AD1-087 E O1	6.0
934621	AD1-088 C	17.21
934622	AD1-088 E	8.08
934991	AD1-131 C	2.58
934992	AD1-131 E	1.72
935112	AD1-144 E	1.54
935161	AD1-151 C O1	18.41
935162	AD1-151 E O1	12.27
935171	AD1-152 C O1	12.69
935172	AD1-152 E O1	8.46
935212	AD1-156 E	1.73
936041	AD2-007	2.11
936051	AD2-008 C	3.46
936052	AD2-008 E	7.54
936331	AD2-043 C	6.32
936332	AD2-043 E	7.48
936361	AD2-046 C O1	11.9
936362	AD2-046 E O1	5.47
936391	AD2-049 C	2.65
936392	AD2-049 E	2.65
936401	AD2-051 C O1	13.77
936402	AD2-051 E O1	5.91
936481	AD2-063 C O1	17.89
936482	AD2-063 E O1	11.93
936531	AD2-068 C	7.89
936532	AD2-068 E	4.07
936661	AD2-085 C	5.28
936662	AD2-085 E	8.61
936701	AD2-089 C	11.02
936702	AD2-089 E	7.35
936711	AD2-090 C O1	11.44
936712	AD2-090 E O1	7.62
937221	AD2-160 C O1	10.1
937222	AD2-160 E O1	5.3
937251	AD2-164	6.91

Bus #	Bus	MW Impact
937481	AD2-202 C O1	3.52
937482	AD2-202 E O1	1.77
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
937571	AD2-169 C	14.99
937572	AD2-169 E	9.99
938171	AE1-026 C1 O	45.11
938172	AE1-026 C2 O	6.53
938173	AE1-026 E O1	13.62
938181	AE1-027 C	4.05
938182	AE1-027 E	2.13
938191	AE1-028 C	2.35
938192	AE1-028 E	1.36
938221	AE1-035 C	3.56
938222	AE1-035 E	1.76
938461	AE1-065 C O1	48.97
938462	AE1-065 E O1	197.59
938471	AE1-066 C O1	50.32
938472	AE1-066 E O1	196.23
938481	AE1-067 C O1	45.76
938482	AE1-067 E O1	200.79
938491	AE1-068 C O1	119.55
938492	AE1-068 E O1	66.03
938501	AE1-069 C O1	93.4
938502	AE1-069 E O1	53.4
938531	AE1-072 C O1	30.18
938532	AE1-072 E O1	15.73
AA2-074	AA2-074	8.89
AB2-013	AB2-013	5.7
AE1-033	AE1-033	5.94
AE1-042	AE1-042	14.39
CARR	CARR	1.71
CBM-S1	CBM-S1	21.98
CBM-S2	CBM-S2	25.61
CBM-W1	CBM-W1	20.03
CBM-W2	CBM-W2	142.14
CIN	CIN	9.32
CPL	CPL	13.07
G-007	G-007	5.64
IPL	IPL	5.81
LGEE	LGEE	2.72
MEC	MEC	21.15
MECS	MECS	7.49
O-066	O-066	18.81
RENSSELAER	RENSSELAER	1.35
WEC	WEC	2.47
Z1-043	Z1-043	9.72

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123553	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	138.12	139.18	DC	24.33

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.75
314229	6MT RD221	0.24
314236	6NRTHEST	0.32
314250	6ROCKVILLE	0.55
314539	3UNCAMP	2.17
314541	3WATKINS	0.61
314566	3CRESWEL	2.06
314648	6SUNBURY	0.8
314651	6WINFALL	1.58
315043	1FOUR RIVERA	6.01
315044	1FOUR RIVERB	4.65
315045	1FOUR RIVERC	6.01
315046	1FOUR RIVERD	4.65
315047	1FOUR RIVERE	4.65
315048	1FOUR RIVERF	6.0
315053	1BELMED1	25.32
315054	1BELMED2	25.32
315055	1BELMED3	21.01
315058	1CHESTF3	26.88
315059	1CHESTF4	43.58
315067	1DARBY 1	4.35
315068	1DARBY 2	4.36
315069	1DARBY 3	4.37
315070	1DARBY 4	4.38
315073	1STONECA	9.3
315074	1HOPCGN1	11.22
315075	1HOPCGN2	11.07
315083	1SPRUNCA	14.81
315084	1SPRUNCB	14.81
315085	1SPRUNCC	10.98
315086	1SPRUNCD	10.98
315090	1YORKTN1	30.69
315091	1YORKTN2	31.84
901082	W1-029 E	41.34
907092	X1-038 E	5.42
913392	Y1-086 E	1.99
916042	Z1-036 E	40.33
916192	Z1-068 E	1.74
917122	Z2-027 E	0.96
919152	AA1-139 E	5.86

Bus #	Bus	MW Impact
919211	AA1-145	17.36
920692	AA2-178 E	3.54
923801	AB2-015 C O1	7.65
923802	AB2-015 E O1	6.27
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.08
924061	AB2-050	1.02
924241	AB2-068 O1	176.35
924511	AB2-100 C	10.34
924512	AB2-100 E	5.09
924812	AB2-134 E O1	14.74
925051	AB2-160 C O1	7.09
925052	AB2-160 E O1	11.57
925061	AB2-161 C O1	3.59
925062	AB2-161 E O1	5.85
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925291	AB2-188 C O1	2.03
925292	AB2-188 E O1	0.91
925331	AB2-190 C	24.59
925332	AB2-190 E	10.54
925522	AC1-027 E	1.06
925861	AC1-065 C	4.34
925862	AC1-065 E	7.08
926291	AC1-107 O1	266.19
926411	AC1-112 C	0.59
926412	AC1-112 E	1.92
926472	AC1-118 E	1.07
926551	AC1-134	2.55
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.91
926752	AC1-161 E O1	11.49
926781	AC1-164 C	58.04
926782	AC1-164 E	26.08
927041	AC1-191 C O1	17.46
927042	AC1-191 E O1	8.7
927221	AC1-216 C O1	11.84
927222	AC1-216 E O1	9.31
930121	AB1-027 C	0.76
930122	AB1-027 E	1.89
932041	AC2-012 C	9.53
932042	AC2-012 E	15.56
932501	AC2-070 C	0.5
932502	AC2-070 E	1.2
932532	AC2-073 E	1.55
932581	AC2-078 C O1	4.7
932582	AC2-078 E O1	7.67
932591	AC2-079 C O1	5.75
932592	AC2-079 E O1	9.39
932831	AC2-110 C	1.74
932832	AC2-110 E	2.83

Bus #	Bus	MW Impact
933061	AC2-130	3.45
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23
933121	AC2-132 2	0.63
933261	AC2-137 C	0.54
933262	AC2-137 E	2.04
933272	AC2-138 E	1.08
933291	AC2-141 C	26.91
933292	AC2-141 E	11.49
933732	AC2-196 E	1.09
934011	AD1-025 C	20.36
934012	AD1-025 E	12.06
934061	AD1-033 C	6.9
934062	AD1-033 E	4.6
934141	AD1-041 C	6.73
934142	AD1-041 E	4.49
934211	AD1-048 C	0.65
934212	AD1-048 E	1.92
934392	AD1-063 E	1.38
934571	AD1-082 C	8.18
934572	AD1-082 E	4.66
934781	AD1-105 C	11.46
934782	AD1-105 E	7.97
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.76
935162	AD1-151 E O1	13.17
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.72
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.74
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.31
936391	AD2-049 C	1.87
936392	AD2-049 E	1.87
936581	AD2-073 C	2.23
936582	AD2-073 E	1.1
936591	AD2-074 C	6.34
936592	AD2-074 E	10.35
936661	AD2-085 C	3.46
936662	AD2-085 E	5.65
936711	AD2-090 C O1	6.28
936712	AD2-090 E O1	4.19
937221	AD2-160 C O1	5.35
937222	AD2-160 E O1	2.81
937251	AD2-164	5.09
937541	AD2-215 C	1.68

Bus #	Bus	MW Impact
937542	AD2-215 E	0.89
938031	AE1-004 C	1.74
938032	AE1-004 E	2.83
938181	AE1-027 C	2.15
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O1	26.33
938462	AE1-065 E O1	106.25
938471	AE1-066 C O1	27.06
938472	AE1-066 E O1	105.52
938481	AE1-067 C O1	24.61
938482	AE1-067 E O1	107.97
938531	AE1-072 C O1	15.99
938532	AE1-072 E O1	8.34
938551	AE1-074 C	3.11
938552	AE1-074 E	1.57
AA2-074	AA2-074	3.27
CARR	CARR	0.75
CBM-S1	CBM-S1	4.33
CBM-S2	CBM-S2	8.6
CBM-W1	CBM-W1	0.25
CBM-W2	CBM-W2	24.69
CIN	CIN	0.32
CPL	CPL	4.81
DEARBORN	DEARBORN	0.45
G-007	G-007	2.3
IPL	IPL	0.14
LGEE	LGEE	0.09
MEC	MEC	2.15
O-066	O-066	7.7
RENSSELAER	RENSSELAER	0.6
WEC	WEC	0.08

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123988	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	142.64	144.24	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123983	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	146.26	147.86	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124068	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	127.52	129.12	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.69
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	155.01
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.7
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O1	11.61
938471	AE1-066 C O1	11.93
938481	AE1-067 C O1	10.85
938531	AE1-072 C O1	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123664	314596	3POPLR C	DVP	314573	3EVERETS	DVP	1	DVP_P4-2: 246T2034	breaker	239.0	114.67	116.27	DC	8.39

Bus #	Bus	MW Impact
314566	3CRESWEL	3.19
314594	6PLYMOTH	1.34
314648	6SUNBURY	0.35
314651	6WINFALL	1.09
315292	1DOMTR78	3.27
315293	1DOMTR9	2.66
315294	1DOMTR10	4.83
901082	W1-029 E	25.83
913392	Y1-086 E	0.97
916041	Z1-036 C	0.99
916042	Z1-036 E	38.4
917122	Z2-027 E	0.53
919152	AA1-139 E	1.82
920691	AA2-178 C	2.2
920692	AA2-178 E	5.47
923832	AB2-022 E	0.55
925121	AB2-169 C	0.91
925122	AB2-169 E	4.73
925281	AB2-186 C	0.44
925282	AB2-186 E	0.19
925291	AB2-188 C O1	3.15
925292	AB2-188 E O1	1.41
933991	AD1-023 C	21.44
933992	AD1-023 E	11.67
934521	AD1-076 C	88.5
934522	AD1-076 E	45.06
938531	AE1-072 C O1	5.51
938532	AE1-072 E O1	2.87
BAYOU	BAYOU	0.83
BIG_CAJUN1	BIG_CAJUN1	1.3
BIG_CAJUN2	BIG_CAJUN2	2.62
BLUEG	BLUEG	2.3
CALDERWOOD	CALDERWOOD	0.49
CANNELTON	CANNELTON	0.16
CATAWBA	CATAWBA	0.47
CBM-N	CBM-N	0.08
CHEOAH	CHEOAH	0.45
CHILHOWEE	CHILHOWEE	0.16
CHOCTAW	CHOCTAW	0.89
COFFEEN	COFFEEN	0.27

Bus #	Bus	MW Impact
COTTONWOOD	COTTONWOOD	3.23
DEARBORN	DEARBORN	0.28
DUCKCREEK	DUCKCREEK	0.55
EDWARDS	EDWARDS	0.25
ELMERSMITH	ELMERSMITH	0.28
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	0.36
GIBSON	GIBSON	0.1
HAMLET	HAMLET	1.97
NEWTON	NEWTON	0.7
NYISO	NYISO	0.34
O-066A	O-066A	0.16
PRAIRIE	PRAIRIE	1.48
SANTEETLA	SANTEETLA	0.13
SMITHLAND	SMITHLAND	0.13
TATANKA	TATANKA	0.33
TILTON	TILTON	0.29
TRIMBLE	TRIMBLE	0.25
TVA	TVA	1.37
UNIONPOWER	UNIONPOWER	0.68
VFT	VFT	0.95

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123589	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	134.27	134.97	DC	48.0

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.95
314421	6WINCHST	0.29
314539	3UNCAMP	3.9
314541	3WATKINS	1.09
314554	3BTLEBRO	1.03
314557	3BETHEL	1.08
314566	3CRESWEL	3.92
314572	3EMPORIA	0.55
314574	6EVERETS	5.93
314578	3HORNRTN	4.49
314582	3KELFORD	5.04
314594	6PLYMOTH	1.36
314603	3SCOT NK	4.6
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.76
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.72
315074	1HOPCGN1	10.52
315075	1HOPCGN2	10.38
315090	1YORKTN1	53.51
315091	1YORKTN2	55.53
315092	1YORKTN3	45.83
315110	1ELIZAR3	6.23
315131	1EDGECEMA	11.92
315132	1EDGECEMB	11.92
315233	1SURRY 2	55.26
900672	V4-068 E	0.45
901082	W1-029 E	80.05
907092	X1-038 E	9.75
913392	Y1-086 E	3.89
916042	Z1-036 E	77.65
916192	Z1-068 E	3.42
916302	Z1-086 E	13.64
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.37
918492	AA1-063AE OP	5.61

Bus #	Bus	MW Impact
918512	AA1-065 E OP	6.66
918532	AA1-067 E	1.05
918562	AA1-072 E	0.24
919152	AA1-139 E	11.57
919692	AA2-053 E	5.18
919701	AA2-057 C	9.4
919702	AA2-057 E	4.7
920042	AA2-088 E OP	15.98
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.71
923801	AB2-015 C O1	13.74
923802	AB2-015 E O1	11.26
923832	AB2-022 E	2.2
923842	AB2-024 E	1.84
923852	AB2-025 E	1.45
923911	AB2-031 C O1	2.99
923912	AB2-031 E O1	1.47
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	8.03
924152	AB2-059 E O1	6.98
924241	AB2-068 O1	619.73
924391	AB2-088 C	0.58
924392	AB2-088 E	0.28
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.35
924512	AB2-100 E	7.56
924812	AB2-134 E O1	18.14
925051	AB2-160 C O1	6.27
925052	AB2-160 E O1	10.23
925061	AB2-161 C O1	5.12
925062	AB2-161 E O1	8.36
925122	AB2-169 E	8.81
925171	AB2-174 C O1	9.34
925172	AB2-174 E O1	8.45
925281	AB2-186 C	1.06
925282	AB2-186 E	0.45
925291	AB2-188 C O1	3.86
925292	AB2-188 E O1	1.73
925331	AB2-190 C	29.21
925332	AB2-190 E	12.52
925522	AC1-027 E	2.08
925591	AC1-034 C	8.77
925592	AC1-034 E	6.62
925861	AC1-065 C	5.37
925862	AC1-065 E	8.76
926071	AC1-086 C	28.17
926072	AC1-086 E	12.82

Bus #	Bus	MW Impact
926201	AC1-098 C	8.45
926202	AC1-098 E	5.04
926211	AC1-099 C	2.83
926212	AC1-099 E	1.66
926291	AC1-107 O1	935.44
926662	AC1-147 E	2.41
926751	AC1-161 C O1	59.53
926752	AC1-161 E O1	25.41
926781	AC1-164 C	68.02
926782	AC1-164 E	30.56
927021	AC1-189 C	12.1
927022	AC1-189 E	6.03
927141	AC1-208 C	12.2
927142	AC1-208 E	5.42
927221	AC1-216 C O1	14.57
927222	AC1-216 E O1	11.46
930402	AB1-081 E O1	4.92
930862	AB1-132 E O1	8.2
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.56
932042	AC2-012 E	30.29
932532	AC2-073 E	1.96
932581	AC2-078 C O1	5.52
932582	AC2-078 E O1	9.01
932591	AC2-079 C O1	9.26
932592	AC2-079 E O1	15.11
932631	AC2-084 C	12.05
932632	AC2-084 E	5.94
932831	AC2-110 C	2.15
932832	AC2-110 E	3.5
933061	AC2-130	3.1
933071	AC2-131 1	2.1
933081	AC2-131 2	0.95
933111	AC2-132 1	1.1
933121	AC2-132 2	0.56
933262	AC2-137 E	1.87
933272	AC2-138 E	1.18
933291	AC2-141 C	59.53
933292	AC2-141 E	25.41
933732	AC2-196 E	2.17
933991	AD1-023 C	20.59
933992	AD1-023 E	11.21
934011	AD1-025 C	25.05
934012	AD1-025 E	14.84
934061	AD1-033 C	13.7
934062	AD1-033 E	9.13
934141	AD1-041 C	8.5
934142	AD1-041 E	5.66
934201	AD1-047 C	10.7
934202	AD1-047 E	7.13
934212	AD1-048 E	1.38

Bus #	Bus	MW Impact
934331	AD1-057 C O1	13.19
934332	AD1-057 E O1	7.04
934392	AD1-063 E	1.75
934521	AD1-076 C	86.43
934522	AD1-076 E	44.01
934571	AD1-082 C	11.68
934572	AD1-082 E	6.66
934611	AD1-087 C O1	9.65
934612	AD1-087 E O1	4.53
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.47
935162	AD1-151 E O1	15.65
935171	AD1-152 C O1	9.59
935172	AD1-152 E O1	6.39
935212	AD1-156 E	1.73
936041	AD2-007	2.66
936051	AD2-008 C	4.36
936052	AD2-008 E	9.49
936151	AD2-021	0.33
936241	AD2-030 C	3.72
936242	AD2-030 E	1.9
936301	AD2-039 C	2.15
936302	AD2-039 E	3.5
936341	AD2-044 C	0.3
936342	AD2-044 E	0.33
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.94
936402	AD2-051 E O1	5.55
936531	AD2-068 C	6.84
936532	AD2-068 E	3.52
936591	AD2-074 C	7.46
936592	AD2-074 E	12.17
936661	AD2-085 C	5.54
936662	AD2-085 E	9.04
936701	AD2-089 C	9.69
936702	AD2-089 E	6.46
936711	AD2-090 C O1	11.21
936712	AD2-090 E O1	7.48
937221	AD2-160 C O1	10.59
937222	AD2-160 E O1	5.55
937251	AD2-164	8.87
937481	AD2-202 C O1	2.66
937482	AD2-202 E O1	1.34
937541	AD2-215 C	3.09
937542	AD2-215 E	1.64
937571	AD2-169 C	13.41
937572	AD2-169 E	8.94
938031	AE1-004 C	2.15
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.53
938172	AE1-026 C2 O	6.3

Bus #	Bus	MW Impact
938173	AE1-026 E O1	13.15
938181	AE1-027 C	4.26
938182	AE1-027 E	2.24
938191	AE1-028 C	2.47
938192	AE1-028 E	1.43
938221	AE1-035 C	3.38
938222	AE1-035 E	1.66
938461	AE1-065 C O1	51.77
938462	AE1-065 E O1	208.9
938471	AE1-066 C O1	53.2
938472	AE1-066 E O1	207.47
938481	AE1-067 C O1	48.38
938482	AE1-067 E O1	212.29
938491	AE1-068 C O1	87.05
938492	AE1-068 E O1	48.08
938501	AE1-069 C O1	68.07
938502	AE1-069 E O1	38.92
938531	AE1-072 C O1	31.55
938532	AE1-072 E O1	16.45
AA2-074	AA2-074	6.79
AE1-042	AE1-042	9.43
CARR	CARR	1.31
CBM-S1	CBM-S1	13.87
CBM-S2	CBM-S2	18.86
CBM-W1	CBM-W1	10.0
CBM-W2	CBM-W2	87.36
CIN	CIN	4.78
CPL	CPL	9.98
G-007	G-007	4.21
IPL	IPL	2.93
LGEE	LGEE	1.39
MEC	MEC	11.89
MECS	MECS	2.63
O-066	O-066	14.06
RENSSELAER	RENSSELAER	1.04
WEC	WEC	1.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123848	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	157.36	157.95	DC	31.51

Bus #	Bus	MW Impact
314229	6MT RD221	0.24
314236	6NRTHEST	0.37
314309	6IRON208	0.87
315053	1BELMED1	31.59
315054	1BELMED2	31.59
315055	1BELMED3	26.22
315058	1CHESTF3	33.56
315059	1CHESTF4	54.4
315060	1CHESTF5	19.83
315061	1CHESTG7	7.77
315062	1CHESTS7	3.53
315063	1CHESTG8	7.62
315064	1CHESTS8	3.93
315067	1DARBY 1	5.07
315068	1DARBY 2	5.08
315069	1DARBY 3	5.09
315070	1DARBY 4	5.1
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.12
315084	1SPRUNCB	19.12
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.35
315091	1YORKTN2	55.36
315092	1YORKTN3	45.59
315233	1SURREY 2	49.51
923801	AB2-015 C O1	14.88
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.75
924501	AB2-099 C	0.97
924511	AB2-100 C	19.07
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.43
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.17
925861	AC1-065 C	6.04
926071	AC1-086 C	33.58

Bus #	Bus	MW Impact
926291	AC1-107 O1	647.17
926411	AC1-112 C	0.66
926751	AC1-161 C O1	55.63
926781	AC1-164 C	77.8
927041	AC1-191 C O1	17.07
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.85
932041	AC2-012 C	18.51
932501	AC2-070 C	0.56
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.42
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.69
933291	AC2-141 C	55.63
933991	AD1-023 C	22.21
934011	AD1-025 C	31.22
934061	AD1-033 C	13.58
934141	AD1-041 C	9.42
934201	AD1-047 C	13.02
934211	AD1-048 C	0.79
934521	AD1-076 C	92.52
934571	AD1-082 C	13.84
935161	AD1-151 C O1	29.87
936041	AD2-007	3.31
936051	AD2-008 C	5.44
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.42
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.46
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.54
937251	AD2-164	8.91
937541	AD2-215 C	3.16
937571	AD2-169 C	16.22
938031	AE1-004 C	2.42
938171	AE1-026 C1 O	47.17
938172	AE1-026 C2 O	6.82
938181	AE1-027 C	4.23
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O1	51.48
938471	AE1-066 C O1	52.9
938481	AE1-067 C O1	48.11
938491	AE1-068 C O1	93.35
938501	AE1-069 C O1	73.22

Bus #	Bus	MW Impact
938531	AE1-072 C O1	31.51
938551	AE1-074 C	4.29
AA2-074	AA2-074	8.69
AB2-013	AB2-013	8.01
AE1-033	AE1-033	8.34
AE1-042	AE1-042	17.0
CARR	CARR	2.56
CBM-S1	CBM-S1	27.03
CBM-S2	CBM-S2	26.21
CBM-W1	CBM-W1	28.48
CBM-W2	CBM-W2	177.58
CIN	CIN	13.28
CPL	CPL	12.77
IPL	IPL	8.37
LGEE	LGEE	3.91
MEC	MEC	28.22
MECS	MECS	11.98
RENSSELAER	RENSSELAER	2.02
WEC	WEC	3.49
Z1-043	Z1-043	13.73

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123540	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	140.52	140.95	DC	47.27

Bus #	Bus	MW Impact
314539	3UNCAMP	4.14
314541	3WATKINS	1.17
314557	3BETHEL	1.27
314566	3CRESWEL	4.1
314572	3EMPORIA	0.69
314574	6EVERETS	6.74
314578	3HORNRTN	5.35
314582	3KELFORD	5.73
314594	6PLYMOTH	1.44
314603	3SCOT NK	5.33
314617	3TUNIS	1.39
314620	6CASHIE	1.42
314623	3WITAKRS	2.12
314648	6SUNBURY	1.55
314651	6WINFALL	3.07
315053	1BELMED1	25.14
315054	1BELMED2	25.14
315055	1BELMED3	20.87
315058	1CHESTF3	25.47
315059	1CHESTF4	41.29
315073	1STONECA	10.44
315074	1HOPCGN1	12.59
315075	1HOPCGN2	12.42
315083	1SPRUNCA	16.1
315084	1SPRUNCB	16.1
315085	1SPRUNCC	11.94
315086	1SPRUNCD	11.94
315090	1YORKTN1	47.18
315091	1YORKTN2	48.96
315102	1BRUNSWICKG1	15.48
315103	1BRUNSWICKG2	15.48
315104	1BRUNSWICKG3	15.48
315105	1BRUNSWICKS1	32.16
315108	1ELIZAR1	6.0
315109	1ELIZAR2	5.89
315110	1ELIZAR3	6.07
315233	1SURRY 2	46.74
900672	V4-068 E	0.5
901082	W1-029 E	80.38
907092	X1-038 E	10.35

Bus #	Bus	MW Impact
913392	Y1-086 E	3.87
916042	Z1-036 E	79.08
916191	Z1-068 C	0.08
916192	Z1-068 E	3.34
916301	Z1-086 C	94.23
916302	Z1-086 E	17.13
917122	Z2-027 E	1.86
917332	Z2-043 E	1.63
917342	Z2-044 E	0.91
917512	Z2-088 E OP1	6.23
918492	AA1-063AE OP	6.52
918512	AA1-065 E OP	7.35
918532	AA1-067 E	1.19
918562	AA1-072 E	0.27
919152	AA1-139 E	11.37
919692	AA2-053 E	6.09
919701	AA2-057 C	11.25
919702	AA2-057 E	5.62
920042	AA2-088 E OP	17.64
920592	AA2-165 E	0.74
920672	AA2-174 E	0.7
920692	AA2-178 E	7.03
923801	AB2-015 C O1	14.68
923802	AB2-015 E O1	12.03
923832	AB2-022 E	2.18
923852	AB2-025 E	1.85
923862	AB2-026 E	1.7
923911	AB2-031 C O1	3.65
923912	AB2-031 E O1	1.8
923941	AB2-035 C	0.53
923942	AB2-035 E	0.23
923992	AB2-040 E O1	9.81
924241	AB2-068 O1	340.98
924391	AB2-088 C	0.69
924392	AB2-088 E	0.33
924491	AB2-098 C	0.93
924492	AB2-098 E	0.4
924501	AB2-099 C	0.97
924502	AB2-099 E	0.42
924511	AB2-100 C	19.06
924512	AB2-100 E	9.39
924812	AB2-134 E O1	19.56
925051	AB2-160 C O1	8.46
925052	AB2-160 E O1	13.8
925061	AB2-161 C O1	5.7
925062	AB2-161 E O1	9.3
925122	AB2-169 E	9.67
925171	AB2-174 C O1	11.48
925172	AB2-174 E O1	10.39
925281	AB2-186 C	1.07
925282	AB2-186 E	0.46
925291	AB2-188 C O1	4.04

Bus #	Bus	MW Impact
925292	AB2-188 E O1	1.82
925331	AB2-190 C	31.9
925332	AB2-190 E	13.67
925521	AC1-027 C	0.61
925522	AC1-027 E	2.04
926071	AC1-086 C	33.74
926072	AC1-086 E	15.36
926201	AC1-098 C	9.91
926202	AC1-098 E	5.9
926211	AC1-099 C	3.32
926212	AC1-099 E	1.95
926291	AC1-107 O1	514.69
926662	AC1-147 E	2.35
926751	AC1-161 C O1	55.26
926752	AC1-161 E O1	23.59
926781	AC1-164 C	48.23
926782	AC1-164 E	21.67
927021	AC1-189 C	13.94
927022	AC1-189 E	6.95
927141	AC1-208 C	14.48
927142	AC1-208 E	6.43
927221	AC1-216 C O1	15.72
927222	AC1-216 E O1	12.36
930862	AB1-132 E O1	9.82
931232	AB1-173 E	1.72
931242	AB1-173AE	1.72
932041	AC2-012 C	18.12
932042	AC2-012 E	29.57
932581	AC2-078 C O1	6.67
932582	AC2-078 E O1	10.88
932591	AC2-079 C O1	9.84
932592	AC2-079 E O1	16.05
932631	AC2-084 C	14.13
932632	AC2-084 E	6.96
933061	AC2-130	3.41
933071	AC2-131 1	2.31
933081	AC2-131 2	1.05
933111	AC2-132 1	1.21
933121	AC2-132 2	0.62
933291	AC2-141 C	55.26
933292	AC2-141 E	23.59
933501	AC2-165 C	14.6
933502	AC2-165 E	10.99
933731	AC2-196 C	0.55
933732	AC2-196 E	2.12
933991	AD1-023 C	22.14
933992	AD1-023 E	12.05
934011	AD1-025 C	27.02
934012	AD1-025 E	16.01
934061	AD1-033 C	13.38
934062	AD1-033 E	8.92
934201	AD1-047 C	13.08

Bus #	Bus	MW Impact
934202	AD1-047 E	8.72
934331	AD1-057 C O1	15.89
934332	AD1-057 E O1	8.48
934521	AD1-076 C	92.14
934522	AD1-076 E	46.92
934571	AD1-082 C	12.99
934572	AD1-082 E	7.41
934611	AD1-087 C O1	12.84
934612	AD1-087 E O1	6.03
934621	AD1-088 C	19.56
934622	AD1-088 E	9.18
935112	AD1-144 E	1.64
935161	AD1-151 C O1	25.64
935162	AD1-151 E O1	17.09
935171	AD1-152 C O1	12.76
935172	AD1-152 E O1	8.51
935212	AD1-156 E	2.31
936041	AD2-007	2.87
936051	AD2-008 C	4.7
936052	AD2-008 E	10.24
936391	AD2-049 C	3.01
936392	AD2-049 E	3.01
936401	AD2-051 C O1	14.48
936402	AD2-051 E O1	6.22
936661	AD2-085 C	5.9
936662	AD2-085 E	9.62
936701	AD2-089 C	11.46
936702	AD2-089 E	7.64
936711	AD2-090 C O1	12.16
936712	AD2-090 E O1	8.1
937221	AD2-160 C O1	10.39
937222	AD2-160 E O1	5.45
937251	AD2-164	7.96
937481	AD2-202 C O1	3.54
937482	AD2-202 E O1	1.78
937541	AD2-215 C	3.04
937542	AD2-215 E	1.61
937571	AD2-169 C	16.3
937572	AD2-169 E	10.87
938171	AE1-026 C1 O	47.05
938172	AE1-026 C2 O	6.81
938173	AE1-026 E O1	14.21
938181	AE1-027 C	4.16
938182	AE1-027 E	2.19
938191	AE1-028 C	2.42
938192	AE1-028 E	1.4
938221	AE1-035 C	3.73
938222	AE1-035 E	1.84
938461	AE1-065 C O1	50.56
938462	AE1-065 E O1	204.02
938471	AE1-066 C O1	51.96
938472	AE1-066 E O1	202.62

Bus #	Bus	MW Impact
938481	AE1-067 C O1	47.25
938482	AE1-067 E O1	207.33
938491	AE1-068 C O1	109.16
938492	AE1-068 E O1	60.29
938501	AE1-069 C O1	85.46
938502	AE1-069 E O1	48.86
938531	AE1-072 C O1	31.07
938532	AE1-072 E O1	16.2
938551	AE1-074 C	4.01
938552	AE1-074 E	2.02
938561	AE1-075 C	3.31
938562	AE1-075 E	1.62
AA2-074	AA2-074	8.98
AB2-013	AB2-013	6.5
AE1-033	AE1-033	6.77
AE1-042	AE1-042	15.47
CARR	CARR	2.09
CBM-S1	CBM-S1	23.98
CBM-S2	CBM-S2	26.24
CBM-W1	CBM-W1	22.91
CBM-W2	CBM-W2	155.72
CIN	CIN	10.7
CPL	CPL	13.2
G-007	G-007	6.94
IPL	IPL	6.7
LGEE	LGEE	3.14
MEC	MEC	23.69
MECS	MECS	8.88
O-066	O-066	23.15
RENSSELAER	RENSSELAER	1.66
WEC	WEC	2.82
Z1-043	Z1-043	11.11

Contingency Name	Contingency Definition
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P4-2: 246T2034	CONTINGENCY 'DVP_P4-2: 246T2034' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314620 CKT 1 /* 6EARLEYS 230.00 - 6CASHIE 230.00 OPEN BRANCH FROM BUS 933990 TO BUS 314620 CKT 1 /* AD1-023 TAP 230.00 - 6CASHIE 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BUS 314620 /* ISLAND: 6CASHIE 230.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Short Circuit

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Network Impacts – Option 2

The Queue Project AE1-072 was evaluated as a 150 MW (Capacity 98.6 MW) injection tapping the Shawboro to Sligo 230 kV line # 2192 in the ITO area. Project AE1-072 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-072 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
124403	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	101.4	103.21	DC	7.99

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123962	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2026	breaker	906.0	128.21	128.65	DC	9.74
124038	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	128.87	129.4	DC	45.9
124039	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	121.47	121.98	DC	44.33

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
124400	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	154.07	155.66	DC	7.04
123982	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	138.13	139.19	DC	24.33
124439	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	142.66	144.26	DC	7.04
124428	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	146.28	147.88	DC	7.04
124522	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	127.56	129.16	DC	7.04
124018	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	134.28	134.97	DC	47.99
124019	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	130.89	131.57	DC	46.98
124411	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	127.7	128.94	DC	30.08

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
124412	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	127.64	128.88	DC	30.14
123949	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	145.65	146.31	DC	47.92
123950	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	145.65	146.3	DC	47.92
124272	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	157.37	157.97	DC	31.51
124275	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	142.45	142.96	DC	27.08
123971	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	140.51	140.94	DC	47.26
124297	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	134.98	136.14	DC	28.12
124301	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	125.63	126.76	DC	27.43

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
124399	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	166.05	167.15	DC	10.71
124843	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	99.35	100.15	DC	15.55
124438	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	154.64	155.75	DC	10.71
124427	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	158.27	159.37	DC	10.71
124521	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	139.55	140.65	DC	10.71
124768	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2072	operation	598.78	107.53	108.44	DC	11.98

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
124786	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P1-2: LN 2025	operation	740.72	106.08	106.72	DC	11.3
124457	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	Base Case	operation	449.32	125.91	126.76	DC	8.49
124494	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	145.91	147.26	DC	43.21
124405	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	165.96	166.82	DC	45.76
124410	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	132.13	132.82	DC	36.57
124463	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	151.86	152.41	DC	29.13
124269	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	199.71	200.61	DC	47.94
124276	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	131.99	132.57	DC	31.39
124556	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	137.03	137.53	DC	29.6
124294	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	190.57	191.26	DC	42.78
124300	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	127.41	127.99	DC	31.41
124658	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	124.97	125.44	DC	32.58
124752	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	109.23	110.03	DC	42.97
124322	938170	AE1-026 TAP	DVP	314620	6CASHIE	DVP	1	Base Case	operation	571.52	100.78	101.68	DC	11.43

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 gauge 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
124400	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	154.07	155.66	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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
123962	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2026	breaker	906.0	128.21	128.65	DC	9.74

Bus #	Bus	MW Impact
913392	Y1-086 E	0.65
916191	Z1-068 C	0.13
916192	Z1-068 E	5.3
919152	AA1-139 E	2.44
923832	AB2-022 E	0.37
925521	AC1-027 C	0.7
925522	AC1-027 E	2.34
933732	AC2-196 E	0.52
934061	AD1-033 C	4.66
934062	AD1-033 E	3.11
937221	AD2-160 C O1	2.31
937222	AD2-160 E O1	1.21
938181	AE1-027 C	0.98
938182	AE1-027 E	0.52
938191	AE1-028 C	0.57
938192	AE1-028 E	0.33
938461	AE1-065 C O2	80.16
938462	AE1-065 E O2	323.45
938471	AE1-066 C O2	82.38
938472	AE1-066 E O2	321.23
938481	AE1-067 C O2	74.91
938482	AE1-067 E O2	328.7
938531	AE1-072 C O2	6.4
938532	AE1-072 E O2	3.34
CARR	CARR	0.0
CBM-S1	CBM-S1	0.21
CBM-S2	CBM-S2	0.23
CBM-W1	CBM-W1	0.24
CBM-W2	CBM-W2	1.41
CIN	CIN	0.11
CPL	CPL	0.12
G-007	G-007	0.01
IPL	IPL	0.07
LGEE	LGEE	0.03
MEC	MEC	0.23
MECS	MECS	0.12
O-066	O-066	0.04
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.03

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
124038	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	128.87	129.4	DC	45.9

Bus #	Bus	MW Impact
314539	3UNCAMP	3.9
314541	3WATKINS	1.1
314554	3BTLEBRO	1.2
314557	3BETHELC	1.22
314566	3CRESWEL	3.95
314572	3EMPORIA	0.62
314574	6EVERETS	6.49
314578	3HORNRTN	4.99
314582	3KELFORD	5.44
314594	6PLYMOTH	1.38
314603	3SCOT NK	5.06
314617	3TUNIS	1.32
314620	6CASHIE	1.36
314623	3WITAKRS	2.03
314648	6SUNBURY	1.5
314651	6WINFALL	2.97
315090	1YORKTN1	40.61
315091	1YORKTN2	42.15
315102	1BRUNSWICKG1	16.89
315103	1BRUNSWICKG2	16.89
315104	1BRUNSWICKG3	16.89
315105	1BRUNSWICKS1	35.08
315108	1ELIZAR1	5.8
315109	1ELIZAR2	5.69
315110	1ELIZAR3	5.87
315131	1EDGECEMA	13.89
315132	1EDGECEMB	13.89
315150	1BUGGS 1	14.9
315151	1BUGGS 2	14.9
315233	1SURRY 2	45.76
900672	V4-068 E	0.47
901082	W1-029 E	77.63
907092	X1-038 E	9.74
913392	Y1-086 E	3.75
916042	Z1-036 E	76.31
916191	Z1-068 C	0.08
916192	Z1-068 E	3.24
916301	Z1-086 C	103.07
916302	Z1-086 E	18.73
917122	Z2-027 E	1.8

Bus #	Bus	MW Impact
917332	Z2-043 E	1.55
917342	Z2-044 E	0.87
917512	Z2-088 E OP1	5.99
918492	AA1-063AE OP	6.12
918512	AA1-065 E OP	7.02
918532	AA1-067 E	1.14
918562	AA1-072 E	0.26
919151	AA1-139 C	4.44
919152	AA1-139 E	11.05
919692	AA2-053 E	5.69
919701	AA2-057 C	10.73
919702	AA2-057 E	5.36
920042	AA2-088 E OP	16.58
920592	AA2-165 E	0.71
920672	AA2-174 E	0.66
920692	AA2-178 E	6.77
923801	AB2-015 C O1	13.82
923802	AB2-015 E O1	11.33
923832	AB2-022 E	2.11
923852	AB2-025 E	1.64
923911	AB2-031 C O1	3.35
923912	AB2-031 E O1	1.65
923941	AB2-035 C	0.51
923942	AB2-035 E	0.22
923992	AB2-040 E O1	8.99
924022	AB2-043 E O1	6.43
924152	AB2-059 E O1	8.13
924162	AB2-060 E O1	5.28
924241	AB2-068 O1	333.87
924302	AB2-077 E O1	1.67
924312	AB2-078 E O1	1.67
924322	AB2-079 E O1	1.67
924391	AB2-088 C	0.66
924392	AB2-088 E	0.32
924401	AB2-089 C	2.96
924402	AB2-089 E	1.52
924491	AB2-098 C	0.89
924492	AB2-098 E	0.38
924501	AB2-099 C	0.92
924502	AB2-099 E	0.39
924511	AB2-100 C	17.27
924512	AB2-100 E	8.51
924812	AB2-134 E O1	14.39
925061	AB2-161 C O1	4.86
925062	AB2-161 E O1	7.92
925122	AB2-169 E	9.3
925171	AB2-174 C O1	10.49
925172	AB2-174 E O1	9.49
925281	AB2-186 C	1.03
925282	AB2-186 E	0.44
925291	AB2-188 C O1	3.89
925292	AB2-188 E O1	1.75

Bus #	Bus	MW Impact
925331	AB2-190 C	22.91
925332	AB2-190 E	9.82
925521	AC1-027 C	0.59
925522	AC1-027 E	1.97
925591	AC1-034 C	10.23
925592	AC1-034 E	7.71
925781	AC1-054 C O1	10.09
925782	AC1-054 E O1	4.65
926071	AC1-086 C	31.41
926072	AC1-086 E	14.3
926201	AC1-098 C	9.4
926202	AC1-098 E	5.6
926211	AC1-099 C	3.15
926212	AC1-099 E	1.85
926271	AC1-105 C O1	7.51
926272	AC1-105 E O1	3.74
926291	AC1-107 O1	503.95
926662	AC1-147 E	2.27
926751	AC1-161 C O1	55.59
926752	AC1-161 E O1	23.73
927021	AC1-189 C	13.41
927022	AC1-189 E	6.68
927141	AC1-208 C	13.7
927142	AC1-208 E	6.09
927221	AC1-216 C O1	11.57
927222	AC1-216 E O1	9.1
927251	AC1-221 C	3.14
927252	AC1-221 E	3.14
927261	AC1-222 C	4.86
927262	AC1-222 E	4.63
930402	AB1-081 E O1	5.74
930862	AB1-132 E O1	9.14
931232	AB1-173 E	1.57
931242	AB1-173AE	1.57
932041	AC2-012 C	17.46
932042	AC2-012 E	28.49
932581	AC2-078 C O1	5.17
932582	AC2-078 E O1	8.44
932591	AC2-079 C O1	8.83
932592	AC2-079 E O1	14.4
932631	AC2-084 C	13.41
932632	AC2-084 E	6.6
932761	AC2-100 C	7.23
932762	AC2-100 E	3.53
933291	AC2-141 C	55.59
933292	AC2-141 E	23.73
933731	AC2-196 C	0.53
933732	AC2-196 E	2.06
933991	AD1-023 C	21.24
933992	AD1-023 E	11.56
934011	AD1-025 C	19.88
934012	AD1-025 E	11.78

Bus #	Bus	MW Impact
934061	AD1-033 C	13.01
934062	AD1-033 E	8.67
934201	AD1-047 C	11.99
934202	AD1-047 E	7.99
934231	AD1-050 C	6.51
934232	AD1-050 E	3.56
934311	AD1-055 C	3.38
934312	AD1-055 E	0.87
934331	AD1-057 C O1	15.07
934332	AD1-057 E O1	8.04
934341	AD1-058 C	7.88
934342	AD1-058 E	2.0
934521	AD1-076 C	88.51
934522	AD1-076 E	45.07
934571	AD1-082 C	11.07
934572	AD1-082 E	6.31
934611	AD1-087 C O1	12.77
934612	AD1-087 E O1	6.0
934621	AD1-088 C	17.21
934622	AD1-088 E	8.08
934991	AD1-131 C	2.58
934992	AD1-131 E	1.72
935112	AD1-144 E	1.54
935161	AD1-151 C O1	18.41
935162	AD1-151 E O1	12.27
935171	AD1-152 C O1	12.69
935172	AD1-152 E O1	8.46
935212	AD1-156 E	1.73
936041	AD2-007	2.11
936051	AD2-008 C	3.46
936052	AD2-008 E	7.53
936331	AD2-043 C	6.33
936332	AD2-043 E	7.49
936361	AD2-046 C O1	11.9
936362	AD2-046 E O1	5.47
936391	AD2-049 C	2.65
936392	AD2-049 E	2.65
936401	AD2-051 C O1	13.76
936402	AD2-051 E O1	5.91
936481	AD2-063 C O1	17.9
936482	AD2-063 E O1	11.93
936531	AD2-068 C	7.89
936532	AD2-068 E	4.07
936661	AD2-085 C	5.28
936662	AD2-085 E	8.61
936701	AD2-089 C	11.02
936702	AD2-089 E	7.35
936711	AD2-090 C O1	11.44
936712	AD2-090 E O1	7.62
937221	AD2-160 C O1	10.1
937222	AD2-160 E O1	5.29
937251	AD2-164	6.91

Bus #	Bus	MW Impact
937481	AD2-202 C O1	3.52
937482	AD2-202 E O1	1.77
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
937571	AD2-169 C	14.99
937572	AD2-169 E	9.99
938171	AE1-026 C1 O	45.12
938172	AE1-026 C2 O	6.53
938173	AE1-026 E O2	13.63
938181	AE1-027 C	4.05
938182	AE1-027 E	2.13
938191	AE1-028 C	2.35
938192	AE1-028 E	1.36
938221	AE1-035 C	3.56
938222	AE1-035 E	1.76
938461	AE1-065 C O2	48.97
938462	AE1-065 E O2	197.6
938471	AE1-066 C O2	50.33
938472	AE1-066 E O2	196.25
938481	AE1-067 C O2	45.76
938482	AE1-067 E O2	200.81
938491	AE1-068 C O2	118.32
938492	AE1-068 E O2	65.35
938501	AE1-069 C O2	93.92
938502	AE1-069 E O2	53.7
938531	AE1-072 C O2	30.17
938532	AE1-072 E O2	15.73
AA2-074	AA2-074	8.9
AB2-013	AB2-013	5.7
AE1-033	AE1-033	5.95
AE1-042	AE1-042	14.39
CARR	CARR	1.71
CBM-S1	CBM-S1	22.0
CBM-S2	CBM-S2	25.63
CBM-W1	CBM-W1	20.05
CBM-W2	CBM-W2	142.21
CIN	CIN	9.32
CPL	CPL	13.08
G-007	G-007	5.64
IPL	IPL	5.82
LGEE	LGEE	2.72
MEC	MEC	21.16
MECS	MECS	7.5
O-066	O-066	18.81
RENSSELAER	RENSSELAER	1.35
WEC	WEC	2.47
Z1-043	Z1-043	9.73

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
123982	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	138.13	139.19	DC	24.33

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.75
314229	6MT RD221	0.24
314236	6NRTHEST	0.32
314250	6ROCKVILLE	0.55
314539	3UNCAMP	2.17
314541	3WATKINS	0.61
314566	3CRESWEL	2.06
314648	6SUNBURY	0.8
314651	6WINFALL	1.58
315043	1FOUR RIVERA	6.01
315044	1FOUR RIVERB	4.65
315045	1FOUR RIVERC	6.01
315046	1FOUR RIVERD	4.65
315047	1FOUR RIVERE	4.65
315048	1FOUR RIVERF	6.0
315053	1BELMED1	25.32
315054	1BELMED2	25.32
315055	1BELMED3	21.01
315058	1CHESTF3	26.88
315059	1CHESTF4	43.57
315067	1DARBY 1	4.35
315068	1DARBY 2	4.36
315069	1DARBY 3	4.37
315070	1DARBY 4	4.38
315073	1STONECA	9.3
315074	1HOPCGN1	11.22
315075	1HOPCGN2	11.07
315083	1SPRUNCA	14.81
315084	1SPRUNCB	14.81
315085	1SPRUNCC	10.98
315086	1SPRUNCD	10.98
315090	1YORKTN1	30.68
315091	1YORKTN2	31.84
901082	W1-029 E	41.33
907092	X1-038 E	5.42
913392	Y1-086 E	1.99
916042	Z1-036 E	40.32
916192	Z1-068 E	1.74
917122	Z2-027 E	0.96
919152	AA1-139 E	5.86

Bus #	Bus	MW Impact
919211	AA1-145	17.36
920692	AA2-178 E	3.54
923801	AB2-015 C O1	7.65
923802	AB2-015 E O1	6.27
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.08
924061	AB2-050	1.02
924241	AB2-068 O1	176.33
924511	AB2-100 C	10.34
924512	AB2-100 E	5.09
924812	AB2-134 E O1	14.74
925051	AB2-160 C O1	7.09
925052	AB2-160 E O1	11.57
925061	AB2-161 C O1	3.59
925062	AB2-161 E O1	5.85
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925291	AB2-188 C O1	2.03
925292	AB2-188 E O1	0.91
925331	AB2-190 C	24.59
925332	AB2-190 E	10.54
925522	AC1-027 E	1.06
925861	AC1-065 C	4.34
925862	AC1-065 E	7.08
926291	AC1-107 O1	266.16
926411	AC1-112 C	0.59
926412	AC1-112 E	1.92
926472	AC1-118 E	1.07
926551	AC1-134	2.55
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.91
926752	AC1-161 E O1	11.49
926781	AC1-164 C	58.04
926782	AC1-164 E	26.08
927041	AC1-191 C O1	17.46
927042	AC1-191 E O1	8.7
927221	AC1-216 C O1	11.84
927222	AC1-216 E O1	9.31
930121	AB1-027 C	0.76
930122	AB1-027 E	1.89
932041	AC2-012 C	9.53
932042	AC2-012 E	15.55
932501	AC2-070 C	0.5
932502	AC2-070 E	1.2
932532	AC2-073 E	1.55
932581	AC2-078 C O1	4.7
932582	AC2-078 E O1	7.67
932591	AC2-079 C O1	5.75
932592	AC2-079 E O1	9.39
932831	AC2-110 C	1.74
932832	AC2-110 E	2.83

Bus #	Bus	MW Impact
933061	AC2-130	3.45
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23
933121	AC2-132 2	0.63
933261	AC2-137 C	0.54
933262	AC2-137 E	2.04
933272	AC2-138 E	1.08
933291	AC2-141 C	26.91
933292	AC2-141 E	11.49
933732	AC2-196 E	1.09
934011	AD1-025 C	20.36
934012	AD1-025 E	12.06
934061	AD1-033 C	6.9
934062	AD1-033 E	4.6
934141	AD1-041 C	6.73
934142	AD1-041 E	4.49
934211	AD1-048 C	0.65
934212	AD1-048 E	1.92
934392	AD1-063 E	1.38
934571	AD1-082 C	8.18
934572	AD1-082 E	4.66
934781	AD1-105 C	11.46
934782	AD1-105 E	7.97
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.76
935162	AD1-151 E O1	13.17
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.71
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.74
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.31
936391	AD2-049 C	1.87
936392	AD2-049 E	1.87
936581	AD2-073 C	2.23
936582	AD2-073 E	1.1
936591	AD2-074 C	6.34
936592	AD2-074 E	10.34
936661	AD2-085 C	3.46
936662	AD2-085 E	5.65
936711	AD2-090 C O1	6.28
936712	AD2-090 E O1	4.19
937221	AD2-160 C O1	5.35
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68

Bus #	Bus	MW Impact
937542	AD2-215 E	0.89
938031	AE1-004 C	1.74
938032	AE1-004 E	2.83
938181	AE1-027 C	2.15
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O2	26.31
938462	AE1-065 E O2	106.18
938471	AE1-066 C O2	27.04
938472	AE1-066 E O2	105.45
938481	AE1-067 C O2	24.59
938482	AE1-067 E O2	107.9
938531	AE1-072 C O2	15.99
938532	AE1-072 E O2	8.34
938551	AE1-074 C	3.11
938552	AE1-074 E	1.57
AA2-074	AA2-074	3.28
CARR	CARR	0.76
CBM-S1	CBM-S1	4.33
CBM-S2	CBM-S2	8.6
CBM-W1	CBM-W1	0.26
CBM-W2	CBM-W2	24.71
CIN	CIN	0.33
CPL	CPL	4.82
DEARBORN	DEARBORN	0.45
G-007	G-007	2.3
IPL	IPL	0.14
LGEE	LGEE	0.1
MEC	MEC	2.15
O-066	O-066	7.7
RENSSELAER	RENSSELAER	0.6
WEC	WEC	0.08

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124439	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	142.66	144.26	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124428	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	146.28	147.88	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124522	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	127.56	129.16	DC	7.04

Bus #	Bus	MW Impact
314421	6WINCHST	0.12
314507	3THOMPSN	0.14
315090	1YORKTN1	23.0
315091	1YORKTN2	23.87
315092	1YORKTN3	19.77
315098	1CHESPKA	0.19
315099	1CHESPKB	0.46
315108	1ELIZAR1	1.38
315109	1ELIZAR2	1.35
315110	1ELIZAR3	1.39
315233	1SURRY 2	14.07
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.02
919151	AA1-139 C	1.04
923801	AB2-015 C O1	2.73
924241	AB2-068 O1	102.68
925281	AB2-186 C	0.23
925291	AB2-188 C O1	0.81
925521	AC1-027 C	0.14
926291	AC1-107 O1	154.99
926661	AC1-147 C	0.16
926751	AC1-161 C O1	13.97
932041	AC2-012 C	4.15
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.97
933731	AC2-196 C	0.13
933991	AD1-023 C	4.15
934061	AD1-033 C	3.08
934521	AD1-076 C	17.63
935111	AD1-144 C	0.13
936391	AD2-049 C	1.14
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.71
938172	AE1-026 C2 O	1.26

Bus #	Bus	MW Impact
938181	AE1-027 C	0.96
938191	AE1-028 C	0.55
938461	AE1-065 C O2	11.61
938471	AE1-066 C O2	11.93
938481	AE1-067 C O2	10.85
938531	AE1-072 C O2	7.04
CARR	CARR	0.19
CBM-S1	CBM-S1	2.49
CBM-S2	CBM-S2	3.15
CBM-W1	CBM-W1	2.09
CBM-W2	CBM-W2	15.94
CIN	CIN	0.97
CPL	CPL	1.66
IPL	IPL	0.6
LGEE	LGEE	0.28
MEC	MEC	2.29
MECS	MECS	0.72
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124018	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	134.28	134.97	DC	47.99

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.94
314421	6WINCHST	0.29
314539	3UNCAMP	3.9
314541	3WATKINS	1.09
314554	3BTLEBRO	1.03
314557	3BETHELC	1.08
314566	3CRESWEL	3.92
314572	3EMPORIA	0.55
314574	6EVERETS	5.93
314578	3HORNRTN	4.49
314582	3KELFORD	5.04
314594	6PLYMOTH	1.36
314603	3SCOT NK	4.6
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.76
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.72
315074	1HOPCGN1	10.52
315075	1HOPCGN2	10.38
315090	1YORKTN1	53.51
315091	1YORKTN2	55.53
315092	1YORKTN3	45.83
315110	1ELIZAR3	6.23
315131	1EDGECEMA	11.92
315132	1EDGECEMB	11.92
315233	1SURRY 2	55.25
900672	V4-068 E	0.45
901082	W1-029 E	80.04
907092	X1-038 E	9.75
913392	Y1-086 E	3.89
916042	Z1-036 E	77.63
916192	Z1-068 E	3.42
916302	Z1-086 E	13.65
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.37
918492	AA1-063AE OP	5.61

Bus #	Bus	MW Impact
918512	AA1-065 E OP	6.66
918532	AA1-067 E	1.05
918562	AA1-072 E	0.24
919152	AA1-139 E	11.57
919692	AA2-053 E	5.18
919701	AA2-057 C	9.4
919702	AA2-057 E	4.7
920042	AA2-088 E OP	15.98
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.71
923801	AB2-015 C O1	13.73
923802	AB2-015 E O1	11.26
923832	AB2-022 E	2.2
923842	AB2-024 E	1.84
923852	AB2-025 E	1.45
923911	AB2-031 C O1	2.99
923912	AB2-031 E O1	1.47
923941	AB2-035 C	0.45
923942	AB2-035 E	0.19
923992	AB2-040 E O1	8.03
924152	AB2-059 E O1	6.98
924241	AB2-068 O1	619.69
924391	AB2-088 C	0.58
924392	AB2-088 E	0.28
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.35
924512	AB2-100 E	7.56
924812	AB2-134 E O1	18.13
925051	AB2-160 C O1	6.27
925052	AB2-160 E O1	10.23
925061	AB2-161 C O1	5.12
925062	AB2-161 E O1	8.36
925122	AB2-169 E	8.81
925171	AB2-174 C O1	9.34
925172	AB2-174 E O1	8.45
925281	AB2-186 C	1.06
925282	AB2-186 E	0.45
925291	AB2-188 C O1	3.86
925292	AB2-188 E O1	1.73
925331	AB2-190 C	29.21
925332	AB2-190 E	12.52
925522	AC1-027 E	2.08
925591	AC1-034 C	8.77
925592	AC1-034 E	6.62
925861	AC1-065 C	5.37
925862	AC1-065 E	8.76
926071	AC1-086 C	28.17
926072	AC1-086 E	12.82

Bus #	Bus	MW Impact
926201	AC1-098 C	8.45
926202	AC1-098 E	5.04
926211	AC1-099 C	2.83
926212	AC1-099 E	1.66
926291	AC1-107 O1	935.38
926662	AC1-147 E	2.41
926751	AC1-161 C O1	59.52
926752	AC1-161 E O1	25.41
926781	AC1-164 C	68.01
926782	AC1-164 E	30.55
927021	AC1-189 C	12.1
927022	AC1-189 E	6.03
927141	AC1-208 C	12.2
927142	AC1-208 E	5.42
927221	AC1-216 C O1	14.57
927222	AC1-216 E O1	11.46
930402	AB1-081 E O1	4.93
930862	AB1-132 E O1	8.2
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.56
932042	AC2-012 E	30.28
932532	AC2-073 E	1.96
932581	AC2-078 C O1	5.52
932582	AC2-078 E O1	9.01
932591	AC2-079 C O1	9.26
932592	AC2-079 E O1	15.11
932631	AC2-084 C	12.05
932632	AC2-084 E	5.94
932831	AC2-110 C	2.15
932832	AC2-110 E	3.5
933061	AC2-130	3.1
933071	AC2-131 1	2.1
933081	AC2-131 2	0.95
933111	AC2-132 1	1.1
933121	AC2-132 2	0.56
933262	AC2-137 E	1.87
933272	AC2-138 E	1.18
933291	AC2-141 C	59.52
933292	AC2-141 E	25.41
933732	AC2-196 E	2.17
933991	AD1-023 C	20.59
933992	AD1-023 E	11.21
934011	AD1-025 C	25.04
934012	AD1-025 E	14.83
934061	AD1-033 C	13.7
934062	AD1-033 E	9.13
934141	AD1-041 C	8.49
934142	AD1-041 E	5.66
934201	AD1-047 C	10.7
934202	AD1-047 E	7.13
934212	AD1-048 E	1.38

Bus #	Bus	MW Impact
934331	AD1-057 C O1	13.19
934332	AD1-057 E O1	7.04
934392	AD1-063 E	1.75
934521	AD1-076 C	86.42
934522	AD1-076 E	44.01
934571	AD1-082 C	11.68
934572	AD1-082 E	6.66
934611	AD1-087 C O1	9.65
934612	AD1-087 E O1	4.54
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.47
935162	AD1-151 E O1	15.65
935171	AD1-152 C O1	9.59
935172	AD1-152 E O1	6.39
935212	AD1-156 E	1.73
936041	AD2-007	2.66
936051	AD2-008 C	4.36
936052	AD2-008 E	9.49
936151	AD2-021	0.33
936241	AD2-030 C	3.72
936242	AD2-030 E	1.9
936301	AD2-039 C	2.15
936302	AD2-039 E	3.5
936341	AD2-044 C	0.3
936342	AD2-044 E	0.33
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.94
936402	AD2-051 E O1	5.55
936531	AD2-068 C	6.84
936532	AD2-068 E	3.52
936591	AD2-074 C	7.46
936592	AD2-074 E	12.17
936661	AD2-085 C	5.54
936662	AD2-085 E	9.03
936701	AD2-089 C	9.7
936702	AD2-089 E	6.46
936711	AD2-090 C O1	11.21
936712	AD2-090 E O1	7.47
937221	AD2-160 C O1	10.59
937222	AD2-160 E O1	5.55
937251	AD2-164	8.87
937481	AD2-202 C O1	2.66
937482	AD2-202 E O1	1.34
937541	AD2-215 C	3.09
937542	AD2-215 E	1.64
937571	AD2-169 C	13.41
937572	AD2-169 E	8.94
938031	AE1-004 C	2.15
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.56
938172	AE1-026 C2 O	6.3

Bus #	Bus	MW Impact
938173	AE1-026 E O2	13.15
938181	AE1-027 C	4.26
938182	AE1-027 E	2.24
938191	AE1-028 C	2.47
938192	AE1-028 E	1.43
938221	AE1-035 C	3.38
938222	AE1-035 E	1.66
938461	AE1-065 C O2	51.76
938462	AE1-065 E O2	208.87
938471	AE1-066 C O2	53.19
938472	AE1-066 E O2	207.44
938481	AE1-067 C O2	48.37
938482	AE1-067 E O2	212.26
938491	AE1-068 C O2	86.22
938492	AE1-068 E O2	47.62
938501	AE1-069 C O2	68.42
938502	AE1-069 E O2	39.12
938531	AE1-072 C O2	31.54
938532	AE1-072 E O2	16.44
AA2-074	AA2-074	6.79
AE1-042	AE1-042	9.44
CARR	CARR	1.31
CBM-S1	CBM-S1	13.88
CBM-S2	CBM-S2	18.86
CBM-W1	CBM-W1	10.01
CBM-W2	CBM-W2	87.39
CIN	CIN	4.78
CPL	CPL	9.98
G-007	G-007	4.21
IPL	IPL	2.93
LGEE	LGEE	1.39
MEC	MEC	11.9
MECS	MECS	2.63
O-066	O-066	14.06
RENSSELAER	RENSSELAER	1.04
WEC	WEC	1.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
124272	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	157.37	157.97	DC	31.51

Bus #	Bus	MW Impact
314229	6MT RD221	0.24
314236	6NRTHEST	0.37
314309	6IRON208	0.87
315053	1BELMED1	31.59
315054	1BELMED2	31.59
315055	1BELMED3	26.22
315058	1CHESTF3	33.55
315059	1CHESTF4	54.39
315060	1CHESTF5	19.83
315061	1CHESTG7	7.77
315062	1CHESTS7	3.53
315063	1CHESTG8	7.62
315064	1CHESTS8	3.93
315067	1DARBY 1	5.07
315068	1DARBY 2	5.08
315069	1DARBY 3	5.09
315070	1DARBY 4	5.1
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.12
315084	1SPRUNCB	19.12
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.34
315091	1YORKTN2	55.35
315092	1YORKTN3	45.58
315233	1SURREY 2	49.5
923801	AB2-015 C O1	14.87
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.72
924501	AB2-099 C	0.97
924511	AB2-100 C	19.06
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.43
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.16
925861	AC1-065 C	6.04
926071	AC1-086 C	33.58

Bus #	Bus	MW Impact
926291	AC1-107 O1	647.12
926411	AC1-112 C	0.66
926751	AC1-161 C O1	55.63
926781	AC1-164 C	77.8
927041	AC1-191 C O1	17.07
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.85
932041	AC2-012 C	18.51
932501	AC2-070 C	0.56
932581	AC2-078 C O1	7.33
932591	AC2-079 C O1	10.28
932831	AC2-110 C	2.41
933061	AC2-130	4.51
933071	AC2-131 1	3.06
933081	AC2-131 2	1.39
933111	AC2-132 1	1.61
933121	AC2-132 2	0.82
933261	AC2-137 C	0.69
933291	AC2-141 C	55.63
933991	AD1-023 C	22.21
934011	AD1-025 C	31.22
934061	AD1-033 C	13.58
934141	AD1-041 C	9.42
934201	AD1-047 C	13.02
934211	AD1-048 C	0.79
934521	AD1-076 C	92.51
934571	AD1-082 C	13.84
935161	AD1-151 C O1	29.86
936041	AD2-007	3.31
936051	AD2-008 C	5.44
936151	AD2-021	0.45
936241	AD2-030 C	4.05
936301	AD2-039 C	2.41
936391	AD2-049 C	3.31
936401	AD2-051 C O1	14.46
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.54
937251	AD2-164	8.91
937541	AD2-215 C	3.16
937571	AD2-169 C	16.22
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.18
938172	AE1-026 C2 O	6.83
938181	AE1-027 C	4.23
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O2	51.46
938471	AE1-066 C O2	52.89
938481	AE1-067 C O2	48.09
938491	AE1-068 C O2	92.72
938501	AE1-069 C O2	73.48

Bus #	Bus	MW Impact
938531	AE1-072 C O2	31.51
938551	AE1-074 C	4.28
AA2-074	AA2-074	8.69
AB2-013	AB2-013	8.01
AE1-033	AE1-033	8.34
AE1-042	AE1-042	17.0
CARR	CARR	2.56
CBM-S1	CBM-S1	27.03
CBM-S2	CBM-S2	26.21
CBM-W1	CBM-W1	28.48
CBM-W2	CBM-W2	177.6
CIN	CIN	13.28
CPLE	CPLE	12.77
IPL	IPL	8.37
LGEE	LGEE	3.91
MEC	MEC	28.22
MECS	MECS	11.98
RENSSELAER	RENSSELAER	2.03
WEC	WEC	3.49
Z1-043	Z1-043	13.73

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
123971	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	140.51	140.94	DC	47.26

Bus #	Bus	MW Impact
314539	3UNCAMP	4.14
314541	3WATKINS	1.17
314557	3BETHEL	1.27
314566	3CRESWEL	4.1
314572	3EMPORIA	0.69
314574	6EVERETS	6.74
314578	3HORNRTN	5.35
314582	3KELFORD	5.73
314594	6PLYMOTH	1.44
314603	3SCOT NK	5.33
314617	3TUNIS	1.39
314620	6CASHIE	1.42
314623	3WITAKRS	2.12
314648	6SUNBURY	1.55
314651	6WINFALL	3.07
315053	1BELMED1	25.14
315054	1BELMED2	25.14
315055	1BELMED3	20.87
315058	1CHESTF3	25.46
315059	1CHESTF4	41.28
315073	1STONECA	10.44
315074	1HOPCGN1	12.58
315075	1HOPCGN2	12.42
315083	1SPRUNCA	16.1
315084	1SPRUNCB	16.1
315085	1SPRUNCC	11.93
315086	1SPRUNCD	11.93
315090	1YORKTN1	47.18
315091	1YORKTN2	48.96
315102	1BRUNSWICKG1	15.49
315103	1BRUNSWICKG2	15.49
315104	1BRUNSWICKG3	15.49
315105	1BRUNSWICKS1	32.18
315108	1ELIZAR1	6.0
315109	1ELIZAR2	5.89
315110	1ELIZAR3	6.07
315233	1SURRY 2	46.73
900672	V4-068 E	0.5
901082	W1-029 E	80.37
907092	X1-038 E	10.35

Bus #	Bus	MW Impact
913392	Y1-086 E	3.87
916042	Z1-036 E	79.07
916191	Z1-068 C	0.08
916192	Z1-068 E	3.34
916301	Z1-086 C	94.29
916302	Z1-086 E	17.14
917122	Z2-027 E	1.86
917332	Z2-043 E	1.63
917342	Z2-044 E	0.91
917512	Z2-088 E OP1	6.23
918492	AA1-063AE OP	6.52
918512	AA1-065 E OP	7.35
918532	AA1-067 E	1.19
918562	AA1-072 E	0.27
919152	AA1-139 E	11.37
919692	AA2-053 E	6.09
919701	AA2-057 C	11.25
919702	AA2-057 E	5.62
920042	AA2-088 E OP	17.64
920592	AA2-165 E	0.74
920672	AA2-174 E	0.7
920692	AA2-178 E	7.03
923801	AB2-015 C O1	14.68
923802	AB2-015 E O1	12.03
923832	AB2-022 E	2.18
923852	AB2-025 E	1.85
923862	AB2-026 E	1.7
923911	AB2-031 C O1	3.65
923912	AB2-031 E O1	1.8
923941	AB2-035 C	0.53
923942	AB2-035 E	0.23
923992	AB2-040 E O1	9.81
924241	AB2-068 O1	340.92
924391	AB2-088 C	0.69
924392	AB2-088 E	0.33
924491	AB2-098 C	0.93
924492	AB2-098 E	0.4
924501	AB2-099 C	0.97
924502	AB2-099 E	0.42
924511	AB2-100 C	19.06
924512	AB2-100 E	9.39
924812	AB2-134 E O1	19.56
925051	AB2-160 C O1	8.46
925052	AB2-160 E O1	13.8
925061	AB2-161 C O1	5.7
925062	AB2-161 E O1	9.3
925122	AB2-169 E	9.67
925171	AB2-174 C O1	11.48
925172	AB2-174 E O1	10.39
925281	AB2-186 C	1.07
925282	AB2-186 E	0.46
925291	AB2-188 C O1	4.04

Bus #	Bus	MW Impact
925292	AB2-188 E O1	1.82
925331	AB2-190 C	31.9
925332	AB2-190 E	13.67
925521	AC1-027 C	0.61
925522	AC1-027 E	2.04
926071	AC1-086 C	33.74
926072	AC1-086 E	15.36
926201	AC1-098 C	9.91
926202	AC1-098 E	5.9
926211	AC1-099 C	3.32
926212	AC1-099 E	1.95
926291	AC1-107 O1	514.59
926662	AC1-147 E	2.35
926751	AC1-161 C O1	55.25
926752	AC1-161 E O1	23.59
926781	AC1-164 C	48.22
926782	AC1-164 E	21.66
927021	AC1-189 C	13.94
927022	AC1-189 E	6.95
927141	AC1-208 C	14.48
927142	AC1-208 E	6.43
927221	AC1-216 C O1	15.72
927222	AC1-216 E O1	12.36
930862	AB1-132 E O1	9.82
931232	AB1-173 E	1.72
931242	AB1-173AE	1.72
932041	AC2-012 C	18.12
932042	AC2-012 E	29.56
932581	AC2-078 C O1	6.67
932582	AC2-078 E O1	10.88
932591	AC2-079 C O1	9.83
932592	AC2-079 E O1	16.05
932631	AC2-084 C	14.13
932632	AC2-084 E	6.96
933061	AC2-130	3.4
933071	AC2-131 1	2.31
933081	AC2-131 2	1.05
933111	AC2-132 1	1.21
933121	AC2-132 2	0.62
933291	AC2-141 C	55.25
933292	AC2-141 E	23.59
933501	AC2-165 C	14.6
933502	AC2-165 E	10.99
933731	AC2-196 C	0.55
933732	AC2-196 E	2.12
933991	AD1-023 C	22.14
933992	AD1-023 E	12.05
934011	AD1-025 C	27.01
934012	AD1-025 E	16.0
934061	AD1-033 C	13.37
934062	AD1-033 E	8.92
934201	AD1-047 C	13.08

Bus #	Bus	MW Impact
934202	AD1-047 E	8.72
934331	AD1-057 C O1	15.9
934332	AD1-057 E O1	8.48
934521	AD1-076 C	92.13
934522	AD1-076 E	46.91
934571	AD1-082 C	12.98
934572	AD1-082 E	7.41
934611	AD1-087 C O1	12.84
934612	AD1-087 E O1	6.04
934621	AD1-088 C	19.56
934622	AD1-088 E	9.18
935112	AD1-144 E	1.64
935161	AD1-151 C O1	25.63
935162	AD1-151 E O1	17.09
935171	AD1-152 C O1	12.76
935172	AD1-152 E O1	8.51
935212	AD1-156 E	2.31
936041	AD2-007	2.87
936051	AD2-008 C	4.7
936052	AD2-008 E	10.24
936391	AD2-049 C	3.01
936392	AD2-049 E	3.01
936401	AD2-051 C O1	14.48
936402	AD2-051 E O1	6.22
936661	AD2-085 C	5.9
936662	AD2-085 E	9.62
936701	AD2-089 C	11.46
936702	AD2-089 E	7.64
936711	AD2-090 C O1	12.16
936712	AD2-090 E O1	8.1
937221	AD2-160 C O1	10.39
937222	AD2-160 E O1	5.45
937251	AD2-164	7.96
937481	AD2-202 C O1	3.54
937482	AD2-202 E O1	1.78
937541	AD2-215 C	3.04
937542	AD2-215 E	1.61
937571	AD2-169 C	16.3
937572	AD2-169 E	10.87
938171	AE1-026 C1 O	47.07
938172	AE1-026 C2 O	6.81
938173	AE1-026 E O2	14.21
938181	AE1-027 C	4.16
938182	AE1-027 E	2.19
938191	AE1-028 C	2.42
938192	AE1-028 E	1.4
938221	AE1-035 C	3.73
938222	AE1-035 E	1.84
938461	AE1-065 C O2	50.55
938462	AE1-065 E O2	203.99
938471	AE1-066 C O2	51.95
938472	AE1-066 E O2	202.59

Bus #	Bus	MW Impact
938481	AE1-067 C O2	47.24
938482	AE1-067 E O2	207.29
938491	AE1-068 C O2	108.24
938492	AE1-068 E O2	59.78
938501	AE1-069 C O2	85.85
938502	AE1-069 E O2	49.08
938531	AE1-072 C O2	31.07
938532	AE1-072 E O2	16.19
938551	AE1-074 C	4.01
938552	AE1-074 E	2.02
938561	AE1-075 C	3.31
938562	AE1-075 E	1.62
AA2-074	AA2-074	8.98
AB2-013	AB2-013	6.5
AE1-033	AE1-033	6.78
AE1-042	AE1-042	15.48
CARR	CARR	2.09
CBM-S1	CBM-S1	23.99
CBM-S2	CBM-S2	26.25
CBM-W1	CBM-W1	22.91
CBM-W2	CBM-W2	155.75
CIN	CIN	10.7
CPL	CPL	13.2
G-007	G-007	6.95
IPL	IPL	6.7
LGEE	LGEE	3.14
MEC	MEC	23.7
MECS	MECS	8.88
O-066	O-066	23.16
RENSSELAER	RENSSELAER	1.66
WEC	WEC	2.82
Z1-043	Z1-043	11.12

Contingency Name	Contingency Definition
DVP_P4-2: 231T2026	CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 END
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Short Circuit

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Attachment 1

Single Line Diagram