



**Generation Interconnection
Feasibility Study Report
for
PJM Generation Interconnection Request
Queue Project AE1-065
“VIRGINIA BEACH 230 KV”
158.9 MW Capacity / 800.1 MW Energy**

January / 2019

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Introduction

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

Preface

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

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

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

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

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

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

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

General

The IC has proposed a solar generating facility located in Federal Waters off the East Coast. The installed facilities will have a capability of **800.1 MW** with **158.9 MW** of this output being recognized by PJM as Capacity. The proposed in-service date for the AE1-065 project is **12/31/2025**. **This study does not imply an ITO commitment to this proposed in-service date.**

Queue Number	AE1-065
Project Name	VIRGINIA BEACH 230 KV
Interconnection Customer	
State	Virginia
County	City of Virginia Beach
Interconnected Transmission Owner	Dominion
MFO	800.1
MWE	800.1
MWC	158.9
Fuel	Offshore Wind
Basecase Study Year	2022

Point of Interconnection

Primary Point of Interconnection

The AE1-065 project will interconnect with the ITO transmission system via a direct connection into the Virginia Beach 230 kV Substation. The primary Point of Interconnection (POI) chosen was direct connection into the Virginia Beach 230 kV Substation. See one line in **Attachment 1**.

Secondary Point of Interconnection

The IC requested that a secondary POI be reviewed for network impacts. The secondary interconnection chosen was a direct connection into the Birdneck 230 kV Substation.

Cost Summary

The AE1-065 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$1,800,000
Direct Connection Network Upgrade	\$0
Non Direct Connection Network Upgrades	\$3,200,000
Total Costs	\$5,000,000

In addition, the AE1-065 project may be responsible for a contribution to the following costs

(Reference Network Impacts section for details):

System Reinforcement Description	Total Cost
Load Flow Violation Upgrades	\$541,630,000
Short Circuit Violation Upgrades	\$ 425,000
System Upgrades	\$542,055,000

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

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

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

- (a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;
- (b) the time required to complete detailed design and construction of the facilities and upgrades; and

(c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

Transmission Owner Scope of Work

Attachment Facilities

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

Transmission: Construct approximately one span of 230 kV Attachment line between the generation substation and Virginia Beach 230kV substation. The estimated cost for this work is \$1,200,000.

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

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

Description	Total Cost
Substation	\$ 600,000
Transmission	\$1,200,000
Total Attachment Facility Costs	\$1,800,000

Direct Connection Cost Estimate

Substation: None

Transmission: None

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

Description	Total Cost
Substation	\$0
Transmission	\$0
Total Direct Connection Facility Costs	\$0

Non-Direct Connection Cost Estimate

Substation: The proposed interconnection will require the addition of two 230 kV breakers to the existing Virginia Beach 230 kV substation, which will require a site expansion. The arrangement in the substation will be as shown below on Dominion **Attachment 1: One-Line Diagram**. The estimated cost of this work scope is \$3,200,000.

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.

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

Description	Total Cost
Substation	\$3,200,000
Transmission	\$0
Total Non-Direct Connection Facility Costs	\$3,200,000

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 Sections 24.1 and 24.2.

Meteorological Data Reporting Requirement

The wind generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Wind speed (meters/second)
- Wind direction (degrees from True North)
- Atmosphere pressure (hectopascals)
- Forced outage data (wind turbine and MW unavailability)

Network Impacts- Option 1

The Queue Project AE1-065 was evaluated as a 800.1 MW (Capacity 158.9 MW) injection at the Virginia Beach 230 kV substation in the ITO area. Project AE1-065 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-065 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
107673	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	92.5	95.48	DC	13.17
107756	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	91.74	93.18	DC	46.07
107686	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	96.08	97.71	DC	39.64
107916	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	98.69	99.19	DC	34.92
107864	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	100.86	101.35	DC	34.54
107866	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 581	single	3218.56	99.98	100.48	DC	34.04

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
107168	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H5T2072	breaker	978.0	13.17	72.24	DC	663.54
107169	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	13.51	72.28	DC	662.9
107460	314303	6HOPEWELL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	89.59	94.4	DC	57.28
107180	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	16.85	72.65	DC	114.95
107256	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	26.6	64.67	DC	114.95
107189	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	0.14	55.85	DC	114.95
107345	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: 2007T2025	breaker	830.0	20.58	55.24	DC	401.57
107346	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: 245T2019	breaker	830.0	39.19	61.45	DC	401.57
108208	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P7-1: LN 2025-2026	tower	906.0	12.23	47.09	DC	389.22
108231	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P7-1: LN 245-2019	tower	830.0	39.19	61.45	DC	401.57
108232	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P7-1: LN 78-2118	tower	830.0	21.45	49.46	DC	351.16
107152	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: H5T2118	breaker	906.0	13.46	84.51	DC	725.02
107153	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: H6T2118	breaker	906.0	13.85	84.6	DC	724.63

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
107161	314490	6VA BCH	DVP	314295	6BIRDNECK	DVP	1	DVP_P4-2: H5T2072	breaker	978.0	11.71	71.75	DC	663.55
107162	314490	6VA BCH	DVP	314295	6BIRDNECK	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	12.03	71.79	DC	662.91
107165	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P4-2: H6T2072	breaker	278.7	43.78	93.01	DC	137.19
107166	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P4-2: 2026T2072	breaker	278.7	29.37	62.46	DC	92.24
107172	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P4-2: H5T2072	breaker	282.8	42.02	90.3	DC	136.55
107173	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P4-2: 2026T2072	breaker	282.8	26.34	58.59	DC	91.22
108163	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 78-2118	tower	906.0	18.87	87.5	DC	735.72
108164	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	906.0	22.95	88.85	DC	735.68
108253	314504	6THALIA	DVP	314474	6GRENWCH	DVP	1	DVP_P7-1: LN 2025-2026	tower	906.0	26.54	51.85	DC	389.22
107157	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	32.14	87.94	DC	114.95
107318	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	101.55	107.83	DC	246.55
107319	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	94.97	101.04	DC	238.06
107453	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	93.4	95.17	DC	149.95
107454	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: H1T581	breaker	3938.0	93.72	95.75	DC	174.21
108230	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	98.65	100.68	DC	173.37

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
107670	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	146.23	148.86	DC	11.61
107264	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	120.84	126.6	DC	132.58
107588	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	139.84	140.81	DC	9.39
107699	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	134.84	137.48	DC	11.61
107694	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	138.46	141.1	DC	11.61

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
107779	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	119.72	122.36	DC	11.61
107300	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	119.43	123.21	DC	260.67
107301	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	116.15	119.85	DC	255.72
107681	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	118.93	120.96	DC	49.38
107682	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	118.96	121.01	DC	49.52
107406	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	102.58	104.73	DC	157.83
107407	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	102.07	104.21	DC	157.36
107723	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	119.5	120.1	DC	31.26
107724	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	114.12	114.7	DC	30.69
107241	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	131.52	135.05	DC	259.14
107242	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	131.52	135.05	DC	259.14
107559	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	151.35	152.32	DC	51.48
107562	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	137.31	138.14	DC	44.26
107567	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	107.63	108.26	DC	33.86
107383	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	106.24	108.38	DC	159.19
107384	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	103.3	105.51	DC	160.86
107385	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	103.29	105.51	DC	160.85
107817	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	108.86	109.4	DC	31.77
107818	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	106.86	107.38	DC	30.61
107882	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	110.62	111.13	DC	26.27
107883	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 594	single	2442.12	109.58	110.07	DC	25.94
107251	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	118.85	124.02	DC	254.58
107583	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	121.84	123.72	DC	45.7
107586	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	112.78	114.62	DC	44.61

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
107669	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	147.98	153.99	DC	58.45
108100	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	86.14	90.54	DC	84.77
107587	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	169.73	174.57	DC	47.28
108081	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	92.64	95.11	DC	53.13
107551	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P1-2: LN 2072	operation	749.18	21.59	90.85	DC	626.73
107698	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	136.59	142.6	DC	58.45
107693	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	140.22	146.23	DC	58.45
107778	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	121.47	127.48	DC	58.45
107568	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P1-2: LN 2072	operation	168.26	17.05	76.71	DC	100.38
107776	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P1-2: LN 2072	operation	168.26	36.08	71.69	DC	100.38
108074	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2072	operation	598.78	15.2	44.64	DC	176.24
107646	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P1-2: LN 2072	operation	168.26	3.75	60.91	DC	100.38
107847	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P1-2: LN 2118	operation	598.78	28.7	63.29	DC	321.7
107951	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P1-2: LN 2025	operation	740.72	4.04	41.17	DC	294.08
107535	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2118	operation	740.72	21.66	102.05	DC	702.44
107540	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	Base Case	operation	740.72	12.76	70.97	DC	494.17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
107553	314490	6VA BCH	DVP	314295	6BIRDNECK	DVP	1	DVP_P1-2: LN 2072	operation	799.94	18.38	84.47	DC	626.73
107790	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P1-2: LN 2072	operation	244.21	32.65	68.35	DC	87.16
107835	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P1-2: LN 2072	operation	243.08	29.84	65.3	DC	86.19
107555	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P1-2: LN 2072	operation	168.26	35.77	95.43	DC	100.38
107751	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	114.23	121.46	DC	231.99
107675	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	147.76	152.4	DC	248.64
107680	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	118.17	121.9	DC	199.58
107720	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	139.79	142.76	DC	157.42
107556	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	180.32	185.17	DC	259.2
107563	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	122.46	125.64	DC	170.52
107814	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	126.08	128.78	DC	159.97
107878	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 573	operation	2442.12	117.6	120.06	DC	130.93
107579	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	155.87	164.05	DC	230.12
107585	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	96.94	103.85	DC	168.33
107911	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	114.6	117.12	DC	175.83
107919	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	90.32	92.21	DC	131.9
108026	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	98.39	100.06	DC	114.91
108002	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	76.55	86.11	DC	232.96
107858	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	operation	3218.56	117.24	119.54	DC	160.9
107863	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	94.6	96.47	DC	130.8
108075	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	41.31	62.23	DC	328.91

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
107699	21	6PENNIMAN 230.0 kV - 6WALR209 230.0 kV Ckt 1	Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
107256	9	3BAYSIDE 115.0 kV - 3BURTN67 115.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107588	20	6CHESTF B 230.0 kV - 6BASIN 230.0 kV Ckt 1	Description : PJM baseline upgrade b2990: Chesterfield to Basin 230 kV line - Replace 0.14 miles of 1109 ACAR with a conductor which will increase the line rating to approximately 706 MVA. The baseline project went in-service on 04/27/2018.	\$0
107673,107670	1	6SKIFF CREEK 230.0 kV - 6KINGS M 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107172,107173	16	6VA BCH 230.0 kV - 3VA BCH 230.0 kV Ckt 2	Description: No Violation. Facility loading does not exceed 100%.	\$0
107916,107453, 107454	4	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107180	8	3BAINS STORE 115.0 kV - 3LONGC27 115.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107586,107251, 107583	28	8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1	Description : Rebuild / Uprate the Midlothian-North Anna 500 kV Line 576 for 41.13 miles (VA CPCN) Time Estimate : 24-30 Months Cost : \$123,400,000	\$123,400,000
107152,107153, 108163,108164	13	6VA BCH 230.0 kV - 6LYNHAVN 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
108232,107345, 107346, 108231	11	6LYNHAVN 230.0 kV - 6LANDSTN 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107460	7	6HOPEWLL 230.0 kV - 6CHESTF B 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107189	10	3LONGC27 115.0 kV - 3BAYSIDE 115.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0

ID	Index	Facility	Upgrade Description	Cost
107694	22	6KINGS M 230.0 kV - 6PENNIMAN 230.0 kV Ckt 1	Description : PJM baseline upgrade b3057: Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024.	\$0
108208	12	6LYNHAVN 230.0 kV - 6THALIA 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107168, 107169	6	6BIRDNECK 230.0 kV - 6LANDSTN 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107157	18	3VA BCH 115.0 kV - 3BAINS STORE 115.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107264	19	6ELMONT 230.0 kV - 8ELMONT 230.0 kV Ckt 1	Description : Expand Elmont Substation to Add the 3rd 500-230 kV Transformer Time Estimate : 24-30 Months Cost : \$30,000,000	\$30,000,000
107756,107318, 107319	2	8CARSON 500.0 kV - 8MDLTHAN 500.0 kV Ckt 1	Description : Wreck & Rebuild Carson- Midlothian 500 kV Line 563 for 38 miles (VA CPCN) Time Estimate : 44-48 Months Cost : \$112,230,000	\$112,230,000
107681,107682, 107300,107301, 107686	3	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	Description : Rebuild / Uprate Chickahominy-Elmont 500 kV Line 557 for 28 miles (VA CPCN) Time Estimate : 36-44 Months Cost : \$84,000,000	\$84,000,000
107882,107883	27	8LADYSMITH 500.0 kV - 8POSSUM 500.0 kV Ckt 1	Description : Rebuild / Uprate Ladysmith-Possum Point 500 kV Line 568 for 44 miles (VA CPCN) Time Estimate : 36-44 Months Cost : \$132,000,000	\$132,000,000
107384,107385, 107818,107817, 107383	26	8LADYSMITH 500.0 kV - 8CHANCE 500.0 kV Ckt 1	Description : PJM baseline upgrade b3021: Rebuild 500kV Line #581 Ladysmith to Chancellor - 15.2 miles long. The baseline project has an projected in-service date of 12/31/2023.	\$0
108253	17	6THALIA 230.0 kV - 6GRENWCH 230.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0
107723,107724, 107406,107407	24	8CHANCE 500.0 kV - 8BRISTER 500.0 kV Ckt 1	Description : PJM baseline upgrade b3019: Rebuild 500kV Line #552 Bristers to Chancellor – 21.6 miles long. The baseline project has an projected in-service date of 12/31/2023.	\$0
107161,107162	14	6VA BCH 230.0 kV - 6BIRDNECK 230.0 kV Ckt 1	Description : No Violation. Facility loading does not exceed 100%.	\$0

ID	Index	Facility	Upgrade Description	Cost
107165,107166	15	6VA BCH 230.0 kV - 3VA BCH 230.0 kV Ckt 1	Description: No Violation. Facility loading does not exceed 100%.	\$0
107779	23	6WALR209 230.0 kV - 6LIGH209 230.0 kV Ckt 1	Description : PJM baseline upgrade b3056: Partial Rebuild 230 kV Line #2113 Waller to Lightfoot. The baseline project has an projected in-service date of 12/30/2024.	\$0
107864,107866, 108230	5	8SPOTSYL 500.0 kV - 8MORRSVL 500.0 kV Ckt 1	Description : Wreck & Rebuild Spotsylvania-Morrisville 500 kV Line 594 for 17 miles (VA CPCN) Time Estimate : 44-48 Months Cost : \$60,000,000	\$60,000,000
107241,107242, 107567,107562, 107559	25	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	Description : PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has an projected in-service date of 12/31/2022.	\$0
			TOTAL COST	\$541,630,000

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
107670	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	146.23	148.86	DC	11.61

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

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

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
107318	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	101.55	107.83	DC	246.55

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

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107300	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	119.43	123.21	DC	260.67

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

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107916	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	98.69	99.19	DC	34.92

Bus #	Bus	MW Impact
314236	6NRTHEST	0.24
314250	6ROCKVILLE	0.43
314309	6IRON208	0.57
314314	3LOCKS	0.37
315053	1BELMED1	21.19
315054	1BELMED2	21.19
315055	1BELMED3	17.59
315058	1CHESTF3	21.97
315059	1CHESTF4	35.61
315065	1CHESTF6	25.77
315074	1HOPCGN1	10.18
315075	1HOPCGN2	10.05
315083	1SPRUNCA	13.14
315084	1SPRUNCB	13.14
315085	1SPRUNCC	9.74
315086	1SPRUNCD	9.74
315090	1YORKTN1	34.77
315091	1YORKTN2	36.09
315108	1ELIZAR1	4.15
315109	1ELIZAR2	4.08
315110	1ELIZAR3	4.2
315225	1N ANNA1	64.22
315226	1N ANNA2	64.36
315233	1SURRY 2	32.16
923801	AB2-015 C O1	10.2
923911	AB2-031 C O1	2.55
924241	AB2-068 O1	231.59
924501	AB2-099 C	0.67
924511	AB2-100 C	13.4
925051	AB2-160 C O1	6.69
925061	AB2-161 C O1	4.14
925171	AB2-174 C O1	8.02
925281	AB2-186 C	0.74
925291	AB2-188 C O1	2.78
925331	AB2-190 C	24.6
925821	AC1-061	0.01
925861	AC1-065 C	4.0
926071	AC1-086 C	23.42
926291	AC1-107 O1	349.57
926751	AC1-161 C O1	37.51

Bus #	Bus	MW Impact
926781	AC1-164 C	47.96
927041	AC1-191 C O1	11.13
927221	AC1-216 C O1	12.04
932041	AC2-012 C	12.55
932581	AC2-078 C O1	5.0
932591	AC2-079 C O1	7.0
932831	AC2-110 C	1.6
933011	AC2-125	2.88
933021	AC2-126	2.9
933031	AC2-127	1.59
933041	AC2-128	1.53
933051	AC2-129	1.43
933061	AC2-130	2.9
933071	AC2-131 1	1.96
933081	AC2-131 2	0.89
933111	AC2-132 1	1.03
933121	AC2-132 2	0.53
933291	AC2-141 C	37.51
933501	AC2-165 C	11.05
933991	AD1-023 C	15.24
934011	AD1-025 C	20.69
934061	AD1-033 C	9.22
934141	AD1-041 C	6.29
934201	AD1-047 C	9.12
934521	AD1-076 C	63.42
934571	AD1-082 C	9.42
935161	AD1-151 C O1	19.77
935211	AD1-156 C	0.45
936041	AD2-007	2.2
936051	AD2-008 C	3.6
936151	AD2-021	0.28
936241	AD2-030 C	2.73
936301	AD2-039 C	1.6
936391	AD2-049 C	2.18
936401	AD2-051 C O1	9.98
936591	AD2-074 C	6.22
936661	AD2-085 C	4.2
936711	AD2-090 C O1	8.44
937221	AD2-160 C O1	7.16
937251	AD2-164	5.84
937541	AD2-215 C	2.13
937571	AD2-169 C	11.35
938031	AE1-004 C	1.6
938081	AE1-010	3.66
938171	AE1-026 C1 O	32.39
938172	AE1-026 C2 O	4.69
938181	AE1-027 C	2.87
938191	AE1-028 C	1.66
938221	AE1-035 C	2.57
938461	AE1-065 C O1	34.92
938471	AE1-066 C O1	35.89
938481	AE1-067 C O1	32.63

Bus #	Bus	MW Impact
938491	AE1-068 C O1	70.54
938501	AE1-069 C O1	55.26
938531	AE1-072 C O1	21.42
938551	AE1-074 C	3.1
938561	AE1-075 C	2.46
AA2-074	AA2-074	5.92
AE1-042	AE1-042	9.23
CARR	CARR	1.8
CBM-S1	CBM-S1	13.8
CBM-S2	CBM-S2	17.09
CBM-W1	CBM-W1	9.4
CBM-W2	CBM-W2	85.62
CIN	CIN	4.82
CPL	CPL	8.71
IPL	IPL	2.97
LGEE	LGEE	1.45
MEC	MEC	11.65
MECS	MECS	1.83
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.23

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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
107864	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	100.86	101.35	DC	34.54

Bus #	Bus	MW Impact
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.43
314309	6IRON208	0.56
314314	3LOCKS	0.37
315053	1BELMED1	20.98
315054	1BELMED2	20.98
315055	1BELMED3	17.41
315058	1CHESTF3	21.74
315059	1CHESTF4	35.24
315065	1CHESTF6	25.5
315074	1HOPCGN1	10.08
315075	1HOPCGN2	9.95
315083	1SPRUNCA	13.01
315084	1SPRUNCB	13.01
315085	1SPRUNCC	9.65
315086	1SPRUNCD	9.65
315090	1YORKTN1	34.4
315091	1YORKTN2	35.7
315108	1ELIZAR1	4.1
315109	1ELIZAR2	4.03
315110	1ELIZAR3	4.16
315225	1N ANNA1	62.98
315226	1N ANNA2	63.12
315233	1SURRY 2	31.81
923801	AB2-015 C O1	10.1
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	229.24
924501	AB2-099 C	0.66
924511	AB2-100 C	13.27
925021	AB2-158 C	2.4
925051	AB2-160 C O1	6.62
925061	AB2-161 C O1	4.09
925171	AB2-174 C O1	7.95
925281	AB2-186 C	0.73
925291	AB2-188 C O1	2.76
925331	AB2-190 C	24.35
925821	AC1-061	0.01
925861	AC1-065 C	3.96
926001	AC1-076 C	6.66
926071	AC1-086 C	23.2

Bus #	Bus	MW Impact
926291	AC1-107 O1	346.02
926731	AC1-158 C	193.77
926751	AC1-161 C O1	37.1
926781	AC1-164 C	47.47
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.91
932041	AC2-012 C	12.41
932581	AC2-078 C O1	4.94
932591	AC2-079 C O1	6.93
932831	AC2-110 C	1.58
933011	AC2-125	2.84
933021	AC2-126	2.86
933031	AC2-127	1.56
933041	AC2-128	1.51
933051	AC2-129	1.41
933061	AC2-130	2.87
933071	AC2-131 1	1.94
933081	AC2-131 2	0.88
933111	AC2-132 1	1.02
933121	AC2-132 2	0.52
933291	AC2-141 C	37.1
933501	AC2-165 C	11.13
933991	AD1-023 C	15.09
934011	AD1-025 C	20.47
934061	AD1-033 C	9.12
934141	AD1-041 C	6.22
934201	AD1-047 C	9.05
934521	AD1-076 C	62.8
934541	AD1-078 C	4.08
934571	AD1-082 C	9.33
935161	AD1-151 C O1	19.56
935211	AD1-156 C	0.45
936041	AD2-007	2.17
936051	AD2-008 C	3.56
936151	AD2-021	0.28
936241	AD2-030 C	2.7
936301	AD2-039 C	1.58
936391	AD2-049 C	2.16
936401	AD2-051 C O1	9.89
936591	AD2-074 C	6.15
936661	AD2-085 C	4.16
936711	AD2-090 C O1	8.36
937221	AD2-160 C O1	7.08
937251	AD2-164	5.77
937541	AD2-215 C	2.11
937571	AD2-169 C	11.26
938031	AE1-004 C	1.58
938081	AE1-010	9.24
938171	AE1-026 C1 O	32.08
938172	AE1-026 C2 O	4.64
938181	AE1-027 C	2.84
938191	AE1-028 C	1.65

Bus #	Bus	MW Impact
938221	AE1-035 C	2.54
938461	AE1-065 C O1	34.54
938471	AE1-066 C O1	35.5
938481	AE1-067 C O1	32.28
938491	AE1-068 C O1	69.77
938501	AE1-069 C O1	54.66
938531	AE1-072 C O1	21.19
938551	AE1-074 C	3.07
938561	AE1-075 C	2.47
AA2-074	AA2-074	5.88
AE1-042	AE1-042	9.22
CARR	CARR	1.81
CBM-S1	CBM-S1	13.81
CBM-S2	CBM-S2	17.0
CBM-W1	CBM-W1	9.47
CBM-W2	CBM-W2	85.71
CIN	CIN	4.86
CPLE	CPLE	8.65
IPL	IPL	2.99
LGEE	LGEE	1.46
MEC	MEC	11.7
MECS	MECS	1.88
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.24

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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
107169	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	13.51	72.28	DC	662.9

Bus #	Bus	MW Impact
916191	Z1-068 C	0.22
916192	Z1-068 E	9.09
925521	AC1-027 C	0.51
925522	AC1-027 E	1.68
938461	AE1-065 C O1	131.65
938462	AE1-065 E O1	531.25
938471	AE1-066 C O1	135.3
938472	AE1-066 E O1	527.6
938481	AE1-067 C O1	123.04
938482	AE1-067 E O1	539.86
BAYOU	BAYOU	0.02
BIG_CAJUN1	BIG_CAJUN1	0.02
BIG_CAJUN2	BIG_CAJUN2	0.05
BLUEG	BLUEG	0.05
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.02
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.06
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.01
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.0
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.02
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.03
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01

Bus #	Bus	MW Impact
TVA	TVA	0.03
UNIONPOWER	UNIONPOWER	0.01

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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
107460	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	89.59	94.4	DC	57.28

Bus #	Bus	MW Impact
315073	1STONECA	13.17
315074	1HOPCGN1	15.88
315075	1HOPCGN2	15.68
315076	1HOPPOLC	3.14
315077	1HOPHCF1	4.9
315078	1HOPHCF2	4.9
315079	1HOPHCF3	4.9
315080	1HOPHCF4	7.44
315090	1YORKTN1	11.39
315091	1YORKTN2	11.82
315116	1SURRY 1	23.38
315120	1GRAVEL4	2.41
315122	1GRAVEL6	2.4
916192	Z1-068 E	0.75
924811	AB2-134 C O1	2.94
924812	AB2-134 E O1	16.24
925331	AB2-190 C	28.21
925332	AB2-190 E	12.09
925522	AC1-027 E	0.46
926662	AC1-147 E	0.56
927221	AC1-216 C O1	13.05
927222	AC1-216 E O1	10.26
932041	AC2-012 C	4.34
932042	AC2-012 E	7.08
933061	AC2-130	1.75
933071	AC2-131 1	1.18
933081	AC2-131 2	0.54
933111	AC2-132 1	0.62
933121	AC2-132 2	0.32
933732	AC2-196 E	0.45
934011	AD1-025 C	22.43
934012	AD1-025 E	13.29
934061	AD1-033 C	2.86
934062	AD1-033 E	1.91
935112	AD1-144 E	0.41
935161	AD1-151 C O1	22.67
935162	AD1-151 E O1	15.12
936041	AD2-007	2.38
936051	AD2-008 C	3.9
936052	AD2-008 E	8.5
936391	AD2-049 C	0.83

Bus #	Bus	MW Impact
936392	AD2-049 E	0.83
937251	AD2-164	2.01
937541	AD2-215 C	0.75
937542	AD2-215 E	0.4
938181	AE1-027 C	0.87
938182	AE1-027 E	0.46
938191	AE1-028 C	0.51
938192	AE1-028 E	0.29
938461	AE1-065 C O1	11.38
938462	AE1-065 E O1	45.9
938471	AE1-066 C O1	11.69
938472	AE1-066 E O1	45.59
938481	AE1-067 C O1	10.63
938482	AE1-067 E O1	46.65
CARR	CARR	0.16
CBM-S1	CBM-S1	0.97
CBM-S2	CBM-S2	1.53
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	5.78
CIN	CIN	0.21
CPL	CPL	0.79
DEARBORN	DEARBORN	0.04
G-007	G-007	0.51
IPL	IPL	0.12
LGEE	LGEE	0.06
MEC	MEC	0.65
O-066	O-066	1.72
RENSSELAER	RENSSELAER	0.13
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
107180	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	16.85	72.65	DC	114.95

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O1	22.83
938462	AE1-065 E O1	92.12
938471	AE1-066 C O1	23.46
938472	AE1-066 E O1	91.49
938481	AE1-067 C O1	21.34
938482	AE1-067 E O1	93.62
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107256	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	26.6	64.67	DC	114.95

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O1	22.83
938462	AE1-065 E O1	92.12
938471	AE1-066 C O1	23.46
938472	AE1-066 E O1	91.49
938481	AE1-067 C O1	21.34
938482	AE1-067 E O1	93.62
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107189	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	0.14	55.85	DC	114.95

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O1	22.83
938462	AE1-065 E O1	92.12
938471	AE1-066 C O1	23.46
938472	AE1-066 E O1	91.49
938481	AE1-067 C O1	21.34
938482	AE1-067 E O1	93.62
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
108231	314486	6LYNHAVN	DVP	314481	6LANDSTN	DVP	1	DVP_P7-1: LN 245-2019	tower	830.0	39.19	61.45	DC	401.57

Bus #	Bus	MW Impact
916191	Z1-068 C	0.1
916192	Z1-068 E	3.94
925521	AC1-027 C	0.4
925522	AC1-027 E	1.34
938461	AE1-065 C O1	79.75
938462	AE1-065 E O1	321.82
938471	AE1-066 C O1	81.96
938472	AE1-066 E O1	319.61
938481	AE1-067 C O1	74.53
938482	AE1-067 E O1	327.04
BAYOU	BAYOU	0.02
BIG_CAJUN1	BIG_CAJUN1	0.03
BIG_CAJUN2	BIG_CAJUN2	0.06
BLUEG	BLUEG	0.06
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.02
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.07
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.01
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.0
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.04
NEWTON	NEWTON	0.02
O-066	O-066	0.0
PRAIRIE	PRAIRIE	0.03
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01

Bus #	Bus	MW Impact
TVA	TVA	0.03
UNIONPOWER	UNIONPOWER	0.01

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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
108208	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P7-1: LN 2025-2026	tower	906.0	12.23	47.09	DC	389.22

Bus #	Bus	MW Impact
916191	Z1-068 C	0.1
916192	Z1-068 E	4.25
925521	AC1-027 C	0.52
925522	AC1-027 E	1.72
933732	AC2-196 E	0.35
934061	AD1-033 C	2.86
934062	AD1-033 E	1.91
938181	AE1-027 C	0.66
938182	AE1-027 E	0.35
938191	AE1-028 C	0.38
938192	AE1-028 E	0.22
938461	AE1-065 C O1	77.3
938462	AE1-065 E O1	311.92
938471	AE1-066 C O1	79.44
938472	AE1-066 E O1	309.78
938481	AE1-067 C O1	72.24
938482	AE1-067 E O1	316.98
CARR	CARR	0.0
CBM-S1	CBM-S1	0.19
CBM-S2	CBM-S2	0.2
CBM-W1	CBM-W1	0.22
CBM-W2	CBM-W2	1.27
CIN	CIN	0.1
CPL	CPL	0.11
G-007	G-007	0.01
IPL	IPL	0.06
LGEE	LGEE	0.03
MEC	MEC	0.2
MECS	MECS	0.1
O-066	O-066	0.03
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.03

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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
108164	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	906.0	22.95	88.85	DC	735.68

Bus #	Bus	MW Impact
925521	AC1-027 C	1.42
925522	AC1-027 E	4.7
938461	AE1-065 C O1	146.11
938462	AE1-065 E O1	589.58
938471	AE1-066 C O1	150.15
938472	AE1-066 E O1	585.53
938481	AE1-067 C O1	136.54
938482	AE1-067 E O1	599.14
BAYOU	BAYOU	0.02
BIG_CAJUN1	BIG_CAJUN1	0.03
BIG_CAJUN2	BIG_CAJUN2	0.07
BLUEG	BLUEG	0.07
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.02
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.08
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.02
EDWARDS	EDWARDS	0.01
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.01
G-007	G-007	0.0
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.04
NEWTON	NEWTON	0.02
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.04
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01
TVA	TVA	0.03
UNIONPOWER	UNIONPOWER	0.02

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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
107162	314490	6VA BCH	DVP	314295	6BIRDNECK	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	12.03	71.79	DC	662.91

Bus #	Bus	MW Impact
925521	AC1-027 C	0.51
925522	AC1-027 E	1.68
938461	AE1-065 C O1	131.65
938462	AE1-065 E O1	531.25
938471	AE1-066 C O1	135.3
938472	AE1-066 E O1	527.61
938481	AE1-067 C O1	123.04
938482	AE1-067 E O1	539.87
BAYOU	BAYOU	0.01
BIG_CAJUN1	BIG_CAJUN1	0.02
BIG_CAJUN2	BIG_CAJUN2	0.05
BLUEG	BLUEG	0.05
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.02
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.05
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.0
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.01
O-066	O-066	0.0
PRAIRIE	PRAIRIE	0.03
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01
TVA	TVA	0.02
UNIONPOWER	UNIONPOWER	0.01

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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
107165	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P4-2: HGT2072	breaker	278.7	43.78	93.01	DC	137.19

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.41
938461	AE1-065 C O1	27.25
938462	AE1-065 E O1	109.95
938471	AE1-066 C O1	28.0
938472	AE1-066 E O1	109.19
938481	AE1-067 C O1	25.46
938482	AE1-067 E O1	111.73
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.04
CBM-W1	CBM-W1	0.05
CBM-W2	CBM-W2	0.28
CIN	CIN	0.02
CPLE	CPLE	0.02
G-007A	G-007A	0.0
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
MECS	MECS	0.03
NYISO	NYISO	0.0
O-066A	O-066A	0.0
VFT	VFT	0.01
WEC	WEC	0.01

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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
107172	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P4-2: HST2072	breaker	282.8	42.02	90.3	DC	136.55

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.4
938461	AE1-065 C O1	27.12
938462	AE1-065 E O1	109.43
938471	AE1-066 C O1	27.87
938472	AE1-066 E O1	108.68
938481	AE1-067 C O1	25.34
938482	AE1-067 E O1	111.21
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.04
CBM-W1	CBM-W1	0.05
CBM-W2	CBM-W2	0.28
CIN	CIN	0.02
CPLE	CPLE	0.02
G-007A	G-007A	0.0
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
MECS	MECS	0.03
NYISO	NYISO	0.0
O-066A	O-066A	0.0
VFT	VFT	0.01
WEC	WEC	0.01

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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
108253	314504	6THALIA	DVP	314474	6GRENWCH	DVP	1	DVP_P7-1: LN 2025-2026	tower	906.0	26.54	51.85	DC	389.22

Bus #	Bus	MW Impact
916191	Z1-068 C	0.1
916192	Z1-068 E	4.25
925521	AC1-027 C	0.52
925522	AC1-027 E	1.72
933732	AC2-196 E	0.35
934061	AD1-033 C	2.86
934062	AD1-033 E	1.91
938181	AE1-027 C	0.66
938182	AE1-027 E	0.35
938191	AE1-028 C	0.38
938192	AE1-028 E	0.22
938461	AE1-065 C O1	77.3
938462	AE1-065 E O1	311.92
938471	AE1-066 C O1	79.44
938472	AE1-066 E O1	309.78
938481	AE1-067 C O1	72.24
938482	AE1-067 E O1	316.98
CARR	CARR	0.0
CBM-S1	CBM-S1	0.19
CBM-S2	CBM-S2	0.2
CBM-W1	CBM-W1	0.22
CBM-W2	CBM-W2	1.27
CIN	CIN	0.1
CPL	CPL	0.11
G-007	G-007	0.01
IPL	IPL	0.06
LGEE	LGEE	0.03
MEC	MEC	0.2
MECS	MECS	0.1
O-066	O-066	0.03
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.03

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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
107157	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	32.14	87.94	DC	114.95

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O1	22.83
938462	AE1-065 E O1	92.12
938471	AE1-066 C O1	23.46
938472	AE1-066 E O1	91.49
938481	AE1-067 C O1	21.34
938482	AE1-067 E O1	93.62
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107264	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	120.84	126.6	DC	132.58

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107588	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	139.84	140.81	DC	9.39

Bus #	Bus	MW Impact
314314	3LOCKS	0.19
315065	1CHESTF6	29.64
315074	1HOPCGN1	6.05
315075	1HOPCGN2	5.97
315076	1HOPPOLC	1.19
315077	1HOPHCF1	1.87
315078	1HOPHCF2	1.87
315079	1HOPHCF3	1.87
315080	1HOPHCF4	2.83
315116	1SURRY 1	11.5
315117	1GRAVELC	0.4
315119	1GRAVEL3	1.17
315120	1GRAVEL4	1.18
315121	1GRAVEL5	1.17
315122	1GRAVEL6	1.18
315136	1ROSEMG1	1.01
315137	1ROSEMS1	0.63
315138	1ROSEMG2	0.47
315139	1GASTONA	1.45
315141	1GASTONB	1.45
919701	AA2-057 C	2.66
923801	AB2-015 C O1	3.38
923851	AB2-025 C	0.28
923911	AB2-031 C O1	1.04
923991	AB2-040 C O1	0.59
924501	AB2-099 C	0.23
924511	AB2-100 C	6.45
924811	AB2-134 C O1	1.25
925051	AB2-160 C O1	3.51
925061	AB2-161 C O1	1.97
925171	AB2-174 C O1	3.34
925281	AB2-186 C	0.21
925291	AB2-188 C O1	0.84
925331	AB2-190 C	11.74
925821	AC1-061	0.0
926071	AC1-086 C	9.48
926201	AC1-098 C	2.36
926211	AC1-099 C	0.79
927141	AC1-208 C	3.5
927221	AC1-216 C O1	5.53

Bus #	Bus	MW Impact
930861	AB1-132 C O1	1.11
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932041	AC2-012 C	3.41
932581	AC2-078 C O1	3.0
932591	AC2-079 C O1	2.78
932631	AC2-084 C	3.37
933991	AD1-023 C	4.77
934011	AD1-025 C	9.51
934201	AD1-047 C	3.73
934331	AD1-057 C O1	4.04
934521	AD1-076 C	19.56
934571	AD1-082 C	4.48
935161	AD1-151 C O1	9.44
935211	AD1-156 C	0.35
936041	AD2-007	1.01
936051	AD2-008 C	1.66
936401	AD2-051 C O1	3.34
936661	AD2-085 C	1.69
936711	AD2-090 C O1	2.84
937541	AD2-215 C	0.6
937571	AD2-169 C	4.54
938171	AE1-026 C1 O	10.23
938172	AE1-026 C2 O	1.48
938221	AE1-035 C	0.84
938461	AE1-065 C O1	9.39
938471	AE1-066 C O1	9.65
938481	AE1-067 C O1	8.77
938491	AE1-068 C O1	20.17
938501	AE1-069 C O1	15.77
AA2-074	AA2-074	1.69
CARR	CARR	0.32
CBM-S1	CBM-S1	3.59
CBM-S2	CBM-S2	4.7
CBM-W1	CBM-W1	2.8
CBM-W2	CBM-W2	22.8
CIN	CIN	1.32
CPL	CPL	2.48
IPL	IPL	0.82
LGEE	LGEE	0.38
MEC	MEC	3.19
MECS	MECS	0.85
RENSSELAER	RENSSELAER	0.25
WEC	WEC	0.35

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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
107699	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	134.84	137.48	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107694	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	138.46	141.1	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107779	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	119.72	122.36	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107723	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	119.5	120.1	DC	31.26

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHEST	0.22
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.4
315038	1LDYSMT2	5.39
315039	1LDYSMT3	5.71
315040	1LDYSMT4	5.72
315041	1LDYSMT5	5.74
315043	1FOUR RIVERA	4.28
315044	1FOUR RIVERB	3.32
315045	1FOUR RIVERC	4.28
315046	1FOUR RIVERD	3.32
315047	1FOUR RIVERE	3.32
315048	1FOUR RIVERF	4.28
315053	1BELMED1	19.56
315054	1BELMED2	19.56
315055	1BELMED3	16.23
315058	1CHESTF3	20.52
315059	1CHESTF4	33.27
315067	1DARBY 1	3.07
315068	1DARBY 2	3.07
315069	1DARBY 3	3.08
315070	1DARBY 4	3.08
315074	1HOPCGN1	9.41
315075	1HOPCGN2	9.29
315083	1SPRUNCA	11.98
315084	1SPRUNCB	11.98
315085	1SPRUNCC	8.88
315086	1SPRUNCD	8.88
315090	1YORKTN1	31.94
315091	1YORKTN2	33.14
315225	1N ANNA1	43.91
315226	1N ANNA2	44.01
919211	AA1-145	12.38
923801	AB2-015 C O1	9.1
923911	AB2-031 C O1	2.25
924061	AB2-050	0.73
924241	AB2-068 O1	227.05
924501	AB2-099 C	0.6
924511	AB2-100 C	11.86

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.11
925061	AB2-161 C O1	3.72
925171	AB2-174 C O1	7.09
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.56
925861	AC1-065 C	3.77
926001	AC1-076 C	4.94
926071	AC1-086 C	20.72
926291	AC1-107 O1	342.72
926411	AC1-112 C	0.39
926551	AC1-134	1.82
926731	AC1-158 C	93.45
926751	AC1-161 C O1	33.58
926781	AC1-164 C	45.66
927041	AC1-191 C O1	10.8
927221	AC1-216 C O1	11.02
930121	AB1-027 C	0.51
932041	AC2-012 C	11.24
932501	AC2-070 C	0.33
932581	AC2-078 C O1	4.51
932591	AC2-079 C O1	6.29
932831	AC2-110 C	1.51
933011	AC2-125	3.09
933021	AC2-126	3.11
933031	AC2-127	1.7
933041	AC2-128	1.64
933051	AC2-129	1.54
933061	AC2-130	2.72
933071	AC2-131 1	1.84
933081	AC2-131 2	0.84
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.41
933291	AC2-141 C	33.58
933501	AC2-165 C	9.63
933991	AD1-023 C	13.56
934011	AD1-025 C	18.95
934061	AD1-033 C	8.25
934141	AD1-041 C	5.93
934201	AD1-047 C	8.07
934211	AD1-048 C	0.48
934521	AD1-076 C	56.45
934541	AD1-078 C	3.05
934571	AD1-082 C	8.48
934781	AD1-105 C	7.81
935161	AD1-151 C O1	18.13
936041	AD2-007	2.01
936051	AD2-008 C	3.3
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51

Bus #	Bus	MW Impact
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.86
936581	AD2-073 C	2.23
936591	AD2-074 C	5.95
936661	AD2-085 C	3.77
936711	AD2-090 C O1	7.52
937221	AD2-160 C O1	6.4
937251	AD2-164	5.35
937541	AD2-215 C	1.92
937571	AD2-169 C	10.04
938031	AE1-004 C	1.51
938081	AE1-010	6.85
938171	AE1-026 C1 O	28.81
938172	AE1-026 C2 O	4.17
938181	AE1-027 C	2.57
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O1	31.26
938471	AE1-066 C O1	32.13
938481	AE1-067 C O1	29.22
938491	AE1-068 C O1	60.04
938501	AE1-069 C O1	47.05
938531	AE1-072 C O1	19.15
938551	AE1-074 C	2.75
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.47
CARR	CARR	1.66
CBM-S1	CBM-S1	12.82
CBM-S2	CBM-S2	15.15
CBM-W1	CBM-W1	9.54
CBM-W2	CBM-W2	80.27
CIN	CIN	4.81
CPL	CPL	7.65
IPL	IPL	2.97
LGEE	LGEE	1.44
MEC	MEC	11.26
MECS	MECS	2.34
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.23

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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
107559	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	151.35	152.32	DC	51.48

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107817	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	108.86	109.4	DC	31.77

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHST	0.23
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.54
315038	1LDYSMT2	5.53
315039	1LDYSMT3	5.86
315040	1LDYSMT4	5.87
315041	1LDYSMT5	5.89
315043	1FOUR RIVERA	4.37
315044	1FOUR RIVERB	3.38
315045	1FOUR RIVERC	4.37
315046	1FOUR RIVERD	3.38
315047	1FOUR RIVERE	3.38
315048	1FOUR RIVERF	4.37
315053	1BELMED1	19.89
315054	1BELMED2	19.89
315055	1BELMED3	16.51
315058	1CHESTF3	20.88
315059	1CHESTF4	33.85
315067	1DARBY 1	3.12
315068	1DARBY 2	3.12
315069	1DARBY 3	3.13
315070	1DARBY 4	3.14
315074	1HOPCGN1	9.57
315075	1HOPCGN2	9.45
315083	1SPRUNCA	12.17
315084	1SPRUNCB	12.17
315085	1SPRUNCC	9.02
315086	1SPRUNCD	9.02
315090	1YORKTN1	32.48
315091	1YORKTN2	33.71
315225	1N ANNA1	44.6
315226	1N ANNA2	44.7
919211	AA1-145	12.63
923801	AB2-015 C O1	9.24
923911	AB2-031 C O1	2.28
924061	AB2-050	0.74
924241	AB2-068 O1	231.33
924501	AB2-099 C	0.6
924511	AB2-100 C	12.03

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.21
925061	AB2-161 C O1	3.78
925171	AB2-174 C O1	7.19
925281	AB2-186 C	0.67
925291	AB2-188 C O1	2.52
925331	AB2-190 C	22.94
925861	AC1-065 C	3.84
926071	AC1-086 C	21.01
926291	AC1-107 O1	349.18
926411	AC1-112 C	0.4
926551	AC1-134	1.86
926751	AC1-161 C O1	34.13
926781	AC1-164 C	46.49
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.21
930121	AB1-027 C	0.51
932041	AC2-012 C	11.42
932501	AC2-070 C	0.34
932581	AC2-078 C O1	4.59
932591	AC2-079 C O1	6.39
932831	AC2-110 C	1.54
933011	AC2-125	3.17
933021	AC2-126	3.19
933031	AC2-127	1.75
933041	AC2-128	1.68
933051	AC2-129	1.58
933061	AC2-130	2.76
933071	AC2-131 1	1.87
933081	AC2-131 2	0.85
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933261	AC2-137 C	0.41
933291	AC2-141 C	34.13
933501	AC2-165 C	9.61
933991	AD1-023 C	13.76
934011	AD1-025 C	19.27
934061	AD1-033 C	8.38
934141	AD1-041 C	6.04
934201	AD1-047 C	8.18
934211	AD1-048 C	0.48
934521	AD1-076 C	57.29
934571	AD1-082 C	8.62
934781	AD1-105 C	7.98
935161	AD1-151 C O1	18.43
936041	AD2-007	2.05
936051	AD2-008 C	3.35
936151	AD2-021	0.27
936241	AD2-030 C	2.62
936301	AD2-039 C	1.54
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.98

Bus #	Bus	MW Impact
936581	AD2-073 C	2.28
936591	AD2-074 C	6.07
936661	AD2-085 C	3.83
936711	AD2-090 C O1	7.63
937221	AD2-160 C O1	6.51
937251	AD2-164	5.44
937541	AD2-215 C	1.95
937571	AD2-169 C	10.18
938031	AE1-004 C	1.54
938081	AE1-010	3.16
938171	AE1-026 C1 O	29.23
938172	AE1-026 C2 O	4.23
938181	AE1-027 C	2.61
938191	AE1-028 C	1.51
938221	AE1-035 C	2.31
938461	AE1-065 C O1	31.77
938471	AE1-066 C O1	32.65
938481	AE1-067 C O1	29.69
938491	AE1-068 C O1	60.89
938501	AE1-069 C O1	47.72
938531	AE1-072 C O1	19.46
938551	AE1-074 C	2.8
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.26
AE1-042	AE1-042	8.49
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.28
CBM-W1	CBM-W1	9.43
CBM-W2	CBM-W2	80.22
CIN	CIN	4.76
CPL	CPL	7.73
IPL	IPL	2.94
LGEE	LGEE	1.43
MEC	MEC	11.2
MECS	MECS	2.25
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.22

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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
107882	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	110.62	111.13	DC	26.27

Bus #	Bus	MW Impact
314229	6MT RD221	0.13
314236	6NRTHST	0.19
314250	6ROCKVILLE	0.34
314309	6IRON208	0.45
315043	1FOUR RIVERA	3.68
315044	1FOUR RIVERB	2.85
315045	1FOUR RIVERC	3.68
315046	1FOUR RIVERD	2.85
315047	1FOUR RIVERE	2.85
315048	1FOUR RIVERF	3.68
315053	1BELMED1	16.55
315054	1BELMED2	16.55
315055	1BELMED3	13.73
315058	1CHESTF3	17.45
315059	1CHESTF4	28.28
315060	1CHESTF5	10.17
315061	1CHESTG7	3.99
315062	1CHESTS7	1.81
315063	1CHESTG8	3.91
315064	1CHESTS8	2.01
315067	1DARBY 1	2.62
315068	1DARBY 2	2.63
315069	1DARBY 3	2.64
315070	1DARBY 4	2.64
315074	1HOPCGN1	7.99
315075	1HOPCGN2	7.88
315083	1SPRUNCA	10.07
315084	1SPRUNCB	10.07
315085	1SPRUNCC	7.47
315086	1SPRUNCD	7.47
315090	1YORKTN1	27.05
315091	1YORKTN2	28.07
315225	1N ANNA1	29.2
315226	1N ANNA2	29.26
919211	AA1-145	10.65
924061	AB2-050	0.63
924241	AB2-068 O1	199.75
925051	AB2-160 C O1	5.16
925061	AB2-161 C O1	3.13
925331	AB2-190 C	19.1

Bus #	Bus	MW Impact
925861	AC1-065 C	3.18
926291	AC1-107 O1	301.5
926411	AC1-112 C	0.34
926551	AC1-134	1.57
926751	AC1-161 C O1	28.19
926781	AC1-164 C	39.21
927041	AC1-191 C O1	9.18
927221	AC1-216 C O1	9.33
930121	AB1-027 C	0.44
932041	AC2-012 C	9.45
932501	AC2-070 C	0.29
932581	AC2-078 C O1	3.8
932591	AC2-079 C O1	5.29
932831	AC2-110 C	1.27
933011	AC2-125	2.58
933021	AC2-126	2.6
933031	AC2-127	1.42
933041	AC2-128	1.37
933051	AC2-129	1.28
933061	AC2-130	2.32
933071	AC2-131 1	1.57
933081	AC2-131 2	0.71
933111	AC2-132 1	0.82
933121	AC2-132 2	0.42
933261	AC2-137 C	0.35
933291	AC2-141 C	28.19
934011	AD1-025 C	16.04
934061	AD1-033 C	6.93
934141	AD1-041 C	4.99
934211	AD1-048 C	0.41
934571	AD1-082 C	7.14
935161	AD1-151 C O1	15.35
936041	AD2-007	1.7
936051	AD2-008 C	2.79
936151	AD2-021	0.23
936241	AD2-030 C	2.16
936301	AD2-039 C	1.27
936391	AD2-049 C	1.68
936661	AD2-085 C	3.18
937221	AD2-160 C O1	5.38
937251	AD2-164	4.52
937541	AD2-215 C	1.62
938031	AE1-004 C	1.27
938181	AE1-027 C	2.16
938191	AE1-028 C	1.25
938461	AE1-065 C O1	26.27
938471	AE1-066 C O1	27.0
938481	AE1-067 C O1	24.55
938531	AE1-072 C O1	16.11
938551	AE1-074 C	2.29
AA2-074	AA2-074	4.74
AB2-013	AB2-013	5.2

Bus #	Bus	MW Impact
AE1-033	AE1-033	5.42
AE1-042	AE1-042	10.03
CARR	CARR	1.84
CBM-S1	CBM-S1	16.23
CBM-S2	CBM-S2	14.56
CBM-W1	CBM-W1	18.72
CBM-W2	CBM-W2	108.3
CIN	CIN	8.61
CPL	CPL	6.97
IPL	IPL	5.45
LGEE	LGEE	2.53
MEC	MEC	17.84
MECS	MECS	8.51
RENSSELAER	RENSSELAER	1.46
WEC	WEC	2.27
Z1-043	Z1-043	8.93

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107251	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	118.85	124.02	DC	254.58

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

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

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

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

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

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 552	CONTINGENCY 'DVP_P1-2: LN 552' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00 END
DVP_P4-2: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: H6T2118	CONTINGENCY 'DVP_P4-2: H6T2118' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314295 TO BUS 314481 CKT 1 /* 6BIRDNECK 230.00 - 6LANDSTN 230.00 OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00 OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00 OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00 OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P4-2: 573T594	CONTINGENCY 'DVP_P4-2: 573T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P7-1: LN 78-2118	CONTINGENCY 'DVP_P7-1: LN 78-2118' OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND

Contingency Name	Contingency Definition
DVP_P7-1: LN 2025-2026	CONTINGENCY 'DVP_P7-1: LN 2025-2026' OPEN BRANCH FROM BUS 314472 TO BUS 314486 CKT 1 /* 6GRN RUN 230.00 - 6LYNHAVN 230.00 OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 END
DVP_P4-2: 568T575	CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: H1T581	CONTINGENCY 'DVP_P4-2: H1T581' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 147-2118	CONTINGENCY 'DVP_P7-1: LN 147-2118' OPEN BRANCH FROM BUS 314479 TO BUS 314492 CKT 1 /* 3LANDSTN 115.00 - 3P ANNE 115.00 OPEN BRANCH FROM BUS 314482 TO BUS 314491 CKT 1 /* 3LONDONB 115.00 - 3PEND
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P4-2: H5T2118	CONTINGENCY 'DVP_P4-2: H5T2118' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314295 TO BUS 314481 CKT 1 /* 6BIRDNECK 230.00 - 6LANDSTN 230.00 OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00 OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00 OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00 OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 1 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 2007T2025	CONTINGENCY 'DVP_P4-2: 2007T2025' /* LYNNHAVEN 230 KV OPEN BRANCH FROM BUS 314486 TO BUS 314504 CKT 1 /* 6LYNHAVN 230.00 - 6THALIA 230.00 OPEN BRANCH FROM BUS 314472 TO BUS 314486 CKT 1 /* 6GRN RUN 230.00 - 6LYNHAVN 230.00 END
DVP_P4-2: 245T2019	CONTINGENCY 'DVP_P4-2: 245T2019' /* GREENWICH 230 KV OPEN BRANCH FROM BUS 314472 TO BUS 314474 CKT 1 /* 6GRN RUN 230.00 - 6GRENWCH 230.00 OPEN BRANCH FROM BUS 314474 TO BUS 314504 CKT 1 /* 6GRENWCH 230.00 - 6THALIA 230.00 END
DVP_P7-1: LN 198-581	CONTINGENCY 'DVP_P7-1: LN 198-581' OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00 OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00 OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00 OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00 OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00 OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 2026T2072	CONTINGENCY 'DVP_P4-2: 2026T2072' /* LYNNHAVEN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P4-2: H6T2072	CONTINGENCY 'DVP_P4-2: H6T2072' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	
DVP_P4-2: H5T2072	CONTINGENCY 'DVP_P4-2: H5T2072' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 1 /* 6VA BCH 230.00 - 3VA BCH 115.00 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 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P7-1: LN 245-2019	CONTINGENCY 'DVP_P7-1: LN 245-2019' OPEN BRANCH FROM BUS 314472 TO BUS 314474 CKT 1 /* 6GRN RUN 230.00 - 6GRENWCH 230.00 OPEN BRANCH FROM BUS 314474 TO BUS 314504 CKT 1 /* 6GRENWCH 230.00 - 6THALIA 230.00 END

Contingency Name	Contingency Definition
DVP_P4-2: H1T594	CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00 OPEN BUS 314897 /* 8MORRS_1 500.00 KV END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Short Circuit

Short Circuit

The following Breakers are overdutied:

Bus Number	Bus Name	BREAKER	Type	Capacity (Amps)	Duty Percentage Post Queue	Duty Percentage Pre Queue
314287	Chesterfield 7 & 8 230 kV	200312	S	40000	100.02	99.97

System Reinforcement

Facility	Upgrade Description	Cost
Chesterfield 200312 230 kV CB	Description: Replace 200312 breaker at Chesterfield with a 50 kA breaker Time Estimate: 6 months Cost: \$425,000	\$425,000

Network Impacts- Option 2

The Queue Project AE1-065 was evaluated as a 800.1 MW (Capacity 158.9 MW) injection at the Birdneck 230 kV substation in the ITO area. Project AE1-065 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-065 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
108058	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	92.55	95.54	DC	13.17
108154	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	91.78	93.22	DC	46.08
108071	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	96.1	97.73	DC	39.63
108318	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	98.7	99.21	DC	34.91
108250	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	100.87	101.37	DC	34.54
108252	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 581	single	3218.56	100.0	100.49	DC	34.03

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
107529	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H5T2072	breaker	978.0	13.17	75.26	DC	693.1
107530	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	13.51	75.32	DC	692.6
107553	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P4-2: 231T2026	breaker	978.0	11.51	58.71	DC	461.54
107554	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P4-2: 231T2128	breaker	978.0	6.57	54.48	DC	468.52
107555	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P4-2: 23152	breaker	978.0	6.67	53.9	DC	461.85
107556	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P4-2: 231T2105	breaker	978.0	5.62	53.1	DC	464.41
107832	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	89.63	94.42	DC	57.05
107548	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	16.85	64.22	DC	97.57
107755	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	26.6	56.23	DC	97.57
107624	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	0.14	47.41	DC	97.57
107433	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P2-2: VA BEACH B2	bus	906.0	4.77	46.79	DC	409.49
107547	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P4-2: H6T2072	breaker	278.7	43.78	82.35	DC	107.49
107550	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P4-2: H5T2072	breaker	282.8	42.02	79.85	DC	106.99

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
107614	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-6: VA BEAC T122	breaker	906.0	2.57	49.25	DC	422.88
107615	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-5: VA BEAC L672	breaker	906.0	4.77	46.79	DC	409.49
107616	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 2772	breaker	906.0	5.32	46.97	DC	409.49
107617	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2026	breaker	906.0	5.71	46.54	DC	403.61
107539	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	32.14	79.51	DC	97.57
107693	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	101.58	107.87	DC	246.57
107694	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	95.0	101.07	DC	238.09
107822	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	93.42	95.19	DC	149.94
107823	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: H1T581	breaker	3938.0	93.74	95.78	DC	174.17
107806	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: H1T568	breaker	3938.0	96.06	97.95	DC	161.93
108636	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	98.66	100.69	DC	173.33

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108055	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	146.27	148.9	DC	11.61
107637	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	120.86	126.62	DC	132.49
107958	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	139.88	140.85	DC	9.38
108094	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	134.86	137.49	DC	11.61
108083	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	138.48	141.11	DC	11.61
108177	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	119.76	122.39	DC	11.61
107673	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	119.45	123.22	DC	260.63
107674	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	116.16	119.87	DC	255.68
108066	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	118.95	120.99	DC	49.37
108067	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	118.98	121.03	DC	49.51

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
107773	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	102.59	104.74	DC	157.79
107774	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	102.08	104.21	DC	157.32
108121	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	119.52	120.12	DC	31.26
108122	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	114.13	114.72	DC	30.68
107604	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	131.54	135.07	DC	259.07
107605	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	131.54	135.06	DC	259.07
107927	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	151.36	152.33	DC	51.46
107930	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	137.32	138.16	DC	44.24
107935	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	107.63	108.27	DC	33.85
107758	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	106.25	108.39	DC	159.14
107759	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	103.3	105.52	DC	160.81
107760	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	103.3	105.52	DC	160.8
108214	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	108.88	109.42	DC	31.76
108215	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	106.88	107.4	DC	30.6
108276	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	110.64	111.14	DC	26.27
108277	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 594	single	2442.12	109.59	110.08	DC	25.93
107626	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	118.87	124.04	DC	254.54
107952	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	121.87	123.76	DC	45.69
107956	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	112.82	114.66	DC	44.61

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
108054	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	148.02	154.03	DC	58.46
108498	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	86.16	90.55	DC	84.71
107957	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	169.77	174.6	DC	47.24
108480	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	92.65	95.12	DC	53.08
107918	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P1-2: LN 2072	operation	749.18	21.59	95.86	DC	664.27
107923	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	Base Case	operation	749.18	11.46	51.85	DC	359.84
107980	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P1-2: LN 231	operation	799.94	7.44	65.27	DC	462.55
107985	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	Base Case	operation	799.94	9.51	64.54	DC	440.26
108093	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	136.61	142.62	DC	58.46
108082	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	140.23	146.24	DC	58.46
108176	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	121.51	127.52	DC	58.46
108078	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P1-2: LN 2072	operation	168.26	17.05	65.98	DC	82.33
108395	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P1-2: LN 2072	operation	168.26	36.08	60.96	DC	82.33
108423	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2072	operation	598.78	15.2	45.98	DC	184.29
108449	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P1-2: LN 231	operation	678.68	49.61	68.38	DC	351.88
108174	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P1-2: LN 2072	operation	168.26	3.75	50.18	DC	82.33
108441	314486	6LYNHAVN	DVP	314504	6THALIA	DVP	1	DVP_P1-2: LN 2025	operation	740.72	4.03	38.05	DC	270.96
108087	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 27	operation	740.72	7.97	57.59	DC	406.93
108092	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	Base Case	operation	740.72	12.76	56.28	DC	385.39
107970	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P1-2: LN 2072	operation	168.26	35.77	84.7	DC	82.33
108149	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	114.27	121.5	DC	232.02

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
108060	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	147.78	152.42	DC	248.61
108065	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	118.19	121.91	DC	199.55
108118	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	139.81	142.78	DC	157.38
107924	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	180.34	185.18	DC	259.13
107931	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	122.47	125.64	DC	170.45
108211	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	126.1	128.79	DC	159.92
108272	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 573	operation	2442.12	117.61	120.07	DC	130.9
107949	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	155.91	164.08	DC	230.08
107955	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	96.97	103.88	DC	168.33
108313	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	114.61	117.13	DC	175.79
108321	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	90.33	92.22	DC	131.88
108424	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	98.41	100.09	DC	114.92
108407	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	76.58	86.14	DC	233.01
108244	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	operation	3218.56	117.25	119.55	DC	160.86
108249	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	94.61	96.48	DC	130.78
108367	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	41.29	65.61	DC	351.88

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.

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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
108055	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	146.27	148.9	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107693	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	101.58	107.87	DC	246.57

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

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

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

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

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

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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
107673	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	119.45	123.22	DC	260.63

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

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108318	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	98.7	99.21	DC	34.91

Bus #	Bus	MW Impact
314236	6NRTHEST	0.24
314250	6ROCKVILLE	0.43
314309	6IRON208	0.57
314314	3LOCKS	0.37
315053	1BELMED1	21.19
315054	1BELMED2	21.19
315055	1BELMED3	17.59
315058	1CHESTF3	21.97
315059	1CHESTF4	35.61
315065	1CHESTF6	25.77
315074	1HOPCGN1	10.18
315075	1HOPCGN2	10.05
315083	1SPRUNCA	13.14
315084	1SPRUNCB	13.14
315085	1SPRUNCC	9.74
315086	1SPRUNCD	9.74
315090	1YORKTN1	34.77
315091	1YORKTN2	36.08
315108	1ELIZAR1	4.15
315109	1ELIZAR2	4.08
315110	1ELIZAR3	4.2
315225	1N ANNA1	64.21
315226	1N ANNA2	64.36
315233	1SURRY 2	32.15
923801	AB2-015 C O1	10.2
923911	AB2-031 C O1	2.55
924241	AB2-068 O1	231.57
924501	AB2-099 C	0.67
924511	AB2-100 C	13.4
925051	AB2-160 C O1	6.69
925061	AB2-161 C O1	4.14
925171	AB2-174 C O1	8.02
925281	AB2-186 C	0.74
925291	AB2-188 C O1	2.78
925331	AB2-190 C	24.6
925821	AC1-061	0.01
925861	AC1-065 C	4.0
926071	AC1-086 C	23.42
926291	AC1-107 O1	349.54
926751	AC1-161 C O1	37.5

Bus #	Bus	MW Impact
926781	AC1-164 C	47.96
927041	AC1-191 C O1	11.13
927221	AC1-216 C O1	12.04
932041	AC2-012 C	12.55
932581	AC2-078 C O1	4.99
932591	AC2-079 C O1	7.0
932831	AC2-110 C	1.6
933011	AC2-125	2.88
933021	AC2-126	2.9
933031	AC2-127	1.58
933041	AC2-128	1.53
933051	AC2-129	1.43
933061	AC2-130	2.9
933071	AC2-131 1	1.96
933081	AC2-131 2	0.89
933111	AC2-132 1	1.03
933121	AC2-132 2	0.53
933291	AC2-141 C	37.5
933501	AC2-165 C	11.05
933991	AD1-023 C	15.24
934011	AD1-025 C	20.69
934061	AD1-033 C	9.22
934141	AD1-041 C	6.28
934201	AD1-047 C	9.12
934521	AD1-076 C	63.42
934571	AD1-082 C	9.42
935161	AD1-151 C O1	19.77
935211	AD1-156 C	0.45
936041	AD2-007	2.2
936051	AD2-008 C	3.6
936151	AD2-021	0.28
936241	AD2-030 C	2.73
936301	AD2-039 C	1.6
936391	AD2-049 C	2.18
936401	AD2-051 C O1	9.98
936591	AD2-074 C	6.22
936661	AD2-085 C	4.2
936711	AD2-090 C O1	8.44
937221	AD2-160 C O1	7.16
937251	AD2-164	5.83
937541	AD2-215 C	2.13
937571	AD2-169 C	11.35
938031	AE1-004 C	1.6
938081	AE1-010	3.66
938171	AE1-026 C1 O	32.4
938172	AE1-026 C2 O	4.69
938181	AE1-027 C	2.87
938191	AE1-028 C	1.66
938221	AE1-035 C	2.57
938461	AE1-065 C O2	34.91
938471	AE1-066 C O2	35.88
938481	AE1-067 C O2	32.63

Bus #	Bus	MW Impact
938491	AE1-068 C O2	69.99
938501	AE1-069 C O2	55.5
938531	AE1-072 C O2	21.41
938551	AE1-074 C	3.1
938561	AE1-075 C	2.46
AA2-074	AA2-074	5.92
AE1-042	AE1-042	9.23
CARR	CARR	1.8
CBM-S1	CBM-S1	13.81
CBM-S2	CBM-S2	17.09
CBM-W1	CBM-W1	9.41
CBM-W2	CBM-W2	85.64
CIN	CIN	4.83
CPL	CPL	8.71
IPL	IPL	2.97
LGEE	LGEE	1.45
MEC	MEC	11.66
MECS	MECS	1.83
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.23

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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
108250	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	100.87	101.37	DC	34.54

Bus #	Bus	MW Impact
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.43
314309	6IRON208	0.56
314314	3LOCKS	0.37
315053	1BELMED1	20.98
315054	1BELMED2	20.98
315055	1BELMED3	17.41
315058	1CHESTF3	21.74
315059	1CHESTF4	35.24
315065	1CHESTF6	25.5
315074	1HOPCGN1	10.08
315075	1HOPCGN2	9.95
315083	1SPRUNCA	13.01
315084	1SPRUNCB	13.01
315085	1SPRUNCC	9.65
315086	1SPRUNCD	9.65
315090	1YORKTN1	34.4
315091	1YORKTN2	35.69
315108	1ELIZAR1	4.1
315109	1ELIZAR2	4.03
315110	1ELIZAR3	4.15
315225	1N ANNA1	62.98
315226	1N ANNA2	63.12
315233	1SURRY 2	31.81
923801	AB2-015 C O1	10.1
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	229.21
924501	AB2-099 C	0.66
924511	AB2-100 C	13.27
925021	AB2-158 C	2.4
925051	AB2-160 C O1	6.62
925061	AB2-161 C O1	4.09
925171	AB2-174 C O1	7.95
925281	AB2-186 C	0.73
925291	AB2-188 C O1	2.76
925331	AB2-190 C	24.34
925821	AC1-061	0.01
925861	AC1-065 C	3.96
926001	AC1-076 C	6.66
926071	AC1-086 C	23.2

Bus #	Bus	MW Impact
926291	AC1-107 O1	345.98
926731	AC1-158 C	193.77
926751	AC1-161 C O1	37.09
926781	AC1-164 C	47.46
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.91
932041	AC2-012 C	12.41
932581	AC2-078 C O1	4.94
932591	AC2-079 C O1	6.93
932831	AC2-110 C	1.58
933011	AC2-125	2.84
933021	AC2-126	2.86
933031	AC2-127	1.56
933041	AC2-128	1.51
933051	AC2-129	1.41
933061	AC2-130	2.87
933071	AC2-131 1	1.94
933081	AC2-131 2	0.88
933111	AC2-132 1	1.02
933121	AC2-132 2	0.52
933291	AC2-141 C	37.09
933501	AC2-165 C	11.13
933991	AD1-023 C	15.09
934011	AD1-025 C	20.47
934061	AD1-033 C	9.12
934141	AD1-041 C	6.22
934201	AD1-047 C	9.05
934521	AD1-076 C	62.8
934541	AD1-078 C	4.08
934571	AD1-082 C	9.32
935161	AD1-151 C O1	19.56
935211	AD1-156 C	0.45
936041	AD2-007	2.17
936051	AD2-008 C	3.56
936151	AD2-021	0.28
936241	AD2-030 C	2.7
936301	AD2-039 C	1.58
936391	AD2-049 C	2.16
936401	AD2-051 C O1	9.89
936591	AD2-074 C	6.15
936661	AD2-085 C	4.16
936711	AD2-090 C O1	8.36
937221	AD2-160 C O1	7.08
937251	AD2-164	5.77
937541	AD2-215 C	2.11
937571	AD2-169 C	11.26
938031	AE1-004 C	1.58
938081	AE1-010	9.24
938171	AE1-026 C1 O	32.09
938172	AE1-026 C2 O	4.64
938181	AE1-027 C	2.84
938191	AE1-028 C	1.65

Bus #	Bus	MW Impact
938221	AE1-035 C	2.54
938461	AE1-065 C O2	34.54
938471	AE1-066 C O2	35.49
938481	AE1-067 C O2	32.28
938491	AE1-068 C O2	69.23
938501	AE1-069 C O2	54.89
938531	AE1-072 C O2	21.18
938551	AE1-074 C	3.07
938561	AE1-075 C	2.47
AA2-074	AA2-074	5.89
AE1-042	AE1-042	9.22
CARR	CARR	1.81
CBM-S1	CBM-S1	13.82
CBM-S2	CBM-S2	17.01
CBM-W1	CBM-W1	9.48
CBM-W2	CBM-W2	85.74
CIN	CIN	4.86
CPL	CPL	8.65
IPL	IPL	2.99
LGEE	LGEE	1.46
MEC	MEC	11.7
MECS	MECS	1.88
RENSSELAER	RENSSELAER	1.43
WEC	WEC	1.24

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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
107530	314295	6BIRDNECK	DVP	314481	6LANDSTN	DVP	1	DVP_P4-2: H6T2072	breaker	978.0	13.51	75.32	DC	692.6

Bus #	Bus	MW Impact
916191	Z1-068 C	0.22
916192	Z1-068 E	9.09
925521	AC1-027 C	0.51
925522	AC1-027 E	1.68
938461	AE1-065 C O2	137.55
938462	AE1-065 E O2	555.05
938471	AE1-066 C O2	141.36
938472	AE1-066 E O2	551.24
938481	AE1-067 C O2	128.55
938482	AE1-067 E O2	564.05
BAYOU	BAYOU	0.02
BIG_CAJUN1	BIG_CAJUN1	0.02
BIG_CAJUN2	BIG_CAJUN2	0.05
BLUEG	BLUEG	0.05
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.0
CARR	CARR	0.0
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
CHOCTAW	CHOCTAW	0.02
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.06
DEARBORN	DEARBORN	0.01
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.01
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.0
G-007	G-007	0.0
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.02
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.03
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01

Bus #	Bus	MW Impact
TVA	TVA	0.03
UNIONPOWER	UNIONPOWER	0.01

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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
107553	314295	6BIRDNECK	DVP	314490	6VA BCH	DVP	1	DVP_P4-2: 231T2026	breaker	978.0	11.51	58.71	DC	461.54

Bus #	Bus	MW Impact
916191	Z1-068 C	0.15
916192	Z1-068 E	6.06
919152	AA1-139 E	2.43
933732	AC2-196 E	0.51
934061	AD1-033 C	4.61
934062	AD1-033 E	3.08
937221	AD2-160 C O1	2.31
937222	AD2-160 E O1	1.21
938181	AE1-027 C	0.98
938182	AE1-027 E	0.51
938191	AE1-028 C	0.57
938192	AE1-028 E	0.33
938461	AE1-065 C O2	91.66
938462	AE1-065 E O2	369.88
938471	AE1-066 C O2	94.2
938472	AE1-066 E O2	367.34
938481	AE1-067 C O2	85.66
938482	AE1-067 E O2	375.88
938531	AE1-072 C O2	6.38
938532	AE1-072 E O2	3.33
CARR	CARR	0.0
CBM-S1	CBM-S1	0.23
CBM-S2	CBM-S2	0.24
CBM-W1	CBM-W1	0.27
CBM-W2	CBM-W2	1.56
CIN	CIN	0.12
CPLE	CPLE	0.13
G-007	G-007	0.01
IPL	IPL	0.08
LGEE	LGEE	0.03
MEC	MEC	0.25
MECS	MECS	0.13
O-066	O-066	0.03
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.03

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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
107832	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	89.63	94.42	DC	57.05

Bus #	Bus	MW Impact
315073	1STONECA	13.17
315074	1HOPCGN1	15.88
315075	1HOPCGN2	15.68
315076	1HOPPOLC	3.14
315077	1HOPHCF1	4.9
315078	1HOPHCF2	4.9
315079	1HOPHCF3	4.9
315080	1HOPHCF4	7.44
315090	1YORKTN1	11.39
315091	1YORKTN2	11.82
315116	1SURRY 1	23.38
315120	1GRAVEL4	2.41
315122	1GRAVEL6	2.4
916192	Z1-068 E	0.75
924811	AB2-134 C O1	2.94
924812	AB2-134 E O1	16.24
925331	AB2-190 C	28.21
925332	AB2-190 E	12.09
925522	AC1-027 E	0.46
926662	AC1-147 E	0.56
927221	AC1-216 C O1	13.05
927222	AC1-216 E O1	10.26
932041	AC2-012 C	4.34
932042	AC2-012 E	7.08
933061	AC2-130	1.75
933071	AC2-131 1	1.18
933081	AC2-131 2	0.54
933111	AC2-132 1	0.62
933121	AC2-132 2	0.32
933732	AC2-196 E	0.45
934011	AD1-025 C	22.43
934012	AD1-025 E	13.29
934061	AD1-033 C	2.86
934062	AD1-033 E	1.91
935112	AD1-144 E	0.41
935161	AD1-151 C O1	22.67
935162	AD1-151 E O1	15.11
936041	AD2-007	2.38
936051	AD2-008 C	3.9
936052	AD2-008 E	8.5
936391	AD2-049 C	0.83

Bus #	Bus	MW Impact
936392	AD2-049 E	0.83
937251	AD2-164	2.01
937541	AD2-215 C	0.75
937542	AD2-215 E	0.4
938181	AE1-027 C	0.87
938182	AE1-027 E	0.46
938191	AE1-028 C	0.51
938192	AE1-028 E	0.29
938461	AE1-065 C O2	11.33
938462	AE1-065 E O2	45.72
938471	AE1-066 C O2	11.64
938472	AE1-066 E O2	45.4
938481	AE1-067 C O2	10.59
938482	AE1-067 E O2	46.46
CARR	CARR	0.16
CBM-S1	CBM-S1	0.97
CBM-S2	CBM-S2	1.53
CBM-W1	CBM-W1	0.36
CBM-W2	CBM-W2	5.78
CIN	CIN	0.21
CPL	CPL	0.79
DEARBORN	DEARBORN	0.04
G-007	G-007	0.51
IPL	IPL	0.12
LGEE	LGEE	0.06
MEC	MEC	0.65
O-066	O-066	1.72
RENSSELAER	RENSSELAER	0.13
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
107548	314438	3BAINS STORE	DVP	314483	3LONGC27	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	16.85	64.22	DC	97.57

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O2	19.38
938462	AE1-065 E O2	78.19
938471	AE1-066 C O2	19.91
938472	AE1-066 E O2	77.66
938481	AE1-067 C O2	18.11
938482	AE1-067 E O2	79.46
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107755	314439	3BAYSIDE	DVP	314447	3BURTN67	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	26.6	56.23	DC	97.57

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O2	19.38
938462	AE1-065 E O2	78.19
938471	AE1-066 C O2	19.91
938472	AE1-066 E O2	77.66
938481	AE1-067 C O2	18.11
938482	AE1-067 E O2	79.46
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107624	314483	3LONGC27	DVP	314439	3BAYSIDE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	0.14	47.41	DC	97.57

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O2	19.38
938462	AE1-065 E O2	78.19
938471	AE1-066 C O2	19.91
938472	AE1-066 E O2	77.66
938481	AE1-067 C O2	18.11
938482	AE1-067 E O2	79.46
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107614	314490	6VA BCH	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-6: VA BEAC T122	breaker	906.0	2.57	49.25	DC	422.88

Bus #	Bus	MW Impact
916191	Z1-068 C	0.14
916192	Z1-068 E	5.55
925522	AC1-027 E	0.4
938461	AE1-065 C O2	83.98
938462	AE1-065 E O2	338.89
938471	AE1-066 C O2	86.31
938472	AE1-066 E O2	336.57
938481	AE1-067 C O2	78.49
938482	AE1-067 E O2	344.39
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.09
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.57
CIN	CIN	0.04
CPLE	CPLE	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.09
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107547	314490	6VA BCH	DVP	314511	3VA BCH	DVP	1	DVP_P4-2: HGT2072	breaker	278.7	43.78	82.35	DC	107.49

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.41
938461	AE1-065 C O2	21.35
938462	AE1-065 E O2	86.15
938471	AE1-066 C O2	21.94
938472	AE1-066 E O2	85.55
938481	AE1-067 C O2	19.95
938482	AE1-067 E O2	87.54
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.04
CBM-W1	CBM-W1	0.05
CBM-W2	CBM-W2	0.28
CIN	CIN	0.02
CPLE	CPLE	0.02
G-007A	G-007A	0.0
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
MECS	MECS	0.03
NYISO	NYISO	0.0
O-066A	O-066A	0.0
VFT	VFT	0.01
WEC	WEC	0.01

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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
107550	314490	6VA BCH	DVP	314511	3VA BCH	DVP	2	DVP_P4-2: HST2072	breaker	282.8	42.02	79.85	DC	106.99

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.4
938461	AE1-065 C O2	21.25
938462	AE1-065 E O2	85.74
938471	AE1-066 C O2	21.84
938472	AE1-066 E O2	85.15
938481	AE1-067 C O2	19.86
938482	AE1-067 E O2	87.13
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.04
CBM-S2	CBM-S2	0.04
CBM-W1	CBM-W1	0.05
CBM-W2	CBM-W2	0.28
CIN	CIN	0.02
CPLE	CPLE	0.02
G-007A	G-007A	0.0
IPL	IPL	0.01
LGEE	LGEE	0.01
MEC	MEC	0.05
MECS	MECS	0.03
NYISO	NYISO	0.0
O-066A	O-066A	0.0
VFT	VFT	0.01
WEC	WEC	0.01

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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
107539	314511	3VA BCH	DVP	314438	3BAINS STORE	DVP	1	DVP_P4-2: 2026T2072	breaker	206.0	32.14	79.51	DC	97.57

Bus #	Bus	MW Impact
916191	Z1-068 C	0.03
916192	Z1-068 E	1.28
925521	AC1-027 C	0.37
925522	AC1-027 E	1.24
938461	AE1-065 C O2	19.38
938462	AE1-065 E O2	78.19
938471	AE1-066 C O2	19.91
938472	AE1-066 E O2	77.66
938481	AE1-067 C O2	18.11
938482	AE1-067 E O2	79.46
CARR	CARR	0.0
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.1
CBM-W1	CBM-W1	0.1
CBM-W2	CBM-W2	0.61
CIN	CIN	0.05
CPL	CPL	0.05
G-007	G-007	0.0
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.05
O-066	O-066	0.01
RENSSELAER	RENSSELAER	0.0
WEC	WEC	0.01

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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
107637	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	120.86	126.62	DC	132.49

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

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107958	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	139.88	140.85	DC	9.38

Bus #	Bus	MW Impact
314314	3LOCKS	0.19
315065	1CHESTF6	29.63
315074	1HOPCGN1	6.05
315075	1HOPCGN2	5.97
315076	1HOPPOLC	1.19
315077	1HOPHCF1	1.87
315078	1HOPHCF2	1.87
315079	1HOPHCF3	1.87
315080	1HOPHCF4	2.83
315116	1SURRY 1	11.5
315117	1GRAVELC	0.4
315119	1GRAVEL3	1.17
315120	1GRAVEL4	1.18
315121	1GRAVEL5	1.17
315122	1GRAVEL6	1.18
315136	1ROSEMG1	1.01
315137	1ROSEMS1	0.63
315138	1ROSEMG2	0.47
315139	1GASTONA	1.45
315141	1GASTONB	1.45
919701	AA2-057 C	2.66
923801	AB2-015 C O1	3.38
923851	AB2-025 C	0.28
923911	AB2-031 C O1	1.04
923991	AB2-040 C O1	0.59
924501	AB2-099 C	0.23
924511	AB2-100 C	6.45
924811	AB2-134 C O1	1.25
925051	AB2-160 C O1	3.51
925061	AB2-161 C O1	1.97
925171	AB2-174 C O1	3.34
925281	AB2-186 C	0.21
925291	AB2-188 C O1	0.84
925331	AB2-190 C	11.74
925821	AC1-061	0.0
926071	AC1-086 C	9.48
926201	AC1-098 C	2.36
926211	AC1-099 C	0.79
927141	AC1-208 C	3.5
927221	AC1-216 C O1	5.53

Bus #	Bus	MW Impact
930861	AB1-132 C O1	1.11
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932041	AC2-012 C	3.41
932581	AC2-078 C O1	3.0
932591	AC2-079 C O1	2.78
932631	AC2-084 C	3.37
933991	AD1-023 C	4.77
934011	AD1-025 C	9.51
934201	AD1-047 C	3.73
934331	AD1-057 C O1	4.04
934521	AD1-076 C	19.56
934571	AD1-082 C	4.48
935161	AD1-151 C O1	9.43
935211	AD1-156 C	0.35
936041	AD2-007	1.01
936051	AD2-008 C	1.66
936401	AD2-051 C O1	3.34
936661	AD2-085 C	1.69
936711	AD2-090 C O1	2.84
937541	AD2-215 C	0.6
937571	AD2-169 C	4.54
938171	AE1-026 C1 O	10.23
938172	AE1-026 C2 O	1.48
938221	AE1-035 C	0.84
938461	AE1-065 C O2	9.38
938471	AE1-066 C O2	9.64
938481	AE1-067 C O2	8.77
938491	AE1-068 C O2	19.98
938501	AE1-069 C O2	15.85
AA2-074	AA2-074	1.69
CARR	CARR	0.32
CBM-S1	CBM-S1	3.59
CBM-S2	CBM-S2	4.7
CBM-W1	CBM-W1	2.8
CBM-W2	CBM-W2	22.8
CIN	CIN	1.32
CPL	CPL	2.48
IPL	IPL	0.82
LGEE	LGEE	0.38
MEC	MEC	3.19
MECS	MECS	0.85
RENSSELAER	RENSSELAER	0.25
WEC	WEC	0.35

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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
108094	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	134.86	137.49	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108083	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	138.48	141.11	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108177	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	119.76	122.39	DC	11.61

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108121	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	119.52	120.12	DC	31.26

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHEST	0.22
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.4
315038	1LDYSMT2	5.39
315039	1LDYSMT3	5.71
315040	1LDYSMT4	5.72
315041	1LDYSMT5	5.74
315043	1FOUR RIVERA	4.28
315044	1FOUR RIVERB	3.32
315045	1FOUR RIVERC	4.28
315046	1FOUR RIVERD	3.32
315047	1FOUR RIVERE	3.32
315048	1FOUR RIVERF	4.28
315053	1BELMED1	19.56
315054	1BELMED2	19.56
315055	1BELMED3	16.23
315058	1CHESTF3	20.52
315059	1CHESTF4	33.26
315067	1DARBY 1	3.06
315068	1DARBY 2	3.07
315069	1DARBY 3	3.08
315070	1DARBY 4	3.08
315074	1HOPCGN1	9.41
315075	1HOPCGN2	9.29
315083	1SPRUNCA	11.98
315084	1SPRUNCB	11.98
315085	1SPRUNCC	8.88
315086	1SPRUNCD	8.88
315090	1YORKTN1	31.93
315091	1YORKTN2	33.14
315225	1N ANNA1	43.91
315226	1N ANNA2	44.0
919211	AA1-145	12.37
923801	AB2-015 C O1	9.1
923911	AB2-031 C O1	2.25
924061	AB2-050	0.73
924241	AB2-068 O1	227.03
924501	AB2-099 C	0.6
924511	AB2-100 C	11.86

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.11
925061	AB2-161 C O1	3.72
925171	AB2-174 C O1	7.09
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.56
925861	AC1-065 C	3.77
926001	AC1-076 C	4.94
926071	AC1-086 C	20.72
926291	AC1-107 O1	342.69
926411	AC1-112 C	0.39
926551	AC1-134	1.82
926731	AC1-158 C	93.45
926751	AC1-161 C O1	33.57
926781	AC1-164 C	45.65
927041	AC1-191 C O1	10.8
927221	AC1-216 C O1	11.02
930121	AB1-027 C	0.51
932041	AC2-012 C	11.24
932501	AC2-070 C	0.33
932581	AC2-078 C O1	4.51
932591	AC2-079 C O1	6.28
932831	AC2-110 C	1.51
933011	AC2-125	3.09
933021	AC2-126	3.11
933031	AC2-127	1.7
933041	AC2-128	1.64
933051	AC2-129	1.54
933061	AC2-130	2.72
933071	AC2-131 1	1.84
933081	AC2-131 2	0.84
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.41
933291	AC2-141 C	33.57
933501	AC2-165 C	9.63
933991	AD1-023 C	13.56
934011	AD1-025 C	18.95
934061	AD1-033 C	8.25
934141	AD1-041 C	5.93
934201	AD1-047 C	8.07
934211	AD1-048 C	0.48
934521	AD1-076 C	56.45
934541	AD1-078 C	3.05
934571	AD1-082 C	8.48
934781	AD1-105 C	7.81
935161	AD1-151 C O1	18.13
936041	AD2-007	2.01
936051	AD2-008 C	3.3
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51

Bus #	Bus	MW Impact
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.86
936581	AD2-073 C	2.23
936591	AD2-074 C	5.95
936661	AD2-085 C	3.77
936711	AD2-090 C O1	7.52
937221	AD2-160 C O1	6.4
937251	AD2-164	5.34
937541	AD2-215 C	1.92
937571	AD2-169 C	10.04
938031	AE1-004 C	1.51
938081	AE1-010	6.85
938171	AE1-026 C1 O	28.81
938172	AE1-026 C2 O	4.17
938181	AE1-027 C	2.57
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O2	31.26
938471	AE1-066 C O2	32.12
938481	AE1-067 C O2	29.21
938491	AE1-068 C O2	59.59
938501	AE1-069 C O2	47.24
938531	AE1-072 C O2	19.15
938551	AE1-074 C	2.75
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.47
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.16
CBM-W1	CBM-W1	9.54
CBM-W2	CBM-W2	80.31
CIN	CIN	4.81
CPL	CPL	7.65
IPL	IPL	2.98
LGEE	LGEE	1.44
MEC	MEC	11.27
MECS	MECS	2.35
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.23

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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
107927	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	151.36	152.33	DC	51.46

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

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

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
108214	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	108.88	109.42	DC	31.76

Bus #	Bus	MW Impact
314229	6MT RD221	0.15
314236	6NRTHST	0.23
314250	6ROCKVILLE	0.4
315037	1LDYSMT1	5.54
315038	1LDYSMT2	5.53
315039	1LDYSMT3	5.86
315040	1LDYSMT4	5.87
315041	1LDYSMT5	5.88
315043	1FOUR RIVERA	4.37
315044	1FOUR RIVERB	3.38
315045	1FOUR RIVERC	4.37
315046	1FOUR RIVERD	3.38
315047	1FOUR RIVERE	3.38
315048	1FOUR RIVERF	4.36
315053	1BELMED1	19.88
315054	1BELMED2	19.88
315055	1BELMED3	16.5
315058	1CHESTF3	20.88
315059	1CHESTF4	33.84
315067	1DARBY 1	3.12
315068	1DARBY 2	3.12
315069	1DARBY 3	3.13
315070	1DARBY 4	3.14
315074	1HOPCGN1	9.57
315075	1HOPCGN2	9.45
315083	1SPRUNCA	12.17
315084	1SPRUNCB	12.17
315085	1SPRUNCC	9.02
315086	1SPRUNCD	9.02
315090	1YORKTN1	32.48
315091	1YORKTN2	33.7
315225	1N ANNA1	44.6
315226	1N ANNA2	44.69
919211	AA1-145	12.63
923801	AB2-015 C O1	9.23
923911	AB2-031 C O1	2.28
924061	AB2-050	0.74
924241	AB2-068 O1	231.31
924501	AB2-099 C	0.6
924511	AB2-100 C	12.03

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.21
925061	AB2-161 C O1	3.78
925171	AB2-174 C O1	7.19
925281	AB2-186 C	0.67
925291	AB2-188 C O1	2.52
925331	AB2-190 C	22.94
925861	AC1-065 C	3.84
926071	AC1-086 C	21.01
926291	AC1-107 O1	349.15
926411	AC1-112 C	0.4
926551	AC1-134	1.86
926751	AC1-161 C O1	34.12
926781	AC1-164 C	46.48
927041	AC1-191 C O1	11.01
927221	AC1-216 C O1	11.21
930121	AB1-027 C	0.51
932041	AC2-012 C	11.42
932501	AC2-070 C	0.34
932581	AC2-078 C O1	4.59
932591	AC2-079 C O1	6.39
932831	AC2-110 C	1.54
933011	AC2-125	3.17
933021	AC2-126	3.19
933031	AC2-127	1.75
933041	AC2-128	1.68
933051	AC2-129	1.58
933061	AC2-130	2.76
933071	AC2-131 1	1.87
933081	AC2-131 2	0.85
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933261	AC2-137 C	0.41
933291	AC2-141 C	34.12
933501	AC2-165 C	9.61
933991	AD1-023 C	13.76
934011	AD1-025 C	19.26
934061	AD1-033 C	8.38
934141	AD1-041 C	6.04
934201	AD1-047 C	8.18
934211	AD1-048 C	0.48
934521	AD1-076 C	57.28
934571	AD1-082 C	8.62
934781	AD1-105 C	7.98
935161	AD1-151 C O1	18.43
936041	AD2-007	2.05
936051	AD2-008 C	3.35
936151	AD2-021	0.27
936241	AD2-030 C	2.62
936301	AD2-039 C	1.54
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.98

Bus #	Bus	MW Impact
936581	AD2-073 C	2.28
936591	AD2-074 C	6.07
936661	AD2-085 C	3.83
936711	AD2-090 C O1	7.63
937221	AD2-160 C O1	6.5
937251	AD2-164	5.44
937541	AD2-215 C	1.95
937571	AD2-169 C	10.18
938031	AE1-004 C	1.54
938081	AE1-010	3.16
938171	AE1-026 C1 O	29.24
938172	AE1-026 C2 O	4.23
938181	AE1-027 C	2.61
938191	AE1-028 C	1.51
938221	AE1-035 C	2.31
938461	AE1-065 C O2	31.76
938471	AE1-066 C O2	32.64
938481	AE1-067 C O2	29.68
938491	AE1-068 C O2	60.44
938501	AE1-069 C O2	47.91
938531	AE1-072 C O2	19.46
938551	AE1-074 C	2.8
938561	AE1-075 C	2.14
AA2-074	AA2-074	5.26
AE1-042	AE1-042	8.5
CARR	CARR	1.66
CBM-S1	CBM-S1	12.83
CBM-S2	CBM-S2	15.28
CBM-W1	CBM-W1	9.43
CBM-W2	CBM-W2	80.24
CIN	CIN	4.77
CPL	CPL	7.73
IPL	IPL	2.95
LGEE	LGEE	1.43
MEC	MEC	11.21
MECS	MECS	2.26
RENSSELAER	RENSSELAER	1.31
WEC	WEC	1.22

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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
108276	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	110.64	111.14	DC	26.27

Bus #	Bus	MW Impact
314229	6MT RD221	0.13
314236	6NRTHST	0.19
314250	6ROCKVILLE	0.34
314309	6IRON208	0.45
315043	1FOUR RIVERA	3.68
315044	1FOUR RIVERB	2.85
315045	1FOUR RIVERC	3.68
315046	1FOUR RIVERD	2.85
315047	1FOUR RIVERE	2.85
315048	1FOUR RIVERF	3.68
315053	1BELMED1	16.55
315054	1BELMED2	16.55
315055	1BELMED3	13.73
315058	1CHESTF3	17.45
315059	1CHESTF4	28.28
315060	1CHESTF5	10.17
315061	1CHESTG7	3.99
315062	1CHESTS7	1.81
315063	1CHESTG8	3.91
315064	1CHESTS8	2.01
315067	1DARBY 1	2.62
315068	1DARBY 2	2.63
315069	1DARBY 3	2.64
315070	1DARBY 4	2.64
315074	1HOPCGN1	7.98
315075	1HOPCGN2	7.88
315083	1SPRUNCA	10.07
315084	1SPRUNCB	10.07
315085	1SPRUNCC	7.46
315086	1SPRUNCD	7.46
315090	1YORKTN1	27.05
315091	1YORKTN2	28.07
315225	1N ANNA1	29.19
315226	1N ANNA2	29.26
919211	AA1-145	10.65
924061	AB2-050	0.63
924241	AB2-068 O1	199.74
925051	AB2-160 C O1	5.16
925061	AB2-161 C O1	3.13
925331	AB2-190 C	19.1

Bus #	Bus	MW Impact
925861	AC1-065 C	3.18
926291	AC1-107 O1	301.49
926411	AC1-112 C	0.34
926551	AC1-134	1.57
926751	AC1-161 C O1	28.19
926781	AC1-164 C	39.21
927041	AC1-191 C O1	9.18
927221	AC1-216 C O1	9.33
930121	AB1-027 C	0.44
932041	AC2-012 C	9.45
932501	AC2-070 C	0.29
932581	AC2-078 C O1	3.8
932591	AC2-079 C O1	5.29
932831	AC2-110 C	1.27
933011	AC2-125	2.58
933021	AC2-126	2.6
933031	AC2-127	1.42
933041	AC2-128	1.37
933051	AC2-129	1.28
933061	AC2-130	2.32
933071	AC2-131 1	1.57
933081	AC2-131 2	0.71
933111	AC2-132 1	0.82
933121	AC2-132 2	0.42
933261	AC2-137 C	0.35
933291	AC2-141 C	28.19
934011	AD1-025 C	16.03
934061	AD1-033 C	6.93
934141	AD1-041 C	4.99
934211	AD1-048 C	0.41
934571	AD1-082 C	7.14
935161	AD1-151 C O1	15.35
936041	AD2-007	1.7
936051	AD2-008 C	2.79
936151	AD2-021	0.23
936241	AD2-030 C	2.16
936301	AD2-039 C	1.27
936391	AD2-049 C	1.68
936661	AD2-085 C	3.18
937221	AD2-160 C O1	5.38
937251	AD2-164	4.52
937541	AD2-215 C	1.61
938031	AE1-004 C	1.27
938181	AE1-027 C	2.16
938191	AE1-028 C	1.25
938461	AE1-065 C O2	26.27
938471	AE1-066 C O2	26.99
938481	AE1-067 C O2	24.55
938531	AE1-072 C O2	16.11
938551	AE1-074 C	2.29
AA2-074	AA2-074	4.74
AB2-013	AB2-013	5.2

Bus #	Bus	MW Impact
AE1-033	AE1-033	5.42
AE1-042	AE1-042	10.04
CARR	CARR	1.84
CBM-S1	CBM-S1	16.23
CBM-S2	CBM-S2	14.56
CBM-W1	CBM-W1	18.72
CBM-W2	CBM-W2	108.33
CIN	CIN	8.61
CPL	CPL	6.97
IPL	IPL	5.45
LGEE	LGEE	2.53
MEC	MEC	17.84
MECS	MECS	8.51
RENSSELAER	RENSSELAER	1.46
WEC	WEC	2.27
Z1-043	Z1-043	8.93

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
107626	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	118.87	124.04	DC	254.54

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

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

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

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

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

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P2-2: VA BEACH B2	CONTINGENCY 'DVP_P2-2: VA BEACH B2' /* VA BEACH 115 KV OPEN BRANCH FROM BUS 314438 TO BUS 314511 CKT 1 /* 3BAINS STORE115.00 - 3VA BCH 115.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P4-2: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: 573T594	CONTINGENCY 'DVP_P4-2: 573T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P4-2: 568T575	CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P7-1: LN 198-581	CONTINGENCY 'DVP_P7-1: LN 198-581' OPEN BRANCH FROM BUS 314135 TO BUS 314367 CKT 1 /* 3CHANCE 115.00 - 3CHANC_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314775 CKT 1 /* 3CHANCE 115.00 - 3NI RVER 115.00 OPEN BRANCH FROM BUS 314755 TO BUS 314779 CKT 1 /* 3SPOTSYL 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314775 TO BUS 314779 CKT 1 /* 3NI RVER 115.00 - 3TDTAVRN 115.00 OPEN BRANCH FROM BUS 314815 TO BUS 314877 CKT 1 /* 3OAK GRE 115.00 - 3OAK G_1 115.00 OPEN BUS 314367 /* ISLAND: 3CHANC_1 115.00 OPEN BUS 314775 /* ISLAND: 3NI RVER 115.00 OPEN BUS 314779 /* ISLAND: 3TDTAVRN 115.00 OPEN BUS 314877 /* ISLAND: 3OAK G_1 115.00 OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-5: VA BEAC L672	CONTINGENCY 'DVP_P4-5: VA BEAC L672' /* VA BEACH 115 KV OPEN BRANCH FROM BUS 314438 TO BUS 314511 CKT 1 /* 3BAINS STORE115.00 - 3VA BCH 115.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P4-2: 23152	CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00 OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P4-2: H1T581	CONTINGENCY 'DVP_P4-2: H1T581' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 2772	CONTINGENCY 'DVP_P4-2: 2772' /* VA BEACH 115 KV OPEN BRANCH FROM BUS 314438 TO BUS 314483 CKT 1 /* 3BAINS STORE115.00 - 3LONGC27 115.00 OPEN BRANCH FROM BUS 314438 TO BUS 314511 CKT 1 /* 3BAINS STORE115.00 - 3VA BCH 115.00 OPEN BRANCH FROM BUS 314439 TO BUS 314447 CKT 1 /* 3BAYSIDE 115.00 - 3BURTN67 115.00 OPEN BRANCH FROM BUS 314439 TO BUS 314483 CKT 1 /* 3BAYSIDE 115.00 - 3LONGC27 115.00 OPEN BUS 314438 /* ISLAND: 3BAINS STORE115.00 OPEN BUS 314439 /* ISLAND: 3BAYSIDE 115.00 OPEN BUS 314483 /* ISLAND: 3LONGC27 115.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P4-2: 231T2128	CONTINGENCY 'DVP_P4-2: 231T2128' /* THRASHER 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314466 TO BUS 314508 CKT 1 /* 6FENTRES 230.00 - 6THRASHER 230.00 END
DVP_P4-2: 231T2105	CONTINGENCY 'DVP_P4-2: 231T2105' /* THRASHER 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314508 TO BUS 314514 CKT 1 /* 6THRASHER 230.00 - 6YADKIN 230.00 END
DVP_P4-6: VA BEAC T122	CONTINGENCY 'DVP_P4-6: VA BEAC T122' /* VA BEACH 115 KV OPEN BUS 314511 /* 3VA BCH 115.00 KV OPEN BUS 314652 /* ISLAND: 3VA BC_1 115.00 END
DVP_P4-2: 231T2026	CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 END
DVP_P1-2: LN 552	CONTINGENCY 'DVP_P1-2: LN 552' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 1 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314900 TO BUS 314905 CKT 1 /* 8BRISTER 500.00 - 8CHANCE 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 2026T2072	CONTINGENCY 'DVP_P4-2: 2026T2072' /* LYNNHAVEN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P4-2: H6T2072	CONTINGENCY 'DVP_P4-2: H6T2072' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 2 /* 6VA BCH 230.00 - 3VA BCH 115.00 END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: H1T568	CONTINGENCY 'DVP_P4-2: H1T568' /* POSSUM POINT 500 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314074 TO BUS 314922 CKT 1 /* 6POSSUM 230.00 - 8POSSUM 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	
DVP_P4-2: H5T2072	CONTINGENCY 'DVP_P4-2: H5T2072' /* VA BEACH 230 KV OPEN BRANCH FROM BUS 314486 TO BUS 314490 CKT 1 /* 6LYNHAVN 230.00 - 6VA BCH 230.00 OPEN BRANCH FROM BUS 314490 TO BUS 314511 CKT 1 /* 6VA BCH 230.00 - 3VA BCH 115.00 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 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: H1T594	CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00 OPEN BUS 314897 /* 8MORRS_1 500.00 KV END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END

Short Circuit

Short Circuit

The following Breakers are overdutied:

Bus Number	Bus Name	BREAKER	Type	Capacity (Amps)	Duty Percentage Post Queue	Duty Percentage Pre Queue
314287	Chesterfield 7 & 8 230 kV	200312	S	40000	100.02	99.97

Attachment 1: One Line Diagram