



Generation Interconnection Feasibility Study Report

For

**PJM Generation Interconnection Request
Queue Position AE1-206**

**“Four Rivers-Hanover 230 kV”
180 MW Capacity / 300 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 new solar generating facility located in Hanover County, Virginia. The installed facilities will have a capability of **300 MW** with **180 MW** of this output being recognized by PJM as Capacity. The proposed in-service date for the AE1-206 project is **12/31/2022**. **This study does not imply an ITO commitment to this proposed in-service date.**

Queue Number	AE1-206
Project Name	Four Rivers-Hanover 230 KV
Interconnection Customer	
State	Virginia
County	Hanover
Transmission Owner	Dominion
MFO	300
MWE	300
MWC	180
Fuel	Solar
Basecase Study Year	2022

Primary Point of Interconnection

The AE1-206 project will interconnect with the ITO transmission system via a tap off of the Four Rivers-Hanover 230 kV line. The tap is approximately 3.37 miles from Hanover 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 tap off of the Elmont-Kings Dominion 115 kV line.

This report does not provide costs for the physical interconnection of Option 2. It was just analyzed for network impacts to the system. Results are shown in the “Network Impacts – Option 2” section of this report.

Cost Summary

The AE1-206 project will be responsible for the following interconnection costs:

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

In addition, the AE1-206 project may be responsible for a contribution to the following costs:

Description	Total Cost
System Reinforcements	\$ 398,250,000
Total Costs	\$ 398,250,000

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 \$600,000.

Transmission: Construct approximately one span of 230 kV Attachment line between the generation substation and a new AE1-206 Switching Station. The estimated cost for this work is \$1,200,000.

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

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

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

Direct Connection Cost Estimate

Substation: Establish the new 230 kV AE1-206 Switching Substation (interconnection substation). The arrangement of the substation will be as shown below in **Attachment 1: One-Line Diagram**. The estimated cost of this work scope is \$6,300,000. It is estimated to take 24-36 months to complete this work.

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	\$ 6,300,000
Transmission	\$ 0
Total Direct Connection Facility Costs	\$ 6,300,000

Non-Direct Connection Cost Estimate

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

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
Transmission	\$1,000,000
Substation (Remote Terminal Work)	TBD in Facilities Study
Total Non-Direct Connection Facility Costs	\$1,000,000

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>

An Interconnection Customer entering the New Services Queue on or after October 1, 2012 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.

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

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

Network Impacts: Option 1

Queue Projects AE1-206 was evaluated as a 300 MW (Capacity 180 MW) injection into a tap off of the Four Rivers-Hanover 230 kV Line in the ITO area. Project AE1-206 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-206 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
526517	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	678.68	108.05	111.43	DC	22.92
526518	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2089	single	678.68	108.05	111.43	DC	22.92
526519	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2032-B	single	678.68	105.61	111.34	DC	38.9
526333	314196	6LADYSMITH	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 2090	single	848.35	103.08	107.24	DC	35.22
526482	314197	6LDYSMITH CT	DVP	314196	6LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	single	984.18	108.39	120.34	DC	117.68
526456	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	1123.3	95.57	109.0	DC	150.82
526457	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 2089	single	1123.3	95.57	109.0	DC	150.82
526458	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 256-B	single	1123.3	91.73	107.67	DC	179.01
526040	939260	AE1-157 TAP	DVP	314197	6LDYSMITH CT	DVP	1	DVP_P1-2: LN 574	single	898.64	100.02	105.34	DC	47.83
526385	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P1-2: LN 2089	single	1123.3	101.7	115.12	DC	150.82
526386	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	1123.3	101.7	115.12	DC	150.82
526387	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P1-2: LN 256-B	single	1123.3	97.86	113.79	DC	179.01

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
525588	314196	6LADYSMITH	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 2032T2103	breaker	1031.0	101.01	109.62	DC	196.13
525661	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P4-2: 25672	breaker	1409.0	79.11	100.28	DC	298.35
525645	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	100.56	101.26	DC	49.75
525568	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P4-2: 25672	breaker	1316.0	89.93	112.6	DC	298.35

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
526313	314150	6STJOHN	DVP	939260	AE1-157 TAP	DVP	1	DVP_P1-2: LN 2032-B	single	898.64	104.91	124.83	DC	179.01
526328	314196	6LADYSMITH	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	single	848.35	121.99	135.86	DC	117.68
526188	314212	6FOUR RIVERS	DVP	314150	6STJOHN	DVP	1	DVP_P1-2: LN 2032-B	single	898.64	113.97	133.89	DC	179.01
526190	314212	6FOUR RIVERS	DVP	314150	6STJOHN	DVP	1	DVP_P1-2: LN 574	single	898.64	102.21	107.55	DC	47.83
525233	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	152.09	161.19	DC	94.58
525505	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	118.02	119.94	DC	63.53
525506	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	117.44	119.36	DC	63.39
526044	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	130.2	131.79	DC	38.04
526045	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	126.0	127.57	DC	37.39
525249	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	154.68	155.83	DC	83.88
525250	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	154.68	155.83	DC	83.88
525822	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.36	166.3	DC	50.38
525825	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	148.68	149.48	DC	42.33
525830	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	111.82	112.62	DC	42.48
525456	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	122.51	124.45	DC	64.39
525457	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	120.44	122.42	DC	65.02
525458	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	120.44	122.42	DC	65.01
526152	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	119.48	120.93	DC	38.81
526153	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	117.1	118.51	DC	37.69
526357	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	116.14	117.52	DC	32.88
526358	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 552	single	2442.12	114.91	116.28	DC	32.7
525552	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: H1T581	breaker	3938.0	112.55	113.22	DC	57.24
526300	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 568	single	3218.56	112.78	113.26	DC	33.87
526301	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	110.43	110.98	DC	38.29
526259	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 568	single	3218.56	114.88	115.35	DC	33.82

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
526260	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	single	3218.56	112.52	113.06	DC	37.88
526863	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	116.65	117.38	DC	62.83
526036	939260	AE1-157 TAP	DVP	314197	6LDYSMITH CT	DVP	1	DVP_P1-2: LN 2032-B	single	898.64	122.29	142.21	DC	179.01

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
526514	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2032-B	operation	678.68	107.95	117.52	DC	64.83
526652	314142	6STAFORD	DVP	314145	6AQUI_HARB_B	DVP	1	DVP_P1-2: LN 2032-B	operation	678.68	92.96	102.54	DC	64.83
526312	314150	6STJOHN	DVP	939260	AE1-157 TAP	DVP	1	DVP_P1-2: LN 2032-B	operation	898.64	104.92	138.12	DC	298.35
526329	314196	6LADYSMITH	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	operation	848.35	122.72	133.18	DC	196.13
526483	314197	6LDYSMITH CT	DVP	314196	6LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	operation	984.18	105.8	114.81	DC	196.13
526187	314212	6FOUR RIVERS	DVP	314150	6STJOHN	DVP	1	DVP_P1-2: LN 2032-B	operation	898.64	113.97	147.17	DC	298.35
526513	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	109.25	116.2	DC	60.48
526550	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	105.91	112.57	DC	60.76
526451	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 256-B	operation	1123.3	99.06	125.63	DC	298.35
526041	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	161.01	163.66	DC	63.41
525819	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	212.11	213.68	DC	83.96
525827	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	135.26	136.58	DC	70.8
526149	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	146.95	149.36	DC	64.69

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
526353	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	operation	2442.12	130.63	132.91	DC	54.8
526295	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	137.42	138.33	DC	63.81
526302	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	107.49	108.12	DC	44.3
526254	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	operation	3218.56	142.13	143.03	DC	63.13
526261	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	111.6	112.18	DC	44.18
526035	939260	AE1-157 TAP	DVP	314197	6LDYSMITH CT	DVP	1	DVP_P1-2: LN 2032-B	operation	898.64	131.45	164.65	DC	298.35
526380	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P1-2: LN 256-B	operation	1123.3	105.19	131.75	DC	298.35
526389	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	Base Case	operation	1061.26	87.7	109.43	DC	230.53

System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
526328,525588, 526333	2	6LADYSMITH 230.0 kV - 8LADYSMITH 230.0 kV Ckt 1	Description : PJM baseline upgrade b3027.1: Add a 2nd 500/230 kV 840 MVA transformer at Dominion's Ladysmith Substation. The baseline project has an projected in-service date of 06/01/2021.	\$0
525552,526300, 526301	15	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	Description : Wreck & rebuild the North Anna-Spotsylvania 500 kV Line 573 for 14 miles (Va CPCN) Time Estimate : 44-48 Months Cost : \$42,000,000	\$42,000,000
526357,526358	14	8LADYSMITH 500.0 kV - 8POSSUM 500.0 kV Ckt 1	Description : Rebuild / Uprate the Ladysmith-Possum Point 500 kV Line 568 for 44 miles (Va CPCN) Time Estimate : 36-44 Months Cost : \$132,000,000	\$132,000,000
525456,525457, 525458,526152, 526153	13	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. Time Estimate : Months Cost : \$0	\$0
526188,526190	9	6FOUR RIVERS 230.0 kV - 6STJOHN 230.0 kV Ckt 1	Description : Wreck and rebuild the Four Rivers-St. Johns 230 kV Line 256 for 14.7 miles using 2-768 ACSS (Va CPCN) Time Estimate : 40-48 Months Cost : \$36,750,000	\$36,750,000
525568,526385, 526386,526387	6	AE1-206 TAP 230.0 kV - 6HANOVER 230.0 kV Ckt 1	Description : Wreck & rebuild 230 kV Line 2032 from Hanover Substation to AE1-206 Tap for 2.7 miles using 2-768 ACSS (Va CPCN) Time Estimate : 40-48 Months Cost : \$7,000,000	\$7,000,000
526517,526518, 526519	1	6CRANES 230.0 kV - 6STAFORD 230.0 kV Ckt 1	Description : Rebuild / Uprate 230 kV Line 2104 from Cranes Corner Substation to Stafford Substation for 7.5 miles (Va CPCN) Time Estimate : 36-44 Months Cost : \$22,500,000	\$22,500,000
525505,525506, 526044,526045	11	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

ID	Index	Facility	Upgrade Description	Cost
526482	3	6LDYSMITH CT 230.0 kV - 6LADYSMITH 230.0 kV Ckt 1	Description : PJM baseline upgrade b3027.1: Add a 2nd 500/230 kV 840 MVA transformer at Dominion’s Ladysmith Substation. The baseline project has an projected in-service date of 06/01/2021. PJM baseline upgrade b3027.2: Re-conductor Line #2089 between Ladysmith and Ladysmith CT Substations to increase the line rating from 1047 MVA to 1225 MVA. The baseline project has an projected in-service date of 06/01/2021. PJM baseline upgrade b3027.3: Replace the Ladysmith 500kV breaker "H1T581" with 50kA breaker. The baseline project has an projected in-service date of 06/01/2021. PJM baseline upgrade b3027.4: Update the nameplate for Ladysmith 500kV breaker "H1T575" to be 50kA breaker. The baseline project has an projected in-service date of 06/01/2021. PJM baseline upgrade b3027.5: Update the nameplate for Ladysmith 500kV breaker "568T574" (will be renumbered as "H2T568") to be 50kA breaker. The baseline project has an projected in-service date of 06/01/2021.	\$0
525249,525250, 525830,525822, 525825	12	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. In addition to PJM baseline project b3020, a 2nd 230 kV circuit is required between Elmont and Ladysmith Substations. Time Estimate : 36-44 Months Cost : \$30,000,000	\$30,000,000
525645	7	8OX 500.0 kV - 8CLIFTON 500.0 kV Ckt 1	Description : Replace the 500 kV Wave Trap on the Ox terminal at Clifton Substation Time Estimate : 12-16 Months Cost : \$500,000	\$500,000
526040,526036	5	AE1-157 TAP 230.0 kV - 6LDYSMITH CT 230.0 kV Ckt 1	Description : Wreck & rebuild the 230 kV line from Ladysmith CT to the AE1-157 Tap for 6.4 miles using 2-768 ACSS (Va CPCN Required) Time Estimate : 40-48 Months Cost : \$15,000,000	\$15,000,000
525233	10	6ELMONT 230.0 kV - 8ELMONT 230.0 kV Ckt 1	Description : Expand Elmont substation to accommodate the addition of a 3rd 500-230 kV Transformer Time Estimate : 24-30 Months Cost : \$30,000,000	\$30,000,000
526259,526260, 526863	16	8SPOTSYL 500.0 kV - 8MORRSVL 500.0 kV Ckt 1	Description : Wreck & rebuild Spotsylvania-Morrisville 500 kV Line 594 for 17 miles (Va CPCN Required) Time Estimate : 44-48 Months Cost : \$60,000,000	\$60,000,000
526456,526457, 526458,525661	4	6HANOVER 230.0 kV - 6ELMONT 230.0 kV Ckt 1	Description : Wreck & rebuild the 230 kV line from Elmont Substation to Hanover Substation for 3.2 miles using 2-768 ACSS (Va CPCN Required) Time Estimate : 40-48 Months Cost : \$7,500,000	\$7,500,000
526313	8	6STJOHN 230.0 kV - AE1- 157 TAP 230.0 kV Ckt 1	Description : Wreck & rebuild the 230 kV line from St Johns Substation to the AE1-157 Tap for 6.4 miles using 2-768 ACSS (Va CPCN Required) Time Estimate : 40-48 Months Cost : \$15,000,000	\$15,000,000

ID	Index	Facility	Upgrade Description	Cost
		TOTAL COST		\$398,250,000

Flow Gate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

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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
526519	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2032-B	single	678.68	105.61	111.34	DC	38.9

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.46
314134	6CRANES	0.15
315033	1BIRCHWDA	12.99
315034	1NORNECKC1	0.65
315035	1NORNECKC2	0.62
315037	1LDYSMT1	5.01
315038	1LDYSMT2	5.0
315039	1LDYSMT3	5.29
315040	1LDYSMT4	5.3
315041	1LDYSMT5	5.32
315043	1FOUR RIVERA	3.9
315044	1FOUR RIVERB	3.02
315045	1FOUR RIVERC	3.9
315046	1FOUR RIVERD	3.02
315047	1FOUR RIVERE	3.02
315048	1FOUR RIVERF	3.89
315050	1FOURRIVERG	2.95
919211	AA1-145	11.27
924061	AB2-050	0.66
924281	AB2-072 C	4.05
926471	AC1-118 C	0.44
926551	AC1-134	1.66
933011	AC2-125	3.22
933021	AC2-126	3.24
933031	AC2-127	1.77
933041	AC2-128	1.71
933051	AC2-129	1.6
933271	AC2-138 C	0.13
934141	AD1-041 C	2.16
934191	AD1-046 C	7.58

Bus #	Bus	MW Impact
934781	AD1-105 C	5.66
936241	AD2-030 C	1.0
936341	AD2-044 C	0.25
936581	AD2-073 C	2.62
936591	AD2-074 C	4.44
938961	AE1-124 C	3.28
939241	AE1-155 C	12.83
939261	AE1-157 C O1	16.81
939271	AE1-158 C O1	17.16
939281	AE1-159 C O1	15.59
939611	AE1-191 C	4.32
939751	AE1-206 C O1	38.9
CARR	CARR	0.4
CBM-S1	CBM-S1	2.31
CBM-S2	CBM-S2	2.49
CBM-W1	CBM-W1	2.06
CBM-W2	CBM-W2	14.81
CIN	CIN	1.0
CPLE	CPLE	1.24
IPL	IPL	0.62
LGEE	LGEE	0.3
MEC	MEC	2.22
MECS	MECS	0.69
RENSSELAER	RENSSELAER	0.32
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
526328	314196	6LADYSMITH	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	single	848.35	121.99	135.86	DC	117.68

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.42
314134	6CRANES	0.1
315005	1POSSM 3	12.12
315033	1BIRCHWDA	11.81
315034	1NORNECKC1	0.49
315035	1NORNECKC2	0.47
315037	1LDYSMT1	15.15
315038	1LDYSMT2	15.14
315039	1LDYSMT3	16.02
315040	1LDYSMT4	16.05
315041	1LDYSMT5	16.1
315043	1FOUR RIVERA	11.79
315044	1FOUR RIVERB	9.13
315045	1FOUR RIVERC	11.79
315046	1FOUR RIVERD	9.13
315047	1FOUR RIVERE	9.13
315048	1FOUR RIVERF	11.78
919211	AA1-145	34.08
924061	AB2-050	2.0
924281	AB2-072 C	3.64
926471	AC1-118 C	0.36
926551	AC1-134	5.01
933011	AC2-125	9.74
933021	AC2-126	9.81
933031	AC2-127	5.36
933041	AC2-128	5.16
933051	AC2-129	4.84
933271	AC2-138 C	0.09
934191	AD1-046 C	6.41
936341	AD2-044 C	0.19

Bus #	Bus	MW Impact
936581	AD2-073 C	2.08
938961	AE1-124 C	2.78
939261	AE1-157 C O1	50.86
939271	AE1-158 C O1	51.91
939281	AE1-159 C O1	14.6
939751	AE1-206 C O1	117.67
BAYOU	BAYOU	1.19
BIG_CAJUN1	BIG_CAJUN1	1.85
BIG_CAJUN2	BIG_CAJUN2	3.72
BLUEG	BLUEG	5.29
CALDERWOOD	CALDERWOOD	0.64
CANNELTON	CANNELTON	0.33
CARR	CARR	0.15
CATAWBA	CATAWBA	0.44
CHEOAH	CHEOAH	0.59
CHILHOWEE	CHILHOWEE	0.21
CHOCTAW	CHOCTAW	1.24
COFFEEN	COFFEEN	0.56
COTTONWOOD	COTTONWOOD	4.72
DEARBORN	DEARBORN	0.85
DUCKCREEK	DUCKCREEK	1.21
EDWARDS	EDWARDS	0.55
ELMERSMITH	ELMERSMITH	0.56
FARMERCITY	FARMERCITY	0.38
GIBSON	GIBSON	0.22
HAMLET	HAMLET	1.52
NEWTON	NEWTON	1.47
PRAIRIE	PRAIRIE	2.79
RENSSELAER	RENSSELAER	0.12
SANTEETLA	SANTEETLA	0.17
SMITHLAND	SMITHLAND	0.23
TATANKA	TATANKA	0.67
TILTON	TILTON	0.66
TRIMBLE	TRIMBLE	0.59
TVA	TVA	2.0
UNIONPOWER	UNIONPOWER	0.9

Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
526482	314197	6LDYSMITH CT	DVP	314196	6LADYSMITH	DVP	1	DVP_P1-2: LN 2032-B	single	984.18	108.39	120.34	DC	117.68

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.42
314134	6CRANES	0.1
315005	1POSSM 3	12.12
315007	1POSSM 5	8.59
315008	1POSSM6A	1.95
315009	1POSSM6B	1.95
315010	1POSSM6S	3.04
315033	1BIRCHWDA	11.81
315034	1NORNECKC1	0.49
315035	1NORNECKC2	0.47
315037	1LDYSMT1	15.15
315038	1LDYSMT2	15.14
315039	1LDYSMT3	16.02
315040	1LDYSMT4	16.05
315041	1LDYSMT5	16.1
315043	1FOUR RIVERA	11.79
315044	1FOUR RIVERB	9.13
315045	1FOUR RIVERC	11.79
315046	1FOUR RIVERD	9.13
315047	1FOUR RIVERE	9.13
315048	1FOUR RIVERF	11.78
315050	1FOURRIVERG	2.09
919211	AA1-145	34.08
924061	AB2-050	2.0
924281	AB2-072 C	3.64
926471	AC1-118 C	0.36
926551	AC1-134	5.01
933011	AC2-125	9.74
933021	AC2-126	9.81
933031	AC2-127	5.36

Bus #	Bus	MW Impact
933041	AC2-128	5.16
933051	AC2-129	4.84
933271	AC2-138 C	0.09
934191	AD1-046 C	6.41
934781	AD1-105 C	4.22
936341	AD2-044 C	0.19
936581	AD2-073 C	2.08
936591	AD2-074 C	2.99
938961	AE1-124 C	2.78
939241	AE1-155 C	8.91
939261	AE1-157 C O1	50.86
939271	AE1-158 C O1	51.91
939281	AE1-159 C O1	14.6
939751	AE1-206 C O1	117.67
BAYOU	BAYOU	1.19
BIG_CAJUN1	BIG_CAJUN1	1.85
BIG_CAJUN2	BIG_CAJUN2	3.72
BLUEG	BLUEG	5.29
CALDERWOOD	CALDERWOOD	0.64
CANNELTON	CANNELTON	0.33
CARR	CARR	0.15
CATAWBA	CATAWBA	0.44
CHEOAH	CHEOAH	0.59
CHILHOWEE	CHILHOWEE	0.21
CHOCTAW	CHOCTAW	1.24
COFFEEN	COFFEEN	0.56
COTTONWOOD	COTTONWOOD	4.72
DEARBORN	DEARBORN	0.85
DUCKCREEK	DUCKCREEK	1.21
EDWARDS	EDWARDS	0.55
ELMERSMITH	ELMERSMITH	0.56
FARMERCITY	FARMERCITY	0.38
GIBSON	GIBSON	0.22
HAMLET	HAMLET	1.52
NEWTON	NEWTON	1.47
PRAIRIE	PRAIRIE	2.79
RENSSELAER	RENSSELAER	0.12
SANTEETLA	SANTEETLA	0.17

Bus #	Bus	MW Impact
SMITHLAND	SMITHLAND	0.23
TATANKA	TATANKA	0.67
TILTON	TILTON	0.66
TRIMBLE	TRIMBLE	0.59
TVA	TVA	2.0
UNIONPOWER	UNIONPOWER	0.9

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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
526457	314222	6HANOVER	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 2089	single	1123.3	95.57	109.0	DC	150.82

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.29
314134	6CRANES	0.07
315005	1POSSM 3	9.18
315007	1POSSM 5	7.1
315008	1POSSM6A	1.61
315009	1POSSM6B	1.61
315010	1POSSM6S	2.51
315033	1BIRCHWDA	8.37
315034	1NORNECKC1	0.25
315035	1NORNECKC2	0.24
315037	1LDYSMT1	11.04
315038	1LDYSMT2	11.04
315039	1LDYSMT3	11.68
315040	1LDYSMT4	11.7
315041	1LDYSMT5	11.74
315043	1FOUR RIVERA	14.59
315044	1FOUR RIVERB	11.3
315045	1FOUR RIVERC	14.59
315046	1FOUR RIVERD	11.3
315047	1FOUR RIVERE	11.3
315048	1FOUR RIVERF	14.58
919211	AA1-145	42.18
924061	AB2-050	2.48
924281	AB2-072 C	2.54
926471	AC1-118 C	0.22
926551	AC1-134	6.2
933011	AC2-125	7.1
933021	AC2-126	7.15
933031	AC2-127	3.91
933041	AC2-128	3.77

Bus #	Bus	MW Impact
933051	AC2-129	3.53
933271	AC2-138 C	0.05
934191	AD1-046 C	4.11
936341	AD2-044 C	0.1
936581	AD2-073 C	1.19
938961	AE1-124 C	1.78
939261	AE1-157 C O1	44.59
939271	AE1-158 C O1	45.51
939281	AE1-159 C O1	8.75
939751	AE1-206 C O1	150.82
BAYOU	BAYOU	1.71
BIG_CAJUN1	BIG_CAJUN1	2.67
BIG_CAJUN2	BIG_CAJUN2	5.37
BLUEG	BLUEG	6.46
CALDERWOOD	CALDERWOOD	0.97
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	0.78
CBM-N	CBM-N	0.04
CHEOAH	CHEOAH	0.89
CHILHOWEE	CHILHOWEE	0.31
CHOCTAW	CHOCTAW	1.8
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	6.74
DEARBORN	DEARBORN	0.93
DUCKCREEK	DUCKCREEK	1.49
EDWARDS	EDWARDS	0.67
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.48
G-007A	G-007A	0.48
GIBSON	GIBSON	0.27
HAMLET	HAMLET	2.86
NEWTON	NEWTON	1.84
NYISO	NYISO	0.15
O-066A	O-066A	0.21
PRAIRIE	PRAIRIE	3.62
SANTEETLA	SANTEETLA	0.26
SMITHLAND	SMITHLAND	0.31
TATANKA	TATANKA	0.85

Bus #	Bus	MW Impact
TILTON	TILTON	0.8
TRIMBLE	TRIMBLE	0.71
TVA	TVA	2.87
UNIONPOWER	UNIONPOWER	1.34
VFT	VFT	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
526036	939260	AE1-157 TAP	DVP	314197	6LDYSMITH CT	DVP	1	DVP_P1-2: LN 2032-B	single	898.64	122.29	142.21	DC	179.01

Bus #	Bus	MW Impact
315043	1FOUR RIVERA	17.93
315044	1FOUR RIVERB	13.89
315045	1FOUR RIVERC	17.93
315046	1FOUR RIVERD	13.89
315047	1FOUR RIVERE	13.89
315048	1FOUR RIVERF	17.92
919211	AA1-145	51.85
924061	AB2-050	3.05
926551	AC1-134	7.62
939261	AE1-157 C O1	77.37
939271	AE1-158 C O1	78.96
939751	AE1-206 C O1	179.01
BAYOU	BAYOU	0.58
BIG_CAJUN1	BIG_CAJUN1	0.9
BIG_CAJUN2	BIG_CAJUN2	1.81
BLUEG	BLUEG	2.79
CALDERWOOD	CALDERWOOD	0.3
CANNELTON	CANNELTON	0.17
CARR	CARR	0.2
CATAWBA	CATAWBA	0.19
CHEOAH	CHEOAH	0.28
CHILHOWEE	CHILHOWEE	0.1
CHOCTAW	CHOCTAW	0.6
COFFEEN	COFFEEN	0.29
COTTONWOOD	COTTONWOOD	2.32
DEARBORN	DEARBORN	0.49
DUCKCREEK	DUCKCREEK	0.64
EDWARDS	EDWARDS	0.29
ELMERSMITH	ELMERSMITH	0.29
FARMERCITY	FARMERCITY	0.19

Bus #	Bus	MW Impact
GIBSON	GIBSON	0.12
HAMLET	HAMLET	0.64
NEWTON	NEWTON	0.77
PRAIRIE	PRAIRIE	1.44
RENSSELAER	RENSSELAER	0.16
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.35
TILTON	TILTON	0.35
TRIMBLE	TRIMBLE	0.31
TVA	TVA	0.97
UNIONPOWER	UNIONPOWER	0.43

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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
526386	939750	AE1-206 TAP	DVP	314222	6HANOVER	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	1123.3	101.7	115.12	DC	150.82

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.29
314134	6CRANES	0.07
315005	1POSSM 3	9.18
315007	1POSSM 5	7.1
315008	1POSSM6A	1.61
315009	1POSSM6B	1.61
315010	1POSSM6S	2.51
315033	1BIRCHWDA	8.37
315034	1NORNECKC1	0.25
315035	1NORNECKC2	0.24
315037	1LDYSMT1	11.04
315038	1LDYSMT2	11.04
315039	1LDYSMT3	11.68
315040	1LDYSMT4	11.7
315041	1LDYSMT5	11.74
315043	1FOUR RIVERA	14.59
315044	1FOUR RIVERB	11.3
315045	1FOUR RIVERC	14.59
315046	1FOUR RIVERD	11.3
315047	1FOUR RIVERE	11.3
315048	1FOUR RIVERF	14.58
919211	AA1-145	42.18
924061	AB2-050	2.48
924281	AB2-072 C	2.54
926471	AC1-118 C	0.22
926551	AC1-134	6.2
933011	AC2-125	7.1
933021	AC2-126	7.15
933031	AC2-127	3.91
933041	AC2-128	3.77

Bus #	Bus	MW Impact
933051	AC2-129	3.53
933271	AC2-138 C	0.05
934191	AD1-046 C	4.11
936341	AD2-044 C	0.1
936581	AD2-073 C	1.19
938961	AE1-124 C	1.78
939261	AE1-157 C O1	44.59
939271	AE1-158 C O1	45.51
939281	AE1-159 C O1	8.75
939751	AE1-206 C O1	150.82
BAYOU	BAYOU	1.71
BIG_CAJUN1	BIG_CAJUN1	2.67
BIG_CAJUN2	BIG_CAJUN2	5.37
BLUEG	BLUEG	6.46
CALDERWOOD	CALDERWOOD	0.97
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	0.78
CBM-N	CBM-N	0.04
CHEOAH	CHEOAH	0.89
CHILHOWEE	CHILHOWEE	0.31
CHOCTAW	CHOCTAW	1.8
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	6.74
DEARBORN	DEARBORN	0.93
DUCKCREEK	DUCKCREEK	1.49
EDWARDS	EDWARDS	0.67
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.48
G-007A	G-007A	0.48
GIBSON	GIBSON	0.27
HAMLET	HAMLET	2.86
NEWTON	NEWTON	1.84
NYISO	NYISO	0.15
O-066A	O-066A	0.21
PRAIRIE	PRAIRIE	3.62
SANTEETLA	SANTEETLA	0.26
SMITHLAND	SMITHLAND	0.31
TATANKA	TATANKA	0.85

Bus #	Bus	MW Impact
TILTON	TILTON	0.8
TRIMBLE	TRIMBLE	0.71
TVA	TVA	2.87
UNIONPOWER	UNIONPOWER	1.34
VFT	VFT	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
525645	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	100.56	101.26	DC	49.75

Bus #	Bus	MW Impact
314093	6WARRNTN	0.31
314189	6PAPERMILL	5.81
314648	6SUNBURY	0.72
314651	6WINFALL	1.42
315037	1LDYSMT1	4.2
315038	1LDYSMT2	4.19
315039	1LDYSMT3	4.44
315040	1LDYSMT4	4.45
315041	1LDYSMT5	4.46
315053	1BELMED1	14.96
315054	1BELMED2	14.96
315055	1BELMED3	12.41
315058	1CHESTF3	15.73
315059	1CHESTF4	25.5
315073	1STONECA	5.95
315074	1HOPCGN1	7.17
315075	1HOPCGN2	7.08
315083	1SPRUNCA	9.17
315084	1SPRUNCB	9.17
315085	1SPRUNCC	6.8
315086	1SPRUNCD	6.8
315090	1YORKTN1	24.29
315091	1YORKTN2	25.21
315225	1N ANNA1	29.95
315226	1N ANNA2	30.01
901082	W1-029 E	37.31
913392	Y1-086 E	1.8
916042	Z1-036 E	36.57
916192	Z1-068 E	1.56
917122	Z2-027 E	0.86

Bus #	Bus	MW Impact
919152	AA1-139 E	5.29
923832	AB2-022 E	1.01
923842	AB2-024 E	0.97
923852	AB2-025 E	0.88
923892	AB2-029 E	1.94
924241	AB2-068 O1	169.33
924281	AB2-072 C	1.94
924282	AB2-072 E	0.92
924812	AB2-134 E O1	10.43
925021	AB2-158 C	1.61
925022	AB2-158 E	4.67
925051	AB2-160 C O1	4.66
925052	AB2-160 E O1	7.6
925061	AB2-161 C O1	2.82
925062	AB2-161 E O1	4.6
925281	AB2-186 C	0.49
925282	AB2-186 E	0.21
925331	AB2-190 C	17.15
925332	AB2-190 E	7.35
925522	AC1-027 E	0.95
925671	AC1-043 C	6.62
925672	AC1-043 E	10.8
925861	AC1-065 C	2.98
925862	AC1-065 E	4.86
926001	AC1-076 C	4.59
926002	AC1-076 E	7.47
926291	AC1-107 O1	255.6
926412	AC1-112 E	0.98
926472	AC1-118 E	1.08
926481	AC1-120 C O1	7.02
926482	AC1-120 E O1	3.62
926501	AC1-121 C O1	2.41
926502	AC1-121 E O1	1.13
926611	AC1-143 C O1	6.75
926612	AC1-143 E O1	3.08
926662	AC1-147 E	1.1
926731	AC1-158 C	74.93
926732	AC1-158 E	32.89

Bus #	Bus	MW Impact
926751	AC1-161 C O1	25.34
926752	AC1-161 E O1	10.82
926781	AC1-164 C	34.9
926782	AC1-164 E	15.68
927041	AC1-191 C O1	8.6
927042	AC1-191 E O1	4.28
927221	AC1-216 C O1	8.38
927222	AC1-216 E O1	6.59
930122	AB1-027 E	0.96
932041	AC2-012 C	8.49
932042	AC2-012 E	13.85
932502	AC2-070 E	0.61
932532	AC2-073 E	1.05
932581	AC2-078 C O1	3.43
932582	AC2-078 E O1	5.59
932591	AC2-079 C O1	4.75
932592	AC2-079 E O1	7.75
932781	AC2-102 C	5.37
932782	AC2-102 E	8.75
932831	AC2-110 C	1.19
932832	AC2-110 E	1.94
933011	AC2-125	2.7
933021	AC2-126	2.72
933031	AC2-127	1.48
933041	AC2-128	1.43
933051	AC2-129	1.34
933061	AC2-130	2.08
933071	AC2-131 1	1.41
933081	AC2-131 2	0.64
933111	AC2-132 1	0.74
933121	AC2-132 2	0.38
933262	AC2-137 E	1.17
933272	AC2-138 E	0.95
933291	AC2-141 C	25.34
933292	AC2-141 E	10.82
933732	AC2-196 E	0.99
934011	AD1-025 C	14.4
934012	AD1-025 E	8.53

Bus #	Bus	MW Impact
934061	AD1-033 C	6.23
934062	AD1-033 E	4.15
934141	AD1-041 C	4.7
934142	AD1-041 E	3.13
934191	AD1-046 C	4.87
934192	AD1-046 E	3.25
934212	AD1-048 E	1.06
934392	AD1-063 E	0.94
934541	AD1-078 C	2.51
934542	AD1-078 E	1.48
934571	AD1-082 C	6.42
934572	AD1-082 E	3.66
934781	AD1-105 C	7.23
934782	AD1-105 E	5.03
934861	AD1-115 C	3.31
934862	AD1-115 E	5.4
935112	AD1-144 E	0.78
935161	AD1-151 C O1	13.78
935162	AD1-151 E O1	9.19
935212	AD1-156 E	1.19
936041	AD2-007	1.53
936051	AD2-008 C	2.51
936052	AD2-008 E	5.46
936151	AD2-021	0.21
936241	AD2-030 C	2.05
936242	AD2-030 E	1.05
936301	AD2-039 C	1.19
936302	AD2-039 E	1.94
936341	AD2-044 C	0.24
936342	AD2-044 E	0.27
936391	AD2-049 C	1.51
936392	AD2-049 E	1.51
936581	AD2-073 C	2.11
936582	AD2-073 E	1.04
936591	AD2-074 C	5.14
936592	AD2-074 E	8.39
936661	AD2-085 C	2.85
936662	AD2-085 E	4.65

Bus #	Bus	MW Impact
937221	AD2-160 C O1	4.83
937222	AD2-160 E O1	2.53
937251	AD2-164	4.06
937541	AD2-215 C	1.45
937542	AD2-215 E	0.77
938031	AE1-004 C	1.19
938032	AE1-004 E	1.94
938081	AE1-010	6.37
938181	AE1-027 C	1.94
938182	AE1-027 E	1.02
938191	AE1-028 C	1.12
938192	AE1-028 E	0.65
938291	AE1-044 C O1	20.41
938292	AE1-044 E O1	16.1
938461	AE1-065 C O1	23.6
938462	AE1-065 E O1	95.25
938471	AE1-066 C O1	24.26
938472	AE1-066 E O1	94.6
938481	AE1-067 C O1	22.06
938482	AE1-067 E O1	96.8
938491	AE1-068 C O1	45.17
938492	AE1-068 E O1	24.95
938531	AE1-072 C O1	14.44
938532	AE1-072 E O1	7.53
938551	AE1-074 C	2.11
938552	AE1-074 E	1.06
938631	AE1-085 C O1	9.18
938632	AE1-085 E O1	6.12
938841	AE1-109AC O1	7.56
938842	AE1-109AE O1	5.04
938961	AE1-124 C	2.11
938962	AE1-124 E	1.06
939041	AE1-133 C	28.95
939042	AE1-133 E	14.26
939191	AE1-149 C O1	9.04
939192	AE1-149 E O1	6.02
939221	AE1-153 C O1	13.67
939222	AE1-153 E O1	9.11

Bus #	Bus	MW Impact
939231	AE1-154 C	1.72
939232	AE1-154 E	1.2
939241	AE1-155 C	14.07
939242	AE1-155 E	9.38
939261	AE1-157 C O1	13.77
939262	AE1-157 E O1	7.47
939271	AE1-158 C O1	14.05
939272	AE1-158 E O1	7.19
939281	AE1-159 C O1	11.85
939282	AE1-159 E O1	7.01
939311	AE1-162 C	1.81
939312	AE1-162 E	1.2
939411	AE1-173 C	71.11
939412	AE1-173 E	47.41
939421	AE1-174 C	0.16
939422	AE1-174 E	0.25
939431	AE1-175 C	2.06
939432	AE1-175 E	1.02
939511	AE1-180 C	2.05
939512	AE1-180 E	1.37
939611	AE1-191 C	9.39
939612	AE1-191 E	6.26
939751	AE1-206 C O1	29.85
939752	AE1-206 E O1	19.9
940061	AE1-248 C O1	13.35
940062	AE1-248 E O1	8.9
940071	AE1-249 C	6.14
940072	AE1-249 E	4.58
AA2-074	AA2-074	3.66
BLUEG	BLUEG	0.17
CARR	CARR	1.39
CBM-S1	CBM-S1	5.45
CBM-S2	CBM-S2	10.1
CBM-W2	CBM-W2	28.18
CPLE	CPLE	5.37
DEARBORN	DEARBORN	1.15
EDWARDS	EDWARDS	0.04
G-007	G-007	3.94

Bus #	Bus	MW Impact
LGEE	LGEE	0.03
MEC	MEC	1.71
O-066	O-066	13.28
RENSSELAER	RENSSELAER	1.1
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.04

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
526313	314150	6STJOHN	DVP	939260	AE1- 157 TAP	DVP	1	DVP_P1- 2: LN 2032-B	single	898.64	104.91	124.83	DC	179.01

Bus #	Bus	MW Impact
315043	1FOUR RIVERA	17.93
315044	1FOUR RIVERB	13.89
315045	1FOUR RIVERC	17.93
315046	1FOUR RIVERD	13.89
315047	1FOUR RIVERE	13.89
315048	1FOUR RIVERF	17.92
919211	AA1-145	51.85
924061	AB2-050	3.05
926551	AC1-134	7.62
939751	AE1-206 C O1	179.01
BAYOU	BAYOU	0.58
BIG_CAJUN1	BIG_CAJUN1	0.9
BIG_CAJUN2	BIG_CAJUN2	1.81
BLUEG	BLUEG	2.79
CALDERWOOD	CALDERWOOD	0.3
CANNELTON	CANNELTON	0.17
CARR	CARR	0.2
CATAWBA	CATAWBA	0.19
CHEOAH	CHEOAH	0.28
CHILHOWEE	CHILHOWEE	0.1
CHOCTAW	CHOCTAW	0.6
COFFEEN	COFFEEN	0.29
COTTONWOOD	COTTONWOOD	2.32
DEARBORN	DEARBORN	0.49
DUCKCREEK	DUCKCREEK	0.64
EDWARDS	EDWARDS	0.29
ELMERSMITH	ELMERSMITH	0.29
FARMERCITY	FARMERCITY	0.19
GIBSON	GIBSON	0.12
HAMLET	HAMLET	0.64

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.77
PRAIRIE	PRAIRIE	1.44
RENSSELAER	RENSSELAER	0.16
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.35
TILTON	TILTON	0.35
TRIMBLE	TRIMBLE	0.31
TVA	TVA	0.97
UNIONPOWER	UNIONPOWER	0.43

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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
526188	314212	6FOUR RIVERS	DVP	314150	6STJOHN	DVP	1	DVP_P1-2: LN 2032-B	single	898.64	113.97	133.89	DC	179.01

Bus #	Bus	MW Impact
315043	1FOUR RIVERA	17.93
315044	1FOUR RIVERB	13.89
315045	1FOUR RIVERC	17.93
315046	1FOUR RIVERD	13.89
315047	1FOUR RIVERE	13.89
315048	1FOUR RIVERF	17.92
919211	AA1-145	51.85
924061	AB2-050	3.05
926551	AC1-134	7.62
939751	AE1-206 C O1	179.01
BAYOU	BAYOU	0.58
BIG_CAJUN1	BIG_CAJUN1	0.9
BIG_CAJUN2	BIG_CAJUN2	1.81
BLUEG	BLUEG	2.79
CALDERWOOD	CALDERWOOD	0.3
CANNELTON	CANNELTON	0.17
CARR	CARR	0.2
CATAWBA	CATAWBA	0.19
CHEOAH	CHEOAH	0.28
CHILHOWEE	CHILHOWEE	0.1
CHOCTAW	CHOCTAW	0.6
COFFEEN	COFFEEN	0.29
COTTONWOOD	COTTONWOOD	2.32
DEARBORN	DEARBORN	0.49
DUCKCREEK	DUCKCREEK	0.64
EDWARDS	EDWARDS	0.29
ELMERSMITH	ELMERSMITH	0.29
FARMERCITY	FARMERCITY	0.19
GIBSON	GIBSON	0.12
HAMLET	HAMLET	0.64

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.77
PRAIRIE	PRAIRIE	1.44
RENSSELAER	RENSSELAER	0.16
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.35
TILTON	TILTON	0.35
TRIMBLE	TRIMBLE	0.31
TVA	TVA	0.97
UNIONPOWER	UNIONPOWER	0.43

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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
525233	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	152.09	161.19	DC	94.58

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.29
315054	1BELMED2	25.29
315055	1BELMED3	20.99
315058	1CHESTF3	26.85
315059	1CHESTF4	43.53
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.2
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.96
315086	1SPRUNCD	10.96

Bus #	Bus	MW Impact
315090	1YORKTN1	30.64
315091	1YORKTN2	31.8
901082	W1-029 E	41.26
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.25
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.91
924241	AB2-068 O1	176.04
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.55
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.84
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.52
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.73
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86

Bus #	Bus	MW Impact
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.98
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.74
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.59
934141	AD1-041 C	6.72
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58

Bus #	Bus	MW Impact
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.16
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.73
935162	AD1-151 E O1	13.16
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.7
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.73
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.3
936391	AD2-049 C	1.86
936392	AD2-049 E	1.86
936581	AD2-073 C	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14

Bus #	Bus	MW Impact
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O1	26.28
938462	AE1-065 E O1	106.06
938471	AE1-066 C O1	27.01
938472	AE1-066 E O1	105.33
938481	AE1-067 C O1	24.56
938482	AE1-067 E O1	107.78
938531	AE1-072 C O1	15.96
938532	AE1-072 E O1	8.32
938551	AE1-074 C	3.1
938552	AE1-074 E	1.56
938631	AE1-085 C O1	12.47
938632	AE1-085 E O1	8.31
938771	AE1-103 C O1	3.25
938772	AE1-103 E O1	4.48
938841	AE1-109AC O1	9.62
938842	AE1-109AE O1	6.42
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O1	18.72
939072	AE1-135 E O1	12.48
939191	AE1-149 C O1	12.56
939192	AE1-149 E O1	8.37
939241	AE1-155 C	17.03
939242	AE1-155 E	11.35
939281	AE1-159 C O1	12.03
939282	AE1-159 E O1	7.12
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O1	56.75

Bus #	Bus	MW Impact
939752	AE1-206 E O1	37.83
940061	AE1-248 C O1	16.97
940062	AE1-248 E O1	11.31
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.24
CBM-S2	CBM-S2	8.55
CBM-W1	CBM-W1	0.08
CBM-W2	CBM-W2	23.98
CIN	CIN	0.25
CPL	CPL	4.79
DEARBORN	DEARBORN	0.48
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.01
O-066	O-066	7.81
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
526044	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	130.2	131.79	DC	38.04

Bus #	Bus	MW Impact
314229	6MT RD221	0.13
314236	6NRTHEST	0.2
314250	6ROCKVILLE	0.35
315037	1LDYSMT1	4.8
315038	1LDYSMT2	4.8
315039	1LDYSMT3	5.07
315040	1LDYSMT4	5.08
315041	1LDYSMT5	5.1
315043	1FOUR RIVERA	3.81
315044	1FOUR RIVERB	2.95
315045	1FOUR RIVERC	3.81
315046	1FOUR RIVERD	2.95
315047	1FOUR RIVERE	2.95
315048	1FOUR RIVERF	3.8
315053	1BELMED1	19.52
315054	1BELMED2	19.52
315055	1BELMED3	16.2
315058	1CHESTF3	20.48
315059	1CHESTF4	33.2
315067	1DARBY 1	2.72
315068	1DARBY 2	2.73
315069	1DARBY 3	2.74
315070	1DARBY 4	2.74
315074	1HOPCGN1	9.39
315075	1HOPCGN2	9.27
315083	1SPRUNCA	11.95
315084	1SPRUNCB	11.95
315085	1SPRUNCC	8.86
315086	1SPRUNCD	8.86
315090	1YORKTN1	31.87

Bus #	Bus	MW Impact
315091	1YORKTN2	33.07
315225	1N ANNA1	39.05
315226	1N ANNA2	39.14
919211	AA1-145	11.0
923801	AB2-015 C O1	9.08
924061	AB2-050	0.65
924241	AB2-068 O1	226.61
924501	AB2-099 C	0.59
924511	AB2-100 C	11.83
925051	AB2-160 C O1	6.1
925061	AB2-161 C O1	3.71
925171	AB2-174 C O1	7.08
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.51
925861	AC1-065 C	3.77
926001	AC1-076 C	4.93
926291	AC1-107 O1	342.05
926411	AC1-112 C	0.35
926551	AC1-134	1.62
926731	AC1-158 C	93.31
926751	AC1-161 C O1	33.51
926781	AC1-164 C	45.57
927041	AC1-191 C O1	10.78
927221	AC1-216 C O1	11.0
930121	AB1-027 C	0.45
932041	AC2-012 C	11.22
932501	AC2-070 C	0.3
932581	AC2-078 C O1	4.5
932591	AC2-079 C O1	6.27
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	1.53
933061	AC2-130	2.71
933071	AC2-131 1	1.84

Bus #	Bus	MW Impact
933081	AC2-131 2	0.83
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.36
933291	AC2-141 C	33.51
933501	AC2-165 C	9.61
933991	AD1-023 C	13.53
934011	AD1-025 C	18.91
934061	AD1-033 C	8.23
934141	AD1-041 C	5.92
934211	AD1-048 C	0.42
934521	AD1-076 C	56.31
934541	AD1-078 C	3.04
934571	AD1-082 C	8.46
934781	AD1-105 C	7.79
935161	AD1-151 C O1	18.09
936041	AD2-007	2.01
936051	AD2-008 C	3.29
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.84
936591	AD2-074 C	5.94
936661	AD2-085 C	3.76
936711	AD2-090 C O1	7.5
937221	AD2-160 C O1	6.39
937251	AD2-164	5.33
937541	AD2-215 C	1.91
938031	AE1-004 C	1.51
938081	AE1-010	6.84
938171	AE1-026 C1 O	28.74
938172	AE1-026 C2 O	4.16
938181	AE1-027 C	2.56
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O1	31.2

Bus #	Bus	MW Impact
938471	AE1-066 C O1	32.06
938481	AE1-067 C O1	29.15
938491	AE1-068 C O1	59.9
938501	AE1-069 C O1	46.95
938531	AE1-072 C O1	19.11
938551	AE1-074 C	2.75
938561	AE1-075 C	2.13
938631	AE1-085 C O1	12.08
938771	AE1-103 C O1	3.84
938841	AE1-109AC O1	9.97
939041	AE1-133 C	38.35
939071	AE1-135 C O1	21.33
939191	AE1-149 C O1	11.88
939241	AE1-155 C	16.08
939261	AE1-157 C O1	16.2
939271	AE1-158 C O1	16.54
939311	AE1-162 C	2.38
939411	AE1-173 C	93.99
939421	AE1-174 C	0.21
939431	AE1-175 C	2.7
939611	AE1-191 C	11.83
939751	AE1-206 C O1	38.04
940061	AE1-248 C O1	17.59
940071	AE1-249 C	8.05
AA2-074	AA2-074	5.19
AE1-042	AE1-042	8.4
CARR	CARR	1.67
CBM-S1	CBM-S1	12.69
CBM-S2	CBM-S2	15.08
CBM-W1	CBM-W1	9.29
CBM-W2	CBM-W2	79.28
CIN	CIN	4.7
CPLE	CPLE	7.63
IPL	IPL	2.91
LGEE	LGEE	1.41
MEC	MEC	11.07
MECS	MECS	2.19
RENSSELAER	RENSSELAER	1.32

Bus #	Bus	MW Impact
WEC	WEC	1.2

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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
525822	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.36	166.3	DC	50.38

Bus #	Bus	MW Impact
314229	6MT RD221	0.21
314236	6NRTHEST	0.33
314309	6IRON208	0.78
315053	1BELMED1	31.58
315054	1BELMED2	31.58
315055	1BELMED3	26.21
315058	1CHESTF3	33.54
315059	1CHESTF4	54.37
315060	1CHESTF5	17.65
315061	1CHESTG7	6.92
315062	1CHESTS7	3.14
315063	1CHESTG8	6.79
315064	1CHESTS8	3.5
315067	1DARBY 1	4.51
315068	1DARBY 2	4.52
315069	1DARBY 3	4.54
315070	1DARBY 4	4.54
315074	1HOPCGN1	15.47
315075	1HOPCGN2	15.27
315083	1SPRUNCA	19.11
315084	1SPRUNCB	19.11
315085	1SPRUNCC	14.17
315086	1SPRUNCD	14.17
315090	1YORKTN1	53.32
315091	1YORKTN2	55.33
315092	1YORKTN3	40.59
315233	1SURRY 2	44.07
923801	AB2-015 C O1	14.87
923911	AB2-031 C O1	3.63
924241	AB2-068 O1	428.58

Bus #	Bus	MW Impact
924501	AB2-099 C	0.97
924511	AB2-100 C	19.05
925051	AB2-160 C O1	9.9
925061	AB2-161 C O1	6.07
925171	AB2-174 C O1	11.42
925281	AB2-186 C	1.08
925291	AB2-188 C O1	4.07
925331	AB2-190 C	37.15
925861	AC1-065 C	6.03
926071	AC1-086 C	33.56
926291	AC1-107 O1	646.91
926411	AC1-112 C	0.59
926751	AC1-161 C O1	55.61
926781	AC1-164 C	77.77
927041	AC1-191 C O1	17.06
927221	AC1-216 C O1	18.16
930121	AB1-027 C	0.76
932041	AC2-012 C	18.51
932501	AC2-070 C	0.5
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	0.61
933291	AC2-141 C	55.61
933991	AD1-023 C	22.2
934011	AD1-025 C	31.21
934061	AD1-033 C	13.57
934141	AD1-041 C	9.42
934201	AD1-047 C	13.01
934211	AD1-048 C	0.71
934521	AD1-076 C	92.46
934571	AD1-082 C	13.83
935161	AD1-151 C O1	29.85

Bus #	Bus	MW Impact
936041	AD2-007	3.31
936051	AD2-008 C	5.43
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	14.45
936661	AD2-085 C	6.17
936711	AD2-090 C O1	12.28
937221	AD2-160 C O1	10.53
937251	AD2-164	8.9
937541	AD2-215 C	3.16
937571	AD2-169 C	16.21
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.14
938172	AE1-026 C2 O	6.82
938181	AE1-027 C	4.22
938191	AE1-028 C	2.45
938221	AE1-035 C	3.73
938461	AE1-065 C O1	51.45
938471	AE1-066 C O1	52.88
938481	AE1-067 C O1	48.08
938491	AE1-068 C O1	93.3
938501	AE1-069 C O1	73.18
938531	AE1-072 C O1	31.5
938551	AE1-074 C	4.28
938631	AE1-085 C O1	19.65
938661	AE1-088	2.92
938771	AE1-103 C O1	6.3
938841	AE1-109AC O1	16.29
939041	AE1-133 C	63.16
939071	AE1-135 C O1	34.32
939191	AE1-149 C O1	19.3
939311	AE1-162 C	3.93
939411	AE1-173 C	149.5
939421	AE1-174 C	0.68
939431	AE1-175 C	4.55
939611	AE1-191 C	18.84

Bus #	Bus	MW Impact
939751	AE1-206 C O1	50.38
940061	AE1-248 C O1	28.75
940071	AE1-249 C	13.06
AA2-074	AA2-074	8.68
AB2-013	AB2-013	7.98
AE1-033	AE1-033	8.32
AE1-042	AE1-042	16.97
CARR	CARR	2.56
CBM-S1	CBM-S1	26.97
CBM-S2	CBM-S2	26.18
CBM-W1	CBM-W1	28.38
CBM-W2	CBM-W2	177.18
CIN	CIN	13.24
CPLE	CPLE	12.76
IPL	IPL	8.34
LGEE	LGEE	3.9
MEC	MEC	28.14
MECS	MECS	11.92
RENSSELAER	RENSSELAER	2.03
WEC	WEC	3.48
Z1-043	Z1-043	13.69

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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
525456	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	122.51	124.45	DC	64.39

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.52
314229	6MT RD221	0.13
314250	6ROCKVILLE	0.36
314539	3UNCAMP	2.59
314541	3WATKINS	0.73
314566	3CRESWEL	2.54
314572	3EMPORIA	0.43
314594	6PLYMOTH	0.89
314617	3TUNIS	0.86
314620	6CASHIE	0.87
314648	6SUNBURY	0.97
314651	6WINFALL	1.91
315040	1LDYSMT4	5.19
315041	1LDYSMT5	5.21
315043	1FOUR RIVERA	3.87
315044	1FOUR RIVERB	2.99
315045	1FOUR RIVERC	3.87
315046	1FOUR RIVERD	2.99
315047	1FOUR RIVERE	2.99
315048	1FOUR RIVERF	3.86
315053	1BELMED1	19.75
315054	1BELMED2	19.75
315055	1BELMED3	16.39
315058	1CHESTF3	20.74
315059	1CHESTF4	33.62
315073	1STONECA	7.88
315074	1HOPCGN1	9.51
315075	1HOPCGN2	9.38
315083	1SPRUNCA	12.09

Bus #	Bus	MW Impact
315084	1SPRUNCB	12.09
315085	1SPRUNCC	8.96
315086	1SPRUNCD	8.96
315090	1YORKTN1	32.26
315091	1YORKTN2	33.48
315225	1N ANNA1	39.47
315226	1N ANNA2	39.55
900672	V4-068 E	0.31
901082	W1-029 E	49.99
907092	X1-038 E	6.47
913392	Y1-086 E	2.4
916042	Z1-036 E	49.07
916192	Z1-068 E	2.08
916302	Z1-086 E	9.49
917122	Z2-027 E	1.16
918512	AA1-065 E OP	4.52
919152	AA1-139 E	7.07
919211	AA1-145	11.18
920042	AA2-088 E OP	10.97
920692	AA2-178 E	4.35
923801	AB2-015 C O1	9.17
923802	AB2-015 E O1	7.52
923832	AB2-022 E	1.36
923842	AB2-024 E	1.26
923852	AB2-025 E	1.18
923862	AB2-026 E	1.09
923911	AB2-031 C O1	2.27
923912	AB2-031 E O1	1.12
923992	AB2-040 E O1	6.09
924061	AB2-050	0.66
924241	AB2-068 O1	229.82
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	11.94
924512	AB2-100 E	5.88
924812	AB2-134 E O1	13.85
925051	AB2-160 C O1	6.17
925052	AB2-160 E O1	10.07

Bus #	Bus	MW Impact
925061	AB2-161 C O1	3.76
925062	AB2-161 E O1	6.13
925122	AB2-169 E	5.94
925171	AB2-174 C O1	7.13
925172	AB2-174 E O1	6.45
925281	AB2-186 C	0.66
925282	AB2-186 E	0.28
925291	AB2-188 C O1	2.5
925292	AB2-188 E O1	1.12
925331	AB2-190 C	22.78
925332	AB2-190 E	9.76
925522	AC1-027 E	1.27
925861	AC1-065 C	3.82
925862	AC1-065 E	6.23
926291	AC1-107 O1	346.9
926411	AC1-112 C	0.35
926412	AC1-112 E	1.29
926551	AC1-134	1.64
926662	AC1-147 E	1.47
926731	AC1-158 C	94.24
926732	AC1-158 E	41.36
926751	AC1-161 C O1	33.89
926752	AC1-161 E O1	14.47
926781	AC1-164 C	46.18
926782	AC1-164 E	20.75
927041	AC1-191 C O1	10.94
927042	AC1-191 E O1	5.45
927221	AC1-216 C O1	11.13
927222	AC1-216 E O1	8.75
930121	AB1-027 C	0.46
930122	AB1-027 E	1.27
931232	AB1-173 E	1.07
931242	AB1-173AE	1.07
932041	AC2-012 C	11.34
932042	AC2-012 E	18.51
932501	AC2-070 C	0.3
932502	AC2-070 E	0.81
932532	AC2-073 E	1.35

Bus #	Bus	MW Impact
932581	AC2-078 C O1	4.56
932582	AC2-078 E O1	7.43
932591	AC2-079 C O1	6.34
932592	AC2-079 E O1	10.35
932831	AC2-110 C	1.53
932832	AC2-110 E	2.49
933011	AC2-125	3.15
933021	AC2-126	3.17
933031	AC2-127	1.73
933041	AC2-128	1.67
933051	AC2-129	1.57
933061	AC2-130	2.74
933071	AC2-131 1	1.86
933081	AC2-131 2	0.84
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933262	AC2-137 E	1.55
933272	AC2-138 E	1.06
933291	AC2-141 C	33.89
933292	AC2-141 E	14.47
933732	AC2-196 E	1.32
933991	AD1-023 C	13.66
933992	AD1-023 E	7.43
934011	AD1-025 C	19.13
934012	AD1-025 E	11.33
934061	AD1-033 C	8.32
934062	AD1-033 E	5.55
934141	AD1-041 C	6.0
934142	AD1-041 E	4.0
934201	AD1-047 C	8.11
934202	AD1-047 E	5.41
934212	AD1-048 E	1.41
934392	AD1-063 E	1.21
934521	AD1-076 C	56.86
934522	AD1-076 E	28.95
934571	AD1-082 C	8.56
934572	AD1-082 E	4.88
934781	AD1-105 C	7.93

Bus #	Bus	MW Impact
934782	AD1-105 E	5.51
935112	AD1-144 E	1.05
935161	AD1-151 C O1	18.31
935162	AD1-151 E O1	12.2
935212	AD1-156 E	1.59
936041	AD2-007	2.03
936051	AD2-008 C	3.33
936052	AD2-008 E	7.25
936151	AD2-021	0.27
936241	AD2-030 C	2.6
936242	AD2-030 E	1.33
936301	AD2-039 C	1.53
936302	AD2-039 E	2.49
936341	AD2-044 C	0.26
936342	AD2-044 E	0.3
936391	AD2-049 C	2.01
936392	AD2-049 E	2.01
936401	AD2-051 C O1	8.91
936402	AD2-051 E O1	3.83
936581	AD2-073 C	2.26
936582	AD2-073 E	1.12
936591	AD2-074 C	6.03
936592	AD2-074 E	9.84
936661	AD2-085 C	3.81
936662	AD2-085 E	6.21
936711	AD2-090 C O1	7.58
936712	AD2-090 E O1	5.05
937221	AD2-160 C O1	6.46
937222	AD2-160 E O1	3.39
937251	AD2-164	5.4
937541	AD2-215 C	1.94
937542	AD2-215 E	1.03
938031	AE1-004 C	1.53
938032	AE1-004 E	2.49
938081	AE1-010	7.48
938171	AE1-026 C1 O	29.01
938172	AE1-026 C2 O	4.2
938173	AE1-026 E O1	8.76

Bus #	Bus	MW Impact
938181	AE1-027 C	2.59
938182	AE1-027 E	1.36
938191	AE1-028 C	1.5
938192	AE1-028 E	0.87
938221	AE1-035 C	2.3
938222	AE1-035 E	1.13
938461	AE1-065 C O1	31.55
938462	AE1-065 E O1	127.3
938471	AE1-066 C O1	32.42
938472	AE1-066 E O1	126.42
938481	AE1-067 C O1	29.48
938482	AE1-067 E O1	129.36
938491	AE1-068 C O1	60.45
938492	AE1-068 E O1	33.39
938501	AE1-069 C O1	47.37
938502	AE1-069 E O1	27.08
938531	AE1-072 C O1	19.32
938532	AE1-072 E O1	10.07
938551	AE1-074 C	2.78
938552	AE1-074 E	1.4
938561	AE1-075 C	2.12
938562	AE1-075 E	1.03
938631	AE1-085 C O1	12.21
938632	AE1-085 E O1	8.14
938661	AE1-088	1.8
938771	AE1-103 C O1	3.88
938772	AE1-103 E O1	5.36
938841	AE1-109AC O1	10.08
938842	AE1-109AE O1	6.72
939041	AE1-133 C	38.77
939042	AE1-133 E	19.09
939071	AE1-135 C O1	21.52
939072	AE1-135 E O1	14.35
939191	AE1-149 C O1	12.01
939192	AE1-149 E O1	8.01
939241	AE1-155 C	16.33
939242	AE1-155 E	10.89
939261	AE1-157 C O1	16.52

Bus #	Bus	MW Impact
939262	AE1-157 E O1	8.96
939271	AE1-158 C O1	16.86
939272	AE1-158 E O1	8.62
939311	AE1-162 C	2.41
939312	AE1-162 E	1.6
939411	AE1-173 C	94.97
939412	AE1-173 E	63.31
939421	AE1-174 C	0.22
939422	AE1-174 E	0.33
939431	AE1-175 C	2.73
939432	AE1-175 E	1.36
939611	AE1-191 C	12.0
939612	AE1-191 E	8.0
939751	AE1-206 C O1	38.64
939752	AE1-206 E O1	25.76
940061	AE1-248 C O1	17.79
940062	AE1-248 E O1	11.86
940071	AE1-249 C	8.14
940072	AE1-249 E	6.07
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.37
CARR	CARR	1.66
CBM-S1	CBM-S1	12.63
CBM-S2	CBM-S2	15.13
CBM-W1	CBM-W1	9.13
CBM-W2	CBM-W2	78.78
CIN	CIN	4.63
CPLE	CPLE	7.66
G-007	G-007	5.24
IPL	IPL	2.86
LGEE	LGEE	1.39
MEC	MEC	10.95
MECS	MECS	2.1
O-066	O-066	17.54
RENSSELAER	RENSSELAER	1.32
WEC	WEC	1.18

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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
526357	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	116.14	117.52	DC	32.88

Bus #	Bus	MW Impact
314229	6MT RD221	0.11
314236	6NRTHEST	0.17
314250	6ROCKVILLE	0.3
314309	6IRON208	0.4
315043	1FOUR RIVERA	3.28
315044	1FOUR RIVERB	2.54
315045	1FOUR RIVERC	3.28
315046	1FOUR RIVERD	2.54
315047	1FOUR RIVERE	2.54
315048	1FOUR RIVERF	3.28
315053	1BELMED1	16.55
315054	1BELMED2	16.55
315055	1BELMED3	13.73
315058	1CHESTF3	17.45
315059	1CHESTF4	28.28
315060	1CHESTF5	9.06
315061	1CHESTG7	3.55
315062	1CHESTS7	1.61
315063	1CHESTG8	3.48
315064	1CHESTS8	1.79
315067	1DARBY 1	2.34
315068	1DARBY 2	2.34
315069	1DARBY 3	2.35
315070	1DARBY 4	2.35
315074	1HOPCGN1	7.99
315075	1HOPCGN2	7.88
315083	1SPRUNCA	10.07
315084	1SPRUNCB	10.07
315085	1SPRUNCC	7.47
315086	1SPRUNCD	7.47

Bus #	Bus	MW Impact
315090	1YORKTN1	27.05
315091	1YORKTN2	28.07
315225	1N ANNA1	26.01
315226	1N ANNA2	26.06
919211	AA1-145	9.48
924061	AB2-050	0.56
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
925861	AC1-065 C	3.18
926291	AC1-107 O1	301.5
926411	AC1-112 C	0.3
926551	AC1-134	1.39
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	0.39
932041	AC2-012 C	9.45
932501	AC2-070 C	0.26
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	0.31
933291	AC2-141 C	28.19
934011	AD1-025 C	16.04
934061	AD1-033 C	6.93

Bus #	Bus	MW Impact
934141	AD1-041 C	4.99
934211	AD1-048 C	0.36
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
938631	AE1-085 C O1	10.19
938841	AE1-109AC O1	8.42
939041	AE1-133 C	32.39
939191	AE1-149 C O1	10.03
939261	AE1-157 C O1	13.68
939271	AE1-158 C O1	13.96
939311	AE1-162 C	2.01
939411	AE1-173 C	77.72
939421	AE1-174 C	0.18
939431	AE1-175 C	2.3
939611	AE1-191 C	9.98
939751	AE1-206 C O1	32.88
940061	AE1-248 C O1	14.85
940071	AE1-249 C	6.81
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
CPLE	CPLE	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	8.94

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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
526300	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 568	single	3218.56	112.78	113.26	DC	33.87

Bus #	Bus	MW Impact
314250	6ROCKVILLE	0.35
314314	3LOCKS	0.3
314507	3THOMPSN	0.35
315053	1BELMED1	19.27
315054	1BELMED2	19.27
315055	1BELMED3	15.99
315058	1CHESTF3	19.88
315059	1CHESTF4	32.23
315065	1CHESTF6	20.89
315074	1HOPCGN1	9.26
315075	1HOPCGN2	9.14
315083	1SPRUNCA	12.0
315084	1SPRUNCB	12.0
315085	1SPRUNCC	8.89
315086	1SPRUNCD	8.89
315090	1YORKTN1	31.68
315091	1YORKTN2	32.87
315098	1CHESPKA	0.46
315099	1CHESPKB	1.15
315102	1BRUNSWICKG1	8.34
315103	1BRUNSWICKG2	8.34
315104	1BRUNSWICKG3	8.34
315105	1BRUNSWICKS1	17.32
315108	1ELIZAR1	3.4
315109	1ELIZAR2	3.34
315110	1ELIZAR3	3.44
315116	1SURRY 1	25.98
315225	1N ANNA1	55.6
315226	1N ANNA2	55.72
315233	1SURRY 2	26.19

Bus #	Bus	MW Impact
315260	1GOSPORTA	0.37
315261	1GOSPORTB	0.47
315262	1GOSPORTC	0.4
916191	Z1-068 C	0.05
916301	Z1-086 C	50.7
923801	AB2-015 C O1	9.42
923911	AB2-031 C O1	2.37
924241	AB2-068 O1	207.02
924501	AB2-099 C	0.62
924511	AB2-100 C	12.41
925021	AB2-158 C	1.99
925051	AB2-160 C O1	6.11
925061	AB2-161 C O1	3.8
925171	AB2-174 C O1	7.45
925281	AB2-186 C	0.68
925291	AB2-188 C O1	2.57
925331	AB2-190 C	22.43
925521	AC1-027 C	0.35
925821	AC1-061	0.01
925861	AC1-065 C	3.59
926071	AC1-086 C	21.74
926291	AC1-107 O1	312.48
926661	AC1-147 C	0.39
926751	AC1-161 C O1	34.47
926781	AC1-164 C	43.15
927041	AC1-191 C O1	9.89
927221	AC1-216 C O1	10.98
932041	AC2-012 C	11.53
932581	AC2-078 C O1	4.58
932591	AC2-079 C O1	6.43
932831	AC2-110 C	1.44
933061	AC2-130	2.62
933071	AC2-131 1	1.78
933081	AC2-131 2	0.81
933111	AC2-132 1	0.93
933121	AC2-132 2	0.48
933291	AC2-141 C	34.47
933501	AC2-165 C	10.41

Bus #	Bus	MW Impact
933731	AC2-196 C	0.31
933991	AD1-023 C	14.1
934011	AD1-025 C	18.87
934061	AD1-033 C	8.48
934141	AD1-041 C	5.64
934201	AD1-047 C	8.48
934521	AD1-076 C	58.66
934571	AD1-082 C	8.65
935161	AD1-151 C O1	18.03
935211	AD1-156 C	0.37
936041	AD2-007	2.0
936051	AD2-008 C	3.29
936151	AD2-021	0.26
936241	AD2-030 C	2.45
936301	AD2-039 C	1.44
936391	AD2-049 C	2.0
936401	AD2-051 C O1	9.25
936661	AD2-085 C	3.86
936711	AD2-090 C O1	7.8
937221	AD2-160 C O1	6.58
937251	AD2-164	5.32
937541	AD2-215 C	1.96
937571	AD2-169 C	10.55
938031	AE1-004 C	1.44
938171	AE1-026 C1 O	29.98
938172	AE1-026 C2 O	4.34
938181	AE1-027 C	2.64
938191	AE1-028 C	1.53
938221	AE1-035 C	2.38
938461	AE1-065 C O1	32.1
938471	AE1-066 C O1	32.99
938481	AE1-067 C O1	30.0
938491	AE1-068 C O1	65.89
938501	AE1-069 C O1	51.63
938531	AE1-072 C O1	19.7
938551	AE1-074 C	2.85
938561	AE1-075 C	2.32
938631	AE1-085 C O1	12.28

Bus #	Bus	MW Impact
938661	AE1-088	1.86
938771	AE1-103 C O1	3.98
938841	AE1-109AC O1	10.19
939041	AE1-133 C	39.6
939071	AE1-135 C O1	22.38
939191	AE1-149 C O1	12.06
939231	AE1-154 C	2.13
939311	AE1-162 C	2.42
939411	AE1-173 C	100.91
939421	AE1-174 C	0.21
939431	AE1-175 C	2.63
939611	AE1-191 C	11.29
939751	AE1-206 C O1	33.87
940061	AE1-248 C O1	17.98
940071	AE1-249 C	8.06
AA2-074	AA2-074	5.61
AE1-042	AE1-042	9.3
CARR	CARR	1.81
CBM-S1	CBM-S1	14.17
CBM-S2	CBM-S2	16.36
CBM-W1	CBM-W1	11.37
CBM-W2	CBM-W2	89.63
CIN	CIN	5.6
CPLE	CPLE	8.24
IPL	IPL	3.48
LGEE	LGEE	1.67
MEC	MEC	12.89
MECS	MECS	3.31
RENSSELAER	RENSSELAER	1.44
WEC	WEC	1.45

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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
526863	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	116.65	117.38	DC	62.83

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.72
314250	6ROCKVILLE	0.38
314539	3UNCAMP	2.83
314541	3WATKINS	0.8
314566	3CRESWEL	2.78
314572	3EMPORIA	0.47
314594	6PLYMOTH	0.98
314617	3TUNIS	0.95
314620	6CASHIE	0.96
314648	6SUNBURY	1.05
314651	6WINFALL	2.08
315053	1BELMED1	20.86
315054	1BELMED2	20.86
315055	1BELMED3	17.31
315058	1CHESTF3	21.61
315059	1CHESTF4	35.02
315073	1STONECA	8.31
315074	1HOPCGN1	10.02
315075	1HOPCGN2	9.89
315083	1SPRUNCA	12.94
315084	1SPRUNCB	12.94
315085	1SPRUNCC	9.59
315086	1SPRUNCD	9.59
315090	1YORKTN1	34.2
315091	1YORKTN2	35.49
315225	1N ANNA1	55.99
315226	1N ANNA2	56.11
315233	1SURRY 2	28.17
900672	V4-068 E	0.34
901082	W1-029 E	54.58

Bus #	Bus	MW Impact
907092	X1-038 E	7.09
913392	Y1-086 E	2.62
916042	Z1-036 E	53.66
916192	Z1-068 E	2.27
916302	Z1-086 E	10.9
917122	Z2-027 E	1.26
918492	AA1-063AE OP	4.45
918512	AA1-065 E OP	4.98
919152	AA1-139 E	7.71
920042	AA2-088 E OP	12.06
920692	AA2-178 E	4.77
923801	AB2-015 C O1	10.05
923802	AB2-015 E O1	8.24
923832	AB2-022 E	1.48
923842	AB2-024 E	1.3
923852	AB2-025 E	1.3
923862	AB2-026 E	1.26
923911	AB2-031 C O1	2.51
923912	AB2-031 E O1	1.24
923992	AB2-040 E O1	6.75
924241	AB2-068 O1	227.67
924501	AB2-099 C	0.66
924502	AB2-099 E	0.28
924511	AB2-100 C	13.2
924512	AB2-100 E	6.5
924812	AB2-134 E O1	14.73
925021	AB2-158 C	2.15
925022	AB2-158 E	6.24
925051	AB2-160 C O1	6.59
925052	AB2-160 E O1	10.75
925061	AB2-161 C O1	4.07
925062	AB2-161 E O1	6.64
925122	AB2-169 E	6.54
925171	AB2-174 C O1	7.91
925172	AB2-174 E O1	7.15
925281	AB2-186 C	0.73
925282	AB2-186 E	0.31
925291	AB2-188 C O1	2.74

Bus #	Bus	MW Impact
925292	AB2-188 E O1	1.23
925331	AB2-190 C	24.2
925332	AB2-190 E	10.37
925522	AC1-027 E	1.38
925861	AC1-065 C	3.93
925862	AC1-065 E	6.41
926001	AC1-076 C	7.22
926002	AC1-076 E	11.74
926071	AC1-086 C	23.07
926072	AC1-086 E	10.5
926291	AC1-107 O1	343.65
926412	AC1-112 E	1.3
926662	AC1-147 E	1.6
926731	AC1-158 C	193.96
926732	AC1-158 E	85.12
926751	AC1-161 C O1	36.89
926752	AC1-161 E O1	15.75
926781	AC1-164 C	47.16
926782	AC1-164 E	21.19
927041	AC1-191 C O1	10.94
927042	AC1-191 E O1	5.45
927221	AC1-216 C O1	11.84
927222	AC1-216 E O1	9.31
930122	AB1-027 E	1.28
930862	AB1-132 E O1	6.71
931232	AB1-173 E	1.18
931242	AB1-173AE	1.18
932041	AC2-012 C	12.34
932042	AC2-012 E	20.14
932502	AC2-070 E	0.81
932532	AC2-073 E	1.39
932581	AC2-078 C O1	4.91
932582	AC2-078 E O1	8.02
932591	AC2-079 C O1	6.89
932592	AC2-079 E O1	11.24
932831	AC2-110 C	1.57
932832	AC2-110 E	2.56
933011	AC2-125	2.82

Bus #	Bus	MW Impact
933021	AC2-126	2.84
933031	AC2-127	1.55
933041	AC2-128	1.49
933051	AC2-129	1.4
933061	AC2-130	2.85
933071	AC2-131 1	1.93
933081	AC2-131 2	0.88
933111	AC2-132 1	1.01
933121	AC2-132 2	0.52
933262	AC2-137 E	1.59
933291	AC2-141 C	36.89
933292	AC2-141 E	15.75
933501	AC2-165 C	11.08
933502	AC2-165 E	8.34
933732	AC2-196 E	1.44
933991	AD1-023 C	15.01
933992	AD1-023 E	8.17
934011	AD1-025 C	20.35
934012	AD1-025 E	12.06
934061	AD1-033 C	9.07
934062	AD1-033 E	6.05
934141	AD1-041 C	6.18
934142	AD1-041 E	4.12
934201	AD1-047 C	9.0
934202	AD1-047 E	6.0
934212	AD1-048 E	1.44
934392	AD1-063 E	1.24
934521	AD1-076 C	62.44
934522	AD1-076 E	31.8
934541	AD1-078 C	4.42
934542	AD1-078 E	2.6
934571	AD1-082 C	9.27
934572	AD1-082 E	5.29
935112	AD1-144 E	1.13
935161	AD1-151 C O1	19.45
935162	AD1-151 E O1	12.97
935212	AD1-156 E	1.72
936041	AD2-007	2.16

Bus #	Bus	MW Impact
936051	AD2-008 C	3.54
936052	AD2-008 E	7.71
936151	AD2-021	0.28
936241	AD2-030 C	2.68
936242	AD2-030 E	1.37
936301	AD2-039 C	1.57
936302	AD2-039 E	2.56
936391	AD2-049 C	2.15
936392	AD2-049 E	2.15
936401	AD2-051 C O1	9.83
936402	AD2-051 E O1	4.22
936591	AD2-074 C	6.11
936592	AD2-074 E	9.96
936661	AD2-085 C	4.13
936662	AD2-085 E	6.75
936711	AD2-090 C O1	8.32
936712	AD2-090 E O1	5.54
937221	AD2-160 C O1	7.04
937222	AD2-160 E O1	3.69
937251	AD2-164	5.74
937541	AD2-215 C	2.1
937542	AD2-215 E	1.11
937571	AD2-169 C	11.19
937572	AD2-169 E	7.46
938031	AE1-004 C	1.57
938032	AE1-004 E	2.56
938081	AE1-010	10.01
938171	AE1-026 C1 O	31.89
938172	AE1-026 C2 O	4.61
938173	AE1-026 E O1	9.63
938181	AE1-027 C	2.82
938182	AE1-027 E	1.49
938191	AE1-028 C	1.64
938192	AE1-028 E	0.95
938221	AE1-035 C	2.53
938222	AE1-035 E	1.25
938461	AE1-065 C O1	34.35
938462	AE1-065 E O1	138.61

Bus #	Bus	MW Impact
938471	AE1-066 C O1	35.3
938472	AE1-066 E O1	137.66
938481	AE1-067 C O1	32.1
938482	AE1-067 E O1	140.86
938491	AE1-068 C O1	69.43
938492	AE1-068 E O1	38.34
938501	AE1-069 C O1	54.39
938502	AE1-069 E O1	31.1
938531	AE1-072 C O1	21.07
938532	AE1-072 E O1	10.98
938551	AE1-074 C	3.05
938552	AE1-074 E	1.54
938561	AE1-075 C	2.46
938562	AE1-075 E	1.2
938631	AE1-085 C O1	13.18
938632	AE1-085 E O1	8.79
938661	AE1-088	1.98
938771	AE1-103 C O1	4.25
938772	AE1-103 E O1	5.87
938841	AE1-109AC O1	10.92
938842	AE1-109AE O1	7.28
939041	AE1-133 C	42.31
939042	AE1-133 E	20.84
939071	AE1-135 C O1	23.8
939072	AE1-135 E O1	15.87
939191	AE1-149 C O1	12.95
939192	AE1-149 E O1	8.63
939231	AE1-154 C	2.29
939232	AE1-154 E	1.61
939261	AE1-157 C O1	15.13
939262	AE1-157 E O1	8.21
939271	AE1-158 C O1	15.44
939272	AE1-158 E O1	7.9
939311	AE1-162 C	2.59
939312	AE1-162 E	1.73
939411	AE1-173 C	106.97
939412	AE1-173 E	71.31
939421	AE1-174 C	0.23

Bus #	Bus	MW Impact
939422	AE1-174 E	0.34
939431	AE1-175 C	2.86
939432	AE1-175 E	1.42
939611	AE1-191 C	12.35
939612	AE1-191 E	8.24
939751	AE1-206 C O1	37.7
939752	AE1-206 E O1	25.13
940061	AE1-248 C O1	19.27
940062	AE1-248 E O1	12.85
940071	AE1-249 C	8.69
940072	AE1-249 E	6.48
AA2-074	AA2-074	5.84
AE1-042	AE1-042	9.11
CARR	CARR	1.83
CBM-S1	CBM-S1	13.62
CBM-S2	CBM-S2	16.87
CBM-W1	CBM-W1	9.17
CBM-W2	CBM-W2	84.32
CIN	CIN	4.73
CPLE	CPLE	8.59
G-007	G-007	5.72
IPL	IPL	2.9
LGEE	LGEE	1.42
MEC	MEC	11.44
MECS	MECS	1.7
O-066	O-066	19.14
RENSSELAER	RENSSELAER	1.45
WEC	WEC	1.2

Contingency Name	Contingency Definition
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_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: 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_P1-2: LN 568	CONTINGENCY 'DVP_P1-2: LN 568' OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 END
DVP_P1-2: LN 2032-B	CONTINGENCY 'DVP_P1-2: LN 2032-B' OPEN BRANCH FROM BUS 939750 TO BUS 314222 CKT 1 /* AE1-206 TAP 230.00 - 6HANOVER 230.00 OPEN BRANCH FROM BUS 314218 TO BUS 314222 CKT 1 /* 6ELMONT 230.00 - 6HANOVER 230.00 OPEN BUS 314222 /* ISLAND: 6HANOVER 230.00 END
DVP_P1-3: 8LADYSMITH-TX#1	CONTINGENCY 'DVP_P1-3: 8LADYSMITH-TX#1' OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 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: 2032T2103	CONTINGENCY 'DVP_P4-2: 2032T2103' /* ELMONT 230 KV OPEN BRANCH FROM BUS 939750 TO BUS 314222 CKT 1 /* AE1-206 TAP 230.00 - 6HANOVER 230.00 OPEN BRANCH FROM BUS 314218 TO BUS 314222 CKT 1 /* 6ELMONT 230.00 - 6HANOVER 230.00 OPEN BUS 314222 /* ISLAND: 6HANOVER 230.00 OPEN BRANCH FROM BUS 314218 TO BUS 314251 CKT 1 /* 6ELMONT 230.00 - 6S PUMP 230.00 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: 25672	CONTINGENCY 'DVP_P4-2: 25672' /* LADYSMITH CT 230 KV OPEN BRANCH FROM BUS 939260 TO BUS 314197 CKT 1 /* AE1-157 TAP 230.00 - 6LDYSMITH CT230.00 OPEN BRANCH FROM BUS 314197 TO BUS 315039 CKT 1 /* 6LDYSMITH CT230.00 - 1LDYSMT3 18.000 OPEN BUS 315039 /* ISLAND: 1LDYSMT3 18.000 OPEN BRANCH FROM BUS 314197 TO BUS 315040 CKT 1 /* 6LDYSMITH CT230.00 - 1LDYSMT4 18.000 OPEN BUS 315040 /* ISLAND: 1LDYSMT4 18.000 OPEN BRANCH FROM BUS 314197 TO BUS 315041 CKT 1 /* 6LDYSMITH CT230.00 - 1LDYSMT5 18.000 OPEN BUS 315041 /* ISLAND: 1LDYSMT5 18.000 END
DVP_P1-2: LN 2089	CONTINGENCY 'DVP_P1-2: LN 2089' OPEN BRANCH FROM BUS 314196 TO BUS 314197 CKT 1 /* 6LADYSMITH 230.00 - 6LDYSMITH CT230.00 END
DVP_P4-2: 541T569	CONTINGENCY 'DVP_P4-2: 541T569' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314929 CKT 1 /* 8MORRSVL 500.00 - 8FRONT ROYAL500.00 OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL 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

Contingency Name	Contingency Definition
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_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: 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: 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_P1-2: LN 2090	CONTINGENCY 'DVP_P1-2: LN 2090' OPEN BRANCH FROM BUS 313837 TO BUS 314138 CKT 1 /* 6SUMMIT 230.00 - 6MINE RD 230.00 OPEN BRANCH FROM BUS 313837 TO BUS 314197 CKT 1 /* 6SUMMIT 230.00 - 6LDYSMITH CT230.00 OPEN BRANCH FROM BUS 314137 TO BUS 314138 CKT 1 /* 6FREDBRG 230.00 - 6MINE RD 230.00 OPEN BUS 313837 /* ISLAND: 6SUMMIT 230.00 OPEN BUS 314138 /* ISLAND: 6MINE RD 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_P1-2: LN 256-B	CONTINGENCY 'DVP_P1-2: LN 256-B' OPEN BRANCH FROM BUS 939260 TO BUS 314197 CKT 1 /* AE1-157 TAP 230.00 - 6LDYSMITH CT230.00 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

Short Circuit

Short Circuit

The following Breakers are overduty:

None

Network Impacts: Option 2

Queue Projects AE1-206 was evaluated as a 300 MW (Capacity 180 MW) injection into a tap off of the Elmont-Kings Dominion 115 kV line in the ITO area. Project AE1-206 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-206 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
512166	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2089	single	678.68	107.76	111.59	DC	26.01
512167	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	678.68	107.76	111.59	DC	26.01
512169	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2032	single	678.68	105.55	108.23	DC	18.13
511358	314151	3SLABTWN	DVP	314136	3FREDBRG	DVP	1	DVP_P1-2: LN 73-B	single	331.82	98.38	152.58	DC	179.84
511770	314152	3S JOHNS	DVP	314153	3WOODPCK	DVP	1	DVP_P1-2: LN 73-B	single	331.82	53.28	107.48	DC	179.84
511350	314153	3WOODPCK	DVP	314151	3SLABTWN	DVP	1	DVP_P1-2: LN 73-B	single	331.82	100.25	154.45	DC	179.84
511743	314216	3PINEWOOD	DVP	314152	3S JOHNS	DVP	1	DVP_P1-2: LN 73-B	single	331.82	55.18	109.38	DC	179.84
511951	314220	3FOURRIVERS	DVP	314223	3KNGS DOM DP	DVP	1	DVP_P1-2: LN 73-B	single	331.82	49.91	104.11	DC	179.84
511283	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P1-2: LN 47	single	187.06	97.83	193.97	DC	179.84
511284	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P1-2: LN 1008	single	187.06	88.48	184.62	DC	179.84
511288	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	Base Case	single	187.06	83.75	156.81	DC	136.67
511756	314223	3KNGS DOM DP	DVP	314216	3PINEWOOD	DVP	1	DVP_P1-2: LN 73-B	single	331.82	54.58	108.77	DC	179.84
511271	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P1-2: LN 47	single	187.06	97.88	194.02	DC	179.84
511272	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P1-2: LN 1008	single	187.06	88.53	184.67	DC	179.84
511276	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	Base Case	single	187.06	83.81	156.87	DC	136.67

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
510351	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P2-2: FREDERICK B1	bus	270.0	95.64	138.48	DC	115.66
510829	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P4-5: FREDERICK L742	breaker	270.0	95.64	138.48	DC	115.66
510830	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P4-4: SC242	breaker	270.0	95.64	138.48	DC	115.66
510831	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P4-2: 2942	breaker	270.0	95.64	138.48	DC	115.66
510319	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P2-2: FREDERICK B1	bus	229.0	192.46	323.35	DC	299.73
510539	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P4-4: SC242	breaker	229.0	192.46	323.35	DC	299.73
510540	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P4-5: FREDERICK L742	breaker	229.0	192.46	323.35	DC	299.73
510541	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P4-2: 2942	breaker	229.0	192.46	323.35	DC	299.73
511162	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	100.5	101.17	DC	47.99
510314	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P2-2: FREDERICK B1	bus	229.0	192.5	323.39	DC	299.73
510534	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P4-4: SC242	breaker	229.0	192.5	323.39	DC	299.73
510535	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P4-2: 2942	breaker	229.0	192.5	323.39	DC	299.73
510536	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P4-5: FREDERICK L742	breaker	229.0	192.5	323.39	DC	299.73
510887	939750	AE1-206 TAP	DVP	314220	3FOURRIVERS	DVP	1	DVP_P4-2: 7392	breaker	229.0	0.0	131.0	DC	300.0

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
510673	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	152.98	161.04	DC	83.73
511025	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	117.33	118.08	DC	54.89
511026	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	116.75	117.5	DC	54.75
511662	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	129.57	130.2	DC	32.86
511663	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	125.38	126.0	DC	32.29
511372	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 534	single	2442.12	138.75	139.76	DC	53.56
511374	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 550	single	2442.12	130.32	131.09	DC	41.26
511376	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	111.84	112.55	DC	37.81
510979	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	121.8	122.56	DC	55.66
510980	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	119.74	120.51	DC	56.21
510981	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	119.73	120.51	DC	56.21
511848	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	118.91	119.48	DC	33.55
511849	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	116.84	117.39	DC	32.55
511981	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	110.23	110.71	DC	33.63

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
511983	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 552	single	3218.56	107.34	107.81	DC	32.88
511920	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 581	single	3218.56	111.29	111.76	DC	32.77

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
512164	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-2: LN 2089	operation	678.68	113.26	116.14	DC	43.35
512165	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	operation	678.68	113.26	116.14	DC	43.35
512211	314136	3FREDBRG	DVP	314137	6FREDBRG	DVP	2	DVP_P1-2: LN 73-B	operation	249.1	56.88	111.9	DC	137.05
512299	314142	6STAFORD	DVP	314145	6AQUI_HARB_B	DVP	1	DVP_P1-2: LN 2089	operation	678.68	98.27	101.16	DC	43.35
511357	314151	3SLABTWN	DVP	314136	3FREDBRG	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	132.82	223.15	DC	299.73
511769	314152	3SJOHNS	DVP	314153	3WOODPCK	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	62.79	153.12	DC	299.73
511349	314153	3WOODPCK	DVP	314151	3SLABTWN	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	134.69	225.02	DC	299.73
511355	314153	3WOODPCK	DVP	314151	3SLABTWN	DVP	1	Base Case	operation	331.82	80.11	101.79	DC	71.96

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
511742	314216	3PINEWOOD	DVP	314152	3S JOHNS	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	64.69	155.02	DC	299.73
511964	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P1-3: 6ELMONT-TX#6	operation	220.9	83.2	138.63	DC	122.44
511969	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	Base Case	operation	220.9	75.47	115.33	DC	88.04
512110	314217	3ELMONT	DVP	314218	6ELMONT	DVP	2	DVP_P1-2: LN 142	operation	174.84	62.54	125.21	DC	109.57
512213	314217	3ELMONT	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 142	operation	194.58	55.51	111.18	DC	108.33
512152	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	109.92	116.07	DC	53.54
512196	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	106.8	112.7	DC	53.78
511950	314220	3FOURRIVERS	DVP	314223	3KNGS DOM DP	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	49.91	140.24	DC	299.73
511277	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P1-2: LN 47	operation	187.06	114.69	274.93	DC	299.73
511282	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	Base Case	operation	187.06	112.01	233.78	DC	227.78
511755	314223	3KNGS DOM DP	DVP	314216	3PINEWOOD	DVP	1	DVP_P1-2: LN 73-B	operation	331.82	64.08	154.41	DC	299.73
511659	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	160.09	161.12	DC	54.77
511373	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	135.28	136.45	DC	63.02
511845	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	146.1	147.04	DC	55.91
511975	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	137.12	137.92	DC	56.06
511265	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P1-2: LN 47	operation	187.06	114.74	274.98	DC	299.73
511270	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	Base Case	operation	187.06	112.06	233.83	DC	227.78
511681	939750	AE1-206 TAP	DVP	314220	3FOURRIVERS	DVP	1	DVP_P1-2: LN 73-B	operation	187.06	0.05	160.32	DC	300.0

Flow Gate Details

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
512167	314134	6CRANES	DVP	314142	6STAFORD	DVP	1	DVP_P1-3: 8LADYSMITH-TX#1	single	678.68	107.76	111.59	DC	26.01

Bus #	Bus	MW Impact
314131	6ARNOLDS	0.55
314134	6CRANES	0.17
315033	1BIRCHWDA	15.45
315034	1NORNECKC1	0.8
315035	1NORNECKC2	0.78
315037	1LDYSMT1	7.97
315038	1LDYSMT2	7.96
315039	1LDYSMT3	8.43
315040	1LDYSMT4	8.44
315041	1LDYSMT5	8.47
315043	1FOUR RIVERA	2.61
315044	1FOUR RIVERB	2.02
315045	1FOUR RIVERC	2.61
315046	1FOUR RIVERD	2.02
315047	1FOUR RIVERE	2.02
315048	1FOUR RIVERF	2.6
315050	1FOURRIVERG	4.11
919211	AA1-145	7.54

Bus #	Bus	MW Impact
924061	AB2-050	0.44
924281	AB2-072 C	4.83
925861	AC1-065 C	1.82
926471	AC1-118 C	0.54
926551	AC1-134	1.11
927041	AC1-191 C O1	5.26
932831	AC2-110 C	0.73
933011	AC2-125	5.13
933021	AC2-126	5.16
933031	AC2-127	2.82
933041	AC2-128	2.72
933051	AC2-129	2.55
933271	AC2-138 C	0.16
934141	AD1-041 C	2.97
934191	AD1-046 C	9.18
934781	AD1-105 C	7.75
936241	AD2-030 C	1.35
936301	AD2-039 C	0.73
936341	AD2-044 C	0.32
936581	AD2-073 C	3.22
936591	AD2-074 C	5.61
938031	AE1-004 C	0.73
938961	AE1-124 C	3.98
939241	AE1-155 C	16.15
939261	AE1-157 C O2	20.21
939271	AE1-158 C O2	20.63
939281	AE1-159 C O2	21.58

Bus #	Bus	MW Impact
939611	AE1-191 C	5.93
939751	AE1-206 C O2	26.01
CARR	CARR	0.51
CBM-S1	CBM-S1	3.05
CBM-S2	CBM-S2	3.43
CBM-W1	CBM-W1	2.56
CBM-W2	CBM-W2	19.41
CIN	CIN	1.26
CPLE	CPLE	1.73
IPL	IPL	0.78
LGEE	LGEE	0.37
MEC	MEC	2.84
MECS	MECS	0.8
RENSSELAER	RENSSELAER	0.41
WEC	WEC	0.33

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
511358	314151	3SLABTWN	DVP	314136	3FREDBRG	DVP	1	DVP_P1-2: LN 73-B	single	331.82	98.38	152.58	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
939261	AE1-157 C O2	77.73
939271	AE1-158 C O2	79.33
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37

Bus #	Bus	MW Impact
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
511770	314152	3S JOHNS	DVP	314153	3WOODPCK	DVP	1	DVP_P1-2: LN 73-B	single	331.82	53.28	107.48	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
511350	314153	3WOODPCK	DVP	314151	3SLABTWN	DVP	1	DVP_P1-2: LN 73-B	single	331.82	100.25	154.45	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
939261	AE1-157 C O2	77.73
939271	AE1-158 C O2	79.33
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37

Bus #	Bus	MW Impact
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
511743	314216	3PINEWOOD	DVP	314152	3S JOHNS	DVP	1	DVP_P1-2: LN 73-B	single	331.82	55.18	109.38	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
511951	314220	3FOURRIVERS	DVP	314223	3KNGS DOM DP	DVP	1	DVP_P1-2: LN 73-B	single	331.82	49.91	104.11	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.05

Bus #	Bus	MW Impact
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
510541	314221	3HANOVER	DVP	314217	3ELMONT	DVP	1	DVP_P4-2: 2942	breaker	229.0	192.46	323.35	DC	299.73

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
934782	AD1-105 E	31.54
939261	AE1-157 C O2	77.73
939262	AE1-157 E O2	42.16
939271	AE1-158 C O2	79.33
939272	AE1-158 E O2	40.56
939751	AE1-206 C O2	179.84
939752	AE1-206 E O2	119.89
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007	G-007	0.09
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
O-066	O-066	0.32
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
511756	314223	3KNGS DOM DP	DVP	314216	3PINEWOOD	DVP	1	DVP_P1-2: LN 73-B	single	331.82	54.58	108.77	DC	179.84

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
939751	AE1-206 C O2	179.84
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
510536	939750	AE1-206 TAP	DVP	314221	3HANOVER	DVP	1	DVP_P4-5: FREDER L742	breaker	229.0	192.5	323.39	DC	299.73

Bus #	Bus	MW Impact
315050	1FOURRIVERG	25.55
934781	AD1-105 C	45.39
934782	AD1-105 E	31.54
939261	AE1-157 C O2	77.73
939262	AE1-157 E O2	42.16
939271	AE1-158 C O2	79.33
939272	AE1-158 E O2	40.56
939751	AE1-206 C O2	179.84
939752	AE1-206 E O2	119.89
BAYOU	BAYOU	0.09
BIG_CAJUN1	BIG_CAJUN1	0.15
BIG_CAJUN2	BIG_CAJUN2	0.29
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.03
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.04

Bus #	Bus	MW Impact
CHILHOWEE	CHILHOWEE	0.02
CHOCTAW	CHOCTAW	0.1
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.37
DEARBORN	DEARBORN	0.08
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007	G-007	0.09
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.12
O-066	O-066	0.32
PRAIRIE	PRAIRIE	0.23
RENSSELAER	RENSSELAER	0.03
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07

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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
510831	314217	3ELMONT	DVP	314237	3NRTHWST	DVP	1	DVP_P4-2: 2942	breaker	270.0	95.64	138.48	DC	115.66

Bus #	Bus	MW Impact
315050	1FOURRIVERG	9.86
927041	AC1-191 C O1	20.59
927042	AC1-191 E O1	10.25
934781	AD1-105 C	17.51
934782	AD1-105 E	12.17
939261	AE1-157 C O2	29.99
939262	AE1-157 E O2	16.27
939271	AE1-158 C O2	30.61
939272	AE1-158 E O2	15.65
939751	AE1-206 C O2	69.39
939752	AE1-206 E O2	46.26
BAYOU	BAYOU	0.13
BIG_CAJUN1	BIG_CAJUN1	0.21
BIG_CAJUN2	BIG_CAJUN2	0.43
BLUEG	BLUEG	0.34
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.08
CBM-N	CBM-N	0.03

Bus #	Bus	MW Impact
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
CHOCTAW	CHOCTAW	0.15
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.53
DEARBORN	DEARBORN	0.04
DUCKCREEK	DUCKCREEK	0.08
EDWARDS	EDWARDS	0.04
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	0.12
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.34
NEWTON	NEWTON	0.11
NYISO	NYISO	0.14
O-066A	O-066A	0.06
PRAIRIE	PRAIRIE	0.23
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.05
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.04
TVA	TVA	0.22
UNIONPOWER	UNIONPOWER	0.11
VFT	VFT	0.33

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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
511162	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	100.5	101.17	DC	47.99

Bus #	Bus	MW Impact
314093	6WARRNTN	0.31
314189	6PAPERMILL	5.81
314648	6SUNBURY	0.72
314651	6WINFALL	1.43
315037	1LDYSMT1	4.2
315038	1LDYSMT2	4.19
315039	1LDYSMT3	4.44
315040	1LDYSMT4	4.45
315041	1LDYSMT5	4.46
315053	1BELMED1	14.97
315054	1BELMED2	14.97
315055	1BELMED3	12.42
315058	1CHESTF3	15.74
315059	1CHESTF4	25.52
315073	1STONECA	5.95
315074	1HOPCGN1	7.18
315075	1HOPCGN2	7.08
315083	1SPRUNCA	9.17

Bus #	Bus	MW Impact
315084	1SPRUNCB	9.17
315085	1SPRUNCC	6.8
315086	1SPRUNCD	6.8
315090	1YORKTN1	24.31
315091	1YORKTN2	25.22
315225	1N ANNA1	29.96
315226	1N ANNA2	30.03
901082	W1-029 E	37.33
913392	Y1-086 E	1.8
916042	Z1-036 E	36.59
916192	Z1-068 E	1.56
917122	Z2-027 E	0.86
919152	AA1-139 E	5.29
923832	AB2-022 E	1.01
923842	AB2-024 E	0.97
923852	AB2-025 E	0.88
923862	AB2-026 E	0.86
923892	AB2-029 E	1.94
924241	AB2-068 O1	169.42
924281	AB2-072 C	1.94
924282	AB2-072 E	0.92
924812	AB2-134 E O1	10.43
925021	AB2-158 C	1.61
925022	AB2-158 E	4.68
925051	AB2-160 C O1	4.66
925052	AB2-160 E O1	7.6
925061	AB2-161 C O1	2.82

Bus #	Bus	MW Impact
925062	AB2-161 E O1	4.6
925281	AB2-186 C	0.5
925282	AB2-186 E	0.21
925331	AB2-190 C	17.16
925332	AB2-190 E	7.36
925522	AC1-027 E	0.95
925671	AC1-043 C	6.62
925672	AC1-043 E	10.81
925861	AC1-065 C	2.98
925862	AC1-065 E	4.86
926001	AC1-076 C	4.59
926002	AC1-076 E	7.47
926291	AC1-107 O1	255.73
926412	AC1-112 E	0.98
926472	AC1-118 E	1.08
926481	AC1-120 C O1	7.02
926482	AC1-120 E O1	3.62
926501	AC1-121 C O1	2.41
926502	AC1-121 E O1	1.14
926611	AC1-143 C O1	6.75
926612	AC1-143 E O1	3.08
926662	AC1-147 E	1.1
926731	AC1-158 C	74.96
926732	AC1-158 E	32.9
926751	AC1-161 C O1	25.35
926752	AC1-161 E O1	10.82
926781	AC1-164 C	34.92

Bus #	Bus	MW Impact
926782	AC1-164 E	15.69
927041	AC1-191 C O1	8.6
927042	AC1-191 E O1	4.28
927221	AC1-216 C O1	8.38
927222	AC1-216 E O1	6.59
930122	AB1-027 E	0.96
932041	AC2-012 C	8.49
932042	AC2-012 E	13.86
932502	AC2-070 E	0.61
932532	AC2-073 E	1.05
932581	AC2-078 C O1	3.43
932582	AC2-078 E O1	5.59
932591	AC2-079 C O1	4.75
932592	AC2-079 E O1	7.75
932781	AC2-102 C	5.37
932782	AC2-102 E	8.76
932831	AC2-110 C	1.19
932832	AC2-110 E	1.94
933011	AC2-125	2.7
933021	AC2-126	2.72
933031	AC2-127	1.49
933041	AC2-128	1.43
933051	AC2-129	1.34
933061	AC2-130	2.08
933071	AC2-131 1	1.41
933081	AC2-131 2	0.64
933111	AC2-132 1	0.74

Bus #	Bus	MW Impact
933121	AC2-132 2	0.38
933262	AC2-137 E	1.17
933272	AC2-138 E	0.95
933291	AC2-141 C	25.35
933292	AC2-141 E	10.82
933732	AC2-196 E	0.99
934011	AD1-025 C	14.41
934012	AD1-025 E	8.54
934061	AD1-033 C	6.23
934062	AD1-033 E	4.15
934141	AD1-041 C	4.7
934142	AD1-041 E	3.13
934191	AD1-046 C	4.87
934192	AD1-046 E	3.25
934212	AD1-048 E	1.07
934392	AD1-063 E	0.94
934541	AD1-078 C	2.52
934542	AD1-078 E	1.48
934571	AD1-082 C	6.42
934572	AD1-082 E	3.66
934781	AD1-105 C	7.24
934782	AD1-105 E	5.03
934861	AD1-115 C	3.31
934862	AD1-115 E	5.4
935112	AD1-144 E	0.78
935161	AD1-151 C O1	13.79
935162	AD1-151 E O1	9.19

Bus #	Bus	MW Impact
935212	AD1-156 E	1.19
936041	AD2-007	1.53
936051	AD2-008 C	2.51
936052	AD2-008 E	5.46
936151	AD2-021	0.21
936241	AD2-030 C	2.05
936242	AD2-030 E	1.05
936301	AD2-039 C	1.19
936302	AD2-039 E	1.94
936341	AD2-044 C	0.24
936342	AD2-044 E	0.27
936391	AD2-049 C	1.51
936392	AD2-049 E	1.51
936581	AD2-073 C	2.11
936582	AD2-073 E	1.04
936591	AD2-074 C	5.14
936592	AD2-074 E	8.39
936661	AD2-085 C	2.85
936662	AD2-085 E	4.66
937221	AD2-160 C O1	4.83
937222	AD2-160 E O1	2.53
937251	AD2-164	4.07
937541	AD2-215 C	1.45
937542	AD2-215 E	0.77
938031	AE1-004 C	1.19
938032	AE1-004 E	1.94
938081	AE1-010	6.37

Bus #	Bus	MW Impact
938181	AE1-027 C	1.94
938182	AE1-027 E	1.02
938191	AE1-028 C	1.12
938192	AE1-028 E	0.65
938291	AE1-044 C O2	19.62
938292	AE1-044 E O2	15.48
938461	AE1-065 C O2	23.61
938462	AE1-065 E O2	95.28
938471	AE1-066 C O2	24.26
938472	AE1-066 E O2	94.62
938481	AE1-067 C O2	22.07
938482	AE1-067 E O2	96.82
938501	AE1-069 C O2	35.55
938502	AE1-069 E O2	20.32
938531	AE1-072 C O2	14.45
938532	AE1-072 E O2	7.53
938551	AE1-074 C	2.11
938552	AE1-074 E	1.07
938561	AE1-075 C	1.68
938562	AE1-075 E	0.82
938631	AE1-085 C O2	9.19
938632	AE1-085 E O2	6.12
938841	AE1-109AC O2	7.55
938842	AE1-109AE O2	5.03
938961	AE1-124 C	2.11
938962	AE1-124 E	1.06
939041	AE1-133 C	28.96

Bus #	Bus	MW Impact
939042	AE1-133 E	14.26
939191	AE1-149 C O2	9.05
939192	AE1-149 E O2	6.03
939221	AE1-153 C O2	15.78
939222	AE1-153 E O2	10.52
939231	AE1-154 C	1.72
939232	AE1-154 E	1.2
939241	AE1-155 C	14.08
939242	AE1-155 E	9.39
939261	AE1-157 C O2	12.23
939262	AE1-157 E O2	6.63
939271	AE1-158 C O2	12.48
939272	AE1-158 E O2	6.38
939281	AE1-159 C O2	13.35
939282	AE1-159 E O2	7.9
939311	AE1-162 C	1.81
939312	AE1-162 E	1.2
939411	AE1-173 C	71.15
939412	AE1-173 E	47.43
939421	AE1-174 C	0.16
939422	AE1-174 E	0.25
939431	AE1-175 C	2.06
939432	AE1-175 E	1.02
939511	AE1-180 C	2.05
939512	AE1-180 E	1.37
939611	AE1-191 C	9.4
939612	AE1-191 E	6.26

Bus #	Bus	MW Impact
939751	AE1-206 C O2	28.79
939752	AE1-206 E O2	19.2
940061	AE1-248 C O2	13.36
940062	AE1-248 E O2	8.9
940071	AE1-249 C	6.15
940072	AE1-249 E	4.58
AA2-074	AA2-074	3.66
BLUEG	BLUEG	0.2
CARR	CARR	1.39
CBM-S1	CBM-S1	5.43
CBM-S2	CBM-S2	10.1
CBM-W2	CBM-W2	28.06
CPL	CPL	5.37
DEARBORN	DEARBORN	1.15
DUCKCREEK	DUCKCREEK	0.0
EDWARDS	EDWARDS	0.04
G-007	G-007	3.94
LGEE	LGEE	0.03
MEC	MEC	1.69
O-066	O-066	13.27
RENSSELAER	RENSSELAER	1.1
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.04

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
510887	939750	AE1-206 TAP	DVP	314220	3FOURRIVERS	DVP	1	DVP_P4-2: 7392	breaker	229.0	0.0	131.0	DC	300.0

Bus #	Bus	MW Impact
939751	AE1-206 C O2	180.0
939752	AE1-206 E O2	120.0

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
510673	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	152.98	161.04	DC	83.73

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.74
314229	6MT RD221	0.22
314236	6NRTHEST	0.29
314250	6ROCKVILLE	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.61
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	5.34
315044	1FOUR RIVERB	4.14
315045	1FOUR RIVERC	5.34
315046	1FOUR RIVERD	4.14
315047	1FOUR RIVERE	4.14
315048	1FOUR RIVERF	5.34
315053	1BELMED1	25.3
315054	1BELMED2	25.3
315055	1BELMED3	20.99
315058	1CHESTF3	26.86

Bus #	Bus	MW Impact
315059	1CHESTF4	43.54
315067	1DARBY 1	3.87
315068	1DARBY 2	3.88
315069	1DARBY 3	3.89
315070	1DARBY 4	3.89
315073	1STONECA	9.29
315074	1HOPCGN1	11.21
315075	1HOPCGN2	11.06
315083	1SPRUNCA	14.79
315084	1SPRUNCB	14.79
315085	1SPRUNCC	10.97
315086	1SPRUNCD	10.97
315090	1YORKTN1	30.65
315091	1YORKTN2	31.8
901082	W1-029 E	41.27
907092	X1-038 E	5.41
913392	Y1-086 E	1.98
916042	Z1-036 E	40.26
916192	Z1-068 E	1.74
917122	Z2-027 E	0.95
919152	AA1-139 E	5.85
919211	AA1-145	15.45
923801	AB2-015 C O1	7.64
923802	AB2-015 E O1	6.26
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07

Bus #	Bus	MW Impact
924061	AB2-050	0.91
924241	AB2-068 O1	176.08
924511	AB2-100 C	10.32
924512	AB2-100 E	5.08
924812	AB2-134 E O1	14.72
925051	AB2-160 C O1	7.08
925052	AB2-160 E O1	11.56
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.85
925281	AB2-186 C	0.55
925282	AB2-186 E	0.23
925331	AB2-190 C	24.56
925332	AB2-190 E	10.53
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.07
926291	AC1-107 O1	265.78
926411	AC1-112 C	0.53
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	2.27
926662	AC1-147 E	1.24
926751	AC1-161 C O1	26.86
926752	AC1-161 E O1	11.47
926781	AC1-164 C	57.99
926782	AC1-164 E	26.05
927041	AC1-191 C O1	17.44

Bus #	Bus	MW Impact
927042	AC1-191 E O1	8.69
927221	AC1-216 C O1	11.83
927222	AC1-216 E O1	9.3
930121	AB1-027 C	0.68
930122	AB1-027 E	1.89
932041	AC2-012 C	9.52
932042	AC2-012 E	15.53
932501	AC2-070 C	0.44
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.66
932591	AC2-079 C O1	5.75
932592	AC2-079 E O1	9.37
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933071	AC2-131 1	2.33
933081	AC2-131 2	1.06
933111	AC2-132 1	1.23
933121	AC2-132 2	0.63
933261	AC2-137 C	0.48
933262	AC2-137 E	2.03
933272	AC2-138 E	1.08
933291	AC2-141 C	26.86
933292	AC2-141 E	11.47
933732	AC2-196 E	1.09

Bus #	Bus	MW Impact
934011	AD1-025 C	20.33
934012	AD1-025 E	12.04
934061	AD1-033 C	6.89
934062	AD1-033 E	4.6
934141	AD1-041 C	6.73
934142	AD1-041 E	4.48
934211	AD1-048 C	0.58
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.17
934572	AD1-082 E	4.66
934781	AD1-105 C	11.45
934782	AD1-105 E	7.96
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.74
935162	AD1-151 E O1	13.16
935212	AD1-156 E	1.68
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.71
936151	AD2-021	0.36
936241	AD2-030 C	2.87
936242	AD2-030 E	1.47
936301	AD2-039 C	1.73
936302	AD2-039 E	2.83
936341	AD2-044 C	0.27
936342	AD2-044 E	0.31

Bus #	Bus	MW Impact
936391	AD2-049 C	1.87
936392	AD2-049 E	1.87
936581	AD2-073 C	2.22
936582	AD2-073 E	1.1
936591	AD2-074 C	6.33
936592	AD2-074 E	10.33
936661	AD2-085 C	3.46
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.27
936712	AD2-090 E O1	4.18
937221	AD2-160 C O1	5.34
937222	AD2-160 E O1	2.8
937251	AD2-164	5.09
937541	AD2-215 C	1.68
937542	AD2-215 E	0.89
938031	AE1-004 C	1.73
938032	AE1-004 E	2.83
938181	AE1-027 C	2.14
938182	AE1-027 E	1.13
938191	AE1-028 C	1.24
938192	AE1-028 E	0.72
938461	AE1-065 C O2	26.27
938462	AE1-065 E O2	106.02
938471	AE1-066 C O2	27.0
938472	AE1-066 E O2	105.29
938481	AE1-067 C O2	24.55
938482	AE1-067 E O2	107.74

Bus #	Bus	MW Impact
938531	AE1-072 C O2	15.97
938532	AE1-072 E O2	8.32
938551	AE1-074 C	3.11
938552	AE1-074 E	1.56
938631	AE1-085 C O2	12.5
938632	AE1-085 E O2	8.33
938771	AE1-103 C O2	3.27
938772	AE1-103 E O2	4.52
938841	AE1-109AC O2	9.45
938842	AE1-109AE O2	6.3
939041	AE1-133 C	31.98
939042	AE1-133 E	15.75
939071	AE1-135 C O2	18.72
939072	AE1-135 E O2	12.48
939191	AE1-149 C O2	12.64
939192	AE1-149 E O2	8.42
939241	AE1-155 C	17.03
939242	AE1-155 E	11.36
939261	AE1-157 C O2	12.42
939262	AE1-157 E O2	6.74
939271	AE1-158 C O2	12.67
939272	AE1-158 E O2	6.48
939311	AE1-162 C	2.22
939312	AE1-162 E	1.48
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.87

Bus #	Bus	MW Impact
939432	AE1-175 E	1.42
939611	AE1-191 C	13.45
939612	AE1-191 E	8.97
939751	AE1-206 C O2	50.24
939752	AE1-206 E O2	33.49
940061	AE1-248 C O2	17.0
940062	AE1-248 E O2	11.33
940071	AE1-249 C	9.34
940072	AE1-249 E	6.97
AA2-074	AA2-074	3.26
CARR	CARR	0.77
CBM-S1	CBM-S1	4.23
CBM-S2	CBM-S2	8.54
CBM-W1	CBM-W1	0.06
CBM-W2	CBM-W2	23.91
CIN	CIN	0.24
CPLE	CPLE	4.79
DEARBORN	DEARBORN	0.48
G-007	G-007	2.33
IPL	IPL	0.09
LGEE	LGEE	0.07
MEC	MEC	2.0
O-066	O-066	7.8
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.06

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
511662	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	129.57	130.2	DC	32.86

Bus #	Bus	MW Impact
314229	6MT RD221	0.13
314236	6NRTHEST	0.2
314250	6ROCKVILLE	0.35
315037	1LDYSMT1	4.8
315038	1LDYSMT2	4.8
315039	1LDYSMT3	5.08
315040	1LDYSMT4	5.09
315041	1LDYSMT5	5.1
315043	1FOUR RIVERA	3.81
315044	1FOUR RIVERB	2.95
315045	1FOUR RIVERC	3.81
315046	1FOUR RIVERD	2.95
315047	1FOUR RIVERE	2.95
315048	1FOUR RIVERF	3.8
315053	1BELMED1	19.53
315054	1BELMED2	19.53
315055	1BELMED3	16.21
315058	1CHESTF3	20.49

Bus #	Bus	MW Impact
315059	1CHESTF4	33.21
315067	1DARBY 1	2.73
315068	1DARBY 2	2.73
315069	1DARBY 3	2.74
315070	1DARBY 4	2.74
315074	1HOPCGN1	9.39
315075	1HOPCGN2	9.27
315083	1SPRUNCA	11.96
315084	1SPRUNCB	11.96
315085	1SPRUNCC	8.87
315086	1SPRUNCD	8.87
315090	1YORKTN1	31.88
315091	1YORKTN2	33.08
315225	1N ANNA1	39.06
315226	1N ANNA2	39.15
919211	AA1-145	11.01
923801	AB2-015 C O1	9.08
924061	AB2-050	0.65
924241	AB2-068 O1	226.68
924501	AB2-099 C	0.59
924511	AB2-100 C	11.83
925051	AB2-160 C O1	6.1
925061	AB2-161 C O1	3.72
925171	AB2-174 C O1	7.08
925281	AB2-186 C	0.66
925291	AB2-188 C O1	2.48
925331	AB2-190 C	22.52

Bus #	Bus	MW Impact
925861	AC1-065 C	3.77
926001	AC1-076 C	4.93
926291	AC1-107 O1	342.16
926411	AC1-112 C	0.35
926551	AC1-134	1.62
926731	AC1-158 C	93.33
926751	AC1-161 C O1	33.52
926781	AC1-164 C	45.58
927041	AC1-191 C O1	10.79
927221	AC1-216 C O1	11.0
930121	AB1-027 C	0.45
932041	AC2-012 C	11.22
932501	AC2-070 C	0.3
932581	AC2-078 C O1	4.51
932591	AC2-079 C O1	6.27
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	1.53
933061	AC2-130	2.71
933071	AC2-131 1	1.84
933081	AC2-131 2	0.83
933111	AC2-132 1	0.97
933121	AC2-132 2	0.49
933261	AC2-137 C	0.36

Bus #	Bus	MW Impact
933291	AC2-141 C	33.52
933501	AC2-165 C	9.63
933991	AD1-023 C	13.53
934011	AD1-025 C	18.91
934061	AD1-033 C	8.23
934141	AD1-041 C	5.92
934211	AD1-048 C	0.42
934521	AD1-076 C	56.33
934541	AD1-078 C	3.04
934571	AD1-082 C	8.47
934781	AD1-105 C	7.79
935161	AD1-151 C O1	18.1
936041	AD2-007	2.01
936051	AD2-008 C	3.29
936151	AD2-021	0.27
936241	AD2-030 C	2.57
936301	AD2-039 C	1.51
936341	AD2-044 C	0.26
936391	AD2-049 C	1.99
936401	AD2-051 C O1	8.84
936591	AD2-074 C	5.94
936661	AD2-085 C	3.77
936711	AD2-090 C O1	7.51
937221	AD2-160 C O1	6.39
937251	AD2-164	5.34
937541	AD2-215 C	1.91
938031	AE1-004 C	1.51

Bus #	Bus	MW Impact
938081	AE1-010	6.84
938171	AE1-026 C1 O	28.75
938172	AE1-026 C2 O	4.16
938181	AE1-027 C	2.56
938191	AE1-028 C	1.49
938221	AE1-035 C	2.28
938461	AE1-065 C O2	31.2
938471	AE1-066 C O2	32.07
938481	AE1-067 C O2	29.16
938491	AE1-068 C O2	59.48
938501	AE1-069 C O2	47.16
938531	AE1-072 C O2	19.12
938551	AE1-074 C	2.75
938561	AE1-075 C	2.14
938631	AE1-085 C O2	12.08
938771	AE1-103 C O2	3.87
938841	AE1-109AC O2	9.95
939041	AE1-133 C	38.36
939071	AE1-135 C O2	21.33
939191	AE1-149 C O2	11.89
939241	AE1-155 C	16.08
939281	AE1-159 C O2	15.71
939311	AE1-162 C	2.38
939411	AE1-173 C	94.02
939421	AE1-174 C	0.21
939431	AE1-175 C	2.7
939611	AE1-191 C	11.84

Bus #	Bus	MW Impact
939751	AE1-206 C O2	32.86
940061	AE1-248 C O2	17.6
940071	AE1-249 C	8.05
AA2-074	AA2-074	5.19
AE1-042	AE1-042	8.39
CARR	CARR	1.67
CBM-S1	CBM-S1	12.68
CBM-S2	CBM-S2	15.08
CBM-W1	CBM-W1	9.27
CBM-W2	CBM-W2	79.18
CIN	CIN	4.69
CPLE	CPLE	7.63
IPL	IPL	2.9
LGEE	LGEE	1.41
MEC	MEC	11.05
MECS	MECS	2.18
RENSSELAER	RENSSELAER	1.32
WEC	WEC	1.2

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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
511372	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 534	single	2442.12	138.75	139.76	DC	53.56

Bus #	Bus	MW Impact
314229	6MT RD221	0.24
314236	6NRTHEST	0.34
314309	6IRON208	0.78
315053	1BELMED1	30.68
315054	1BELMED2	30.68
315055	1BELMED3	25.47
315058	1CHESTF3	33.76
315059	1CHESTF4	54.72
315060	1CHESTF5	17.93
315061	1CHESTG7	7.03
315062	1CHESTS7	3.19
315063	1CHESTG8	6.89
315064	1CHESTS8	3.55
315067	1DARBY 1	4.71
315068	1DARBY 2	4.72
315069	1DARBY 3	4.73
315070	1DARBY 4	4.74
315074	1HOPCGN1	15.08

Bus #	Bus	MW Impact
315075	1HOPCGN2	14.89
315083	1SPRUNCA	17.89
315084	1SPRUNCB	17.89
315085	1SPRUNCC	13.27
315086	1SPRUNCD	13.27
315090	1YORKTN1	51.24
315091	1YORKTN2	53.17
315216	1CUNINGA	15.23
315217	1CUNINGB	15.23
315218	1CUNINGC	15.23
315219	1CUNINGD	34.12
923801	AB2-015 C O1	12.65
923841	AB2-024 C	0.73
924241	AB2-068 O1	481.61
924511	AB2-100 C	15.56
925051	AB2-160 C O1	9.3
925061	AB2-161 C O1	5.44
925281	AB2-186 C	0.94
925291	AB2-188 C O1	3.45
925331	AB2-190 C	35.42
925861	AC1-065 C	6.27
926291	AC1-107 O1	726.96
926411	AC1-112 C	0.64
926751	AC1-161 C O1	49.47
926781	AC1-164 C	82.28
927041	AC1-191 C O1	19.07
927221	AC1-216 C O1	17.25

Bus #	Bus	MW Impact
930121	AB1-027 C	0.83
931311	AB1-181 1	1.1
931321	AB1-181 2	1.1
931331	AB1-181 3	1.1
932041	AC2-012 C	16.43
932501	AC2-070 C	0.54
932581	AC2-078 C O1	6.66
932591	AC2-079 C O1	9.13
932831	AC2-110 C	2.51
933061	AC2-130	4.58
933071	AC2-131 1	3.1
933081	AC2-131 2	1.41
933111	AC2-132 1	1.63
933121	AC2-132 2	0.83
933261	AC2-137 C	0.64
933291	AC2-141 C	49.47
933991	AD1-023 C	18.51
934011	AD1-025 C	29.65
934061	AD1-033 C	11.99
934141	AD1-041 C	9.79
934211	AD1-048 C	0.74
934521	AD1-076 C	77.48
934571	AD1-082 C	12.39
934781	AD1-105 C	11.99
935161	AD1-151 C O1	28.46
936041	AD2-007	3.15
936051	AD2-008 C	5.16

Bus #	Bus	MW Impact
936151	AD2-021	0.48
936241	AD2-030 C	4.21
936301	AD2-039 C	2.51
936341	AD2-044 C	0.36
936391	AD2-049 C	3.1
936591	AD2-074 C	8.82
936661	AD2-085 C	5.48
936711	AD2-090 C O1	10.35
937221	AD2-160 C O1	9.27
937251	AD2-164	8.48
937541	AD2-215 C	2.83
938031	AE1-004 C	2.51
938171	AE1-026 C1 O	39.22
938172	AE1-026 C2 O	5.67
938181	AE1-027 C	3.72
938191	AE1-028 C	2.16
938461	AE1-065 C O2	45.52
938471	AE1-066 C O2	46.78
938481	AE1-067 C O2	42.54
938531	AE1-072 C O2	27.67
938551	AE1-074 C	3.7
938631	AE1-085 C O2	17.83
938771	AE1-103 C O2	5.43
938841	AE1-109AC O2	14.54
939041	AE1-133 C	55.11
939071	AE1-135 C O2	28.08
939191	AE1-149 C O2	17.61

Bus #	Bus	MW Impact
939241	AE1-155 C	23.53
939311	AE1-162 C	3.6
939411	AE1-173 C	117.4
939421	AE1-174 C	0.68
939431	AE1-175 C	4.54
939611	AE1-191 C	19.58
939751	AE1-206 C O2	53.56
940061	AE1-248 C O2	25.76
940071	AE1-249 C	12.27
AA2-074	AA2-074	5.79
AE1-042	AE1-042	8.26
CARR	CARR	1.7
CBM-S1	CBM-S1	12.19
CBM-S2	CBM-S2	16.21
CBM-W1	CBM-W1	8.24
CBM-W2	CBM-W2	75.95
CIN	CIN	4.11
CPLE	CPLE	8.51
IPL	IPL	2.52
LGEE	LGEE	1.22
MEC	MEC	10.21
MECS	MECS	1.7
RENSSELAER	RENSSELAER	1.35
WEC	WEC	1.07

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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
510979	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	121.8	122.56	DC	55.66

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.52
314229	6MT RD221	0.13
314250	6ROCKVILLE	0.36
314539	3UNCAMP	2.59
314541	3WATKINS	0.73
314566	3CRESWEL	2.54
314572	3EMPORIA	0.43
314594	6PLYMOTH	0.89
314617	3TUNIS	0.86
314620	6CASHIE	0.87
314648	6SUNBURY	0.97
314651	6WINFALL	1.91
315040	1LDYSMT4	5.2
315041	1LDYSMT5	5.21
315043	1FOUR RIVERA	3.87
315044	1FOUR RIVERB	3.0
315045	1FOUR RIVERC	3.87
315046	1FOUR RIVERD	3.0

Bus #	Bus	MW Impact
315047	1FOUR RIVERE	3.0
315048	1FOUR RIVERF	3.86
315053	1BELMED1	19.76
315054	1BELMED2	19.76
315055	1BELMED3	16.4
315058	1CHESTF3	20.75
315059	1CHESTF4	33.63
315073	1STONECA	7.89
315074	1HOPCGN1	9.51
315075	1HOPCGN2	9.39
315083	1SPRUNCA	12.09
315084	1SPRUNCB	12.09
315085	1SPRUNCC	8.97
315086	1SPRUNCD	8.97
315090	1YORKTN1	32.27
315091	1YORKTN2	33.49
315225	1N ANNA1	39.47
315226	1N ANNA2	39.56
900672	V4-068 E	0.31
901082	W1-029 E	50.0
907092	X1-038 E	6.47
913392	Y1-086 E	2.4
916042	Z1-036 E	49.08
916192	Z1-068 E	2.08
916302	Z1-086 E	9.5
917122	Z2-027 E	1.16
918512	AA1-065 E OP	4.53

Bus #	Bus	MW Impact
919152	AA1-139 E	7.07
919211	AA1-145	11.18
920042	AA2-088 E OP	10.97
920692	AA2-178 E	4.35
923801	AB2-015 C O1	9.17
923802	AB2-015 E O1	7.52
923832	AB2-022 E	1.36
923842	AB2-024 E	1.26
923852	AB2-025 E	1.18
923862	AB2-026 E	1.09
923911	AB2-031 C O1	2.27
923912	AB2-031 E O1	1.12
923992	AB2-040 E O1	6.09
924061	AB2-050	0.66
924241	AB2-068 O1	229.88
924501	AB2-099 C	0.6
924502	AB2-099 E	0.26
924511	AB2-100 C	11.94
924512	AB2-100 E	5.88
924812	AB2-134 E O1	13.86
925051	AB2-160 C O1	6.17
925052	AB2-160 E O1	10.07
925061	AB2-161 C O1	3.76
925062	AB2-161 E O1	6.13
925122	AB2-169 E	5.94
925171	AB2-174 C O1	7.13
925172	AB2-174 E O1	6.45

Bus #	Bus	MW Impact
925281	AB2-186 C	0.66
925282	AB2-186 E	0.28
925291	AB2-188 C O1	2.5
925292	AB2-188 E O1	1.12
925331	AB2-190 C	22.79
925332	AB2-190 E	9.77
925522	AC1-027 E	1.27
925861	AC1-065 C	3.82
925862	AC1-065 E	6.23
926291	AC1-107 O1	346.99
926411	AC1-112 C	0.35
926412	AC1-112 E	1.29
926551	AC1-134	1.64
926662	AC1-147 E	1.47
926731	AC1-158 C	94.26
926732	AC1-158 E	41.37
926751	AC1-161 C O1	33.9
926752	AC1-161 E O1	14.47
926781	AC1-164 C	46.19
926782	AC1-164 E	20.75
927041	AC1-191 C O1	10.94
927042	AC1-191 E O1	5.45
927221	AC1-216 C O1	11.13
927222	AC1-216 E O1	8.76
930121	AB1-027 C	0.46
930122	AB1-027 E	1.27
931232	AB1-173 E	1.07

Bus #	Bus	MW Impact
931242	AB1-173AE	1.07
932041	AC2-012 C	11.35
932042	AC2-012 E	18.51
932501	AC2-070 C	0.3
932502	AC2-070 E	0.81
932532	AC2-073 E	1.35
932581	AC2-078 C O1	4.56
932582	AC2-078 E O1	7.44
932591	AC2-079 C O1	6.34
932592	AC2-079 E O1	10.35
932831	AC2-110 C	1.53
932832	AC2-110 E	2.49
933011	AC2-125	3.15
933021	AC2-126	3.17
933031	AC2-127	1.74
933041	AC2-128	1.67
933051	AC2-129	1.57
933061	AC2-130	2.75
933071	AC2-131 1	1.86
933081	AC2-131 2	0.84
933111	AC2-132 1	0.98
933121	AC2-132 2	0.5
933262	AC2-137 E	1.55
933272	AC2-138 E	1.06
933291	AC2-141 C	33.9
933292	AC2-141 E	14.47
933732	AC2-196 E	1.32

Bus #	Bus	MW Impact
933991	AD1-023 C	13.66
933992	AD1-023 E	7.44
934011	AD1-025 C	19.14
934012	AD1-025 E	11.34
934061	AD1-033 C	8.33
934062	AD1-033 E	5.55
934141	AD1-041 C	6.0
934142	AD1-041 E	4.0
934201	AD1-047 C	8.12
934202	AD1-047 E	5.41
934212	AD1-048 E	1.41
934392	AD1-063 E	1.21
934521	AD1-076 C	56.88
934522	AD1-076 E	28.96
934571	AD1-082 C	8.56
934572	AD1-082 E	4.88
934781	AD1-105 C	7.93
934782	AD1-105 E	5.51
935112	AD1-144 E	1.05
935161	AD1-151 C O1	18.31
935162	AD1-151 E O1	12.21
935212	AD1-156 E	1.59
936041	AD2-007	2.03
936051	AD2-008 C	3.33
936052	AD2-008 E	7.25
936151	AD2-021	0.27
936241	AD2-030 C	2.6

Bus #	Bus	MW Impact
936242	AD2-030 E	1.33
936301	AD2-039 C	1.53
936302	AD2-039 E	2.49
936341	AD2-044 C	0.26
936342	AD2-044 E	0.3
936391	AD2-049 C	2.01
936392	AD2-049 E	2.01
936401	AD2-051 C O1	8.92
936402	AD2-051 E O1	3.83
936581	AD2-073 C	2.26
936582	AD2-073 E	1.12
936591	AD2-074 C	6.03
936592	AD2-074 E	9.84
936661	AD2-085 C	3.81
936662	AD2-085 E	6.21
936711	AD2-090 C O1	7.58
936712	AD2-090 E O1	5.05
937221	AD2-160 C O1	6.46
937222	AD2-160 E O1	3.39
937251	AD2-164	5.4
937541	AD2-215 C	1.94
937542	AD2-215 E	1.03
938031	AE1-004 C	1.53
938032	AE1-004 E	2.49
938081	AE1-010	7.48
938171	AE1-026 C1 O	29.03
938172	AE1-026 C2 O	4.2

Bus #	Bus	MW Impact
938173	AE1-026 E O2	8.77
938181	AE1-027 C	2.59
938182	AE1-027 E	1.36
938191	AE1-028 C	1.5
938192	AE1-028 E	0.87
938221	AE1-035 C	2.3
938222	AE1-035 E	1.13
938461	AE1-065 C O2	31.55
938462	AE1-065 E O2	127.31
938471	AE1-066 C O2	32.42
938472	AE1-066 E O2	126.44
938481	AE1-067 C O2	29.48
938482	AE1-067 E O2	129.38
938491	AE1-068 C O2	60.01
938492	AE1-068 E O2	33.15
938501	AE1-069 C O2	47.58
938502	AE1-069 E O2	27.2
938531	AE1-072 C O2	19.33
938532	AE1-072 E O2	10.07
938551	AE1-074 C	2.78
938552	AE1-074 E	1.4
938561	AE1-075 C	2.13
938562	AE1-075 E	1.04
938631	AE1-085 C O2	12.22
938632	AE1-085 E O2	8.15
938661	AE1-088	1.8
938771	AE1-103 C O2	3.91

Bus #	Bus	MW Impact
938772	AE1-103 E O2	5.39
938841	AE1-109AC O2	10.06
938842	AE1-109AE O2	6.71
939041	AE1-133 C	38.78
939042	AE1-133 E	19.1
939071	AE1-135 C O2	21.53
939072	AE1-135 E O2	14.35
939191	AE1-149 C O2	12.03
939192	AE1-149 E O2	8.02
939241	AE1-155 C	16.34
939242	AE1-155 E	10.89
939281	AE1-159 C O2	16.02
939282	AE1-159 E O2	9.48
939311	AE1-162 C	2.41
939312	AE1-162 E	1.61
939411	AE1-173 C	94.99
939412	AE1-173 E	63.32
939421	AE1-174 C	0.22
939422	AE1-174 E	0.33
939431	AE1-175 C	2.73
939432	AE1-175 E	1.36
939611	AE1-191 C	12.0
939612	AE1-191 E	8.0
939751	AE1-206 C O2	33.39
939752	AE1-206 E O2	22.26
940061	AE1-248 C O2	17.8
940062	AE1-248 E O2	11.87

Bus #	Bus	MW Impact
940071	AE1-249 C	8.14
940072	AE1-249 E	6.07
AA2-074	AA2-074	5.21
AE1-042	AE1-042	8.36
CARR	CARR	1.66
CBM-S1	CBM-S1	12.61
CBM-S2	CBM-S2	15.12
CBM-W1	CBM-W1	9.11
CBM-W2	CBM-W2	78.69
CIN	CIN	4.62
CPLE	CPLE	7.66
G-007	G-007	5.24
IPL	IPL	2.85
LGEE	LGEE	1.39
MEC	MEC	10.93
MECS	MECS	2.08
O-066	O-066	17.53
RENSSELAER	RENSSELAER	1.32
WEC	WEC	1.18

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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
511981	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	110.23	110.71	DC	33.63

Bus #	Bus	MW Impact
314236	6NRTHEST	0.21
314250	6ROCKVILLE	0.38
314309	6IRON208	0.5
314314	3LOCKS	0.33
315053	1BELMED1	21.16
315054	1BELMED2	21.16
315055	1BELMED3	17.56
315058	1CHESTF3	21.92
315059	1CHESTF4	35.54
315065	1CHESTF6	22.91
315074	1HOPCGN1	10.16
315075	1HOPCGN2	10.03
315083	1SPRUNCA	13.12
315084	1SPRUNCB	13.12
315085	1SPRUNCC	9.73
315086	1SPRUNCD	9.73
315090	1YORKTN1	34.7
315091	1YORKTN2	36.01

Bus #	Bus	MW Impact
315108	1ELIZAR1	3.69
315109	1ELIZAR2	3.62
315110	1ELIZAR3	3.73
315225	1N ANNA1	57.14
315226	1N ANNA2	57.26
315233	1SURRY 2	28.59
923801	AB2-015 C O1	10.18
923911	AB2-031 C O1	2.54
924241	AB2-068 O1	231.13
924501	AB2-099 C	0.67
924511	AB2-100 C	13.37
925051	AB2-160 C O1	6.68
925061	AB2-161 C O1	4.13
925171	AB2-174 C O1	8.0
925281	AB2-186 C	0.74
925291	AB2-188 C O1	2.78
925331	AB2-190 C	24.56
925821	AC1-061	0.01
925861	AC1-065 C	3.99
926071	AC1-086 C	23.36
926291	AC1-107 O1	348.88
926751	AC1-161 C O1	37.43
926781	AC1-164 C	47.87
927041	AC1-191 C O1	11.11
927221	AC1-216 C O1	12.01
932041	AC2-012 C	12.52
932581	AC2-078 C O1	4.99

Bus #	Bus	MW Impact
932591	AC2-079 C O1	6.99
932831	AC2-110 C	1.6
933011	AC2-125	2.87
933021	AC2-126	2.89
933031	AC2-127	1.58
933041	AC2-128	1.52
933051	AC2-129	1.43
933061	AC2-130	2.89
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	37.43
933501	AC2-165 C	11.04
933991	AD1-023 C	15.21
934011	AD1-025 C	20.65
934061	AD1-033 C	9.2
934141	AD1-041 C	6.27
934201	AD1-047 C	9.1
934521	AD1-076 C	63.28
934571	AD1-082 C	9.41
935161	AD1-151 C O1	19.73
935211	AD1-156 C	0.4
936041	AD2-007	2.19
936051	AD2-008 C	3.6
936151	AD2-021	0.28
936241	AD2-030 C	2.72

Bus #	Bus	MW Impact
936301	AD2-039 C	1.6
936391	AD2-049 C	2.18
936401	AD2-051 C O1	9.95
936591	AD2-074 C	6.21
936661	AD2-085 C	4.19
936711	AD2-090 C O1	8.43
937221	AD2-160 C O1	7.14
937251	AD2-164	5.82
937541	AD2-215 C	2.13
937571	AD2-169 C	11.33
938031	AE1-004 C	1.6
938081	AE1-010	3.67
938171	AE1-026 C1 O	32.32
938172	AE1-026 C2 O	4.68
938181	AE1-027 C	2.86
938191	AE1-028 C	1.66
938221	AE1-035 C	2.56
938461	AE1-065 C O2	34.85
938471	AE1-066 C O2	35.81
938481	AE1-067 C O2	32.56
938491	AE1-068 C O2	69.85
938501	AE1-069 C O2	55.39
938531	AE1-072 C O2	21.37
938551	AE1-074 C	3.09
938561	AE1-075 C	2.46
938631	AE1-085 C O2	13.37
938661	AE1-088	2.01

Bus #	Bus	MW Impact
938771	AE1-103 C O2	4.33
938841	AE1-109AC O2	11.06
939041	AE1-133 C	42.92
939071	AE1-135 C O2	24.1
939191	AE1-149 C O2	13.14
939231	AE1-154 C	2.09
939241	AE1-155 C	16.77
939281	AE1-159 C O2	14.94
939311	AE1-162 C	2.63
939411	AE1-173 C	108.53
939421	AE1-174 C	0.23
939431	AE1-175 C	2.9
939611	AE1-191 C	12.54
939751	AE1-206 C O2	33.63
940061	AE1-248 C O2	19.55
940071	AE1-249 C	8.81
AA2-074	AA2-074	5.9
AE1-042	AE1-042	9.13
CARR	CARR	1.82
CBM-S1	CBM-S1	13.63
CBM-S2	CBM-S2	17.0
CBM-W1	CBM-W1	9.08
CBM-W2	CBM-W2	84.3
CIN	CIN	4.69
CPL	CPL	8.67
IPL	IPL	2.88
LGEE	LGEE	1.41

Bus #	Bus	MW Impact
MEC	MEC	11.39
MECS	MECS	1.63
RENSSELAER	RENSSELAER	1.44
WEC	WEC	1.19

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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
511920	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 581	single	3218.56	111.29	111.76	DC	32.77

Bus #	Bus	MW Impact
314236	6NRTHEST	0.2
314250	6ROCKVILLE	0.38
314309	6IRON208	0.49
314314	3LOCKS	0.32
315053	1BELMED1	20.63
315054	1BELMED2	20.63
315055	1BELMED3	17.12
315058	1CHESTF3	21.37
315059	1CHESTF4	34.64
315065	1CHESTF6	22.33
315074	1HOPCGN1	9.91
315075	1HOPCGN2	9.78
315083	1SPRUNCA	12.79
315084	1SPRUNCB	12.79
315085	1SPRUNCC	9.49
315086	1SPRUNCD	9.49
315090	1YORKTN1	33.82
315091	1YORKTN2	35.1

Bus #	Bus	MW Impact
315108	1ELIZAR1	3.59
315109	1ELIZAR2	3.53
315110	1ELIZAR3	3.64
315225	1N ANNA1	55.41
315226	1N ANNA2	55.53
315233	1SURRY 2	27.86
923801	AB2-015 C O1	9.93
923911	AB2-031 C O1	2.48
924241	AB2-068 O1	225.21
924501	AB2-099 C	0.65
924511	AB2-100 C	13.05
925021	AB2-158 C	2.08
925051	AB2-160 C O1	6.51
925061	AB2-161 C O1	4.02
925171	AB2-174 C O1	7.81
925281	AB2-186 C	0.72
925291	AB2-188 C O1	2.71
925331	AB2-190 C	23.94
925821	AC1-061	0.01
925861	AC1-065 C	3.89
926001	AC1-076 C	4.91
926071	AC1-086 C	22.8
926291	AC1-107 O1	339.94
926731	AC1-158 C	192.11
926751	AC1-161 C O1	36.48
926781	AC1-164 C	46.65
927041	AC1-191 C O1	10.82

Bus #	Bus	MW Impact
927221	AC1-216 C O1	11.71
932041	AC2-012 C	12.2
932581	AC2-078 C O1	4.86
932591	AC2-079 C O1	6.81
932831	AC2-110 C	1.56
933011	AC2-125	2.79
933021	AC2-126	2.81
933031	AC2-127	1.54
933041	AC2-128	1.48
933051	AC2-129	1.39
933061	AC2-130	2.82
933071	AC2-131 1	1.91
933081	AC2-131 2	0.87
933111	AC2-132 1	1.0
933121	AC2-132 2	0.51
933291	AC2-141 C	36.48
933501	AC2-165 C	10.93
933991	AD1-023 C	14.83
934011	AD1-025 C	20.13
934061	AD1-033 C	8.97
934141	AD1-041 C	6.11
934201	AD1-047 C	8.89
934521	AD1-076 C	61.73
934541	AD1-078 C	3.01
934571	AD1-082 C	9.17
935161	AD1-151 C O1	19.23
935211	AD1-156 C	0.39

Bus #	Bus	MW Impact
936041	AD2-007	2.14
936051	AD2-008 C	3.5
936151	AD2-021	0.28
936241	AD2-030 C	2.65
936301	AD2-039 C	1.56
936391	AD2-049 C	2.12
936401	AD2-051 C O1	9.71
936591	AD2-074 C	6.05
936661	AD2-085 C	4.09
936711	AD2-090 C O1	8.22
937221	AD2-160 C O1	6.96
937251	AD2-164	5.68
937541	AD2-215 C	2.07
937571	AD2-169 C	11.06
938031	AE1-004 C	1.56
938081	AE1-010	3.61
938171	AE1-026 C1 O	31.53
938172	AE1-026 C2 O	4.56
938181	AE1-027 C	2.79
938191	AE1-028 C	1.62
938221	AE1-035 C	2.5
938461	AE1-065 C O2	33.96
938471	AE1-066 C O2	34.9
938481	AE1-067 C O2	31.74
938491	AE1-068 C O2	68.1
938501	AE1-069 C O2	54.0
938531	AE1-072 C O2	20.83

Bus #	Bus	MW Impact
938551	AE1-074 C	3.02
938561	AE1-075 C	2.43
938631	AE1-085 C O2	13.04
938661	AE1-088	1.96
938771	AE1-103 C O2	4.23
938841	AE1-109AC O2	10.79
939041	AE1-133 C	41.84
939071	AE1-135 C O2	23.52
939191	AE1-149 C O2	12.81
939231	AE1-154 C	2.22
939241	AE1-155 C	16.34
939281	AE1-159 C O2	14.53
939311	AE1-162 C	2.56
939411	AE1-173 C	105.77
939421	AE1-174 C	0.23
939431	AE1-175 C	2.83
939611	AE1-191 C	12.22
939751	AE1-206 C O2	32.77
940061	AE1-248 C O2	19.06
940071	AE1-249 C	8.59
AA2-074	AA2-074	5.77
AE1-042	AE1-042	8.95
CARR	CARR	1.8
CBM-S1	CBM-S1	13.37
CBM-S2	CBM-S2	16.64
CBM-W1	CBM-W1	8.91
CBM-W2	CBM-W2	82.7

Bus #	Bus	MW Impact
CIN	CIN	4.61
CPL	CPL	8.48
IPL	IPL	2.83
LGEE	LGEE	1.39
MEC	MEC	11.18
MECS	MECS	1.6
RENSSELAER	RENSSELAER	1.42
WEC	WEC	1.17

Contingency Name	Contingency Definition
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_P4-5: FREDERI L742	CONTINGENCY 'DVP_P4-5: FREDERI L742' /* FREDERICKSBURG 115 KV OPEN BRANCH FROM BUS 314076 TO BUS 314136 CKT 1 /* 3QUANTCO 115.00 - 3FREDBRG 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314151 CKT 1 /* 3FREDBRG 115.00 - 3SLABTWN 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314137 CKT 1 /* 3FREDBRG 115.00 - 6FREDBRG 230.00 OPEN BUS 314368 /* 3FREDB_1 115.00 KV OPEN BUS 314380 /* 6FREDB_1 230.00 KV 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: 7392	CONTINGENCY 'DVP_P4-2: 7392' /* ELMONT 115 KV OPEN BRANCH FROM BUS 314217 TO BUS 314221 CKT 1 /* 3ELMONT 115.00 - 3HANOVER 115.00 OPEN BRANCH FROM BUS 939750 TO BUS 314221 CKT 1 /* AE1-206 TAP 115.00 - 3HANOVER 115.00 OPEN BRANCH FROM BUS 314221 TO BUS 314405 CKT 1 /* 3HANOVER 115.00 - 3HANOV_1 115.00 OPEN BUS 314221 /* ISLAND: 3HANOVER 115.00 OPEN BUS 314405 /* ISLAND: 3HANOV_1 115.00 OPEN BRANCH FROM BUS 314217 TO BUS 314219 CKT 1 /* 3ELMONT 115.00 - 3GREENWD 115.00 OPEN BRANCH FROM BUS 314217 TO BUS 314237 CKT 1 /* 3ELMONT 115.00 - 3NRTHWST 115.00 OPEN BRANCH FROM BUS 314217 TO BUS 314218 CKT 1 /* 3ELMONT 115.00 - 6ELMONT 230.00 OPEN BRANCH FROM BUS 314217 TO BUS 314218 CKT 2 /* 3ELMONT 115.00 - 6ELMONT 230.00 END

Contingency Name	Contingency Definition
DVP_P1-3: 8LADYSMITH-TX#1	CONTINGENCY 'DVP_P1-3: 8LADYSMITH-TX#1' OPEN BRANCH FROM BUS 314196 TO BUS 314911 CKT 1 /* 6LADYSMITH 230.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 2942	CONTINGENCY 'DVP_P4-2: 2942' /* FREDERICKSBURG 115 KV OPEN BRANCH FROM BUS 314073 TO BUS 314076 CKT 1 /* 3POSSUM 115.00 - 3QUANTCO 115.00 OPEN BRANCH FROM BUS 314076 TO BUS 314136 CKT 1 /* 3QUANTCO 115.00 - 3FREDBRG 115.00 OPEN BUS 314076 /* ISLAND: 3QUANTCO 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314151 CKT 1 /* 3FREDBRG 115.00 - 3SLABTWN 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314137 CKT 1 /* 3FREDBRG 115.00 - 6FREDBRG 230.00 OPEN BUS 314368 /* 3FREDB_1 115.00 KV END
DVP_P1-2: LN 1008	CONTINGENCY 'DVP_P1-2: LN 1008' OPEN BRANCH FROM BUS 314216 TO BUS 314223 CKT 1 /* 3PINEWOOD 115.00 - 3KNGS DOM DP115.00 OPEN BRANCH FROM BUS 314220 TO BUS 314223 CKT 1 /* 3FOURRIVERS 115.00 - 3KNGS DOM DP115.00 OPEN BUS 314223 /* ISLAND: 3KNGS DOM DP115.00 END
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_P1-2: LN 47	CONTINGENCY 'DVP_P1-2: LN 47' OPEN BRANCH FROM BUS 314136 TO BUS 314151 CKT 1 /* 3FREDBRG 115.00 - 3SLABTWN 115.00 OPEN BRANCH FROM BUS 314151 TO BUS 314153 CKT 1 /* 3SLABTWN 115.00 - 3WOODPCK 115.00 OPEN BRANCH FROM BUS 314152 TO BUS 314153 CKT 1 /* 3S JOHNS 115.00 - 3WOODPCK 115.00 OPEN BRANCH FROM BUS 314152 TO BUS 314216 CKT 1 /* 3S JOHNS 115.00 - 3PINEWOOD 115.00 OPEN BUS 314151 /* ISLAND: 3SLABTWN 115.00 OPEN BUS 314152 /* ISLAND: 3S JOHNS 115.00 OPEN BUS 314153 /* ISLAND: 3WOODPCK 115.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2089	CONTINGENCY 'DVP_P1-2: LN 2089' OPEN BRANCH FROM BUS 314196 TO BUS 314197 CKT 1 /* 6LADYSMITH 230.00 - 6LDYSMITH CT230.00 END
DVP_P4-2: 541T569	CONTINGENCY 'DVP_P4-2: 541T569' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314929 CKT 1 /* 8MORRSVL 500.00 - 8FRONT ROYAL500.00 OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL 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: 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_P1-2: LN 550	CONTINGENCY 'DVP_P1-2: LN 550' OPEN BRANCH FROM BUS 314917 TO BUS 314926 CKT 1 /* 8MT STM 500.00 - 8VALLEY 500.00 END
DVP_P4-4: SC242	CONTINGENCY 'DVP_P4-4: SC242' /* FREDERICKSBURG 115 KV OPEN BRANCH FROM BUS 314076 TO BUS 314136 CKT 1 /* 3QUANTCO 115.00 - 3FREDBRG 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314151 CKT 1 /* 3FREDBRG 115.00 - 3SLABTWN 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314137 CKT 1 /* 3FREDBRG 115.00 - 6FREDBRG 230.00 OPEN BUS 314368 /* 3FREDB_1 115.00 KV END

Contingency Name	Contingency Definition
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 73-B	CONTINGENCY 'DVP_P1-2: LN 73-B' OPEN BRANCH FROM BUS 314217 TO BUS 314221 CKT 1 /* 3ELMONT 115.00 - 3HANOVER 115.00 OPEN BRANCH FROM BUS 939750 TO BUS 314221 CKT 1 /* AE1-206 TAP 115.00 - 3HANOVER 115.00 OPEN BRANCH FROM BUS 314221 TO BUS 314405 CKT 1 /* 3HANOVER 115.00 - 3HANOV_1 115.00 OPEN BUS 314221 /* ISLAND: 3HANOVER 115.00 OPEN BUS 314405 /* ISLAND: 3HANOV_1 115.00 END
Base Case	
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_P2-2: FREDERICK B1	CONTINGENCY 'DVP_P2-2: FREDERICK B1' /* FREDERICKSBURG 115 KV OPEN BRANCH FROM BUS 314076 TO BUS 314136 CKT 1 /* 3QUANTCO 115.00 - 3FREDBRG 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314151 CKT 1 /* 3FREDBRG 115.00 - 3SLABTWN 115.00 OPEN BRANCH FROM BUS 314136 TO BUS 314137 CKT 1 /* 3FREDBRG 115.00 - 6FREDBRG 230.00 OPEN BUS 314368 /* 3FREDB_1 115.00 KV END

Contingency Name	Contingency Definition
DVP_P1-2: LN 534	CONTINGENCY 'DVP_P1-2: LN 534' OPEN BRANCH FROM BUS 314907 TO BUS 314910 CKT 1 /* 8DOOMS 500.00 - 8CUNINGHAM 500.00 END
DVP_P1-2: LN 2032	CONTINGENCY 'DVP_P1-2: LN 2032' OPEN BRANCH FROM BUS 314212 TO BUS 314222 CKT 1 /* 6FOUR RIVERS230.00 - 6HANOVER 230.00 OPEN BRANCH FROM BUS 314218 TO BUS 314222 CKT 1 /* 6ELMONT 230.00 - 6HANOVER 230.00 OPEN BUS 314222 /* ISLAND: 6HANOVER 230.00 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

Short Circuit

Short Circuit

The following Breakers are overduty:

None

Attachment 1: One Line Diagram