



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE1-085
BAKERS POND-BELL AVE 115 KV
52.2 MW Capacity / 87 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.

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 Sussex County, Virginia. The installed facilities will have a capability of 87 MW with 52.2 MW of this output being recognized by PJM as Capacity. The proposed in-service date for the AE1-085 project is 6/01/2022. This study does not imply an ITO commitment to either in-service date.

Queue Number	AE1-085
Project Name	BAKERS POND-BELL AVE 115 KV
Interconnection Customer	
State	Virginia
County	Sussex
Transmission Owner	Dominion
MFO	87
MWE	87
MWC	52.2
Fuel	Solar
Basecase Study Year	2022

Point of Interconnection

Primary Point of Interconnection

AE1-085 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Bakers Pond – Bell Ave 115kV line # 106. See one line in **Attachment 1**.

Secondary Point of Interconnection

AE1-085 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Disputanta – Waverly #2 115kV line # 15.

Cost Summary

The AE1-085 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$1,550,000
Direct Connection Network Upgrade	\$5,500,000
Non Direct Connection Network Upgrades	\$ 800,000
Total Costs	\$7,850,000

In addition, the AE1-085 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	\$85,508,000

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 \$550,000.

Transmission: Construct approximately one span of 115 kV Attachment line between the generation substation and a new AE1-085 Switching Station. The estimated cost for this work is \$1,000,000.

The estimated total cost of the Attachment Facilities is \$1,550,000. 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	\$550,000
Transmission	\$1,000,000
Total Attachment Facility Costs	\$1,550,000

Direct Connection Cost Estimate

Substation: Establish the new 115 kV AE1-085 Switching Substation (interconnection substation). The estimated cost of this work scope is \$5,500,000. 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 \$800,000 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 AE1-085 was evaluated as a 87 MW (Capacity 52.2 MW) injection tapping the Bakers Pond to Bell Ave # 2 115 kV line in the ITO area. Project AE1-085 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-085 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
311748	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	single	110.92	55.99	111.16	DC	61.2
311754	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 544-A	single	110.92	54.66	69.62	DC	16.59
311755	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 544-B	single	110.92	54.66	69.62	DC	16.59
311757	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	Base Case	single	110.92	46.01	61.02	DC	16.65
311720	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	60.67	115.85	DC	61.2
311721	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-A	single	110.92	41.83	97.01	DC	61.2
311740	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	50.67	105.84	DC	61.2
311741	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-A	single	110.92	31.82	87.0	DC	61.2
311847	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	96.36	97.85	DC	6.71
311760	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	single	110.92	45.71	100.88	DC	61.2
311766	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 544-A	single	110.92	44.48	59.43	DC	16.59
311767	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 544-B	single	110.92	44.48	59.43	DC	16.59
311732	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	single	110.92	53.1	108.28	DC	61.2
311734	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 544-B	single	110.92	44.31	59.27	DC	16.59
311735	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 544-A	single	110.92	44.31	59.27	DC	16.59
311700	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	single	110.92	74.83	130.0	DC	61.2
311702	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 544-A	single	110.92	66.04	81.0	DC	16.59
311703	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 544-B	single	110.92	66.04	81.0	DC	16.59
311705	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	Base Case	single	110.92	57.35	72.36	DC	16.65
311708	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	single	110.92	74.83	130.0	DC	61.2
311709	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-A	single	110.92	55.99	111.16	DC	61.2

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
311550	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	81.26	86.45	DC	28.08
311551	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.29	92.93	DC	19.66
311602	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	89.37	90.92	DC	5.81
311629	314316	6LOCKS	DVP	314301	6HARR205	DVP	1	DVP_P4-2: 562T563	breaker	541.0	88.63	89.11	DC	5.81
311552	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	81.26	86.45	DC	28.08
311553	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.31	92.94	DC	19.66
311389	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-3: SUFFOLK H542	breaker	297.2	81.13	89.09	DC	23.66
311390	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	80.41	88.45	DC	23.89
311417	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	77.28	84.87	DC	23.29

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
311219	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	142.4	143.31	DC	20.78
311195	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	150.52	152.92	DC	13.07
311838	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	144.46	146.22	DC	7.83
311840	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	135.69	137.77	DC	9.31
312228	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	108.38	110.37	DC	8.94
312229	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	106.6	108.58	DC	8.89

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
311746	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	106.2	198.16	DC	102.0
311752	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	Base Case	operation	110.92	73.52	98.54	DC	27.75
312655	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	90.12	90.76	DC	11.79
312499	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	103.15	103.83	DC	13.29
312536	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	99.05	99.71	DC	13.35
312558	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	99.53	100.85	DC	12.9
311718	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	158.4	250.36	DC	102.0
311725	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	Base Case	operation	110.92	42.71	109.65	DC	74.25
311738	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	148.4	240.35	DC	102.0
311745	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	Base Case	operation	110.92	32.7	99.64	DC	74.25
311836	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	176.69	179.63	DC	13.05
311845	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	103.83	106.33	DC	11.19
312537	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	103.24	104.57	DC	12.9
312582	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operation	441.8	80.48	84.92	DC	19.63
312223	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	operation	449.32	138.51	139.78	DC	12.32
312232	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	operation	449.32	101.0	102.24	DC	12.16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
312569	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P1-2: LN 563	operation	138.18	90.52	92.41	DC	5.8
312520	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P1-2: LN 23-B	operation	224.66	54.35	70.72	DC	36.79
312579	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operation	441.8	80.5	84.95	DC	19.63
311758	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	95.92	187.88	DC	102.0
311764	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	Base Case	operation	110.92	63.25	88.26	DC	27.75
311726	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	150.83	242.79	DC	102.0
311731	314532	3OAKRI23	DVP	314536	3SUFFOLK	DVP	1	Base Case	operation	110.92	98.41	123.43	DC	27.75
311805	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	201.44	202.05	DC	32.75
311860	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	183.19	183.54	DC	28.31
311694	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	operation	110.92	172.56	264.51	DC	102.0
311699	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	Base Case	operation	110.92	120.14	145.15	DC	27.75
311706	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	operation	110.92	172.56	264.51	DC	102.0
311713	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	Base Case	operation	110.92	56.86	123.81	DC	74.25
312189	938630	AE1-085 TAP	DVP	313879	3BELL AVE 2	DVP	1	Base Case	operation	110.92	15.32	40.33	DC	27.75

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
311629	11	6LOCKS 230.0 kV - 6HARR205 230.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
311705,311700,311702,311703	7	AC2-079 TAP 115.0 kV - 3OAKRI23 115.0 kV Ckt 1	Description : Wreck & rebuild 19.6 miles of 115kV line # 23 between Oak Ridge substation - Queue AC2-079 and Ivor substation. Note: line # 23 is the Bell Ave - Suffolk line. Time Estimate : 30-36 Months Cost : \$11,200,000	\$11,200,000
311760,311766,311767	5	3IVOR106 115.0 kV - AC2-079 TAP 115.0 kV Ckt 1		
311754,311755,311748,311757	1	3BELL AVE 2 115.0 kV - 3IVOR106 115.0 kV Ckt 1	Description : Wreck and rebuild 1 mile of 115kV line # 23 between Bell Ave and Ivor substations. Time Estimate : 30-36 Months Cost : \$2,000,000	\$2,000,000
311417	14	3SUFFOLK 115.0 kV - 6SUFFOLK 115.0 kV Ckt 3	Description : No Violation. Facility loading does not exceed 100%.	\$0
312228,312229	16	6HOPEWLL 230.0 kV - 6CHESTF A 230.0 kV Ckt 1	Description : PJM baseline upgrade b2922: Rebuild 8 of 11 miles of 230kV Lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR. The baseline project has an projected in-service date of 12/01/2020.	\$0
311708,311709	8	AE1-085 TAP 115.0 kV - 3BAKRS P 115.0 kV Ckt 1	Description : Wreck and rebuild 8.4 miles of 115kV line # 106 between Bakers Pond DP and Queue AE1-085. Note: line # 106 is the Bell Ave – Poe line. Time Estimate : 30-36 Months Cost : \$10,008,000	\$10,008,000
311720,311721	2	3BAKRS P 115.0 kV - 3NEWBOHE 115.0 kV Ckt 1	Description : Wreck and rebuild 2.5 miles of 115kV line # 106 between Bakers Pond DP and New Bohemia DP. Time Estimate : 30-36 Months Cost : \$3,750,000	\$3,750,000
311732,311734,311735	6	3OAKRI23 115.0 kV - 3SUFFOLK 115.0 kV Ckt 1	Description : Wreck & rebuild approximately 2.6 miles of 115kV line # 23 between Oak Ridge and Suffolk substations. Time Estimate : 30-36 Months Cost : \$3,300,000	\$3,300,000
311552,311553	12	6POE 230.0 kV - 6HARROWG 230.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
311219	15	6ELMONT 230.0 kV - 8ELMONT 230.0 kV Ckt 1	Description : Add 3rd 500-230kV Elmont Transformer; Site Expansion will be required Time Estimate : 24-30 Months Cost : \$30,000,000	\$30,000,000

ID	Index	Facility	Upgrade Description	Cost
311840,311195,311838,311847	4	6CHESTF B 230.0 kV - 6BASIN 230.0 kV Ckt 1	Description : Re-Conductor and structure replace for the 230kV line # 259 between Basin and Chesterfield substations. Time Estimate : 30-36 Months Cost : \$16,500,000	\$16,500,000
311550,311551	9	6HARROWG 230.0 kV - 6TYLER1 230.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
311602	10	3LOCKS 115.0 kV - 3HARROWG 115.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
311740,311741	3	3NEWBOHE 115.0 kV - 3POE 115.0 kV Ckt 1	Description : Wreck & rebuild 2.6 miles of 115kV line # 106 between New Bohemia DP and Poe substation. Time Estimate : 30-36 Months Cost : \$3,750,000	\$3,750,000
311389,311390	13	3SUFFOLK 115.0 kV - 6SUFFOLK 115.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
			TOTAL COST	\$85,508,000

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
311748	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 106-B	single	110.92	55.99	111.16	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

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
311720	314273	3BAKRS P	DVP	314280	3NEWBOHE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	60.67	115.85	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

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
311740	314280	3NEWBOHE	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 23-B	single	110.92	50.67	105.84	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

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
311195	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	150.52	152.92	DC	13.07

Bus #	Bus	MW Impact
314314	3LOCKS	0.17
314539	3UNCAMP	0.93
314541	3WATKINS	0.27
314554	3BTLEBRO	0.3
314557	3BETHEL	0.3
314572	3EMPORIA	0.21
314574	6EVERETS	1.53
314578	3HORNRTN	1.41
314582	3KELFORD	1.36
314594	6PLYMOTH	0.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.33
314620	6CASHIE	0.31
314623	3WITAKRS	0.52
315065	1CHESTF6	26.38
315073	1STONECA	4.95
315074	1HOPCGN1	5.97
315075	1HOPCGN2	5.89
315076	1HOPPOLC	1.05
315077	1HOPHCF1	1.64
315078	1HOPHCF2	1.64
315079	1HOPHCF3	1.64
315080	1HOPHCF4	2.49
315131	1EDGECEMA	3.51
315132	1EDGECEMB	3.51
900672	V4-068 E	0.12
907092	X1-038 E	2.32
916302	Z1-086 E	3.66
917332	Z2-043 E	0.39
917342	Z2-044 E	0.22
917512	Z2-088 E OP1	1.44
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.66
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.57
919701	AA2-057 C	2.76
919702	AA2-057 E	1.38
920042	AA2-088 E OP	4.19
920592	AA2-165 E	0.18

Bus #	Bus	MW Impact
920672	AA2-174 E	0.18
923801	AB2-015 C O1	3.33
923802	AB2-015 E O1	2.73
923851	AB2-025 C	0.26
923852	AB2-025 E	0.77
923911	AB2-031 C O1	1.08
923912	AB2-031 E O1	0.53
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05
923992	AB2-040 E O1	2.89
924152	AB2-059 E O1	2.04
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.23
924502	AB2-099 E	0.1
924511	AB2-100 C	6.68
924512	AB2-100 E	3.29
924812	AB2-134 E O1	6.69
925051	AB2-160 C O1	3.53
925052	AB2-160 E O1	5.77
925061	AB2-161 C O1	1.95
925062	AB2-161 E O1	3.17
925122	AB2-169 E	2.1
925171	AB2-174 C O1	3.46
925172	AB2-174 E O1	3.13
925331	AB2-190 C	11.44
925332	AB2-190 E	4.9
925591	AC1-034 C	2.57
925592	AC1-034 E	1.94
925821	AC1-061	0.0
926071	AC1-086 C	9.77
926072	AC1-086 E	4.45
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
927021	AC1-189 C	3.2
927022	AC1-189 E	1.6
927141	AC1-208 C	3.62
927142	AC1-208 E	1.61
927221	AC1-216 C O1	5.37
927222	AC1-216 E O1	4.23
930402	AB1-081 E O1	1.44
930862	AB1-132 E O1	2.84
931232	AB1-173 E	0.51
931242	AB1-173AE	0.51
932581	AC2-078 C O1	3.0
932582	AC2-078 E O1	4.9
932591	AC2-079 C O1	2.72
932592	AC2-079 E O1	4.44

Bus #	Bus	MW Impact
932631	AC2-084 C	3.46
932632	AC2-084 E	1.71
933991	AD1-023 C	4.73
933992	AD1-023 E	2.57
934011	AD1-025 C	9.24
934012	AD1-025 E	5.47
934201	AD1-047 C	3.86
934202	AD1-047 E	2.57
934331	AD1-057 C O1	4.2
934332	AD1-057 E O1	2.24
934521	AD1-076 C	19.28
934522	AD1-076 E	9.82
934571	AD1-082 C	4.43
934572	AD1-082 E	2.53
935161	AD1-151 C O1	9.19
935162	AD1-151 E O1	6.13
935211	AD1-156 C	0.32
935212	AD1-156 E	1.39
936041	AD2-007	0.98
936051	AD2-008 C	1.61
936052	AD2-008 E	3.5
936401	AD2-051 C O1	3.38
936402	AD2-051 E O1	1.45
936661	AD2-085 C	1.65
936662	AD2-085 E	2.7
936701	AD2-089 C	2.71
936702	AD2-089 E	1.81
936711	AD2-090 C O1	2.82
936712	AD2-090 E O1	1.88
937571	AD2-169 C	4.7
937572	AD2-169 E	3.13
938171	AE1-026 C1 O	10.16
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O1	3.07
938221	AE1-035 C	0.84
938222	AE1-035 E	0.42
938491	AE1-068 C O1	23.35
938492	AE1-068 E O1	12.89
938501	AE1-069 C O1	18.25
938502	AE1-069 E O1	10.43
938631	AE1-085 C O1	7.84
938632	AE1-085 E O1	5.23
938661	AE1-088	0.64
938771	AE1-103 C O1	1.39
938772	AE1-103 E O1	1.93
938841	AE1-109AC O1	5.24
938842	AE1-109AE O1	3.49
939071	AE1-135 C O1	12.27
939072	AE1-135 E O1	8.18
939191	AE1-149 C O1	8.26
939192	AE1-149 E O1	5.51
939311	AE1-162 C	0.81

Bus #	Bus	MW Impact
939312	AE1-162 E	0.54
939411	AE1-173 C	32.0
939412	AE1-173 E	21.33
940061	AE1-248 C O1	9.22
940062	AE1-248 E O1	6.15
940071	AE1-249 C	4.66
940072	AE1-249 E	3.48
AA2-074	AA2-074	1.86
CARR	CARR	0.34
CBM-S1	CBM-S1	4.04
CBM-S2	CBM-S2	5.21
CBM-W1	CBM-W1	3.24
CBM-W2	CBM-W2	25.75
CIN	CIN	1.52
CPL	CPL	2.73
G-007	G-007	1.1
IPL	IPL	0.94
LGEE	LGEE	0.44
MEC	MEC	3.65
MECS	MECS	1.03
O-066	O-066	3.66
RENSSELAER	RENSSELAER	0.27
WEC	WEC	0.4

Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311760	314528	3IVOR106	DVP	932590	AC2-079 TAP	DVP	1	DVP_P1-2: LN 106-B	single	110.92	45.71	100.88	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311732	314532	30AKRI23	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 106-B	single	110.92	53.1	108.28	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311700	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 106-B	single	110.92	74.83	130.0	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311708	938630	AE1-085 TAP	DVP	314273	3BAKRS P	DVP	1	DVP_P1-2: LN 23-B	single	110.92	74.83	130.0	DC	61.2

Bus #	Bus	MW Impact
925061	AB2-161 C O1	19.0
932591	AC2-079 C O1	32.3
934571	AD1-082 C	43.3
938631	AE1-085 C O1	61.2
940061	AE1-248 C O1	90.0

Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311551	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.29	92.93	DC	19.66

Bus #	Bus	MW Impact
314539	3UNCAMP	0.82
314541	3WATKINS	0.24
314554	3BTLEBRO	0.31
314557	3BETHEL C	0.3
314572	3EMPORIA	0.24
314574	6EVERETS	1.42
314578	3HORNRTN	1.47
314582	3KELFORD	1.3
314603	3SCOT NK	1.27
314617	3TUNIS	0.31
314620	6CASHIE	0.26
314623	3WITAKRS	0.53
315131	1EDGECEMA	3.6
315132	1EDGECEMB	3.6
315150	1BUGGS 1	3.84
315151	1BUGGS 2	3.84
900672	V4-068 E	0.11
907092	X1-038 E	2.05
916302	Z1-086 E	3.85
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.38
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.48
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.61
919701	AA2-057 C	2.82
919702	AA2-057 E	1.41
920042	AA2-088 E OP	3.95
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923801	AB2-015 C O1	2.98
923802	AB2-015 E O1	2.44
923851	AB2-025 C	0.31
923852	AB2-025 E	0.92
923911	AB2-031 C O1	1.19
923912	AB2-031 E O1	0.58
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.19
924022	AB2-043 E O1	1.73
924152	AB2-059 E O1	2.1
924162	AB2-060 E O1	1.41
924302	AB2-077 E O1	0.45
924312	AB2-078 E O1	0.45
924322	AB2-079 E O1	0.45
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924401	AB2-089 C	0.81
924402	AB2-089 E	0.42
924491	AB2-098 C	0.19
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	7.66
924512	AB2-100 E	3.78
925061	AB2-161 C O1	2.57
925062	AB2-161 E O1	4.2
925122	AB2-169 E	1.81
925171	AB2-174 C O1	3.84
925172	AB2-174 E O1	3.48
925591	AC1-034 C	2.64
925592	AC1-034 E	1.99
925781	AC1-054 C O1	2.79
925782	AC1-054 E O1	1.29
926071	AC1-086 C	10.49
926072	AC1-086 E	4.77
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.82
926212	AC1-099 E	0.48
926271	AC1-105 C O1	1.75
926272	AC1-105 E O1	0.87
927021	AC1-189 C	3.04
927022	AC1-189 E	1.52
927141	AC1-208 C	3.71
927142	AC1-208 E	1.65
930402	AB1-081 E O1	1.48
930862	AB1-132 E O1	3.05
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932581	AC2-078 C O1	4.58
932582	AC2-078 E O1	7.47
932591	AC2-079 C O1	3.07
932592	AC2-079 E O1	5.02
932631	AC2-084 C	3.47
932632	AC2-084 E	1.71
933991	AD1-023 C	3.91
933992	AD1-023 E	2.13
934201	AD1-047 C	4.25
934202	AD1-047 E	2.84

Bus #	Bus	MW Impact
934231	AD1-050 C	1.78
934232	AD1-050 E	0.97
934331	AD1-057 C O1	4.42
934332	AD1-057 E O1	2.36
934571	AD1-082 C	5.87
934572	AD1-082 E	3.35
934611	AD1-087 C O1	2.72
934612	AD1-087 E O1	1.28
935171	AD1-152 C O1	2.7
935172	AD1-152 E O1	1.8
935211	AD1-156 C	0.72
935212	AD1-156 E	3.14
936361	AD2-046 C O1	3.18
936362	AD2-046 E O1	1.46
936401	AD2-051 C O1	3.13
936402	AD2-051 E O1	1.34
936481	AD2-063 C O1	4.73
936482	AD2-063 E O1	3.15
936531	AD2-068 C	1.77
936532	AD2-068 E	0.91
936661	AD2-085 C	1.89
936662	AD2-085 E	3.08
936701	AD2-089 C	2.69
936702	AD2-089 E	1.79
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	0.75
937482	AD2-202 E O1	0.38
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	8.55
938172	AE1-026 C2 O	1.24
938173	AE1-026 E O1	2.58
938221	AE1-035 C	0.75
938222	AE1-035 E	0.37
938491	AE1-068 C O1	24.55
938492	AE1-068 E O1	13.56
938501	AE1-069 C O1	19.2
938502	AE1-069 E O1	10.98
938631	AE1-085 C O1	11.8
938632	AE1-085 E O1	7.86
938661	AE1-088	0.55
938771	AE1-103 C O1	1.23
938772	AE1-103 E O1	1.7
938841	AE1-109AC O1	6.94
938842	AE1-109AE O1	4.63
939071	AE1-135 C O1	14.17
939072	AE1-135 E O1	9.45
939181	AE1-148 C O1	3.13
939182	AE1-148 E O1	2.09
939191	AE1-149 C O1	12.84
939192	AE1-149 E O1	8.56

Bus #	Bus	MW Impact
939411	AE1-173 C	28.95
939412	AE1-173 E	19.3
940061	AE1-248 C O1	12.2
940062	AE1-248 E O1	8.13
AA2-074	AA2-074	1.98
CARR	CARR	0.23
CBM-S1	CBM-S1	4.98
CBM-S2	CBM-S2	5.67
CBM-W1	CBM-W1	4.94
CBM-W2	CBM-W2	32.66
CIN	CIN	2.24
CPLE	CPLE	2.91
G-007	G-007	0.79
IPL	IPL	1.4
LGEE	LGEE	0.65
MEC	MEC	5.0
MECS	MECS	2.06
O-066	O-066	2.64
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.6

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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
311602	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	89.37	90.92	DC	5.81

Bus #	Bus	MW Impact
314314	3LOCKS	0.41
925051	AB2-160 C O1	8.37
925052	AB2-160 E O1	13.66
925821	AC1-061	0.01
932581	AC2-078 C O1	1.35
932582	AC2-078 E O1	2.2
938631	AE1-085 C O1	3.49
938632	AE1-085 E O1	2.32
939191	AE1-149 C O1	3.78
939192	AE1-149 E O1	2.52
940071	AE1-249 C	11.04
940072	AE1-249 E	8.23
CARR	CARR	0.09
CBM-S1	CBM-S1	1.47
CBM-S2	CBM-S2	1.74
CBM-W1	CBM-W1	1.38
CBM-W2	CBM-W2	9.57
CIN	CIN	0.63
CPL	CPL	0.9
G-007	G-007	0.29
IPL	IPL	0.39
LGEE	LGEE	0.18
MEC	MEC	1.43
MECS	MECS	0.54
O-066	O-066	0.96
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
311629	314316	6LOCKS	DVP	314301	6HARR205	DVP	1	DVP_P4-2: 562T563	breaker	541.0	88.63	89.11	DC	5.81

Bus #	Bus	MW Impact
314314	3LOCKS	0.39
314541	3WATKINS	0.2
314554	3BTLEBRO	0.32
314557	3BETHEL	0.31
314572	3EMPORIA	0.26
314574	6EVERETS	1.43
314578	3HORNRTN	1.52
314582	3KELFORD	1.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.3
314620	6CASHIE	0.25
314623	3WITAKRS	0.55
315131	1EDGECEMA	3.75
315132	1EDGECEMB	3.75
315150	1BUGGS 1	4.05
315151	1BUGGS 2	4.05
900672	V4-068 E	0.1
916302	Z1-086 E	4.11
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.41
918492	AA1-063AE OP	1.68
918512	AA1-065 E OP	1.47
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.65
919701	AA2-057 C	2.91
919702	AA2-057 E	1.46
920042	AA2-088 E OP	3.58
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923851	AB2-025 C	0.34
923852	AB2-025 E	1.01
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.13
923942	AB2-035 E	0.06
923992	AB2-040 E O1	3.38
924022	AB2-043 E O1	1.83
924152	AB2-059 E O1	2.18

Bus #	Bus	MW Impact
924162	AB2-060 E O1	1.5
924302	AB2-077 E O1	0.47
924312	AB2-078 E O1	0.47
924322	AB2-079 E O1	0.47
924391	AB2-088 C	0.17
924392	AB2-088 E	0.08
924401	AB2-089 C	0.85
924402	AB2-089 E	0.44
924491	AB2-098 C	0.2
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	8.3
924512	AB2-100 E	4.09
925051	AB2-160 C O1	7.97
925052	AB2-160 E O1	13.0
925122	AB2-169 E	1.78
925171	AB2-174 C O1	4.09
925172	AB2-174 E O1	3.7
925591	AC1-034 C	2.74
925592	AC1-034 E	2.07
925612	AC1-036 E	0.47
925781	AC1-054 C O1	2.92
925782	AC1-054 E O1	1.34
925821	AC1-061	0.01
926071	AC1-086 C	11.08
926072	AC1-086 E	5.04
926201	AC1-098 C	2.49
926202	AC1-098 E	1.48
926211	AC1-099 C	0.83
926212	AC1-099 E	0.49
926271	AC1-105 C O1	1.86
926272	AC1-105 E O1	0.93
927021	AC1-189 C	3.09
927022	AC1-189 E	1.54
927141	AC1-208 C	3.82
927142	AC1-208 E	1.69
927251	AC1-221 C	0.73
927252	AC1-221 E	0.73
927261	AC1-222 C	1.16
927262	AC1-222 E	1.1
930402	AB1-081 E O1	1.54
930862	AB1-132 E O1	3.22
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932581	AC2-078 C O1	1.33
932582	AC2-078 E O1	2.17
932631	AC2-084 C	3.55
932632	AC2-084 E	1.75
932761	AC2-100 C	1.69
932762	AC2-100 E	0.82
934201	AD1-047 C	4.5

Bus #	Bus	MW Impact
934202	AD1-047 E	3.0
934231	AD1-050 C	1.87
934232	AD1-050 E	1.02
934311	AD1-055 C	0.81
934312	AD1-055 E	0.21
934331	AD1-057 C O1	4.63
934332	AD1-057 E O1	2.47
934341	AD1-058 C	1.84
934342	AD1-058 E	0.47
934611	AD1-087 C O1	2.89
934612	AD1-087 E O1	1.36
934621	AD1-088 C	3.8
934622	AD1-088 E	1.78
934991	AD1-131 C	0.6
934992	AD1-131 E	0.4
935171	AD1-152 C O1	2.87
935172	AD1-152 E O1	1.91
935212	AD1-156 E	0.48
936261	AD2-033 C	4.06
936262	AD2-033 E	2.71
936331	AD2-043 C	1.51
936332	AD2-043 E	1.78
936361	AD2-046 C O1	3.35
936362	AD2-046 E O1	1.54
936401	AD2-051 C O1	3.1
936402	AD2-051 E O1	1.33
936481	AD2-063 C O1	5.01
936482	AD2-063 E O1	3.34
936531	AD2-068 C	1.81
936532	AD2-068 E	0.93
936701	AD2-089 C	2.77
936702	AD2-089 E	1.84
936711	AD2-090 C O1	2.22
936712	AD2-090 E O1	1.48
937481	AD2-202 C O1	0.8
937482	AD2-202 E O1	0.4
937571	AD2-169 C	5.4
937572	AD2-169 E	3.6
938171	AE1-026 C1 O	8.32
938172	AE1-026 C2 O	1.2
938173	AE1-026 E O1	2.51
938221	AE1-035 C	0.74
938222	AE1-035 E	0.37
938491	AE1-068 C O1	26.21
938492	AE1-068 E O1	14.48
938501	AE1-069 C O1	20.49
938502	AE1-069 E O1	11.72
938631	AE1-085 C O1	3.48
938632	AE1-085 E O1	2.32
938661	AE1-088	0.54
939071	AE1-135 C O1	15.38
939072	AE1-135 E O1	10.25

Bus #	Bus	MW Impact
939181	AE1-148 C O1	3.3
939182	AE1-148 E O1	2.2
939191	AE1-149 C O1	3.64
939192	AE1-149 E O1	2.43
939411	AE1-173 C	29.88
939412	AE1-173 E	19.92
940071	AE1-249 C	10.51
940072	AE1-249 E	7.84
AA2-074	AA2-074	2.08
CARR	CARR	0.24
CBM-S1	CBM-S1	5.29
CBM-S2	CBM-S2	5.98
CBM-W1	CBM-W1	5.29
CBM-W2	CBM-W2	34.71
CIN	CIN	2.4
CPL	CPL	3.06
G-007	G-007	0.82
IPL	IPL	1.5
LGEE	LGEE	0.69
MEC	MEC	5.33
MECS	MECS	2.23
O-066	O-066	2.71
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.64

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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
311553	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.31	92.94	DC	19.66

Bus #	Bus	MW Impact
314539	3UNCAMP	0.82
314541	3WATKINS	0.24
314554	3BTLEBRO	0.31
314557	3BETHELC	0.3
314572	3EMPORIA	0.24
314574	6EVERETS	1.42
314578	3HORNRTN	1.47
314582	3KELFORD	1.3
314603	3SCOT NK	1.27
314617	3TUNIS	0.31
314620	6CASHIE	0.26
314623	3WITAKRS	0.53
315131	1EDGECEMA	3.6
315132	1EDGECEMB	3.6
315150	1BUGGS 1	3.84
315151	1BUGGS 2	3.84
900672	V4-068 E	0.11
907092	X1-038 E	2.05
916302	Z1-086 E	3.85
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.38
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.48
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.61
919701	AA2-057 C	2.82
919702	AA2-057 E	1.41
920042	AA2-088 E OP	3.95
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923801	AB2-015 C O1	2.98
923802	AB2-015 E O1	2.44
923851	AB2-025 C	0.31
923852	AB2-025 E	0.92
923911	AB2-031 C O1	1.19
923912	AB2-031 E O1	0.58
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.19
924022	AB2-043 E O1	1.73
924152	AB2-059 E O1	2.1
924162	AB2-060 E O1	1.41
924302	AB2-077 E O1	0.45
924312	AB2-078 E O1	0.45
924322	AB2-079 E O1	0.45
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924401	AB2-089 C	0.81
924402	AB2-089 E	0.42
924491	AB2-098 C	0.19
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	7.66
924512	AB2-100 E	3.78
925061	AB2-161 C O1	2.57
925062	AB2-161 E O1	4.2
925122	AB2-169 E	1.81
925171	AB2-174 C O1	3.84
925172	AB2-174 E O1	3.48
925591	AC1-034 C	2.64
925592	AC1-034 E	1.99
925781	AC1-054 C O1	2.79
925782	AC1-054 E O1	1.29
926071	AC1-086 C	10.49
926072	AC1-086 E	4.77
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.82
926212	AC1-099 E	0.48
926271	AC1-105 C O1	1.75
926272	AC1-105 E O1	0.87
927021	AC1-189 C	3.04
927022	AC1-189 E	1.52
927141	AC1-208 C	3.71
927142	AC1-208 E	1.65
930402	AB1-081 E O1	1.48
930862	AB1-132 E O1	3.05
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932581	AC2-078 C O1	4.58
932582	AC2-078 E O1	7.47
932591	AC2-079 C O1	3.07
932592	AC2-079 E O1	5.02
932631	AC2-084 C	3.47
932632	AC2-084 E	1.71
933991	AD1-023 C	3.91
933992	AD1-023 E	2.13
934201	AD1-047 C	4.25
934202	AD1-047 E	2.84

Bus #	Bus	MW Impact
934231	AD1-050 C	1.78
934232	AD1-050 E	0.97
934331	AD1-057 C O1	4.42
934332	AD1-057 E O1	2.36
934571	AD1-082 C	5.87
934572	AD1-082 E	3.35
934611	AD1-087 C O1	2.72
934612	AD1-087 E O1	1.28
935171	AD1-152 C O1	2.7
935172	AD1-152 E O1	1.8
935211	AD1-156 C	0.72
935212	AD1-156 E	3.14
936361	AD2-046 C O1	3.18
936362	AD2-046 E O1	1.46
936401	AD2-051 C O1	3.13
936402	AD2-051 E O1	1.34
936481	AD2-063 C O1	4.73
936482	AD2-063 E O1	3.15
936531	AD2-068 C	1.77
936532	AD2-068 E	0.91
936661	AD2-085 C	1.89
936662	AD2-085 E	3.08
936701	AD2-089 C	2.69
936702	AD2-089 E	1.79
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	0.75
937482	AD2-202 E O1	0.38
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	8.55
938172	AE1-026 C2 O	1.24
938173	AE1-026 E O1	2.58
938221	AE1-035 C	0.75
938222	AE1-035 E	0.37
938491	AE1-068 C O1	24.55
938492	AE1-068 E O1	13.56
938501	AE1-069 C O1	19.2
938502	AE1-069 E O1	10.98
938631	AE1-085 C O1	11.8
938632	AE1-085 E O1	7.86
938661	AE1-088	0.55
938771	AE1-103 C O1	1.23
938772	AE1-103 E O1	1.7
938841	AE1-109AC O1	6.94
938842	AE1-109AE O1	4.63
939071	AE1-135 C O1	14.17
939072	AE1-135 E O1	9.45
939181	AE1-148 C O1	3.13
939182	AE1-148 E O1	2.09
939191	AE1-149 C O1	12.84
939192	AE1-149 E O1	8.56

Bus #	Bus	MW Impact
939411	AE1-173 C	28.95
939412	AE1-173 E	19.3
940061	AE1-248 C O1	12.2
940062	AE1-248 E O1	8.13
AA2-074	AA2-074	1.98
CARR	CARR	0.23
CBM-S1	CBM-S1	4.98
CBM-S2	CBM-S2	5.67
CBM-W1	CBM-W1	4.94
CBM-W2	CBM-W2	32.66
CIN	CIN	2.24
CPLE	CPLE	2.91
G-007	G-007	0.79
IPL	IPL	1.4
LGEE	LGEE	0.65
MEC	MEC	5.0
MECS	MECS	2.06
O-066	O-066	2.64
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.6

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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
311389	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-3: SUFFOLK H542	breaker	297.2	81.13	89.09	DC	23.66

Bus #	Bus	MW Impact
314539	3UNCAMP	6.28
314541	3WATKINS	1.56
314589	3MURPHYS	0.09
314617	3TUNIS	0.57
315115	1S HAMPT1	3.1
900672	V4-068 E	0.32
907092	X1-038 E	15.71
920041	AA2-088 C OP	1.56
920042	AA2-088 E OP	16.62
923801	AB2-015 C O1	20.72
923802	AB2-015 E O1	16.99
925061	AB2-161 C O1	7.84
925062	AB2-161 E O1	12.79
932581	AC2-078 C O1	4.71
932582	AC2-078 E O1	7.68
932591	AC2-079 C O1	17.43
932592	AC2-079 E O1	28.44
934571	AD1-082 C	17.86
934572	AD1-082 E	10.19
936661	AD2-085 C	10.31
936662	AD2-085 E	16.83
936711	AD2-090 C O1	14.6
936712	AD2-090 E O1	9.73
938631	AE1-085 C O1	14.19
938632	AE1-085 E O1	9.46
938771	AE1-103 C O1	9.42
938772	AE1-103 E O1	13.01
938841	AE1-109AC O1	20.93
938842	AE1-109AE O1	13.95
939191	AE1-149 C O1	9.89
939192	AE1-149 E O1	6.6
940061	AE1-248 C O1	37.12
940062	AE1-248 E O1	24.75
CARR	CARR	0.02
CBM-S1	CBM-S1	0.36
CBM-S2	CBM-S2	0.41
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	2.36
CIN	CIN	0.17
CPL	CPL	0.23

Bus #	Bus	MW Impact
G-007	G-007	0.06
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.36
MECS	MECS	0.15
O-066	O-066	0.19
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.04

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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
311417	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	77.28	84.87	DC	23.29

Bus #	Bus	MW Impact
314539	3UNCAMP	6.19
314541	3WATKINS	1.54
314589	3MURPHYS	0.09
314617	3TUNIS	0.56
315115	1S HAMPT1	3.06
900672	V4-068 E	0.32
907092	X1-038 E	15.46
920041	AA2-088 C OP	1.54
920042	AA2-088 E OP	16.36
923801	AB2-015 C O1	20.4
923802	AB2-015 E O1	16.73
925061	AB2-161 C O1	7.71
925062	AB2-161 E O1	12.59
932581	AC2-078 C O1	4.64
932582	AC2-078 E O1	7.57
932591	AC2-079 C O1	17.16
932592	AC2-079 E O1	28.0
934571	AD1-082 C	17.58
934572	AD1-082 E	10.03
936661	AD2-085 C	10.15
936662	AD2-085 E	16.56
936711	AD2-090 C O1	14.37
936712	AD2-090 E O1	9.58
938631	AE1-085 C O1	13.97
938632	AE1-085 E O1	9.32
938771	AE1-103 C O1	9.28
938772	AE1-103 E O1	12.81
938841	AE1-109AC O1	20.6
938842	AE1-109AE O1	13.74
939191	AE1-149 C O1	9.74
939192	AE1-149 E O1	6.49
940061	AE1-248 C O1	36.54
940062	AE1-248 E O1	24.36
CARR	CARR	0.02
CBM-S1	CBM-S1	0.35
CBM-S2	CBM-S2	0.41
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	2.31
CIN	CIN	0.16
CPL	CPL	0.22
G-007	G-007	0.06

Bus #	Bus	MW Impact
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.36
MECS	MECS	0.15
O-066	O-066	0.19
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.04

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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
311219	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	142.4	143.31	DC	20.78

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.29
315054	1BELMED2	25.29
315055	1BELMED3	20.99
315058	1CHESTF3	26.85
315059	1CHESTF4	43.53
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.2
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.96
315086	1SPRUNCD	10.96
315090	1YORKTN1	30.64
315091	1YORKTN2	31.8
901082	W1-029 E	41.26
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.25
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.91
924241	AB2-068 O1	176.04
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.55
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.84
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.52
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.73
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.98
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.74
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23

Bus #	Bus	MW Impact
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.59
934141	AD1-041 C	6.72
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.16
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.73
935162	AD1-151 E O1	13.16
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.7
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.73
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.3
936391	AD2-049 C	1.86
936392	AD2-049 E	1.86
936581	AD2-073 C	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14

Bus #	Bus	MW Impact
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O1	26.28
938462	AE1-065 E O1	106.06
938471	AE1-066 C O1	27.01
938472	AE1-066 E O1	105.33
938481	AE1-067 C O1	24.56
938482	AE1-067 E O1	107.78
938531	AE1-072 C O1	15.96
938532	AE1-072 E O1	8.32
938551	AE1-074 C	3.1
938552	AE1-074 E	1.56
938631	AE1-085 C O1	12.47
938632	AE1-085 E O1	8.31
938771	AE1-103 C O1	3.25
938772	AE1-103 E O1	4.48
938841	AE1-109AC O1	9.62
938842	AE1-109AE O1	6.42
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O1	18.72
939072	AE1-135 E O1	12.48
939191	AE1-149 C O1	12.56
939192	AE1-149 E O1	8.37
939241	AE1-155 C	17.03
939242	AE1-155 E	11.35
939281	AE1-159 C O1	12.03
939282	AE1-159 E O1	7.12
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O1	56.75
939752	AE1-206 E O1	37.83
940061	AE1-248 C O1	16.97
940062	AE1-248 E O1	11.31
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.24
CBM-S2	CBM-S2	8.55
CBM-W1	CBM-W1	0.08
CBM-W2	CBM-W2	23.98
CIN	CIN	0.25
CPL	CPL	4.79
DEARBORN	DEARBORN	0.48

Bus #	Bus	MW Impact
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.01
O-066	O-066	7.81
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

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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
312228	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	108.38	110.37	DC	8.94

Bus #	Bus	MW Impact
314314	3LOCKS	0.14
314507	3THOMPSN	0.11
315065	1CHESTF6	20.29
315074	1HOPCGN1	17.65
315075	1HOPCGN2	17.42
315076	1HOPPOLC	3.1
315077	1HOPHCF1	4.85
315078	1HOPHCF2	4.85
315079	1HOPHCF3	4.85
315080	1HOPHCF4	7.37
315098	1CHESPKA	0.15
315099	1CHESPKB	0.37
315116	1SURRY 1	20.71
315117	1GRAVELC	0.73
315119	1GRAVEL3	2.1
315120	1GRAVEL4	2.13
315121	1GRAVEL5	2.1
315122	1GRAVEL6	2.13
315260	1GOSPORTA	0.12
315261	1GOSPORTB	0.15
315262	1GOSPORTC	0.13
923851	AB2-025 C	0.2
924511	AB2-100 C	5.06
924811	AB2-134 C O1	2.79
925051	AB2-160 C O1	2.91
925061	AB2-161 C O1	2.18
925331	AB2-190 C	30.31
925821	AC1-061	0.0
926661	AC1-147 C	0.13
927221	AC1-216 C O1	13.91
932041	AC2-012 C	3.75
932581	AC2-078 C O1	3.43
932591	AC2-079 C O1	2.98
934011	AD1-025 C	23.91
934571	AD1-082 C	4.96
935111	AD1-144 C	0.11
935161	AD1-151 C O1	24.35
935211	AD1-156 C	0.27
936041	AD2-007	2.54
936051	AD2-008 C	4.16

Bus #	Bus	MW Impact
936661	AD2-085 C	1.81
937541	AD2-215 C	0.7
938631	AE1-085 C O1	8.95
938841	AE1-109AC O1	5.86
939071	AE1-135 C O1	9.29
939191	AE1-149 C O1	9.47
939311	AE1-162 C	1.49
940061	AE1-248 C O1	10.31
940071	AE1-249 C	3.84
CARR	CARR	0.22
CBM-S1	CBM-S1	2.17
CBM-S2	CBM-S2	3.06
CBM-W1	CBM-W1	1.5
CBM-W2	CBM-W2	13.63
CIN	CIN	0.72
CPL	CPL	1.65
IPL	IPL	0.44
LGEE	LGEE	0.21
MEC	MEC	1.82
MECS	MECS	0.36
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.19

Contingency Name	Contingency Definition
DVP_P1-2: LN 544-A	CONTINGENCY 'DVP_P1-2: LN 544-A' OPEN BRANCH FROM BUS 314902 TO BUS 939410 CKT 1 /* 8CARSON 500.00 - AE1-173 TAP 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 544-B	CONTINGENCY 'DVP_P1-2: LN 544-B' OPEN BRANCH FROM BUS 939410 TO BUS 314928 CKT 1 /* AE1-173 TAP 500.00 - 8SUFFOLK 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_P1-2: LN 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P4-5: L1TL5	CONTINGENCY 'DVP_P4-5: L1TL5' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-3: SUFFOLK H542	CONTINGENCY 'DVP_P4-3: SUFFOLK H542' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 23-A	CONTINGENCY 'DVP_P1-2: LN 23-A' OPEN BRANCH FROM BUS 313879 TO BUS 314528 CKT 1 /* 3BELL AVE 2 115.00 - 3IVOR106 115.00 OPEN BRANCH FROM BUS 314528 TO BUS 932590 CKT 1 /* 3IVOR106 115.00 - AC2-079 TAP 115.00 OPEN BUS 314528 /* ISLAND: 3IVOR106 115.00 END
DVP_P1-2: LN 23-B	CONTINGENCY 'DVP_P1-2: LN 23-B' OPEN BRANCH FROM BUS 314206 TO BUS 314529 CKT 1 /* 3OAKRIDG 115.00 - 3KINGFORK 115.00 OPEN BRANCH FROM BUS 314206 TO BUS 314532 CKT Z1 /* 3OAKRIDG 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 932590 TO BUS 314532 CKT 1 /* AC2-079 TAP 115.00 - 3OAKRI23 115.00 OPEN BRANCH FROM BUS 314532 TO BUS 314536 CKT 1 /* 3OAKRI23 115.00 - 3SUFFOLK 115.00 OPEN BUS 314206 /* ISLAND: 3OAKRIDG 115.00 OPEN BUS 314261 /* ISLAND: 3OAKRI_1 115.00 OPEN BUS 314529 /* ISLAND: 3KINGFORK 115.00 OPEN BUS 314532 /* ISLAND: 3OAKRI23 115.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P1-2: LN 106-B	CONTINGENCY 'DVP_P1-2: LN 106-B' OPEN BRANCH FROM BUS 938630 TO BUS 314273 CKT 1 /* AE1-085 TAP 115.00 - 3BAKRS P 115.00 OPEN BRANCH FROM BUS 314262 TO BUS 314280 CKT 1 /* 3NEWBO_1 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314273 TO BUS 314280 CKT 1 /* 3BAKRS P 115.00 - 3NEWBOHE 115.00 OPEN BRANCH FROM BUS 314280 TO BUS 314329 CKT 1 /* 3NEWBOHE 115.00 - 3POE 115.00 OPEN BUS 314262 /* ISLAND: 3NEWBO_1 115.00 OPEN BUS 314273 /* ISLAND: 3BAKRS P 115.00 OPEN BUS 314280 /* ISLAND: 3NEWBOHE 115.00 END
Base Case	

Contingency Name	Contingency Defintion
DVP_P4-3: YTH5	CONTINGENCY 'DVP_P4-3: YTH5' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 1 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 1 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 REMOVE SWSHUNT FROM BUS 314537 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 AE1-085 was evaluated as a 87 MW (Capacity 52.2 MW) injection tapping the Disputanta to Waverly No. 2 115 kV line in the Dominion area. Project AE1-085 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-085 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
257278	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	single	110.92	1.64	55.49	DC	61.2
257280	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	22.2	59.4	DC	61.2
257315	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	single	110.92	0.27	55.45	DC	61.2
257320	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	20.28	59.04	DC	61.2
257448	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	96.38	97.89	DC	6.76
257343	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 44	single	110.92	3.34	55.81	DC	61.2
257344	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	3.34	55.81	DC	61.2
257286	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	single	110.92	1.64	55.49	DC	61.2
257288	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	22.2	59.4	DC	61.2
257270	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	single	110.92	8.64	63.81	DC	61.2
257272	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	11.92	57.45	DC	61.2
257335	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	0.27	55.45	DC	61.2
257336	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	single	110.92	0.27	55.45	DC	61.2
257354	932590	AC2-079 TAP	DVP	314532	3OAKRI23	DVP	1	DVP_P1-2: LN 15-B-B	single	110.92	61.32	65.39	DC	4.51
257414	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 44	single	110.92	20.28	59.04	DC	61.2
257415	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	20.28	59.04	DC	61.2
257323	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	single	110.92	0.27	55.45	DC	61.2
257328	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	20.28	59.04	DC	61.2

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
257107	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	81.18	86.42	DC	28.36
257108	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.29	92.96	DC	19.84
257158	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	89.38	90.94	DC	5.86
257184	314316	6LOCKS	DVP	314301	6HARR205	DVP	1	DVP_P4-2: 562T563	breaker	541.0	88.64	89.13	DC	5.83
257105	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	81.2	86.44	DC	28.36
257106	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.31	92.98	DC	19.84
256885	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-3: SUFFOLK H542	breaker	297.2	81.1	88.87	DC	23.09
256886	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	80.41	88.26	DC	23.32
256932	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	77.25	84.66	DC	22.73

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
256697	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	142.46	143.37	DC	20.83
256671	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: 562T563	breaker	549.0	150.52	152.94	DC	13.15
257439	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	144.49	146.27	DC	7.88
257440	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	135.7	137.79	DC	9.38
257916	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	108.39	110.39	DC	9.0
257917	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	106.63	108.62	DC	8.94

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
257273	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	60.4	152.36	DC	102.0
257279	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	Base Case	operation	110.92	34.5	58.73	DC	26.88
257313	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	33.81	125.77	DC	102.0
257319	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	Base Case	operation	110.92	20.27	44.5	DC	26.88
258330	313879	3BELL AVE 2	DVP	314528	3IVOR106	DVP	1	DVP_P1-2: LN 15-B-B	operation	110.92	79.47	82.53	DC	7.52
258286	314212	6FOUR RIVERS	DVP	314150	6STJOHN	DVP	1	DVP_P1-2: LN 574	operation	898.64	104.84	105.31	DC	9.23
258334	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	90.15	90.79	DC	11.79
258176	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	103.18	103.87	DC	13.32
258220	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	99.09	99.75	DC	13.38
258247	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	99.53	100.87	DC	12.97
257437	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	176.49	179.44	DC	13.13
257446	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	103.85	106.37	DC	11.27
258221	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	103.24	104.58	DC	12.97
257337	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	30.2	122.16	DC	102.0
257338	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 44	operation	110.92	30.2	122.16	DC	102.0
257342	314292	3DISPUTN	DVP	314329	3POE	DVP	1	Base Case	operation	110.92	26.83	94.56	DC	75.12
258280	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operation	441.8	80.49	84.98	DC	19.8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
257911	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	operation	449.32	138.52	139.79	DC	12.37
257920	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	operation	449.32	101.03	102.28	DC	12.23
258262	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P1-2: LN 563	operation	138.18	90.62	92.52	DC	5.85
258257	314329	3POE	DVP	314291	3PRGEORG	DVP	1	DVP_P1-2: LN 23-B	operation	224.66	54.39	67.32	DC	29.03
258278	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operation	441.8	80.52	85.0	DC	19.8
258032	314347	3WAKEFLD	DVP	940060	AE1-248 TAP	DVP	1	Base Case	operation	110.92	20.36	44.59	DC	26.88
257888	314350	3WVLY DP	DVP	314351	3WAVERLY	DVP	1	Base Case	operation	110.92	31.63	55.86	DC	26.88
257952	314351	3WAVERLY	DVP	314347	3WAKEFLD	DVP	1	Base Case	operation	110.92	27.3	51.54	DC	26.88
257281	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	60.4	152.36	DC	102.0
257287	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	Base Case	operation	110.92	34.5	58.73	DC	26.88
257265	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	70.68	162.64	DC	102.0
257271	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	Base Case	operation	110.92	44.69	68.92	DC	26.88
257389	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	201.48	202.09	DC	32.77
257459	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	183.24	183.58	DC	28.31
257329	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	operation	110.92	33.81	125.77	DC	102.0
257330	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	33.81	125.77	DC	102.0
257334	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	Base Case	operation	110.92	30.44	98.17	DC	75.12
257408	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	operation	110.92	20.28	95.82	DC	102.0
257409	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 44	operation	110.92	20.28	95.82	DC	102.0
257413	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	Base Case	operation	110.92	11.04	67.23	DC	75.12
257765	938630	AE1-085 TAP	DVP	314350	3WVLY DP	DVP	1	Base Case	operation	110.92	40.47	64.7	DC	26.88
257321	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-A	operation	110.92	33.81	125.77	DC	102.0
257327	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	Base Case	operation	110.92	20.27	44.5	DC	26.88

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
257280	313803	3OAKRI44	DVP	314536	3SUFFOLK	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	22.2	59.4	DC	61.2

Bus #	Bus	MW Impact
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257320	313878	3BELL AVE 1	DVP	314542	3WINDSOR	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	20.28	59.04	DC	61.2

Bus #	Bus	MW Impact
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
256671	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P4-2:562T563	breaker	549.0	150.52	152.94	DC	13.15

Bus #	Bus	MW Impact
314314	3LOCKS	0.17
314539	3UNCAMP	0.93
314541	3WATKINS	0.27
314554	3BTLEBRO	0.3
314557	3BETHEL	0.3
314572	3EMPORIA	0.21
314574	6EVERETS	1.53
314578	3HORNRTN	1.41
314582	3KELFORD	1.36
314594	6PLYMOTH	0.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.33
314620	6CASHIE	0.31
314623	3WITAKRS	0.52
315065	1CHESTF6	26.38
315073	1STONECA	4.95
315074	1HOPCGN1	5.97
315075	1HOPCGN2	5.89
315076	1HOPPOLC	1.05
315077	1HOPHCF1	1.64
315078	1HOPHCF2	1.64
315079	1HOPHCF3	1.64
315080	1HOPHCF4	2.49
315131	1EDGECEMA	3.51
315132	1EDGECEMB	3.51
900672	V4-068 E	0.12
907092	X1-038 E	2.32
916302	Z1-086 E	3.66
917332	Z2-043 E	0.39
917342	Z2-044 E	0.22
917512	Z2-088 E OP1	1.44
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.66
918532	AA1-067 E	0.27
918562	AA1-072 E	0.06
919692	AA2-053 E	1.57
919701	AA2-057 C	2.76
919702	AA2-057 E	1.38
920042	AA2-088 E OP	4.19
920592	AA2-165 E	0.18

Bus #	Bus	MW Impact
920672	AA2-174 E	0.18
923801	AB2-015 C O1	3.33
923802	AB2-015 E O1	2.73
923851	AB2-025 C	0.26
923852	AB2-025 E	0.77
923911	AB2-031 C O1	1.08
923912	AB2-031 E O1	0.53
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05
923992	AB2-040 E O1	2.89
924152	AB2-059 E O1	2.04
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924491	AB2-098 C	0.21
924492	AB2-098 E	0.09
924501	AB2-099 C	0.23
924502	AB2-099 E	0.1
924511	AB2-100 C	6.67
924512	AB2-100 E	3.29
924812	AB2-134 E O1	6.68
925051	AB2-160 C O1	3.53
925052	AB2-160 E O1	5.76
925061	AB2-161 C O1	1.95
925062	AB2-161 E O1	3.17
925122	AB2-169 E	2.1
925171	AB2-174 C O1	3.46
925172	AB2-174 E O1	3.13
925331	AB2-190 C	11.43
925332	AB2-190 E	4.9
925591	AC1-034 C	2.57
925592	AC1-034 E	1.94
925821	AC1-061	0.0
926071	AC1-086 C	9.77
926072	AC1-086 E	4.44
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
927021	AC1-189 C	3.2
927022	AC1-189 E	1.59
927141	AC1-208 C	3.62
927142	AC1-208 E	1.61
927221	AC1-216 C O1	5.37
927222	AC1-216 E O1	4.22
930402	AB1-081 E O1	1.44
930862	AB1-132 E O1	2.84
931232	AB1-173 E	0.51
931242	AB1-173AE	0.51
932581	AC2-078 C O1	3.0
932582	AC2-078 E O1	4.9
932591	AC2-079 C O1	2.72
932592	AC2-079 E O1	4.44

Bus #	Bus	MW Impact
932631	AC2-084 C	3.46
932632	AC2-084 E	1.71
933991	AD1-023 C	4.72
933992	AD1-023 E	2.57
934011	AD1-025 C	9.23
934012	AD1-025 E	5.47
934201	AD1-047 C	3.86
934202	AD1-047 E	2.57
934331	AD1-057 C O1	4.2
934332	AD1-057 E O1	2.24
934521	AD1-076 C	19.27
934522	AD1-076 E	9.81
934571	AD1-082 C	4.43
934572	AD1-082 E	2.53
935161	AD1-151 C O1	9.19
935162	AD1-151 E O1	6.12
935211	AD1-156 C	0.32
935212	AD1-156 E	1.39
936041	AD2-007	0.98
936051	AD2-008 C	1.61
936052	AD2-008 E	3.5
936401	AD2-051 C O1	3.37
936402	AD2-051 E O1	1.45
936661	AD2-085 C	1.65
936662	AD2-085 E	2.7
936701	AD2-089 C	2.71
936702	AD2-089 E	1.81
936711	AD2-090 C O1	2.82
936712	AD2-090 E O1	1.88
937571	AD2-169 C	4.7
937572	AD2-169 E	3.13
938171	AE1-026 C1 O	10.15
938172	AE1-026 C2 O	1.47
938173	AE1-026 E O2	3.07
938221	AE1-035 C	0.84
938222	AE1-035 E	0.42
938491	AE1-068 C O2	23.1
938492	AE1-068 E O2	12.76
938501	AE1-069 C O2	18.34
938502	AE1-069 E O2	10.48
938631	AE1-085 C O2	7.89
938632	AE1-085 E O2	5.26
938661	AE1-088	0.64
938771	AE1-103 C O2	1.39
938772	AE1-103 E O2	1.92
938841	AE1-109AC O2	4.94
938842	AE1-109AE O2	3.29
939071	AE1-135 C O2	12.25
939072	AE1-135 E O2	8.17
939191	AE1-149 C O2	8.38
939192	AE1-149 E O2	5.59
939311	AE1-162 C	0.81

Bus #	Bus	MW Impact
939312	AE1-162 E	0.54
939411	AE1-173 C	31.98
939412	AE1-173 E	21.32
940061	AE1-248 C O2	9.26
940062	AE1-248 E O2	6.18
940071	AE1-249 C	4.66
940072	AE1-249 E	3.48
AA2-074	AA2-074	1.86
CARR	CARR	0.34
CBM-S1	CBM-S1	4.05
CBM-S2	CBM-S2	5.21
CBM-W1	CBM-W1	3.25
CBM-W2	CBM-W2	25.82
CIN	CIN	1.53
CPL	CPL	2.73
G-007	G-007	1.1
IPL	IPL	0.95
LGEE	LGEE	0.45
MEC	MEC	3.65
MECS	MECS	1.04
O-066	O-066	3.67
RENSSELAER	RENSSELAER	0.27
WEC	WEC	0.41

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
257344	314292	3DISPUTN	DVP	314329	3POE	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	3.34	55.81	DC	61.2

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257288	314531	3MYRTLE	DVP	313803	3OAKRI44	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	22.2	59.4	DC	61.2

Bus #	Bus	MW Impact
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257270	314542	3WINDSOR	DVP	314531	3MYRTLE	DVP	1	DVP_P1-2: LN 15-A	single	110.92	8.64	63.81	DC	61.2

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
936661	AD2-085 C	19.38
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257336	932580	AC2-078 TAP	DVP	314292	3DISPUTN	DVP	1	DVP_P1-2: LN 44	single	110.92	0.27	55.45	DC	61.2

Bus #	Bus	MW Impact
932581	AC2-078 C O1	22.8
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257354	932590	AC2-079 TAP	DVP	314532	30AKRI23	DVP	1	DVP_P1-2: LN 15-B-B	single	110.92	61.32	65.39	DC	4.51

Bus #	Bus	MW Impact
925061	AB2-161 C O1	10.42
932581	AC2-078 C O1	1.68
932591	AC2-079 C O1	23.88
934571	AD1-082 C	23.74
938631	AE1-085 C O2	4.51
938841	AE1-109AC O2	30.91
939191	AE1-149 C O2	9.27
BAYOU	BAYOU	0.08
BIG_CAJUN1	BIG_CAJUN1	0.13
BIG_CAJUN2	BIG_CAJUN2	0.26
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.05
CBM-N	CBM-N	0.02
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.09
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.32
DEARBORN	DEARBORN	0.02
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02
G-007A	G-007A	0.09
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.21
NEWTON	NEWTON	0.06
NYISO	NYISO	0.1
O-066A	O-066A	0.04
PRAIRIE	PRAIRIE	0.13
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.13
UNIONPOWER	UNIONPOWER	0.07
VFT	VFT	0.23

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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
257415	938630	AE1-085 TAP	DVP	932580	AC2-078 TAP	DVP	1	DVP_P1-2: LN 15-B-A	single	110.92	20.28	59.04	DC	61.2

Bus #	Bus	MW Impact
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257328	940060	AE1-248 TAP	DVP	313878	3BELL AVE 1	DVP	1	DVP_P1-2: LN 15-B-C	single	110.92	20.28	59.04	DC	61.2

Bus #	Bus	MW Impact
938631	AE1-085 C O2	61.2
940061	AE1-248 C O2	90.0

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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
257108	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.29	92.96	DC	19.84

Bus #	Bus	MW Impact
314539	3UNCAMP	0.82
314541	3WATKINS	0.24
314554	3BTLEBRO	0.31
314557	3BETHEL C	0.3
314572	3EMPORIA	0.24
314574	6EVERETS	1.42
314578	3HORNRTN	1.47
314582	3KELFORD	1.3
314603	3SCOT NK	1.27
314617	3TUNIS	0.31
314620	6CASHIE	0.26
314623	3WITAKRS	0.53
315131	1EDGECEMA	3.6
315132	1EDGECEMB	3.6
315150	1BUGGS 1	3.84
315151	1BUGGS 2	3.84
900672	V4-068 E	0.11
907092	X1-038 E	2.05
916302	Z1-086 E	3.85
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.38
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.48
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.61
919701	AA2-057 C	2.82
919702	AA2-057 E	1.41
920042	AA2-088 E OP	3.95
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923801	AB2-015 C O1	2.98
923802	AB2-015 E O1	2.44
923851	AB2-025 C	0.31
923852	AB2-025 E	0.92
923911	AB2-031 C O1	1.19
923912	AB2-031 E O1	0.58
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.19
924022	AB2-043 E O1	1.72
924152	AB2-059 E O1	2.1
924162	AB2-060 E O1	1.41
924302	AB2-077 E O1	0.45
924312	AB2-078 E O1	0.45
924322	AB2-079 E O1	0.45
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924401	AB2-089 C	0.81
924402	AB2-089 E	0.42
924491	AB2-098 C	0.19
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	7.66
924512	AB2-100 E	3.77
925061	AB2-161 C O1	2.57
925062	AB2-161 E O1	4.2
925122	AB2-169 E	1.81
925171	AB2-174 C O1	3.84
925172	AB2-174 E O1	3.48
925591	AC1-034 C	2.64
925592	AC1-034 E	1.99
925781	AC1-054 C O1	2.79
925782	AC1-054 E O1	1.28
926071	AC1-086 C	10.48
926072	AC1-086 E	4.77
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
926271	AC1-105 C O1	1.75
926272	AC1-105 E O1	0.87
927021	AC1-189 C	3.04
927022	AC1-189 E	1.52
927141	AC1-208 C	3.7
927142	AC1-208 E	1.64
930402	AB1-081 E O1	1.48
930862	AB1-132 E O1	3.05
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932581	AC2-078 C O1	4.58
932582	AC2-078 E O1	7.47
932591	AC2-079 C O1	3.07
932592	AC2-079 E O1	5.01
932631	AC2-084 C	3.47
932632	AC2-084 E	1.71
933991	AD1-023 C	3.91
933992	AD1-023 E	2.13
934201	AD1-047 C	4.25
934202	AD1-047 E	2.84

Bus #	Bus	MW Impact
934231	AD1-050 C	1.78
934232	AD1-050 E	0.97
934331	AD1-057 C O1	4.41
934332	AD1-057 E O1	2.35
934571	AD1-082 C	5.87
934572	AD1-082 E	3.35
934611	AD1-087 C O1	2.72
934612	AD1-087 E O1	1.28
935171	AD1-152 C O1	2.7
935172	AD1-152 E O1	1.8
935211	AD1-156 C	0.72
935212	AD1-156 E	3.14
936361	AD2-046 C O1	3.18
936362	AD2-046 E O1	1.46
936401	AD2-051 C O1	3.13
936402	AD2-051 E O1	1.34
936481	AD2-063 C O1	4.72
936482	AD2-063 E O1	3.15
936531	AD2-068 C	1.77
936532	AD2-068 E	0.91
936661	AD2-085 C	1.89
936662	AD2-085 E	3.08
936701	AD2-089 C	2.69
936702	AD2-089 E	1.79
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	0.75
937482	AD2-202 E O1	0.38
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	8.54
938172	AE1-026 C2 O	1.23
938173	AE1-026 E O2	2.58
938221	AE1-035 C	0.75
938222	AE1-035 E	0.37
938491	AE1-068 C O2	24.32
938492	AE1-068 E O2	13.43
938501	AE1-069 C O2	19.3
938502	AE1-069 E O2	11.03
938631	AE1-085 C O2	11.9
938632	AE1-085 E O2	7.93
938661	AE1-088	0.55
938771	AE1-103 C O2	1.22
938772	AE1-103 E O2	1.68
938841	AE1-109AC O2	6.29
938842	AE1-109AE O2	4.19
939071	AE1-135 C O2	14.16
939072	AE1-135 E O2	9.44
939181	AE1-148 C O2	3.13
939182	AE1-148 E O2	2.09
939191	AE1-149 C O2	13.11
939192	AE1-149 E O2	8.74

Bus #	Bus	MW Impact
939411	AE1-173 C	28.93
939412	AE1-173 E	19.29
940061	AE1-248 C O2	12.3
940062	AE1-248 E O2	8.2
AA2-074	AA2-074	1.98
CARR	CARR	0.23
CBM-S1	CBM-S1	4.99
CBM-S2	CBM-S2	5.67
CBM-W1	CBM-W1	4.95
CBM-W2	CBM-W2	32.71
CIN	CIN	2.25
CPLE	CPLE	2.91
G-007	G-007	0.79
IPL	IPL	1.41
LGEE	LGEE	0.65
MEC	MEC	5.01
MECS	MECS	2.07
O-066	O-066	2.64
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.6

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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
257158	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	169.0	89.38	90.94	DC	5.86

Bus #	Bus	MW Impact
314314	3LOCKS	0.41
925051	AB2-160 C O1	8.37
925052	AB2-160 E O1	13.66
925821	AC1-061	0.01
932581	AC2-078 C O1	1.35
932582	AC2-078 E O1	2.2
938631	AE1-085 C O2	3.52
938632	AE1-085 E O2	2.34
939191	AE1-149 C O2	3.85
939192	AE1-149 E O2	2.57
940071	AE1-249 C	11.04
940072	AE1-249 E	8.23
CARR	CARR	0.09
CBM-S1	CBM-S1	1.47
CBM-S2	CBM-S2	1.74
CBM-W1	CBM-W1	1.38
CBM-W2	CBM-W2	9.57
CIN	CIN	0.63
CPL	CPL	0.9
G-007	G-007	0.29
IPL	IPL	0.39
LGEE	LGEE	0.18
MEC	MEC	1.43
MECS	MECS	0.54
O-066	O-066	0.96
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
257184	314316	6LOCKS	DVP	314301	6HARR205	DVP	1	DVP_P4-2: 562T563	breaker	541.0	88.64	89.13	DC	5.83

Bus #	Bus	MW Impact
314314	3LOCKS	0.39
314541	3WATKINS	0.2
314554	3BTLEBRO	0.32
314557	3BETHEL	0.31
314572	3EMPORIA	0.26
314574	6EVERETS	1.43
314578	3HORNRTN	1.52
314582	3KELFORD	1.3
314603	3SCOT NK	1.29
314617	3TUNIS	0.3
314620	6CASHIE	0.25
314623	3WITAKRS	0.55
315131	1EDGECEMA	3.75
315132	1EDGECEMB	3.75
315150	1BUGGS 1	4.05
315151	1BUGGS 2	4.05
900672	V4-068 E	0.1
916302	Z1-086 E	4.11
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.41
918492	AA1-063AE OP	1.68
918512	AA1-065 E OP	1.46
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.65
919701	AA2-057 C	2.91
919702	AA2-057 E	1.46
920042	AA2-088 E OP	3.58
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923851	AB2-025 C	0.34
923852	AB2-025 E	1.01
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923941	AB2-035 C	0.13
923942	AB2-035 E	0.06
923992	AB2-040 E O1	3.38
924022	AB2-043 E O1	1.83
924152	AB2-059 E O1	2.18

Bus #	Bus	MW Impact
924162	AB2-060 E O1	1.5
924302	AB2-077 E O1	0.47
924312	AB2-078 E O1	0.47
924322	AB2-079 E O1	0.47
924391	AB2-088 C	0.17
924392	AB2-088 E	0.08
924401	AB2-089 C	0.85
924402	AB2-089 E	0.44
924491	AB2-098 C	0.2
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	8.29
924512	AB2-100 E	4.08
925051	AB2-160 C O1	7.97
925052	AB2-160 E O1	13.0
925122	AB2-169 E	1.78
925171	AB2-174 C O1	4.09
925172	AB2-174 E O1	3.7
925591	AC1-034 C	2.74
925592	AC1-034 E	2.07
925612	AC1-036 E	0.47
925781	AC1-054 C O1	2.92
925782	AC1-054 E O1	1.34
925821	AC1-061	0.01
926071	AC1-086 C	11.07
926072	AC1-086 E	5.04
926201	AC1-098 C	2.49
926202	AC1-098 E	1.48
926211	AC1-099 C	0.83
926212	AC1-099 E	0.49
926271	AC1-105 C O1	1.86
926272	AC1-105 E O1	0.93
927021	AC1-189 C	3.08
927022	AC1-189 E	1.54
927141	AC1-208 C	3.81
927142	AC1-208 E	1.69
927251	AC1-221 C	0.73
927252	AC1-221 E	0.73
927261	AC1-222 C	1.16
927262	AC1-222 E	1.11
930402	AB1-081 E O1	1.54
930862	AB1-132 E O1	3.22
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932581	AC2-078 C O1	1.33
932582	AC2-078 E O1	2.17
932631	AC2-084 C	3.54
932632	AC2-084 E	1.75
932761	AC2-100 C	1.69
932762	AC2-100 E	0.82
934201	AD1-047 C	4.5

Bus #	Bus	MW Impact
934202	AD1-047 E	3.0
934231	AD1-050 C	1.87
934232	AD1-050 E	1.02
934311	AD1-055 C	0.81
934312	AD1-055 E	0.21
934331	AD1-057 C O1	4.63
934332	AD1-057 E O1	2.47
934341	AD1-058 C	1.84
934342	AD1-058 E	0.47
934611	AD1-087 C O1	2.89
934612	AD1-087 E O1	1.36
934621	AD1-088 C	3.8
934622	AD1-088 E	1.78
934991	AD1-131 C	0.6
934992	AD1-131 E	0.4
935171	AD1-152 C O1	2.87
935172	AD1-152 E O1	1.91
935212	AD1-156 E	0.47
936261	AD2-033 C	4.06
936262	AD2-033 E	2.7
936331	AD2-043 C	1.51
936332	AD2-043 E	1.79
936361	AD2-046 C O1	3.35
936362	AD2-046 E O1	1.54
936401	AD2-051 C O1	3.1
936402	AD2-051 E O1	1.33
936481	AD2-063 C O1	5.01
936482	AD2-063 E O1	3.34
936531	AD2-068 C	1.81
936532	AD2-068 E	0.93
936701	AD2-089 C	2.76
936702	AD2-089 E	1.84
936711	AD2-090 C O1	2.22
936712	AD2-090 E O1	1.48
937481	AD2-202 C O1	0.8
937482	AD2-202 E O1	0.4
937571	AD2-169 C	5.4
937572	AD2-169 E	3.6
938171	AE1-026 C1 O	8.3
938172	AE1-026 C2 O	1.2
938173	AE1-026 E O2	2.51
938221	AE1-035 C	0.74
938222	AE1-035 E	0.37
938491	AE1-068 C O2	25.95
938492	AE1-068 E O2	14.34
938501	AE1-069 C O2	20.6
938502	AE1-069 E O2	11.78
938631	AE1-085 C O2	3.5
938632	AE1-085 E O2	2.33
938661	AE1-088	0.54
939071	AE1-135 C O2	15.36
939072	AE1-135 E O2	10.24

Bus #	Bus	MW Impact
939181	AE1-148 C O2	3.3
939182	AE1-148 E O2	2.2
939191	AE1-149 C O2	3.69
939192	AE1-149 E O2	2.46
939411	AE1-173 C	29.86
939412	AE1-173 E	19.91
940071	AE1-249 C	10.51
940072	AE1-249 E	7.83
AA2-074	AA2-074	2.08
CARR	CARR	0.24
CBM-S1	CBM-S1	5.3
CBM-S2	CBM-S2	5.98
CBM-W1	CBM-W1	5.3
CBM-W2	CBM-W2	34.73
CIN	CIN	2.4
CPL	CPL	3.06
G-007	G-007	0.82
IPL	IPL	1.51
LGEE	LGEE	0.7
MEC	MEC	5.34
MECS	MECS	2.23
O-066	O-066	2.72
RENSSELAER	RENSSELAER	0.19
WEC	WEC	0.64

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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
257106	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	89.31	92.98	DC	19.84

Bus #	Bus	MW Impact
314539	3UNCAMP	0.82
314541	3WATKINS	0.24
314554	3BTLEBRO	0.31
314557	3BETHELC	0.3
314572	3EMPORIA	0.24
314574	6EVERETS	1.42
314578	3HORNRTN	1.47
314582	3KELFORD	1.3
314603	3SCOT NK	1.27
314617	3TUNIS	0.31
314620	6CASHIE	0.26
314623	3WITAKRS	0.53
315131	1EDGECEMA	3.6
315132	1EDGECEMB	3.6
315150	1BUGGS 1	3.84
315151	1BUGGS 2	3.84
900672	V4-068 E	0.11
907092	X1-038 E	2.05
916302	Z1-086 E	3.85
917332	Z2-043 E	0.37
917342	Z2-044 E	0.23
917512	Z2-088 E OP1	1.38
918492	AA1-063AE OP	1.65
918512	AA1-065 E OP	1.48
918532	AA1-067 E	0.25
918562	AA1-072 E	0.06
919692	AA2-053 E	1.61
919701	AA2-057 C	2.82
919702	AA2-057 E	1.41
920042	AA2-088 E OP	3.95
920592	AA2-165 E	0.19
920672	AA2-174 E	0.19
923801	AB2-015 C O1	2.98
923802	AB2-015 E O1	2.44
923851	AB2-025 C	0.31
923852	AB2-025 E	0.92
923911	AB2-031 C O1	1.19
923912	AB2-031 E O1	0.58
923941	AB2-035 C	0.13
923942	AB2-035 E	0.05

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.19
924022	AB2-043 E O1	1.72
924152	AB2-059 E O1	2.1
924162	AB2-060 E O1	1.41
924302	AB2-077 E O1	0.45
924312	AB2-078 E O1	0.45
924322	AB2-079 E O1	0.45
924391	AB2-088 C	0.16
924392	AB2-088 E	0.08
924401	AB2-089 C	0.81
924402	AB2-089 E	0.42
924491	AB2-098 C	0.19
924492	AB2-098 E	0.08
924501	AB2-099 C	0.21
924502	AB2-099 E	0.09
924511	AB2-100 C	7.66
924512	AB2-100 E	3.77
925061	AB2-161 C O1	2.57
925062	AB2-161 E O1	4.2
925122	AB2-169 E	1.81
925171	AB2-174 C O1	3.84
925172	AB2-174 E O1	3.48
925591	AC1-034 C	2.64
925592	AC1-034 E	1.99
925781	AC1-054 C O1	2.79
925782	AC1-054 E O1	1.28
926071	AC1-086 C	10.48
926072	AC1-086 E	4.77
926201	AC1-098 C	2.43
926202	AC1-098 E	1.45
926211	AC1-099 C	0.81
926212	AC1-099 E	0.48
926271	AC1-105 C O1	1.75
926272	AC1-105 E O1	0.87
927021	AC1-189 C	3.04
927022	AC1-189 E	1.52
927141	AC1-208 C	3.7
927142	AC1-208 E	1.64
930402	AB1-081 E O1	1.48
930862	AB1-132 E O1	3.05
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932581	AC2-078 C O1	4.58
932582	AC2-078 E O1	7.47
932591	AC2-079 C O1	3.07
932592	AC2-079 E O1	5.01
932631	AC2-084 C	3.47
932632	AC2-084 E	1.71
933991	AD1-023 C	3.91
933992	AD1-023 E	2.13
934201	AD1-047 C	4.25
934202	AD1-047 E	2.84

Bus #	Bus	MW Impact
934231	AD1-050 C	1.78
934232	AD1-050 E	0.97
934331	AD1-057 C O1	4.41
934332	AD1-057 E O1	2.35
934571	AD1-082 C	5.87
934572	AD1-082 E	3.35
934611	AD1-087 C O1	2.72
934612	AD1-087 E O1	1.28
935171	AD1-152 C O1	2.7
935172	AD1-152 E O1	1.8
935211	AD1-156 C	0.72
935212	AD1-156 E	3.14
936361	AD2-046 C O1	3.18
936362	AD2-046 E O1	1.46
936401	AD2-051 C O1	3.13
936402	AD2-051 E O1	1.34
936481	AD2-063 C O1	4.72
936482	AD2-063 E O1	3.15
936531	AD2-068 C	1.77
936532	AD2-068 E	0.91
936661	AD2-085 C	1.89
936662	AD2-085 E	3.08
936701	AD2-089 C	2.69
936702	AD2-089 E	1.79
936711	AD2-090 C O1	2.58
936712	AD2-090 E O1	1.72
937481	AD2-202 C O1	0.75
937482	AD2-202 E O1	0.38
937571	AD2-169 C	5.13
937572	AD2-169 E	3.42
938171	AE1-026 C1 O	8.54
938172	AE1-026 C2 O	1.23
938173	AE1-026 E O2	2.58
938221	AE1-035 C	0.75
938222	AE1-035 E	0.37
938491	AE1-068 C O2	24.32
938492	AE1-068 E O2	13.43
938501	AE1-069 C O2	19.3
938502	AE1-069 E O2	11.03
938631	AE1-085 C O2	11.9
938632	AE1-085 E O2	7.93
938661	AE1-088	0.55
938771	AE1-103 C O2	1.22
938772	AE1-103 E O2	1.68
938841	AE1-109AC O2	6.29
938842	AE1-109AE O2	4.19
939071	AE1-135 C O2	14.16
939072	AE1-135 E O2	9.44
939181	AE1-148 C O2	3.13
939182	AE1-148 E O2	2.09
939191	AE1-149 C O2	13.11
939192	AE1-149 E O2	8.74

Bus #	Bus	MW Impact
939411	AE1-173 C	28.93
939412	AE1-173 E	19.29
940061	AE1-248 C O2	12.3
940062	AE1-248 E O2	8.2
AA2-074	AA2-074	1.98
CARR	CARR	0.23
CBM-S1	CBM-S1	4.99
CBM-S2	CBM-S2	5.67
CBM-W1	CBM-W1	4.95
CBM-W2	CBM-W2	32.71
CIN	CIN	2.25
CPLE	CPLE	2.91
G-007	G-007	0.79
IPL	IPL	1.41
LGEE	LGEE	0.65
MEC	MEC	5.01
MECS	MECS	2.07
O-066	O-066	2.64
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.6

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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
256886	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	1	DVP_P4-5: L1TL5	breaker	297.2	80.41	88.26	DC	23.32

Bus #	Bus	MW Impact
314539	3UNCAMP	6.35
314541	3WATKINS	1.58
314589	3MURPHYS	0.09
314617	3TUNIS	0.59
315115	1S HAMPT1	3.14
900672	V4-068 E	0.33
907092	X1-038 E	15.88
920041	AA2-088 C OP	1.58
920042	AA2-088 E OP	16.86
923801	AB2-015 C O1	20.96
923802	AB2-015 E O1	17.19
924501	AB2-099 C	0.27
924502	AB2-099 E	0.11
925061	AB2-161 C O1	7.91
925062	AB2-161 E O1	12.9
932581	AC2-078 C O1	4.76
932582	AC2-078 E O1	7.76
932591	AC2-079 C O1	17.59
932592	AC2-079 E O1	28.7
934571	AD1-082 C	18.03
934572	AD1-082 E	10.28
936661	AD2-085 C	10.41
936662	AD2-085 E	16.98
936711	AD2-090 C O1	14.78
936712	AD2-090 E O1	9.85
938631	AE1-085 C O2	13.99
938632	AE1-085 E O2	9.33
938771	AE1-103 C O2	10.05
938772	AE1-103 E O2	13.88
938841	AE1-109AC O2	23.21
938842	AE1-109AE O2	15.48
939191	AE1-149 C O2	9.12
939192	AE1-149 E O2	6.08
940061	AE1-248 C O2	37.12
940062	AE1-248 E O2	24.74
CARR	CARR	0.02
CBM-S1	CBM-S1	0.4
CBM-S2	CBM-S2	0.47
CBM-W1	CBM-W1	0.4
CBM-W2	CBM-W2	2.62
CIN	CIN	0.18

Bus #	Bus	MW Impact
CPLE	CPLE	0.26
G-007	G-007	0.07
IPL	IPL	0.11
LGEE	LGEE	0.05
MEC	MEC	0.4
MECS	MECS	0.17
O-066	O-066	0.22
RENSSELAER	RENSSELAER	0.02
WEC	WEC	0.05

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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
256932	314536	3SUFFOLK	DVP	314537	6SUFFOLK	DVP	3	DVP_P4-3: YTH5	breaker	307.0	77.25	84.66	DC	22.73

Bus #	Bus	MW Impact
314539	3UNCAMP	6.19
314541	3WATKINS	1.54
314589	3MURPHYS	0.09
314617	3TUNIS	0.56
315115	1S HAMPT1	3.06
900672	V4-068 E	0.32
907092	X1-038 E	15.46
920041	AA2-088 C OP	1.54
920042	AA2-088 E OP	16.36
923801	AB2-015 C O1	20.4
923802	AB2-015 E O1	16.73
925061	AB2-161 C O1	7.71
925062	AB2-161 E O1	12.59
932581	AC2-078 C O1	4.64
932582	AC2-078 E O1	7.57
932591	AC2-079 C O1	17.16
932592	AC2-079 E O1	28.0
934571	AD1-082 C	17.58
934572	AD1-082 E	10.03
936661	AD2-085 C	10.15
936662	AD2-085 E	16.56
936711	AD2-090 C O1	14.37
936712	AD2-090 E O1	9.58
938631	AE1-085 C O2	13.64
938632	AE1-085 E O2	9.09
938771	AE1-103 C O2	9.79
938772	AE1-103 E O2	13.52
938841	AE1-109AC O2	22.64
938842	AE1-109AE O2	15.09
939191	AE1-149 C O2	8.89
939192	AE1-149 E O2	5.92
940061	AE1-248 C O2	36.2
940062	AE1-248 E O2	24.13
CARR	CARR	0.02
CBM-S1	CBM-S1	0.35
CBM-S2	CBM-S2	0.41
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	2.31
CIN	CIN	0.16
CPL	CPL	0.22
G-007	G-007	0.06

Bus #	Bus	MW Impact
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.36
MECS	MECS	0.15
O-066	O-066	0.19
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.04

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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
256697	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	142.46	143.37	DC	20.83

Bus #	Bus	MW Impact
314189	6PAPER MILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.3
315054	1BELMED2	25.3
315055	1BELMED3	20.99
315058	1CHESTF3	26.86
315059	1CHESTF4	43.54
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.21
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.97
315086	1SPRUNCD	10.97
315090	1YORKTN1	30.65
315091	1YORKTN2	31.8
901082	W1-029 E	41.27
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.26
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.91
924241	AB2-068 O1	176.08
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.56
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.85
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.53
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.78
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.99
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.75
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23

Bus #	Bus	MW Impact
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.6
934141	AD1-041 C	6.73
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.17
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.74
935162	AD1-151 E O1	13.16
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	1.73
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	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14

Bus #	Bus	MW Impact
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O2	26.27
938462	AE1-065 E O2	106.02
938471	AE1-066 C O2	27.0
938472	AE1-066 E O2	105.29
938481	AE1-067 C O2	24.55
938482	AE1-067 E O2	107.74
938531	AE1-072 C O2	15.97
938532	AE1-072 E O2	8.32
938551	AE1-074 C	3.11
938552	AE1-074 E	1.56
938631	AE1-085 C O2	12.5
938632	AE1-085 E O2	8.33
938771	AE1-103 C O2	3.27
938772	AE1-103 E O2	4.52
938841	AE1-109AC O2	9.45
938842	AE1-109AE O2	6.3
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O2	18.72
939072	AE1-135 E O2	12.48
939191	AE1-149 C O2	12.64
939192	AE1-149 E O2	8.42
939241	AE1-155 C	17.03
939242	AE1-155 E	11.36
939261	AE1-157 C O2	12.42
939262	AE1-157 E O2	6.74
939271	AE1-158 C O2	12.67
939272	AE1-158 E O2	6.48
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O2	50.24
939752	AE1-206 E O2	33.49
940061	AE1-248 C O2	17.0
940062	AE1-248 E O2	11.33
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.23
CBM-S2	CBM-S2	8.54
CBM-W1	CBM-W1	0.06
CBM-W2	CBM-W2	23.91
CIN	CIN	0.24

Bus #	Bus	MW Impact
CPL	CPL	4.79
DEARBORN	DEARBORN	0.48
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.0
O-066	O-066	7.8
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

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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
257916	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	108.39	110.39	DC	9.0

Bus #	Bus	MW Impact
314314	3LOCKS	0.14
314507	3THOMPSN	0.11
315065	1CHESTF6	20.29
315074	1HOPCGN1	17.65
315075	1HOPCGN2	17.42
315076	1HOPPOLC	3.1
315077	1HOPHCF1	4.85
315078	1HOPHCF2	4.85
315079	1HOPHCF3	4.85
315080	1HOPHCF4	7.37
315098	1CHESPKA	0.15
315099	1CHESPKB	0.37
315116	1SURRY 1	20.71
315117	1GRAVELC	0.73
315119	1GRAVEL3	2.1
315120	1GRAVEL4	2.13
315121	1GRAVEL5	2.1
315122	1GRAVEL6	2.13
315260	1GOSPORTA	0.12
315261	1GOSPORTB	0.15
315262	1GOSPORTC	0.13
923851	AB2-025 C	0.2
924511	AB2-100 C	5.06
924811	AB2-134 C O1	2.79
925051	AB2-160 C O1	2.91
925061	AB2-161 C O1	2.18
925331	AB2-190 C	30.3
925821	AC1-061	0.0
926661	AC1-147 C	0.13
927221	AC1-216 C O1	13.91
932041	AC2-012 C	3.75
932581	AC2-078 C O1	3.43
932591	AC2-079 C O1	2.98
934011	AD1-025 C	23.91
934571	AD1-082 C	4.96
935111	AD1-144 C	0.11
935161	AD1-151 C O1	24.35
935211	AD1-156 C	0.27
936041	AD2-007	2.54
936051	AD2-008 C	4.16

Bus #	Bus	MW Impact
936661	AD2-085 C	1.81
937541	AD2-215 C	0.7
938631	AE1-085 C O2	9.0
938771	AE1-103 C O2	1.35
938841	AE1-109AC O2	5.5
939071	AE1-135 C O2	9.28
939191	AE1-149 C O2	9.63
939311	AE1-162 C	1.49
940061	AE1-248 C O2	10.37
940071	AE1-249 C	3.84
CARR	CARR	0.22
CBM-S1	CBM-S1	2.18
CBM-S2	CBM-S2	3.06
CBM-W1	CBM-W1	1.51
CBM-W2	CBM-W2	13.65
CIN	CIN	0.72
CPLE	CPLE	1.65
IPL	IPL	0.44
LGEE	LGEE	0.21
MEC	MEC	1.83
MECS	MECS	0.36
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.19

Contingency Name	Contingency Definition
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 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_P1-2: LN 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P1-2: LN 15-B-A	CONTINGENCY 'DVP_P1-2: LN 15-B-A' OPEN BRANCH FROM BUS 313878 TO BUS 940060 CKT 1 /* 3BELL AVE 1 115.00 - AE1-248 TAP 115.00 END
DVP_P1-2: LN 15-B-B	CONTINGENCY 'DVP_P1-2: LN 15-B-B' OPEN BRANCH FROM BUS 940060 TO BUS 314347 CKT 1 /* AE1-248 TAP 115.00 - 3WAKEFLD 115.00 OPEN BRANCH FROM BUS 938630 TO BUS 314350 CKT 1 /* AE1-085 TAP 115.00 - 3WVLY DP 115.00 OPEN BRANCH FROM BUS 314347 TO BUS 314351 CKT 1 /* 3WAKEFLD 115.00 - 3WAVERLY 115.00 OPEN BRANCH FROM BUS 314350 TO BUS 314351 CKT 1 /* 3WVLY DP 115.00 - 3WAVERLY 115.00 OPEN BUS 314347 /* ISLAND: 3WAKEFLD 115.00 OPEN BUS 314350 /* ISLAND: 3WVLY DP 115.00 OPEN BUS 314351 /* ISLAND: 3WAVERLY 115.00 END
DVP_P1-2: LN 15-B-C	CONTINGENCY 'DVP_P1-2: LN 15-B-C' OPEN BRANCH FROM BUS 932580 TO BUS 938630 CKT 1 /* AC2-078 TAP 115.00 - AE1-085 TAP 115.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 44	CONTINGENCY 'DVP_P1-2: LN 44' OPEN BRANCH FROM BUS 313803 TO BUS 314531 CKT 1 /* 3OAKRI44 115.00 - 3MYRTLE 115.00 OPEN BRANCH FROM BUS 313803 TO BUS 314536 CKT 1 /* 3OAKRI44 115.00 - 3SUFFOLK 115.00 OPEN BRANCH FROM BUS 313878 TO BUS 314542 CKT 1 /* 3BELL AVE 1 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314531 TO BUS 314542 CKT 1 /* 3MYRTLE 115.00 - 3WINDSOR 115.00 OPEN BRANCH FROM BUS 314536 TO BUS 314823 CKT 1 /* 3SUFFOLK 115.00 - 3SUFFO_1 115.00 OPEN BUS 313803 /* ISLAND: 3OAKRI44 115.00 OPEN BUS 314531 /* ISLAND: 3MYRTLE 115.00 OPEN BUS 314542 /* ISLAND: 3WINDSOR 115.00 OPEN BUS 314823 /* ISLAND: 3SUFFO_1 115.00 END
DVP_P4-3: SUFFOLK H542	CONTINGENCY 'DVP_P4-3: SUFFOLK H542' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 2 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314923 CKT 1 /* 8CARSON 500.00 - 8SEPTA 500.00 OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
Base Case	
DVP_P4-5: L1TL5	CONTINGENCY 'DVP_P4-5: L1TL5' /* SUFFOLK 115 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 3 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 END
DVP_P1-2: LN 15-A	CONTINGENCY 'DVP_P1-2: LN 15-A' OPEN BRANCH FROM BUS 314292 TO BUS 314329 CKT 1 /* 3DISPUTN 115.00 - 3POE 115.00 OPEN BRANCH FROM BUS 314292 TO BUS 932580 CKT 1 /* 3DISPUTN 115.00 - AC2-078 TAP 115.00 OPEN BUS 314292 /* ISLAND: 3DISPUTN 115.00 END

Contingency Name	Contingency Defintion
DVP_P4-3: YTH5	CONTINGENCY 'DVP_P4-3: YTH5' /* SUFFOLK 230 KV OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 1 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314536 TO BUS 314537 CKT 2 /* 3SUFFOLK 115.00 - 6SUFFOLK 230.00 OPEN BRANCH FROM BUS 314537 TO BUS 314928 CKT 1 /* 6SUFFOLK 230.00 - 8SUFFOLK 500.00 REMOVE SWSHUNT FROM BUS 314537 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