



**Generation Interconnection
Feasibility Study Report
for**

Queue Project AE2-124

LANDSTOWN 230 KV

148.5 MW Capacity / 800.1 MW Energy

July, 2019

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1 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).

2 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.

3 General

The Interconnection Customer (IC), has proposed a Offshore Wind generating facility located in Virginia Beach, Virginia. The installed facilities will have a total capability of 800.1 MW with 148.5 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 12/31/2029. This study does not imply a TO commitment to this in-service date.

Queue Number	AE2-124
Project Name	LANDSTOWN 230 KV
Interconnection Customer	
State	Virginia
County	City of Virginia Beach
Transmission Owner	Dominion
MFO	800.1
MWE	800.1
MWC	148.5
Fuel	Offshore Wind
Basecase Study Year	2022

3.1 Primary Point of Interconnection

AE2-122 “Landstown 230 kV” will interconnect with the Dominion’s transmission system through a two breaker bay at the existing Landstown 230 kV switching. This is the primary Point of Interconnection (POI) chose by the IC with the ITO’s transmission system. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the solar facility site to the proposed new switching station. Attachment 1 shows a one-line diagram of the proposed interconnection facilities. The IC may not

install any facilities on Dominion’s right-of-way without first obtaining the necessary approval from Dominion Energy.

3.2 Secondary Point of Interconnection

The IC requested that a secondary POI “London Bridge – Pendleton 230 kV” be reviewed for network impacts (Option 2). This report does not provide costs for the physical interconnection of Option 2. It was just analyzed for network impacts. Results are shown in the Network Impacts – Secondary Point of Interconnection section of this report.

3.3 Cost Summary

The AE2-124 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 2,100,000
Direct Connection Network Upgrade	\$ 4,200,000
Non Direct Connection Network Upgrades	\$ 0
Total Costs	\$ 6,300,000

In addition, the AE2-124 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$567,853,000

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

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.

4 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AE2-124 was evaluated as a 148.5 MW Capacity (800.1 MW energy) injection at the Landstown 230 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2022 AE2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: <http://www.dominionenergy.com>.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically in Planning Studies NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For Dominion Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AE2-124 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are shown in Attachment 1.

Note that the ITO findings were made from a conceptual review of this project. A more detailed review of the connection facilities and their cost will be identified in a future study phases. Further note that the cost estimate data contained in this document should be considered high level estimates since it was produced without a detailed engineering review. The applicant will be responsible for the actual cost of construction. ITO herein reserves the right to return to any issues in this document and, upon appropriate justification, request additional monies to complete any reinforcements to the transmission systems.

5 Attachment Facilities

To accommodate the proposed AE2-124 Project, Dominion Energy will install one span of overhead 230 kV line to the point of interconnection ("POI") including 230 kV interconnection metering. 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 (Metering)	\$ 600,000
Transmission (one span)	\$ 1,500,000
Total Attachment Facility Costs	\$ 2,100,000

It is estimated to take 18-24 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). 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.

6 Direct Connection Cost Estimate

To accommodate the proposed AE2-124 Project, Dominion Energy will build a two breaker bay at Landstown Substation to allow for the proposed interconnection. 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
Two Breaker Bay and Associated Equipment	\$ 2,400,000
Transmission (one span)	\$ 1,800,000
Total Direct Connection Facility Costs	\$ 4,200,000

It is estimated to take 24-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). 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.

7 Non-Direct Connection Cost Estimate

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
Rebuild 16.71 miles of 230 kV Line 2068 from AD1-087 Tap to Sedge Hill	\$25,065,000
Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont	\$85,932,000
Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna and replace Wavetraps at Milothian and North Anna 500kV substations	\$127,503,000

Description	Total Cost
Add additional 230/115 kV transformer at Chesapeake substation.	\$6,000,000
Rebuild 1.7 miles of 230 kV Line 271 from AD1-033 Tap to Fentress	\$1,750,000
Rebuild 1.55 miles of 230 kV Line 2154 from Skiffes Creek to Kings Mill	\$3,875,000
Rebuild 37.41 miles of 500 kV Line 563 from Carson to Midlothian	\$115,971,000
or DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP	\$4,500,000
Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap	\$26,250,000
Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania	\$43,462,000
Rebuild 5.88 miles of 230 kV Line 2026 from Landstown to Lynnhaven	\$14,700,000
Rebuild 3 miles of 230 kV Line 211 from Hopewell to Chesterfield	\$7,500,000
Replace Wavetraps at Ox and Clifton 500 kV substations.	\$300,000
Replace Terminal Equipment at Surry and Chickahominy Substations	\$4,000,000
Rebuild 18.75 miles of 500 kV Line 594 from Spotsylvania to Morrisville	\$58,125,000
Rebuild 8.2 miles of 230 kV Line 271 from Landstown to AD1-033 Tap	\$20,500,000
Replace Wavetraps and relay change outs at Ladysmith and Possum Pt 500 kV substations.	\$420,000
Add additional 500/230 kV transformer at Elmont Substation	\$22,000,000
Total Non-Direct Connection Facility Costs	\$567,853,000

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

8 Schedule

The schedule for the required Network Impact Reinforcements will be more clearly identified in future study phases. The estimate elapsed time to complete each of the required reinforcements is identified in the "System Reinforcements" section of the report.

9 Transmission Owner Analysis

9.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2022 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system. At the Primary POI, the AE2-124 project contributes to overloads on the Dominion transmission system as shown in the “Network Impact – Primary Point of Interconnection” section of the report. The estimated cost of system reinforcements necessary to mitigate these overloads is also provided. At the Secondary POI, the AE2-124 project contributes to overloads on the Dominion transmission system as shown in the “Network Impacts –Secondary Point of Interconnection” section of the report. Cost estimates are not provided for the secondary POI.

9.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by Dominion. The connection of AE2-124 project to the system does not result in any newly overdutied circuit breakers on the Dominion transmission system and does not have a significant fault current contribution to existing overdutied circuit breakers

9.3 Stability Analysis

PJM will complete a dynamic stability analysis, if necessary, as part of the System Impact Study. The results of this analysis will be reviewed by Dominion. Should stability concerns be identified in PJM’s study, Dominion will develop appropriate system reinforcement(s) and included the estimated cost of any reinforcement(s) in Dominion’s System Impact Study report.

10 Interconnection Customer Requirements

10.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in Dominion’s “Dominion Energy Electric Transmission Generator Interconnection Requirements” documented in Dominion’s Facility Interconnection Requirements “Exhibit C” located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. Preliminary Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

10.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC’s GSU transformer(s).

2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection noted above. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.
3. The purchase and installation of supervisory control and data acquisition (“SCADA”) equipment to provide information in a compatible format to the Dominion Transmission System Control Center.
4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

The GSU(s) associated with the IC queue request shall meet the grounding requirements as noted in Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

The IC will also be required to meet all PJM, SERC, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and SERC audits. Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the Dominion system.

10.3 Power Factor Requirements

The IC shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading (absorbing VARs) to 0.95 lagging (supplying VARs) measured at the high-side of the facility substation transformer(s) connected to the Dominion transmission system.

11 Revenue Metering and SCADA Requirements

11.1 PJM Requirements

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

11.1.1 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

1.1 Dominion Requirements

See Section 3.4.6 “Metering and Telecommunications” of Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

12 Network Impacts – Primary Point of Interconnection

The Queue Project AE2-124 was evaluated as a 800.1 MW (Capacity 148.5 MW) injection at the Landstown 230 kV substation in the Dominion area. Project AE2-124 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-124 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

12.1 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
1842976	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	single	678.68	95.46	96.95	DC	10.14
1842467	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 567	single	441.8	99.91	102.7	DC	12.29
1842523	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 574	single	3218.56	96.03	97.2	DC	37.91
1842709	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	92.05	93.8	DC	43.23

12.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	97.44	135.09	DC	546.28
1841720	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	83.28	107.7	DC	413.9
1841721	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 23152	breaker	830.0	84.12	107.71	DC	424.71
1843210	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	830.0	86.76	113.9	DC	225.27
1843211	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 78-2118	tower	830.0	81.13	108.27	DC	225.24
1841986	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P4-2: 545T594	breaker	3637.0	95.07	96.8	DC	137.32
1841975	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3938.0	97.6	98.96	DC	114.61
1841873	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	97.5	104.03	DC	237.33
1841679	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	96.22	138.25	DC	546.28
1841680	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 23152	breaker	830.0	86.17	114.47	DC	424.71
1841681	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	85.3	114.29	DC	413.9

12.3 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
1842208	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	174.64	177.08	DC	10.84
1842210	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	126.42	129.2	DC	12.29
1841492	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	165.01	170.74	DC	131.83
1842323	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	163.25	165.69	DC	10.84
1842325	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 567	single	441.8	115.01	117.8	DC	12.29
1841888	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	104.31	109.01	DC	56.29
1842250	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	166.87	169.31	DC	10.84
1842252	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 567	single	441.8	118.65	121.44	DC	12.29
1842465	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	148.15	150.6	DC	10.84
1841801	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	117.15	120.47	DC	21.63
1841842	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	109.01	112.1	DC	20.12
1842380	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	137.34	139.15	DC	8.19
1842382	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2167	single	449.32	120.99	122.69	DC	7.66
7902699	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	137.34	139.15	DC	8.19
7902700	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	137.34	139.15	DC	8.19
1842902	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570	single	814.98	108.09	109.33	DC	10.16
7903294	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	814.98	108.09	109.33	DC	10.16
7903295	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	108.08	109.32	DC	10.16
1841746	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	125.6	128.14	DC	246.28
1841747	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	118.85	121.36	DC	237.86
1842519	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	121.11	122.42	DC	43.02
1841601	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	143.63	147.13	DC	260.09
1841602	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	141.76	145.36	DC	255.22
1842177	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	152.55	154.43	DC	46.05
1842181	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	147.15	149.03	DC	46.16
1842186	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	120.3	121.81	DC	36.95
1841815	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	116.03	117.46	DC	157.04

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
1841816	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	115.26	116.74	DC	156.58
1842390	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.9	132.45	DC	29.07
1842391	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	128.1	128.64	DC	28.54
1841535	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	152.35	155.86	DC	258.18
1841536	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	152.35	155.86	DC	258.18
1842056	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.94	166.85	DC	47.93
1842057	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	154.82	155.58	DC	41.21
1842064	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	113.32	113.9	DC	31.51
1841796	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	120.33	121.72	DC	158.41
1841797	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	119.16	120.7	DC	160.08
1841798	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	119.16	120.69	DC	160.07
1842510	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	121.14	121.63	DC	29.55
1842511	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	118.76	119.24	DC	28.46
1842682	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	117.17	117.63	DC	24.44
1841689	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	135.65	136.87	DC	253.9
1842132	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	158.05	159.79	DC	42.59
1842134	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	148.71	150.35	DC	41.6
1842141	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	single	2442.12	100.75	102.02	DC	31.17
1841844	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	110.71	112.32	DC	149.21
1842615	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	118.1	118.56	DC	32.48
1841948	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	101.42	103.1	DC	118.95
1841872	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	104.74	111.15	DC	245.05
1841836	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	110.11	111.87	DC	148.83
1841837	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: 57502	breaker	3938.0	108.94	110.55	DC	140.2
1843200	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	113.67	114.54	DC	172.52
1842833	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 570	single	814.98	113.71	114.95	DC	10.16
7903225	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 6002_FSA	single	814.98	113.71	114.95	DC	10.16
7903226	934610	AD1-087 TAP	DVP	314697	6SEDGE HILL	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	113.69	114.93	DC	10.16
1842441	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 570	single	478.0	132.92	134.62	DC	8.19

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
7902739	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 6002_FSA	single	478.0	132.94	134.64	DC	8.19
7902741	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	132.92	134.62	DC	8.19

12.4 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
1842207	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	176.2	182.21	DC	58.41
1842975	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	operation	678.68	95.2	98.86	DC	54.64
1842781	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	107.94	113.05	DC	93.37
1842710	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	117.67	122.05	DC	84.29
1842776	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	114.0	118.2	DC	84.68
1842865	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	107.21	109.66	DC	52.81
7903491	314227	6LAKESIDE	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 557	operation	740.72	88.11	91.25	DC	51.64
1842824	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	110.92	113.37	DC	52.81
1842322	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	164.82	170.83	DC	58.41
1842249	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	168.44	174.45	DC	58.41
1842993	314391	6LIGH209	DVP	314388	6LANEXA	DVP	1	DVP_P1-2: LN 557	operation	663.64	92.73	96.73	DC	58.41
1842464	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	149.72	155.73	DC	58.41

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
1842555	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2118-A	operation	598.78	107.1	142.96	DC	214.72
1842719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P1-2: LN 231	operation	678.68	102.73	131.24	DC	424.15
1842962	314481	6LANDSTN	DVP	314502	6STUMPY	DVP	1	DVP_P1-2: LN 271-A	operation	984.18	75.82	102.03	DC	448.8
1842099	314536	3SUFFOLK	DVP	314532	3OAKRI23	DVP	1	Base Case	operation	110.92	95.96	97.4	DC	7.16
1842516	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	142.86	145.9	DC	231.81
1842522	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	Base Case	operation	3218.56	104.16	108.7	DC	166.75
1842175	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	177.32	181.77	DC	248.11
1842182	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	142.71	146.42	DC	199.09
1842387	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	158.08	160.12	DC	156.64
1842395	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	Base Case	operation	2442.12	95.26	97.13	DC	100.06
1842053	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	208.91	213.73	DC	258.24
1842061	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	134.64	137.79	DC	169.75
1842507	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	144.92	146.92	DC	159.2
1842678	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	operation	2442.12	132.06	134.54	DC	131.68
1842130	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	183.11	186.02	DC	229.46
1842137	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	128.14	132.4	DC	167.95
1842610	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	135.7	137.06	DC	174.98
1842619	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	103.53	104.31	DC	131.27
1842837	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	112.43	114.08	DC	114.33
1842968	314923	8SEPTA	DVP	314924	8SURRY	DVP	1	DVP_P1-2: LN 563	operation	2442.12	97.08	99.6	DC	135.48
1842704	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	123.02	131.28	DC	232.89
1842576	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	operation	3218.56	138.02	139.05	DC	173.09
1842585	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	107.62	108.18	DC	130.17
1842248	932590	AC2-079 TAP	DVP	314528	3IVOR106	DVP	1	Base Case	operation	110.92	93.98	94.72	DC	7.16
1842653	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	105.24	139.51	DC	424.15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7903496	940640	AE2-051 TAP	DVP	314902	8CARSON	DVP	1	DVP_P1-2: LN 557	operation	2442.12	81.34	85.41	DC	219.99

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
7903226,1842833,7903225	27	AD1-087 TAP 230.0 kV - 6SEEDGE HILL 230.0 kV Ckt 1	dom-081 (179) : Rebuild 16.71 miles of 230 kV Line 2068 from AD1-087 Tap to Sedge Hill with 2-795 ACSR. Project Type : FAC Cost : \$25,065,000 Time Estimate : 36-40 Months	\$25,065,000
1842181,1841602,1841601,1842186,1842177	19	8CHCKAHM 500.0 kV - 8ELMONT 500.0 kV Ckt 1	dom-021 (82) : Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$85,932,000 Time Estimate : 48-60 Months	\$85,932,000
1842134,1841689,1842141,1842132	23	8MDLTHAN 500.0 kV - 8NO ANNA 500.0 kV Ckt 1	dom-023 (84) : Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna with 3-1351.5 125C ACSR. Project Type : FAC Cost : \$127,503,000 Time Estimate : 48-60 Months dom-024 (86) : Replace Wavetraps at Milothian and North Anna 500kV substations Project Type : FAC Cost : \$300,000 Time Estimate : 16-18 Months	\$127,503,000
1842902,7903295,7903294	18	6CLOVER 230.0 kV - AD1-087 TAP 230.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation	\$0
1841842	16	6CHESAPK 230.0 kV - 3CHESAPK 115.0 kV Ckt 2	dom-102 (209) : Add additional 230/115 kV transformer at Chesapeake substation. Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
1841801	15	6CHESAPK 230.0 kV - 3CHESAPK 115.0 kV Ckt 1		
1841681,1841680,1841679	9	AD1-033 TAP 230.0 kV - 6FENTRES 230.0 kV Ckt 1	dom-100 (206) : Rebuild 1.7 miles of 230 KV Line 271 from AD1-033 Tap to Fentress with 2-636 ACSR. Project Type : FAC Cost : \$1,750,000 Time Estimate : 30-36 Months	\$1,750,000
1842208,1842210	10	6SKIFF CREEK 230.0 kV - 6KINGS M 230.0 kV Ckt 1	dom-066 (157) : Rebuild 1.55 miles of 230 kV Line 2154 from Skiffes Creek to Kings Mill with 2-636 ACSR. Project Type : FAC Cost : \$3,875,000 Time Estimate : 30-36 Months	\$3,875,000
1842523,1841746,1842519,1841747	3	8CARSON 500.0 kV - 8MDLTHAN 500.0 kV Ckt 1	dom-029 (92) : Rebuild 37.41 miles of 500 kV Line 563 from Carson to Midlothian with 3-1351.5 125C ACSR. Project Type : FAC Cost : \$115,971,000 Time Estimate : 48-60 Months	\$115,971,000

ID	Index	Facility	Upgrade Description	Cost
1842250,1842252	14	6KINGS M 230.0 kV - 6PENNIMAN 230.0 kV Ckt 1	b3057 (278) : PJM Baseline Upgrade b3057. Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024. Project Type : CON Cost : \$0 Time Estimate : N/A	\$0
1842976	1	6SKIFF CREEK 230.0 kV - 6WALR285 230.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation	\$0
1842511,1841797,1841796,1841798,1842510	22	8LADYSMITH 500.0 kV - 8CHANCE 500.0 kV Ckt 1	b3021 (276) : 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. Project Type : FAC Cost : \$0 Time Estimate : N/A	\$0
1842441,7902739,7902741	28	AD2-068 TAP 230.0 kV - 6GREENVILLE T 230.0 kV Ckt 1	<u>DVP</u> dom-004 (57) : For DEV portion, rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP with 2-636 ACSR. Project Type : FAC Cost : \$4,500,000 Time Estimate : 30-36 Months <u>CPLE</u> NonPJM Area (170) : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$4,500,000
1842382,7902700,1842380,7902699	17	6EVERETS 230.0 kV - AD2- 068 TAP 230.0 kV Ckt 1	dom-070 (163) : Rebuild 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap with 2-636 ACSR. Project Type : FAC Cost : \$26,250,000 Time Estimate : 36-40 Months	\$26,250,000
1842390,1842391,1841816,1841815	20	8CHANCE 500.0 kV - 8BRISTER 500.0 kV Ckt 1	b3019 (275) : 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. Project Type : FAC Cost : \$0 Time Estimate : N/A	\$0

ID	Index	Facility	Upgrade Description	Cost
1842615,1841844	24	8NO ANNA 500.0 kV - 8SPOTSYL 500.0 kV Ckt 1	dom-045 (119) : Rebuild 14.02 miles of 500 kV Line 573 from North Anna to Spotsylvania with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$43,462,000 Time Estimate : 48-60 Months	\$43,462,000
1842325,1842323	12	6PENNIMAN 230.0 kV - 6WALR209 230.0 kV Ckt 1	b3057 (278) : PJM Baseline Upgrade b3057. Rebuild 6.1 miles of Waller-Skiffess Creek 230 kV Line (#2154) between Waller and Kings Mill to current standards with a minimum summer emergency rating of 1047 MVA utilizing single circuit steel structures. Remove this 6.1 mile section of Line #58 between Waller and Kings Mill. Rebuild the 1.6 miles of Line #2154 and #19 between Kings Mill and Skiffes Creek to current standards with a minimum summer emergency rating of 1047 MVA at 230 kV for Line #2154 and 261 MVA at 115 kV for Line #19, utilizing double circuit steel structures. The baseline project has an projected in-service date of 12/30/2024. Project Type : CON Cost : \$0 Time Estimate : N/A	\$0
1843210,1843211	6	6LANDSTN 230.0 kV - 6LYNHAVN 230.0 kV Ckt 1	dom-116 (232) : Rebuild 5.88 miles of 230 kV Line 2026 from Landstown to Lynnhaven with 2-636 ACSR. Project Type : FAC Cost : \$14,700,000 Time Estimate : 30-36 Months	\$14,700,000
1842467,1842465	2	6WALR209 230.0 kV - 6LIGH209 230.0 kV Ckt 1	b3056 (279) : PJM Baseline Upgrade b3056. Partial Rebuild 230 kV Line #2113 Waller to Lightfoot. The baseline project has an projected in-service date of 12/30/2024. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
1841888	13	6HOPEWLL 230.0 kV - 6CHESTF B 230.0 kV Ckt 1	dom-075 (171) : Rebuild 3 miles of 230 kV Line 211 from Hopewell to Chesterfield with 2-636 ACSR. Project Type : FAC Cost : \$7,500,000 Time Estimate : 30-36 Months b2922 (280) : PJM Baseline Upgrade b2922. Rebuild 8 of 11 miles of 230kV Lines #211 and #228 to current standard with a summer emergency rating of 1046 MVA for rebuilt section. Proposed conductor is 2-636 ACSR. The baseline project has an projected in-service date of 12/01/2020. Project Type : FAC Cost : \$0 Time Estimate : N/A	\$7,500,000
1841948	25	8OX 500.0 kV - 8CLIFTON 500.0 kV Ckt 1	dom-039 (109) : Replace Wavetraps at Ox and Clifton 500 kV substations. Project Type : FAC Cost : \$300,000 Time Estimate : 16-18 Months	\$300,000

ID	Index	Facility	Upgrade Description	Cost
1841872,1842709,1841873	4	8SURRY 500.0 kV - 8CHCKAHM 500.0 kV Ckt 1	dom-040 (111) : Replace Terminal Equipment at Surry and Chickahominy Substations Project Type : FAC Cost : \$4,000,000 Time Estimate : 16-18 Months	\$4,000,000
1843200,1841836,1841837	26	8SPOTSYL 500.0 kV - 8MORRSVL 500.0 kV Ckt 1	dom-019 (79) : Rebuild 18.75 miles of 500 kV Line 594 from Spotsylvania to Morrisville with 3-1351.5 113C ACSR. Project Type : FAC Cost : \$58,125,000 Time Estimate : 48-60 Months	\$58,125,000
1841720,1841721,1841719	5	6LANDSTN 230.0 kV - AD1-033 TAP 230.0 kV Ckt 1	dom-101 (208) : Rebuild 8.2 miles of 230 kV Line 271 from Landstown to AD1-033 Tap with 2-636 ACSR. Project Type : FAC Cost : \$20,500,000 Time Estimate : 30-36 Months	\$20,500,000
1841975	8	8NO ANNA 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation	\$0
1841986,1842682	7	8LADYSMITH 500.0 kV - 8POSSUM 500.0 kV Ckt 1	dom-032 (97) : Replace Wavetraps at Ladysmith and Possum Pt 500 kV substations. Project Type : FAC Cost : \$300,000 Time Estimate : 16-18 Months dom-033 (98) : Relay Change Outs (CT) at Ladysmith and Possum Pt 500 kV substations. Project Type : FAC Cost : \$120,000 Time Estimate : 6-12 Months	\$420,000
1841492	11	6ELMONT 230.0 kV - 8ELMONT 500.0 kV Ckt 1	dom-013 (71) : Add additional 500/230 kV transformer at Elmont Substation Project Type : CON Cost : \$22,000,000 Time Estimate : 16-18 Months	\$22,000,000
1841535,1842056,1842064,1841536,1842057	21	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	b3020 (274) : 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. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
			TOTAL COST	\$567,853,000

If “No Reinforcement Needed. Not a valid violation” was provided as the Upgrade Description for a facility in the System Reinforcements table then that facility met one of the following conditions:

- a. The loading on the facility at your queue position was less than 100%; therefore, the facility is not yet overloaded, but may be overloaded by end of the AE2 queue.
- b. The TO reviewed their ratings on the facility and determined that the current rating was greater than the rating in PJM's model. This new rating was greater than the loading at your queue position making the violation invalid.
- c. The TO reviewed the contingency and determined that contingency was not valid; therefore the violation is invalid. Any contingency corrections will be assessed and corrected in the AE2 impact study phase.

12.6 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.

12.6.1 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P4-2: 215822-5	CONTINGENCY 'DVP_P4-2: 215822-5' /* PORTSMOUTH PS 230 KV OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00 OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 2 /* 3CHESAPK 115.00 - 6CHESAPK 230.00 OPEN BUS 313887 /* 6CHESAPK_STC230.00 KV END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: 215822-6	CONTINGENCY 'DVP_P4-2: 215822-6' /* PORTSMOUTH PS 230 KV OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00 OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 1 /* 3CHESAPK 115.00 - 6CHESAPK 230.00 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

Contingency Name	Contingency Definition
DVP_P4-2: 545T594	CONTINGENCY 'DVP_P4-2: 545T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314900 TO BUS 314916 CKT 1 /* 8BRISTER 500.00 - 8MORRSVL 500.00 OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P7-1: LN 78-2118	CONTINGENCY 'DVP_P7-1: LN 78-2118' OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND
DVP_P4-2: 568T575	CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 57502	CONTINGENCY 'DVP_P4-2: 57502' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 147-2118	CONTINGENCY 'DVP_P7-1: LN 147-2118' OPEN BRANCH FROM BUS 314479 TO BUS 314492 CKT 1 /* 3LANDSTN 115.00 - 3P ANNE 115.00 OPEN BRANCH FROM BUS 314482 TO BUS 314491 CKT 1 /* 3LONDONB 115.00 - 3PEND
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 2167	CONTINGENCY 'DVP_P1-2: LN 2167' OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECON 230.00 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 23152	CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00 OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV END
DVP_P4-2: 231T2105	CONTINGENCY 'DVP_P4-2: 231T2105' /* THRASHER 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314508 TO BUS 314514 CKT 1 /* 6THRASHER 230.00 - 6YADKIN 230.00 END
DVP_P1-2: LN 6002_FSA	CONTINGENCY 'DVP_P1-2: LN 6002_FSA' OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 END
DVP_P1-2: LN 2118-A	CONTINGENCY 'DVP_P1-2: LN 2118-A' OPEN BRANCH FROM BUS 314295 TO BUS 941280 CKT 1 /* 6BIRDNECK 230.00 - AE2-122 TAP 230.00 OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00 OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00 OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00 OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00 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: 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 271-A	CONTINGENCY 'DVP_P1-2: LN 271-A' OPEN BRANCH FROM BUS 314466 TO BUS 934060 CKT 1 /* 6FENTRES 230.00 - AD1-033 TAP 230.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 231T2026	CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 END
DVP_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: 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 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 231	CONTINGENCY 'DVP_P1-2: LN 231' OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00 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 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 570_FSA	CONTINGENCY 'DVP_P1-2: LN 570_FSA' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 END
Base Case	
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
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

Contingency Name	Contingency Definition
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: H1T594	CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00 OPEN BUS 314897 /* 8MORRS_1 500.00 KV END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 END

12.6.2 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
1842976	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	single	678.68	95.46	96.95	DC	10.14

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.09
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.11
314643	3O INLET	0.12
315090	1YORKTN1	22.32
315091	1YORKTN2	23.16
315092	1YORKTN3	13.69
315098	1CHESPKA	0.12
315099	1CHESPKB	0.31
315108	1ELIZAR1	0.91
315109	1ELIZAR2	0.89
315110	1ELIZAR3	0.92
315116	1SURRY 1	5.58
315120	1GRAVEL4	0.57
315121	1GRAVEL5	0.57
315122	1GRAVEL6	0.57
315233	1SURRY 2	9.43
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.3
916041	Z1-036 C	0.28
916191	Z1-068 C	0.01
919151	AA1-139 C	0.69
923801	AB2-015 C O1	2.52
923831	AB2-022 C	0.1
924241	AB2-068 O1	97.25
925521	AC1-027 C	0.09
926291	AC1-107 O1	146.8
926661	AC1-147 C	0.1
926751	AC1-161 C O1	13.16
932041	AC2-012 C	3.87
933291	AC2-141 C	13.16
933731	AC2-196 C	0.08
934061	AD1-033 C	2.88
934521	AD1-076 C	16.31
935111	AD1-144 C	0.08
936391	AD2-049 C	1.09
937221	AD2-160 C O1	2.21
937251	AD2-164	3.43

Bus #	Bus	MW Impact
937541	AD2-215 C	0.7
938181	AE1-027 C	0.89
938191	AE1-028 C	0.52
938531	AE1-072 C O1	6.58
938771	AE1-103 C O1	1.09
939311	AE1-162 C	0.71
939411	AE1-173 C	25.6
939421	AE1-174 C	1.23
940251	AE2-007	65.97
940471	AE2-031 C O1	10.85
940491	AE2-034 C	2.66
940891	AE2-078 C	0.87
940901	AE2-079 C	0.87
940911	AE2-080 C	0.87
941101	AE2-104 C O1	1.19
941281	AE2-122 C O1	10.84
941291	AE2-123 C O1	11.15
941301	AE2-124 C O1	10.14
941501	AE2-147 C	5.68
941591	AE2-156	6.81
942131	AE2-225 C	0.81
942171	AE2-229 C	0.81
942401	AE2-253 C	2.33
942851	AE2-304 C	0.22
942921	AE2-311 C O1	13.42
CARR	CARR	0.17
CBM-S1	CBM-S1	2.13
CBM-S2	CBM-S2	2.81
CBM-W1	CBM-W1	1.69
CBM-W2	CBM-W2	13.46
CIN	CIN	0.79
CPL	CPL	1.49
IPL	IPL	0.49
LGEE	LGEE	0.23
MEC	MEC	1.91
MECS	MECS	0.53
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.21

12.6.3 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
1842465	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	148.15	150.6	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940471	AE2-031 C O1	11.6
940491	AE2-034 C	2.86
940641	AE2-051 C O1	4.65
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O1	1.28
941281	AE2-122 C O1	11.59
941291	AE2-123 C O1	11.92
941301	AE2-124 C O1	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.29
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O1	14.4
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

12.6.4 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
1841746	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	125.6	128.14	DC	246.28

Bus #	Bus	MW Impact
314539	3UNCAMP	3.89
314541	3WATKINS	1.1
314566	3CRESWEL	3.94
314594	6PLYMOTH	1.38
314648	6SUNBURY	1.49
314651	6WINFALL	2.96
315102	1BRUNSWICKG1	11.92
315103	1BRUNSWICKG2	11.92
315104	1BRUNSWICKG3	11.92
315105	1BRUNSWICKS1	24.76
315108	1ELIZAR1	4.09
315109	1ELIZAR2	4.02
315110	1ELIZAR3	4.15
315233	1SURRY 2	32.32
901082	W1-029 E	77.45
907092	X1-038 E	9.72
913392	Y1-086 E	3.74
916042	Z1-036 E	76.13
916191	Z1-068 C	0.06
916192	Z1-068 E	3.23
916301	Z1-086 C	72.75
916302	Z1-086 E	18.68
917122	Z2-027 E	1.8
919151	AA1-139 C	3.13
919152	AA1-139 E	11.03
920692	AA2-178 E	6.75
923801	AB2-015 C O1	13.78
923802	AB2-015 E O1	11.3
923832	AB2-022 E	2.11
924241	AB2-068 O1	333.15
925521	AC1-027 C	0.42
925522	AC1-027 E	1.97
926291	AC1-107 O1	502.86
926662	AC1-147 E	2.26
926751	AC1-161 C O1	55.48
926752	AC1-161 E O1	23.68
932041	AC2-012 C	17.42
932042	AC2-012 E	28.43
932591	AC2-079 C O1	6.4
932592	AC2-079 E O1	10.43
933291	AC2-141 C	55.48

Bus #	Bus	MW Impact
933292	AC2-141 E	23.68
933731	AC2-196 C	0.38
933732	AC2-196 E	2.06
933991	AD1-023 C	21.18
933992	AD1-023 E	11.53
934061	AD1-033 C	12.98
934062	AD1-033 E	8.65
934521	AD1-076 C	88.28
934522	AD1-076 E	44.95
935112	AD1-144 E	1.53
937221	AD2-160 C O1	10.07
937222	AD2-160 E O1	5.28
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
938181	AE1-027 C	4.04
938182	AE1-027 E	2.13
938191	AE1-028 C	2.34
938192	AE1-028 E	1.36
938491	AE1-068 C O1	119.31
938492	AE1-068 E O1	65.89
938501	AE1-069 C O1	93.21
938502	AE1-069 E O1	53.29
938531	AE1-072 C O1	30.11
938532	AE1-072 E O1	15.69
938771	AE1-103 C O1	5.83
938772	AE1-103 E O1	8.05
939411	AE1-173 C	175.24
939412	AE1-173 E	116.83
940251	AE2-007	296.94
940471	AE2-031 C O1	62.25
940472	AE2-031 E O1	41.5
940491	AE2-034 C	13.78
940492	AE2-034 E	5.91
940641	AE2-051 C O1	34.51
940642	AE2-051 E O1	23.01
941031	AE2-094 C	78.36
941032	AE2-094 E	35.09
941101	AE2-104 C O1	5.74
941102	AE2-104 E O1	9.12
941281	AE2-122 C O1	48.88
941282	AE2-122 E O1	197.25
941291	AE2-123 C O1	50.23
941292	AE2-123 E O1	195.89
941301	AE2-124 C O1	45.71
941302	AE2-124 E O1	200.57
941501	AE2-147 C	26.71
941502	AE2-147 E	17.8
941591	AE2-156	30.65
942131	AE2-225 C	3.62
942132	AE2-225 E	2.41
942171	AE2-229 C	3.62
942172	AE2-229 E	2.41

Bus #	Bus	MW Impact
942211	AE2-233 C	25.6
942212	AE2-233 E	9.95
942401	AE2-253 C	10.6
942402	AE2-253 E	4.76
942851	AE2-304 C	1.06
942852	AE2-304 E	0.41
942921	AE2-311 C O1	88.58
942922	AE2-311 E O1	59.06
942931	AE2-313 C	70.34
942932	AE2-313 E	46.89
AA2-074	AA2-074	8.87
CARR	CARR	1.73
CBM-S1	CBM-S1	21.71
CBM-S2	CBM-S2	25.47
CBM-W1	CBM-W1	19.62
CBM-W2	CBM-W2	139.1
CIN	CIN	9.13
CPLE	CPLE	13.04
G-007	G-007	5.72
IPL	IPL	5.69
LGEE	LGEE	2.67
MEC	MEC	20.79
MECS	MECS	7.23
O-066	O-066	36.38
RENSSELAER	RENSSELAER	1.37
WEC	WEC	2.42
Z1-043	Z1-043	9.52

12.6.5 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841872	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	104.74	111.15	DC	245.05

Bus #	Bus	MW Impact
314539	3UNCAMP	3.29
314541	3WATKINS	0.91
314554	3BTLEBRO	0.84
314557	3BETHEL	0.9
314566	3CRESWEL	3.48
314574	6EVERETS	5.03
314578	3HORNRTN	3.34
314582	3KELFORD	4.11
314594	6PLYMOTH	1.19
314603	3SCOT NK	3.71
314617	3TUNIS	1.02
314620	6CASHIE	1.13
314623	3WITAKRS	1.43
314648	6SUNBURY	1.42
314651	6WINFALL	2.8
315090	1YORKTN1	39.38
315091	1YORKTN2	40.87
315108	1ELIZAR1	4.08
315109	1ELIZAR2	4.01
315110	1ELIZAR3	4.13
315131	1EDGECEMA	9.77
315132	1EDGECEMB	9.77
315233	1SURREY 2	40.44
900672	V4-068 E	0.36
901082	W1-029 E	73.37
907092	X1-038 E	8.22
913392	Y1-086 E	3.61
916042	Z1-036 E	70.49
916191	Z1-068 C	0.06
916192	Z1-068 E	3.21
916302	Z1-086 E	14.12
917122	Z2-027 E	1.72
917332	Z2-043 E	1.17
917342	Z2-044 E	0.61
917512	Z2-088 E OP1	4.52
918492	AA1-063AE OP	4.35
918512	AA1-065 E OP	5.6
918532	AA1-067 E	0.89
918562	AA1-072 E	0.19
919152	AA1-139 E	10.87
919692	AA2-053 E	3.92
919701	AA2-057 C	7.56

Bus #	Bus	MW Impact
919702	AA2-057 E	3.78
920042	AA2-088 E OP	12.98
920592	AA2-165 E	0.5
920672	AA2-174 E	0.45
920692	AA2-178 E	5.96
923801	AB2-015 C O1	11.5
923802	AB2-015 E O1	9.43
923832	AB2-022 E	2.04
924152	AB2-059 E O1	5.74
924401	AB2-089 C	2.0
924402	AB2-089 E	1.03
924491	AB2-098 C	0.69
924492	AB2-098 E	0.3
924501	AB2-099 C	0.71
924502	AB2-099 E	0.31
925061	AB2-161 C O1	3.39
925062	AB2-161 E O1	5.54
925122	AB2-169 E	7.61
925521	AC1-027 C	0.42
925522	AC1-027 E	1.95
925591	AC1-034 C	7.21
925592	AC1-034 E	5.44
925781	AC1-054 C O1	6.82
925782	AC1-054 E O1	3.14
926071	AC1-086 C	19.38
926072	AC1-086 E	8.82
926201	AC1-098 C	6.76
926202	AC1-098 E	4.03
926211	AC1-099 C	2.27
926212	AC1-099 E	1.33
926271	AC1-105 C O1	5.3
926272	AC1-105 E O1	2.64
926662	AC1-147 E	2.25
926751	AC1-161 C O1	60.92
926752	AC1-161 E O1	26.01
927021	AC1-189 C	10.21
927022	AC1-189 E	5.09
927141	AC1-208 C	9.6
927142	AC1-208 E	4.26
927251	AC1-221 C	2.26
927252	AC1-221 E	2.26
927261	AC1-222 C	3.46
927262	AC1-222 E	3.29
930402	AB1-081 E O1	4.05
930862	AB1-132 E O1	5.64
932041	AC2-012 C	17.3
932042	AC2-012 E	28.23
932591	AC2-079 C O1	7.14
932592	AC2-079 E O1	11.66
932631	AC2-084 C	9.64
932632	AC2-084 E	4.75
932761	AC2-100 C	5.21

Bus #	Bus	MW Impact
932762	AC2-100 E	2.54
933291	AC2-141 C	60.92
933292	AC2-141 E	26.01
933731	AC2-196 C	0.38
933732	AC2-196 E	2.06
933991	AD1-023 C	17.83
933992	AD1-023 E	9.71
934061	AD1-033 C	12.94
934062	AD1-033 E	8.63
934231	AD1-050 C	4.41
934232	AD1-050 E	2.41
934311	AD1-055 C	2.4
934312	AD1-055 E	0.62
934331	AD1-057 C O1	10.01
934332	AD1-057 E O1	5.34
934341	AD1-058 C	5.67
934342	AD1-058 E	1.44
934521	AD1-076 C	75.57
934522	AD1-076 E	38.48
934571	AD1-082 C	7.73
934572	AD1-082 E	4.41
934611	AD1-087 C O1	9.42
934612	AD1-087 E O1	4.43
934621	AD1-088 C	12.79
934622	AD1-088 E	6.0
934991	AD1-131 C	1.86
934992	AD1-131 E	1.24
935112	AD1-144 E	1.46
935171	AD1-152 C O1	9.36
935172	AD1-152 E O1	6.24
936331	AD2-043 C	4.49
936332	AD2-043 E	5.31
936391	AD2-049 C	2.51
936392	AD2-049 E	2.51
936401	AD2-051 C O1	10.66
936402	AD2-051 E O1	4.58
936531	AD2-068 C	5.94
936532	AD2-068 E	3.06
936661	AD2-085 C	4.24
936662	AD2-085 E	6.91
936701	AD2-089 C	8.06
936702	AD2-089 E	5.37
936711	AD2-090 C O1	9.26
936712	AD2-090 E O1	6.17
937221	AD2-160 C O1	9.97
937222	AD2-160 E O1	5.23
937251	AD2-164	6.63
937481	AD2-202 C O1	2.59
937482	AD2-202 E O1	1.31
937541	AD2-215 C	2.69
937542	AD2-215 E	1.43
937571	AD2-169 C	9.08

Bus #	Bus	MW Impact
937572	AD2-169 E	6.05
938171	AE1-026 C1 O	37.48
938172	AE1-026 C2 O	5.42
938173	AE1-026 E O1	11.32
938181	AE1-027 C	4.02
938182	AE1-027 E	2.12
938191	AE1-028 C	2.33
938192	AE1-028 E	1.35
938221	AE1-035 C	2.84
938222	AE1-035 E	1.4
938491	AE1-068 C O1	90.21
938492	AE1-068 E O1	49.83
938501	AE1-069 C O1	70.44
938502	AE1-069 E O1	40.27
938531	AE1-072 C O1	29.57
938532	AE1-072 E O1	15.42
938661	AE1-088	2.3
938771	AE1-103 C O1	4.93
938772	AE1-103 E O1	6.81
939311	AE1-162 C	2.94
939312	AE1-162 E	1.96
939411	AE1-173 C	149.42
939412	AE1-173 E	99.61
939421	AE1-174 C	0.17
939422	AE1-174 E	0.26
939431	AE1-175 C	2.18
939432	AE1-175 E	1.08
940061	AE1-248 C O1	16.07
940062	AE1-248 E O1	10.72
940251	AE2-007	295.65
940471	AE2-031 C O1	58.39
940472	AE2-031 E O1	38.93
940491	AE2-034 C	12.17
940492	AE2-034 E	5.21
940521	AE2-037 C O1	9.7
940522	AE2-037 E O1	4.69
940571	AE2-044 C	4.72
940572	AE2-044 E	2.02
940641	AE2-051 C O1	28.0
940642	AE2-051 E O1	18.67
940891	AE2-078 C	2.82
940892	AE2-078 E	1.46
940901	AE2-079 C	2.82
940902	AE2-079 E	1.46
940911	AE2-080 C	2.82
940912	AE2-080 E	1.46
941031	AE2-094 C	59.31
941032	AE2-094 E	26.56
941101	AE2-104 C O1	5.25
941102	AE2-104 E O1	8.34
941281	AE2-122 C O1	48.63
941282	AE2-122 E O1	196.22

Bus #	Bus	MW Impact
941291	AE2-123 C O1	49.97
941292	AE2-123 E O1	194.87
941301	AE2-124 C O1	45.48
941302	AE2-124 E O1	199.57
941501	AE2-147 C	25.3
941502	AE2-147 E	16.87
941541	AE2-151 C	1.32
941542	AE2-151 E	0.71
941591	AE2-156	30.48
941601	AE2-157 C O1	9.36
941602	AE2-157 E O1	6.24
941791	AE2-182 C	2.31
941792	AE2-182 E	1.09
941951	AE2-207	3.05
942131	AE2-225 C	3.48
942132	AE2-225 E	2.32
942171	AE2-229 C	3.48
942172	AE2-229 E	2.32
942211	AE2-233 C	19.38
942212	AE2-233 E	7.53
942341	AE2-247 C	1.84
942342	AE2-247 E	2.54
942401	AE2-253 C	10.48
942402	AE2-253 E	4.71
942851	AE2-304 C	0.99
942852	AE2-304 E	0.39
942921	AE2-311 C O1	77.95
942922	AE2-311 E O1	51.96
942931	AE2-313 C	53.22
942932	AE2-313 E	35.48
943171	AE2-346 C	2.14
943172	AE2-346 E	0.92
AA2-074	AA2-074	6.4
CARR	CARR	1.11
CBM-S1	CBM-S1	13.93
CBM-S2	CBM-S2	17.99
CBM-W1	CBM-W1	11.23
CBM-W2	CBM-W2	88.09
CIN	CIN	5.25
CPL	CPL	9.41
G-007	G-007	3.6
IPL	IPL	3.25
LGEE	LGEE	1.53
MEC	MEC	12.58
MECS	MECS	3.61
O-066	O-066	22.92
RENSSELAER	RENSSELAER	0.88
WEC	WEC	1.39

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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
1841719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	97.44	135.09	DC	546.28

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.65
925522	AC1-027 E	3.07
926662	AC1-147 E	0.46
932041	AC2-012 C	3.54
932042	AC2-012 E	5.78
940251	AE2-007	56.06
941281	AE2-122 C O1	84.84
941282	AE2-122 E O1	342.33
941291	AE2-123 C O1	87.18
941292	AE2-123 E O1	339.98
941301	AE2-124 C O1	101.39
941302	AE2-124 E O1	444.89
941591	AE2-156	5.26
BLUEG	BLUEG	0.32
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.06
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.21
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.09
PRAIRIE	PRAIRIE	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.04
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.17
UNIONPOWER	UNIONPOWER	0.08
VFT	VFT	0.03

12.6.7 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1843210	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	830.0	86.76	113.9	DC	225.27

Bus #	Bus	MW Impact
314651	6WINFALL	0.52
913392	Y1-086 E	0.89
917122	Z2-027 E	0.39
919152	AA1-139 E	3.25
923832	AB2-022 E	0.5
933731	AC2-196 C	0.12
933732	AC2-196 E	0.68
934061	AD1-033 C	5.57
934062	AD1-033 E	3.71
937221	AD2-160 C O1	3.07
937222	AD2-160 E O1	1.61
938181	AE1-027 C	1.29
938182	AE1-027 E	0.68
938191	AE1-028 C	0.75
938192	AE1-028 E	0.43
938531	AE1-072 C O1	8.55
938532	AE1-072 E O1	4.46
941281	AE2-122 C O1	44.74
941282	AE2-122 E O1	180.53
941291	AE2-123 C O1	45.98
941292	AE2-123 E O1	179.29
941301	AE2-124 C O1	41.81
941302	AE2-124 E O1	183.46
941592	AE2-156 BAT	3.98
942401	AE2-253 C	3.23
942402	AE2-253 E	1.45
CARR	CARR	0.0
CBM-S1	CBM-S1	0.42
CBM-S2	CBM-S2	0.43
CBM-W1	CBM-W1	0.5
CBM-W2	CBM-W2	2.81
CIN	CIN	0.22
CPLE	CPLE	0.23
G-007	G-007	0.01
IPL	IPL	0.14
LGEE	LGEE	0.06
MEC	MEC	0.47
MECS	MECS	0.24
O-066	O-066	0.05
RENSSELAER	RENSSELAER	0.0
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
1842682	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	117.17	117.63	DC	24.44

Bus #	Bus	MW Impact
314229	6MT RD221	0.09
314236	6NRTHEST	0.13
314250	6ROCKVILLE	0.24
314309	6IRON208	0.32
315043	1FOUR RIVERA	2.6
315044	1FOUR RIVERB	2.01
315045	1FOUR RIVERC	2.6
315046	1FOUR RIVERD	2.01
315047	1FOUR RIVERE	2.01
315048	1FOUR RIVERF	2.6
315053	1BELMED1	16.48
315054	1BELMED2	16.48
315055	1BELMED3	13.68
315058	1CHESTF3	17.38
315059	1CHESTF4	28.18
315060	1CHESTF5	7.17
315061	1CHESTG7	2.81
315062	1CHESTS7	1.28
315063	1CHESTG8	2.76
315064	1CHESTS8	1.42
315067	1DARBY 1	1.85
315068	1DARBY 2	1.85
315069	1DARBY 3	1.86
315070	1DARBY 4	1.86
315074	1HOPCGN1	7.96
315075	1HOPCGN2	7.85
315083	1SPRUNCA	10.03
315084	1SPRUNCB	10.03
315085	1SPRUNCC	7.44
315086	1SPRUNCD	7.44
315090	1YORKTN1	26.95
315091	1YORKTN2	27.96
315225	1N ANNA1	20.59
315226	1N ANNA2	20.64
919211	AA1-145	7.51
924061	AB2-050	0.44
924241	AB2-068 O1	199.05
925051	AB2-160 C O1	5.14
925061	AB2-161 C O1	3.12
925331	AB2-190 C	19.03
925861	AC1-065 C	3.17

Bus #	Bus	MW Impact
926291	AC1-107 O1	300.45
926411	AC1-112 C	0.24
926551	AC1-134	1.1
926751	AC1-161 C O1	28.08
926781	AC1-164 C	39.06
927041	AC1-191 C O1	9.14
927221	AC1-216 C O1	9.29
930121	AB1-027 C	0.31
932041	AC2-012 C	9.41
932501	AC2-070 C	0.2
932581	AC2-078 C O1	3.79
932591	AC2-079 C O1	5.27
932831	AC2-110 C	1.27
933011	AC2-125	2.57
933021	AC2-126	2.59
933061	AC2-130	2.31
933261	AC2-137 C	0.25
933291	AC2-141 C	28.08
934011	AD1-025 C	15.97
934061	AD1-033 C	6.9
934141	AD1-041 C	4.97
934211	AD1-048 C	0.29
934571	AD1-082 C	7.12
935161	AD1-151 C O1	15.29
936041	AD2-007	1.7
936051	AD2-008 C	2.78
936151	AD2-021	0.23
936241	AD2-030 C	2.15
936301	AD2-039 C	1.27
936391	AD2-049 C	1.68
936661	AD2-085 C	3.16
937221	AD2-160 C O1	5.36
937251	AD2-164	4.51
937541	AD2-215 C	1.61
938031	AE1-004 C	1.27
938181	AE1-027 C	2.15
938191	AE1-028 C	1.25
938531	AE1-072 C O1	16.05
938551	AE1-074 C	2.28
938631	AE1-085 C O1	10.15
939191	AE1-149 C O1	9.99
939261	AE1-157 C O1	13.63
939271	AE1-158 C O1	13.91
939311	AE1-162 C	2.0
939411	AE1-173 C	77.4
939421	AE1-174 C	0.18
939431	AE1-175 C	2.29
939611	AE1-191 C	9.94
939751	AE1-206 C O1	32.76
940061	AE1-248 C O1	14.79
940071	AE1-249 C	6.78
940231	AE2-005 C	1.27

Bus #	Bus	MW Impact
940251	AE2-007	159.74
940431	AE2-027 C O1	12.31
940471	AE2-031 C O1	28.43
940551	AE2-041	6.73
940641	AE2-051 C O1	14.42
940651	AE2-052	3.35
940891	AE2-078 C	2.22
940901	AE2-079 C	2.22
940911	AE2-080 C	2.22
941101	AE2-104 C O1	3.19
941281	AE2-122 C O1	26.16
941291	AE2-123 C O1	26.88
941301	AE2-124 C O1	24.44
941581	AE2-155 C	0.63
941591	AE2-156	16.53
941601	AE2-157 C O1	9.89
942001	AE2-212 C	2.03
942131	AE2-225 C	1.95
942151	AE2-227 C O1	2.03
942161	AE2-228 C O1	2.03
942171	AE2-229 C	1.95
942191	AE2-231 C O1	5.3
942341	AE2-247 C	1.37
942371	AE2-250 C O1	9.13
942401	AE2-253 C	5.64
942531	AE2-268 C	1.61
942551	AE2-270	25.5
942921	AE2-311 C O1	38.88
AA2-074	AA2-074	4.72
CARR	CARR	1.87
CBM-S1	CBM-S1	16.0
CBM-S2	CBM-S2	14.44
CBM-W1	CBM-W1	18.35
CBM-W2	CBM-W2	106.13
CIN	CIN	8.45
CPLE	CPLE	6.93
IPL	IPL	5.34
LGEE	LGEE	2.48
MEC	MEC	17.53
MECS	MECS	8.28
RENSSELAER	RENSSELAER	1.48
WEC	WEC	2.23
Z1-043	Z1-043	8.76

12.6.9 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841975	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3938.0	97.6	98.96	DC	114.61

Bus #	Bus	MW Impact
314539	3UNCAMP	1.95
314541	3WATKINS	0.56
314566	3CRESWEL	1.94
314572	3EMPORIA	0.35
314578	3HORNRTN	2.73
314594	6PLYMOTH	0.69
314617	3TUNIS	0.68
314620	6CASHIE	0.68
314648	6SUNBURY	0.71
314651	6WINFALL	1.41
315172	1LOISA A	2.16
315173	1LOISA B	2.17
315174	1LOISA C	2.17
315175	1LOISA D	2.17
315176	1LOISA E	4.43
315177	1S ANNAG1	1.32
315178	1S ANNAS1	0.68
315179	1S ANNAG2	1.32
315180	1S ANNAS2	0.68
315225	1N ANNA1	79.64
315226	1N ANNA2	79.82
900672	V4-068 E	0.24
901082	W1-029 E	36.91
907092	X1-038 E	4.88
913392	Y1-086 E	1.76
916042	Z1-036 E	36.68
916192	Z1-068 E	1.5
916302	Z1-086 E	9.93
917122	Z2-027 E	0.85
918492	AA1-063AE OP	3.28
918512	AA1-065 E OP	3.59
919152	AA1-139 E	5.15
919692	AA2-053 E	3.08
920042	AA2-088 E OP	8.57
920672	AA2-174 E	0.36
920692	AA2-178 E	3.32
923801	AB2-015 C O1	6.96
923802	AB2-015 E O1	5.71
923832	AB2-022 E	1.0
923852	AB2-025 E	0.94
923862	AB2-026 E	1.12

Bus #	Bus	MW Impact
923911	AB2-031 C O1	1.88
923912	AB2-031 E O1	0.92
923992	AB2-040 E O1	5.04
924022	AB2-043 E O1	4.22
924032	AB2-045 E	0.89
924162	AB2-060 E O1	3.49
924302	AB2-077 E O1	1.09
924312	AB2-078 E O1	1.09
924322	AB2-079 E O1	1.09
924501	AB2-099 C	0.48
924502	AB2-099 E	0.2
924511	AB2-100 C	9.71
924512	AB2-100 E	4.78
925021	AB2-158 C	3.03
925022	AB2-158 E	11.1
925061	AB2-161 C O1	2.59
925062	AB2-161 E O1	4.22
925171	AB2-174 C O1	5.91
925172	AB2-174 E O1	5.35
925522	AC1-027 E	0.92
925612	AC1-036 E	0.71
926071	AC1-086 C	17.11
926072	AC1-086 E	7.79
926662	AC1-147 E	1.05
926731	AC1-158 C	239.37
926732	AC1-158 E	105.05
926751	AC1-161 C O1	24.38
926752	AC1-161 E O1	10.41
930862	AB1-132 E O1	4.98
931232	AB1-173 E	0.88
931242	AB1-173AE	0.88
932041	AC2-012 C	8.12
932042	AC2-012 E	13.25
932512	AC2-071 E	0.95
932591	AC2-079 C O1	4.48
932592	AC2-079 E O1	7.3
933291	AC2-141 C	24.38
933292	AC2-141 E	10.41
933501	AC2-165 C	9.87
933502	AC2-165 E	7.43
933732	AC2-196 E	0.96
933991	AD1-023 C	10.64
933992	AD1-023 E	5.79
934061	AD1-033 C	6.03
934062	AD1-033 E	4.02
934201	AD1-047 C	6.72
934202	AD1-047 E	4.48
934521	AD1-076 C	44.05
934522	AD1-076 E	22.43
934571	AD1-082 C	5.9
934572	AD1-082 E	3.36
934611	AD1-087 C O1	7.47

Bus #	Bus	MW Impact
934612	AD1-087 E O1	3.51
934621	AD1-088 C	12.01
934622	AD1-088 E	5.64
935112	AD1-144 E	0.73
935171	AD1-152 C O1	7.42
935172	AD1-152 E O1	4.95
935212	AD1-156 E	1.09
935222	AD1-157 E	0.85
935231	AD1-160 C	0.93
935232	AD1-160 E	1.29
936261	AD2-033 C	10.78
936262	AD2-033 E	7.18
936401	AD2-051 C O1	7.12
936402	AD2-051 E O1	3.06
936481	AD2-063 C O1	12.34
936482	AD2-063 E O1	8.23
936661	AD2-085 C	2.68
936662	AD2-085 E	4.38
936711	AD2-090 C O1	5.83
936712	AD2-090 E O1	3.89
937221	AD2-160 C O1	4.7
937222	AD2-160 E O1	2.47
937481	AD2-202 C O1	2.06
937482	AD2-202 E O1	1.04
937541	AD2-215 C	1.35
937542	AD2-215 E	0.71
937571	AD2-169 C	8.36
937572	AD2-169 E	5.57
938171	AE1-026 C1 O	22.69
938172	AE1-026 C2 O	3.28
938173	AE1-026 E O1	6.85
938181	AE1-027 C	1.88
938182	AE1-027 E	0.99
938191	AE1-028 C	1.09
938192	AE1-028 E	0.63
938221	AE1-035 C	1.82
938222	AE1-035 E	0.9
938371	AE1-056 C	5.49
938372	AE1-056 E	3.0
938491	AE1-068 C O1	63.34
938492	AE1-068 E O1	34.99
938501	AE1-069 C O1	49.57
938502	AE1-069 E O1	28.34
938531	AE1-072 C O1	14.1
938532	AE1-072 E O1	7.35
938551	AE1-074 C	2.12
938552	AE1-074 E	1.07
938561	AE1-075 C	2.19
938562	AE1-075 E	1.07
938771	AE1-103 C O1	2.93
938772	AE1-103 E O1	4.04
939071	AE1-135 C O1	17.49

Bus #	Bus	MW Impact
939072	AE1-135 E O1	11.66
939231	AE1-154 C	4.08
939232	AE1-154 E	2.86
939371	AE1-168 C	12.59
939372	AE1-168 E	8.4
939411	AE1-173 C	87.97
939412	AE1-173 E	58.65
940061	AE1-248 C O1	12.26
940062	AE1-248 E O1	8.17
940241	AE2-006	0.4
940251	AE2-007	138.19
940421	AE2-026 C	7.75
940422	AE2-026 E	10.53
940471	AE2-031 C O1	29.9
940472	AE2-031 E O1	19.93
940481	AE2-033 C	13.45
940482	AE2-033 E	9.07
940491	AE2-034 C	6.79
940492	AE2-034 E	2.91
940521	AE2-037 C O1	6.54
940522	AE2-037 E O1	3.16
940541	AE2-040	2.7
940641	AE2-051 C O1	17.69
940642	AE2-051 E O1	11.8
941031	AE2-094 C	41.48
941032	AE2-094 E	18.58
941101	AE2-104 C O1	2.78
941102	AE2-104 E O1	4.42
941281	AE2-122 C O1	22.75
941282	AE2-122 E O1	91.81
941291	AE2-123 C O1	23.38
941292	AE2-123 E O1	91.18
941301	AE2-124 C O1	21.27
941302	AE2-124 E O1	93.34
941501	AE2-147 C	12.73
941502	AE2-147 E	8.48
941541	AE2-151 C	0.88
941542	AE2-151 E	0.48
941591	AE2-156	14.28
941791	AE2-182 C	2.17
941792	AE2-182 E	1.02
942131	AE2-225 C	1.71
942132	AE2-225 E	1.14
942171	AE2-229 C	1.71
942172	AE2-229 E	1.14
942211	AE2-233 C	13.55
942212	AE2-233 E	5.27
942341	AE2-247 C	1.16
942342	AE2-247 E	1.61
942401	AE2-253 C	4.94
942402	AE2-253 E	2.22
942451	AE2-258	1.92

Bus #	Bus	MW Impact
942461	AE2-259 C O1	8.6
942462	AE2-259 E O1	5.73
942471	AE2-260 C O1	12.05
942472	AE2-260 E O1	17.1
942711	AE2-287 C O1	10.92
942712	AE2-287 E O1	7.28
942851	AE2-304 C	0.51
942852	AE2-304 E	0.2
942921	AE2-311 C O1	43.87
942922	AE2-311 E O1	29.25
942931	AE2-313 C	37.44
942932	AE2-313 E	24.96
943051	AE2-328 C	10.38
943052	AE2-328 E	4.86
943171	AE2-346 C	1.43
943172	AE2-346 E	0.61
AA2-074	AA2-074	4.87
CARR	CARR	1.55
CBM-S1	CBM-S1	11.53
CBM-S2	CBM-S2	14.0
CBM-W1	CBM-W1	9.1
CBM-W2	CBM-W2	72.39
CIN	CIN	4.42
CPL	CPL	7.15
G-007	G-007	5.04
IPL	IPL	2.74
LGEE	LGEE	1.31
MEC	MEC	10.38
MECS	MECS	2.63
O-066	O-066	32.1
RENSSELAER	RENSSELAER	1.23
WEC	WEC	1.15

12.6.10 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841679	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	96.22	138.25	DC	546.28

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.65
925522	AC1-027 E	3.07
934061	AD1-033 C	36.53
934062	AD1-033 E	24.36
941281	AE2-122 C O1	84.84
941282	AE2-122 E O1	342.33
941291	AE2-123 C O1	87.18
941292	AE2-123 E O1	339.98
941301	AE2-124 C O1	101.39
941302	AE2-124 E O1	444.89
BLUEG	BLUEG	0.32
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.06
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.21
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.09
PRAIRIE	PRAIRIE	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.04
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.17
UNIONPOWER	UNIONPOWER	0.08
VFT	VFT	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842208	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	174.64	177.08	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940471	AE2-031 C O1	11.6
940491	AE2-034 C	2.86
940641	AE2-051 C O1	4.65
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O1	1.28
941281	AE2-122 C O1	11.59
941291	AE2-123 C O1	11.92
941301	AE2-124 C O1	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.29
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O1	14.4
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

12.6.12 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841492	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	165.01	170.74	DC	131.83

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.73
314229	6MT RD221	0.17
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.39
314309	6IRON208	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.6
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	4.24
315044	1FOUR RIVERB	3.29
315045	1FOUR RIVERC	4.24
315046	1FOUR RIVERD	3.29
315047	1FOUR RIVERE	3.29
315048	1FOUR RIVERF	4.24
315053	1BELMED1	25.27
315054	1BELMED2	25.27
315055	1BELMED3	20.97
315058	1CHESTF3	26.83
315059	1CHESTF4	43.49
315067	1DARBY 1	3.07
315068	1DARBY 2	3.08
315069	1DARBY 3	3.09
315070	1DARBY 4	3.09
315073	1STONECA	9.28
315074	1HOPCGN1	11.19
315075	1HOPCGN2	11.05
315083	1SPRUNCA	14.77
315084	1SPRUNCB	14.77
315085	1SPRUNCC	10.95
315086	1SPRUNCD	10.95
315090	1YORKTN1	30.6
315091	1YORKTN2	31.75
901082	W1-029 E	41.2
907092	X1-038 E	5.4
913392	Y1-086 E	1.98
916042	Z1-036 E	40.19
916192	Z1-068 E	1.73
917122	Z2-027 E	0.95
919152	AA1-139 E	5.84
919211	AA1-145	12.27

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.63
923802	AB2-015 E O1	6.25
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.72
924241	AB2-068 O1	175.77
924511	AB2-100 C	10.3
924512	AB2-100 E	5.07
924812	AB2-134 E O1	14.7
925051	AB2-160 C O1	7.07
925052	AB2-160 E O1	11.54
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.84
925331	AB2-190 C	24.53
925332	AB2-190 E	10.51
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.06
926291	AC1-107 O1	265.31
926411	AC1-112 C	0.42
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	1.8
926662	AC1-147 E	1.23
926751	AC1-161 C O1	26.82
926752	AC1-161 E O1	11.45
926781	AC1-164 C	57.92
926782	AC1-164 E	26.02
927041	AC1-191 C O1	17.43
927042	AC1-191 E O1	8.68
927221	AC1-216 C O1	11.81
927222	AC1-216 E O1	9.29
930121	AB1-027 C	0.54
930122	AB1-027 E	1.89
932041	AC2-012 C	9.5
932042	AC2-012 E	15.5
932501	AC2-070 C	0.35
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.65
932591	AC2-079 C O1	5.74
932592	AC2-079 E O1	9.36
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933261	AC2-137 C	0.38
933262	AC2-137 E	2.03
933272	AC2-138 E	1.07
933291	AC2-141 C	26.82
933292	AC2-141 E	11.45

Bus #	Bus	MW Impact
933732	AC2-196 E	1.09
934011	AD1-025 C	20.31
934012	AD1-025 E	12.03
934061	AD1-033 C	6.88
934062	AD1-033 E	4.59
934141	AD1-041 C	6.72
934142	AD1-041 E	4.48
934211	AD1-048 C	0.46
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.15
934572	AD1-082 E	4.65
934781	AD1-105 C	11.44
934782	AD1-105 E	7.95
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.71
935162	AD1-151 E O1	13.14
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	6.32
936592	AD2-074 E	10.32
936661	AD2-085 C	3.45
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.26
936712	AD2-090 E O1	4.17
937221	AD2-160 C O1	5.33
937222	AD2-160 E O1	2.8
937251	AD2-164	5.08
937541	AD2-215 C	1.67
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
938531	AE1-072 C O1	15.94
938532	AE1-072 E O1	8.31
938551	AE1-074 C	3.1

Bus #	Bus	MW Impact
938552	AE1-074 E	1.56
938631	AE1-085 C O1	12.45
938632	AE1-085 E O1	8.3
938771	AE1-103 C O1	3.24
938772	AE1-103 E O1	4.47
939071	AE1-135 C O1	18.69
939072	AE1-135 E O1	12.46
939191	AE1-149 C O1	12.54
939192	AE1-149 E O1	8.36
939241	AE1-155 C	17.01
939242	AE1-155 E	11.34
939281	AE1-159 C O1	12.01
939282	AE1-159 E O1	7.1
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	2.86
939432	AE1-175 E	1.42
939611	AE1-191 C	13.43
939612	AE1-191 E	8.96
939751	AE1-206 C O1	56.7
939752	AE1-206 E O1	37.8
940061	AE1-248 C O1	16.95
940062	AE1-248 E O1	11.3
940071	AE1-249 C	9.33
940072	AE1-249 E	6.96
940231	AE2-005 C	1.73
940232	AE2-005 E	2.83
940251	AE2-007	160.86
940431	AE2-027 C O1	17.76
940432	AE2-027 E O1	11.84
940471	AE2-031 C O1	25.91
940472	AE2-031 E O1	17.27
940481	AE2-033 C	15.17
940482	AE2-033 E	10.23
940541	AE2-040	3.07
940551	AE2-041	9.23
940651	AE2-052	4.2
940891	AE2-078 C	2.59
940892	AE2-078 E	1.33
940901	AE2-079 C	2.59
940902	AE2-079 E	1.33
940911	AE2-080 C	2.59
940912	AE2-080 E	1.33
941101	AE2-104 C O1	3.27
941102	AE2-104 E O1	5.2
941141	AE2-108 C	2.12
941142	AE2-108 E	2.92
941151	AE2-109 C	0.74
941152	AE2-109 E	1.02
941281	AE2-122 C O1	26.21

Bus #	Bus	MW Impact
941282	AE2-122 E O1	105.77
941291	AE2-123 C O1	26.94
941292	AE2-123 E O1	105.04
941301	AE2-124 C O1	24.47
941302	AE2-124 E O1	107.36
941501	AE2-147 C	14.21
941502	AE2-147 E	9.47
941581	AE2-155 C	1.1
941582	AE2-155 E	0.47
941591	AE2-156	16.67
941601	AE2-157 C O1	11.64
941602	AE2-157 E O1	7.76
942001	AE2-212 C	2.82
942002	AE2-212 E	1.88
942131	AE2-225 C	1.96
942132	AE2-225 E	1.31
942151	AE2-227 C O1	2.82
942152	AE2-227 E O1	1.88
942161	AE2-228 C O1	2.82
942162	AE2-228 E O1	1.88
942171	AE2-229 C	1.96
942172	AE2-229 E	1.31
942191	AE2-231 C O1	5.33
942192	AE2-231 E O1	3.55
942341	AE2-247 C	1.5
942342	AE2-247 E	2.07
942371	AE2-250 C O1	12.57
942372	AE2-250 E O1	6.63
942401	AE2-253 C	5.61
942402	AE2-253 E	2.52
942471	AE2-260 C O1	12.88
942472	AE2-260 E O1	18.27
942531	AE2-268 C	2.21
942532	AE2-268 E	1.24
942551	AE2-270	32.87
942851	AE2-304 C	0.56
942852	AE2-304 E	0.22
AA2-074	AA2-074	3.26
CARR	CARR	0.78
CBM-S1	CBM-S1	4.14
CBM-S2	CBM-S2	8.5
CBM-W2	CBM-W2	22.9
CIN	CIN	0.19
CPL	CPL	4.79
G-007	G-007	2.36
IPL	IPL	0.05
LGEE	LGEE	0.06
MEC	MEC	1.89
O-066	O-066	15.05
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.04

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842323	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	163.25	165.69	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940471	AE2-031 C O1	11.6
940491	AE2-034 C	2.86
940641	AE2-051 C O1	4.65
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O1	1.28
941281	AE2-122 C O1	11.59
941291	AE2-123 C O1	11.92
941301	AE2-124 C O1	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.29
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O1	14.4
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

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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
1841888	314303	6HOPEWLL	DVP	314287	6CHESTFB	DVP	1	DVP_P4-2: 56372	breaker	549.0	104.31	109.01	DC	56.29

Bus #	Bus	MW Impact
315073	1STONECA	13.17
315074	1HOPCGN1	15.88
315075	1HOPCGN2	15.67
315076	1HOPPOLC	2.22
315077	1HOPHCF1	3.47
315078	1HOPHCF2	3.47
315079	1HOPHCF3	3.47
315080	1HOPHCF4	5.26
315090	1YORKTN1	11.37
315091	1YORKTN2	11.8
315116	1SURREY 1	16.54
315120	1GRAVEL4	1.7
315122	1GRAVEL6	1.7
916192	Z1-068 E	0.75
924811	AB2-134 C O1	2.08
924812	AB2-134 E O1	16.23
925331	AB2-190 C	28.2
925332	AB2-190 E	12.09
925522	AC1-027 E	0.46
926662	AC1-147 E	0.56
927221	AC1-216 C O1	13.04
927222	AC1-216 E O1	10.26
932041	AC2-012 C	4.33
932042	AC2-012 E	7.07
933061	AC2-130	1.75
933732	AC2-196 E	0.45
934011	AD1-025 C	22.42
934012	AD1-025 E	13.28
934061	AD1-033 C	2.86
934062	AD1-033 E	1.9
935112	AD1-144 E	0.41
935161	AD1-151 C O1	22.66
935162	AD1-151 E O1	15.11
936041	AD2-007	2.38
936051	AD2-008 C	3.9
936052	AD2-008 E	8.5
936391	AD2-049 C	0.82
936392	AD2-049 E	0.82
937251	AD2-164	2.01
937541	AD2-215 C	0.75
937542	AD2-215 E	0.4
939311	AE1-162 C	1.54

Bus #	Bus	MW Impact
939312	AE1-162 E	1.03
940251	AE2-007	72.32
940542	AE2-040 BAT	1.24
940891	AE2-078 C	1.96
940892	AE2-078 E	1.01
940901	AE2-079 C	1.96
940902	AE2-079 E	1.01
940911	AE2-080 C	1.96
940912	AE2-080 E	1.01
941281	AE2-122 C O1	11.26
941282	AE2-122 E O1	45.44
941291	AE2-123 C O1	11.57
941292	AE2-123 E O1	45.13
941301	AE2-124 C O1	10.45
941302	AE2-124 E O1	45.84
941591	AE2-156	7.57
942551	AE2-270	37.8
CARR	CARR	0.17
CBM-S1	CBM-S1	0.92
CBM-S2	CBM-S2	1.5
CBM-W1	CBM-W1	0.3
CBM-W2	CBM-W2	5.4
CIN	CIN	0.18
CPL	CPL	0.78
G-007	G-007	0.53
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.59
O-066	O-066	3.37
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.04

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842250	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	166.87	169.31	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940471	AE2-031 C O1	11.6
940491	AE2-034 C	2.86
940641	AE2-051 C O1	4.65
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O1	1.28
941281	AE2-122 C O1	11.59
941291	AE2-123 C O1	11.92
941301	AE2-124 C O1	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.29
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O1	14.4
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

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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
1841801	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	117.15	120.47	DC	21.63

Bus #	Bus	MW Impact
940251	AE2-007	263.29
941281	AE2-122 C O1	4.99
941282	AE2-122 E O1	20.13
941291	AE2-123 C O1	5.13
941292	AE2-123 E O1	20.0
941301	AE2-124 C O1	4.01
941302	AE2-124 E O1	17.61
941592	AE2-156 BAT	12.7
CBM-N	CBM-N	0.01
CBM-S1	CBM-S1	0.1
CBM-S2	CBM-S2	0.09
CBM-W1	CBM-W1	0.14
CBM-W2	CBM-W2	0.68
CIN	CIN	0.06
CPL	CPL	0.05
G-007A	G-007A	0.02
IPL	IPL	0.04
LGEE	LGEE	0.02
MEC	MEC	0.12
MECS	MECS	0.07
NYISO	NYISO	0.03
VFT	VFT	0.05
WEC	WEC	0.02

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841842	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	109.01	112.1	DC	20.12

Bus #	Bus	MW Impact
940251	AE2-007	244.98
941281	AE2-122 C O1	4.64
941282	AE2-122 E O1	18.73
941291	AE2-123 C O1	4.77
941292	AE2-123 E O1	18.6
941301	AE2-124 C O1	3.73
941302	AE2-124 E O1	16.39
941592	AE2-156 BAT	11.82
CBM-N	CBM-N	0.01
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.08
CBM-W1	CBM-W1	0.12
CBM-W2	CBM-W2	0.64
CIN	CIN	0.05
CPL	CPL	0.04
G-007A	G-007A	0.01
IPL	IPL	0.03
LGEE	LGEE	0.02
MEC	MEC	0.11
MECS	MECS	0.07
NYISO	NYISO	0.02
VFT	VFT	0.04
WEC	WEC	0.01

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7902700	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	137.34	139.15	DC	8.19

Bus #	Bus	MW Impact
314507	3THOMPSN	0.07
314589	3MURPHYS	0.04
314638	6ELIZ CT	0.07
314639	6TANGLEW	0.14
314643	3O INLET	0.12
315098	1CHESPKA	0.1
315099	1CHESPKB	0.24
315115	1S HAMPT1	0.5
315126	1ROARAP2	0.41
315128	1ROARAP4	0.39
315136	1ROSEMG1	0.62
315137	1ROSEMS1	0.38
315138	1ROSEMG2	0.29
315139	1GASTONA	0.96
315141	1GASTONB	0.96
315260	1GOSPORTA	0.08
315261	1GOSPORTB	0.1
315262	1GOSPORTC	0.08
315292	1DOMTR78	1.14
315293	1DOMTR9	0.93
315294	1DOMTR10	1.69
901081	W1-029 C	0.42
916041	Z1-036 C	0.51
916191	Z1-068 C	0.01
917331	Z2-043 C	0.2
917511	Z2-088 C OP1	1.34
918491	AA1-063AC OP	0.61
918511	AA1-065 C OP	1.15
918531	AA1-067 C	0.36
918561	AA1-072 C	0.03
919151	AA1-139 C	0.66
919691	AA2-053 C	0.54
920041	AA2-088 C OP	0.39
920671	AA2-174 C	0.02
920691	AA2-178 C	0.95
923801	AB2-015 C O1	3.81
923831	AB2-022 C	0.12
923911	AB2-031 C O1	0.79
923991	AB2-040 C O1	0.32
924491	AB2-098 C	0.99
924501	AB2-099 C	0.47

Bus #	Bus	MW Impact
924511	AB2-100 C	3.88
925061	AB2-161 C O1	1.01
925121	AB2-169 C	1.03
925171	AB2-174 C O1	2.41
925521	AC1-027 C	0.07
926071	AC1-086 C	8.9
926201	AC1-098 C	2.58
926211	AC1-099 C	0.87
926661	AC1-147 C	0.08
927021	AC1-189 C	12.0
930861	AB1-132 C O1	0.74
931231	AB1-173 C	0.1
931241	AB1-173AC	0.1
932041	AC2-012 C	3.0
932591	AC2-079 C O1	1.89
932631	AC2-084 C	3.68
933731	AC2-196 C	0.07
933991	AD1-023 C	12.68
934061	AD1-033 C	2.36
934201	AD1-047 C	2.84
934521	AD1-076 C	50.93
934571	AD1-082 C	2.31
935111	AD1-144 C	0.07
936401	AD2-051 C O1	7.58
936661	AD2-085 C	1.13
936701	AD2-089 C	5.03
936711	AD2-090 C O1	3.34
937221	AD2-160 C O1	2.04
937541	AD2-215 C	0.59
937571	AD2-169 C	3.66
938171	AE1-026 C1 O	27.49
938172	AE1-026 C2 O	3.98
938181	AE1-027 C	0.77
938191	AE1-028 C	0.44
938221	AE1-035 C	2.35
938531	AE1-072 C O1	6.59
938661	AE1-088	4.36
938771	AE1-103 C O1	1.57
939071	AE1-135 C O1	6.73
940061	AE1-248 C O1	4.8
940251	AE2-007	50.77
940491	AE2-034 C	6.83
940521	AE2-037 C O1	6.62
941101	AE2-104 C O1	1.25
941281	AE2-122 C O1	8.73
941291	AE2-123 C O1	8.97
941301	AE2-124 C O1	8.19
941501	AE2-147 C	7.92
941541	AE2-151 C	0.94
941591	AE2-156	5.25
942131	AE2-225 C	0.77
942171	AE2-229 C	0.77

Bus #	Bus	MW Impact
942341	AE2-247 C	0.49
942401	AE2-253 C	2.14
942471	AE2-260 C O1	4.64
942851	AE2-304 C	0.35
943171	AE2-346 C	1.41
AC1-131	AC1-131	6.95
BLUEG	BLUEG	9.16
CALDERWOOD	CALDERWOOD	1.99
CANNELTON	CANNELTON	0.63
CATAWBA	CATAWBA	1.96
CBM-N	CBM-N	0.29
CHEOAH	CHEOAH	1.86
CHILHOWEE	CHILHOWEE	0.64
COFFEEN	COFFEEN	1.09
COTTONWOOD	COTTONWOOD	6.67
DUCKCREEK	DUCKCREEK	2.22
EDWARDS	EDWARDS	0.99
ELMERSMITH	ELMERSMITH	1.12
FARMERCITY	FARMERCITY	0.79
G-007A	G-007A	1.31
GIBSON	GIBSON	0.4
HAMLET	HAMLET	4.21
NEWTON	NEWTON	2.83
NYISO	NYISO	1.24
PRAIRIE	PRAIRIE	6.0
SANTEETLA	SANTEETLA	0.55
SMITHLAND	SMITHLAND	0.54
TATANKA	TATANKA	1.34
TILTON	TILTON	1.16
TRIMBLE	TRIMBLE	1.0
TVA	TVA	5.58
UNIONPOWER	UNIONPOWER	2.77
VFT	VFT	3.49

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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
7903295	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	108.08	109.32	DC	10.16

Bus #	Bus	MW Impact
314421	6WINCHST	0.04
314507	3THOMPSN	0.1
315090	1YORKTN1	10.65
315091	1YORKTN2	11.05
315092	1YORKTN3	6.44
315098	1CHESPKA	0.13
315099	1CHESPKB	0.31
315102	1BRUNSWICKG1	4.13
315103	1BRUNSWICKG2	4.13
315104	1BRUNSWICKG3	4.13
315105	1BRUNSWICKS1	8.59
315108	1ELIZAR1	0.93
315109	1ELIZAR2	0.92
315110	1ELIZAR3	0.94
315116	1SURRY 1	6.74
315153	1CLOVER1	16.29
315154	1CLOVER2	16.08
315191	1BEARGRDN G1	1.24
315192	1BEARGRDN G2	1.24
315193	1BEARGRDN S1	2.54
315233	1SURRY 2	7.49
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
916191	Z1-068 C	0.01
916301	Z1-086 C	24.14
920291	AA2-127	0.26
924031	AB2-045 C	0.15
925521	AC1-027 C	0.09
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.14
932041	AC2-012 C	3.97
932511	AC2-071 C	0.15
933291	AC2-141 C	13.14
933731	AC2-196 C	0.08
934061	AD1-033 C	2.86
934233	AD1-050 BAT	5.08
934621	AD1-088 C	17.85
937251	AD2-164	1.77
938181	AE1-027 C	0.87
938191	AE1-028 C	0.51

Bus #	Bus	MW Impact
938491	AE1-068 C O1	38.23
938501	AE1-069 C O1	30.93
939311	AE1-162 C	0.81
939411	AE1-173 C	43.23
940251	AE2-007	67.63
940471	AE2-031 C O1	15.34
940641	AE2-051 C O1	8.77
940891	AE2-078 C	0.87
940901	AE2-079 C	0.87
940911	AE2-080 C	0.87
941031	AE2-094 C	23.49
941281	AE2-122 C O1	10.89
941291	AE2-123 C O1	11.19
941301	AE2-124 C O1	10.16
941591	AE2-156	6.99
941791	AE2-182 C	3.23
942211	AE2-233 C	7.68
942921	AE2-311 C O1	22.14
942931	AE2-313 C	23.68
943051	AE2-328 C	11.8
AC1-131	AC1-131	9.78
BLUEG	BLUEG	18.52
CALDERWOOD	CALDERWOOD	3.67
CANNELTON	CANNELTON	1.25
CATAWBA	CATAWBA	3.52
CBM-N	CBM-N	0.67
CHEOAH	CHEOAH	3.42
CHILHOWEE	CHILHOWEE	1.19
COFFEEN	COFFEEN	2.13
COTTONWOOD	COTTONWOOD	12.22
DUCKCREEK	DUCKCREEK	4.38
EDWARDS	EDWARDS	1.96
ELMERSMITH	ELMERSMITH	2.2
FARMERCITY	FARMERCITY	1.53
G-007A	G-007A	3.0
GIBSON	GIBSON	0.79
HAMLET	HAMLET	6.6
NEWTON	NEWTON	5.55
NYISO	NYISO	2.9
PRAIRIE	PRAIRIE	11.52
SANTEETLA	SANTEETLA	1.02
SMITHLAND	SMITHLAND	1.02
TATANKA	TATANKA	2.59
TILTON	TILTON	2.32
TRIMBLE	TRIMBLE	2.04
TVA	TVA	10.31
UNIONPOWER	UNIONPOWER	5.07
VFT	VFT	7.99

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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
1842177	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	152.55	154.43	DC	46.05

Bus #	Bus	MW Impact
314421	6WINCHST	0.19
314507	3THOMPSN	0.43
314638	6ELIZ CT	0.28
314639	6TANGLEW	0.5
314643	3O INLET	0.56
315074	1HOPCGN1	9.52
315075	1HOPCGN2	9.4
315090	1YORKTN1	50.95
315091	1YORKTN2	52.87
315092	1YORKTN3	30.89
315098	1CHESPKA	0.56
315099	1CHESPKB	1.4
315108	1ELIZAR1	4.14
315109	1ELIZAR2	4.07
315110	1ELIZAR3	4.2
315116	1SURRY 1	28.48
315120	1GRAVEL4	2.93
315121	1GRAVEL5	2.89
315122	1GRAVEL6	2.93
315131	1EDGECEMA	11.15
315132	1EDGECEMB	11.15
315233	1SURRY 2	37.58
315260	1GOSPORTA	0.45
315261	1GOSPORTB	0.57
315262	1GOSPORTC	0.49
901081	W1-029 C	1.38
916041	Z1-036 C	1.34
916191	Z1-068 C	0.06
919151	AA1-139 C	3.13
919701	AA2-057 C	8.79
923801	AB2-015 C O1	12.96
923831	AB2-022 C	0.47
923841	AB2-024 C	0.47
923911	AB2-031 C O1	2.78
924241	AB2-068 O1	607.0
924491	AB2-098 C	0.76
924501	AB2-099 C	0.82
924511	AB2-100 C	14.25
925061	AB2-161 C O1	4.78
925171	AB2-174 C O1	8.68
925331	AB2-190 C	27.02

Bus #	Bus	MW Impact
925521	AC1-027 C	0.42
925591	AC1-034 C	8.21
925861	AC1-065 C	5.05
926071	AC1-086 C	26.3
926201	AC1-098 C	7.92
926211	AC1-099 C	2.65
926291	AC1-107 O1	916.22
926661	AC1-147 C	0.48
926751	AC1-161 C O1	56.99
926781	AC1-164 C	64.03
927021	AC1-189 C	11.37
927141	AC1-208 C	11.41
927221	AC1-216 C O1	13.51
932041	AC2-012 C	17.66
932581	AC2-078 C O1	5.08
932591	AC2-079 C O1	8.71
932631	AC2-084 C	11.29
932831	AC2-110 C	2.02
933061	AC2-130	2.81
933291	AC2-141 C	56.99
933731	AC2-196 C	0.38
933991	AD1-023 C	19.45
934011	AD1-025 C	23.23
934061	AD1-033 C	13.04
934141	AD1-041 C	8.0
934201	AD1-047 C	9.95
934331	AD1-057 C O1	12.33
934521	AD1-076 C	81.69
934571	AD1-082 C	10.9
935111	AD1-144 C	0.35
935161	AD1-151 C O1	21.71
936041	AD2-007	2.47
936051	AD2-008 C	4.04
936151	AD2-021	0.3
936241	AD2-030 C	3.51
936301	AD2-039 C	2.02
936391	AD2-049 C	3.09
936401	AD2-051 C O1	12.17
936531	AD2-068 C	6.41
936591	AD2-074 C	7.02
936661	AD2-085 C	5.21
936701	AD2-089 C	9.09
936711	AD2-090 C O1	10.57
937221	AD2-160 C O1	10.08
937251	AD2-164	8.44
937541	AD2-215 C	2.93
937571	AD2-169 C	12.48
938031	AE1-004 C	2.02
938171	AE1-026 C1 O	41.09
938172	AE1-026 C2 O	5.94
938181	AE1-027 C	4.05
938191	AE1-028 C	2.35

Bus #	Bus	MW Impact
938221	AE1-035 C	3.18
938491	AE1-068 C O1	82.21
938501	AE1-069 C O1	64.27
938531	AE1-072 C O1	30.01
938631	AE1-085 C O1	13.85
938661	AE1-088	2.52
938771	AE1-103 C O1	5.53
939071	AE1-135 C O1	25.53
939191	AE1-149 C O1	13.01
939241	AE1-155 C	18.61
939311	AE1-162 C	3.48
939411	AE1-173 C	139.64
939421	AE1-174 C	0.63
939431	AE1-175 C	4.2
939611	AE1-191 C	16.0
940061	AE1-248 C O1	22.66
940231	AE2-005 C	2.02
940251	AE2-007	300.6
940471	AE2-031 C O1	53.95
940481	AE2-033 C	19.16
940491	AE2-034 C	12.98
940521	AE2-037 C O1	11.09
940541	AE2-040	3.83
940551	AE2-041	11.04
940571	AE2-044 C	5.38
940641	AE2-051 C O1	25.53
940651	AE2-052	4.36
940891	AE2-078 C	3.73
940901	AE2-079 C	3.73
940911	AE2-080 C	3.73
941031	AE2-094 C	53.94
941101	AE2-104 C O1	5.69
941281	AE2-122 C O1	49.27
941291	AE2-123 C O1	50.64
941301	AE2-124 C O1	46.05
941501	AE2-147 C	26.21
941541	AE2-151 C	1.51
941591	AE2-156	31.06
941601	AE2-157 C O1	14.53
941951	AE2-207	3.47
942131	AE2-225 C	3.61
942171	AE2-229 C	3.61
942211	AE2-233 C	17.62
942341	AE2-247 C	2.26
942401	AE2-253 C	10.6
942471	AE2-260 C O1	17.59
942531	AE2-268 C	2.64
942551	AE2-270	36.21
942711	AE2-287 C O1	14.65
942851	AE2-304 C	1.03
942921	AE2-311 C O1	71.62
942931	AE2-313 C	48.46

Bus #	Bus	MW Impact
943171	AE2-346 C	2.45
AA2-074	AA2-074	6.33
CARR	CARR	1.23
CBM-S1	CBM-S1	12.44
CBM-S2	CBM-S2	17.46
CBM-W1	CBM-W1	8.49
CBM-W2	CBM-W2	77.11
CIN	CIN	4.07
CPL	CPL	9.31
IPL	IPL	2.49
LGEE	LGEE	1.19
MEC	MEC	10.39
MECS	MECS	1.96
RENSSELAER	RENSSELAER	0.97
WEC	WEC	1.08

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842390	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.9	132.45	DC	29.07

Bus #	Bus	MW Impact
314229	6MT RD221	0.1
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.28
314309	6IRON208	0.37
315037	1LDYSMT1	3.81
315038	1LDYSMT2	3.8
315039	1LDYSMT3	4.02
315040	1LDYSMT4	4.03
315041	1LDYSMT5	4.04
315043	1FOUR RIVERA	3.02
315044	1FOUR RIVERB	2.34
315045	1FOUR RIVERC	3.02
315046	1FOUR RIVERD	2.34
315047	1FOUR RIVERE	2.34
315048	1FOUR RIVERF	3.02
315053	1BELMED1	19.48
315054	1BELMED2	19.48
315055	1BELMED3	16.17
315058	1CHESTF3	20.44
315059	1CHESTF4	33.13
315067	1DARBY 1	2.16
315068	1DARBY 2	2.16
315069	1DARBY 3	2.17
315070	1DARBY 4	2.17
315074	1HOPCGN1	9.37
315075	1HOPCGN2	9.25
315083	1SPRUNCA	11.93
315084	1SPRUNCB	11.93
315085	1SPRUNCC	8.84
315086	1SPRUNCD	8.84
315090	1YORKTN1	31.8
315091	1YORKTN2	33.0
315225	1N ANNA1	30.98
315226	1N ANNA2	31.05
919211	AA1-145	8.72
923801	AB2-015 C O1	9.06
924061	AB2-050	0.51
924241	AB2-068 O1	226.15
924501	AB2-099 C	0.59
924511	AB2-100 C	11.8
925051	AB2-160 C O1	6.09

Bus #	Bus	MW Impact
925061	AB2-161 C O1	3.71
925331	AB2-190 C	22.46
925861	AC1-065 C	3.76
926001	AC1-076 C	4.92
926291	AC1-107 O1	341.36
926411	AC1-112 C	0.28
926551	AC1-134	1.28
926731	AC1-158 C	93.16
926751	AC1-161 C O1	33.44
926781	AC1-164 C	45.47
927041	AC1-191 C O1	10.76
927221	AC1-216 C O1	10.98
930121	AB1-027 C	0.36
932041	AC2-012 C	11.19
932501	AC2-070 C	0.23
932581	AC2-078 C O1	4.49
932591	AC2-079 C O1	6.26
932831	AC2-110 C	1.5
933011	AC2-125	3.08
933021	AC2-126	3.1
933061	AC2-130	2.7
933261	AC2-137 C	0.29
933291	AC2-141 C	33.44
933991	AD1-023 C	13.49
934011	AD1-025 C	18.87
934061	AD1-033 C	8.21
934141	AD1-041 C	5.9
934211	AD1-048 C	0.34
934521	AD1-076 C	56.18
934541	AD1-078 C	3.04
934571	AD1-082 C	8.45
934781	AD1-105 C	7.77
935161	AD1-151 C O1	18.05
936041	AD2-007	2.0
936051	AD2-008 C	3.28
936151	AD2-021	0.27
936241	AD2-030 C	2.56
936301	AD2-039 C	1.5
936341	AD2-044 C	0.26
936391	AD2-049 C	1.98
936591	AD2-074 C	5.92
936661	AD2-085 C	3.76
936711	AD2-090 C O1	7.49
937221	AD2-160 C O1	6.37
937251	AD2-164	5.32
937541	AD2-215 C	1.91
938031	AE1-004 C	1.5
938171	AE1-026 C1 O	28.67
938172	AE1-026 C2 O	4.15
938181	AE1-027 C	2.56
938191	AE1-028 C	1.48
938221	AE1-035 C	2.27

Bus #	Bus	MW Impact
938491	AE1-068 C O1	59.76
938501	AE1-069 C O1	46.84
938531	AE1-072 C O1	19.07
938551	AE1-074 C	2.74
938561	AE1-075 C	2.13
938631	AE1-085 C O1	12.05
938771	AE1-103 C O1	3.84
939071	AE1-135 C O1	21.27
939191	AE1-149 C O1	11.85
939241	AE1-155 C	16.04
939261	AE1-157 C O1	16.17
939271	AE1-158 C O1	16.5
939311	AE1-162 C	2.37
939411	AE1-173 C	93.79
939421	AE1-174 C	0.21
939431	AE1-175 C	2.69
939611	AE1-191 C	11.81
939751	AE1-206 C O1	37.97
940061	AE1-248 C O1	17.55
940071	AE1-249 C	8.03
940231	AE2-005 C	1.5
940251	AE2-007	190.05
940431	AE2-027 C O1	14.53
940471	AE2-031 C O1	34.27
940481	AE2-033 C	16.54
940491	AE2-034 C	8.77
940541	AE2-040	3.32
940551	AE2-041	7.96
940641	AE2-051 C O1	17.58
940651	AE2-052	3.97
940891	AE2-078 C	2.63
940901	AE2-079 C	2.63
940911	AE2-080 C	2.63
941031	AE2-094 C	39.03
941101	AE2-104 C O1	3.79
941141	AE2-108 C	1.44
941151	AE2-109 C	0.5
941281	AE2-122 C O1	31.12
941291	AE2-123 C O1	31.98
941301	AE2-124 C O1	29.07
941381	AE2-134	3.14
941501	AE2-147 C	17.01
941581	AE2-155 C	0.73
941591	AE2-156	19.66
941601	AE2-157 C O1	11.74
942001	AE2-212 C	2.41
942131	AE2-225 C	2.32
942151	AE2-227 C O1	2.41
942161	AE2-228 C O1	2.41
942171	AE2-229 C	2.32
942191	AE2-231 C O1	6.25
942211	AE2-233 C	12.75

Bus #	Bus	MW Impact
942341	AE2-247 C	1.63
942371	AE2-250 C O1	10.81
942401	AE2-253 C	6.7
942471	AE2-260 C O1	14.66
942531	AE2-268 C	1.91
942551	AE2-270	30.11
942851	AE2-304 C	0.67
942921	AE2-311 C O1	47.1
942931	AE2-313 C	35.26
943171	AE2-346 C	1.78
AA2-074	AA2-074	5.17
CARR	CARR	1.69
CBM-S1	CBM-S1	12.53
CBM-S2	CBM-S2	15.0
CBM-W1	CBM-W1	9.06
CBM-W2	CBM-W2	77.46
CIN	CIN	4.6
CPLE	CPLE	7.61
IPL	IPL	2.84
LGEE	LGEE	1.38
MEC	MEC	10.87
MECS	MECS	2.05
RENSSELAER	RENSSELAER	1.34
WEC	WEC	1.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842056	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.94	166.85	DC	47.93

Bus #	Bus	MW Impact
314229	6MT RD221	0.17
314236	6NRTHEST	0.26
314309	6IRON208	0.62
314421	6WINCHST	0.2
315053	1BELMED1	31.5
315054	1BELMED2	31.5
315055	1BELMED3	26.14
315058	1CHESTF3	33.46
315059	1CHESTF4	54.23
315060	1CHESTF5	13.99
315061	1CHESTG7	5.48
315062	1CHESTS7	2.49
315063	1CHESTG8	5.38
315064	1CHESTS8	2.77
315067	1DARBY 1	3.58
315068	1DARBY 2	3.58
315069	1DARBY 3	3.6
315070	1DARBY 4	3.6
315074	1HOPCGN1	15.43
315075	1HOPCGN2	15.23
315076	1HOPPOLC	2.16
315077	1HOPHCF1	3.37
315078	1HOPHCF2	3.37
315079	1HOPHCF3	3.37
315080	1HOPHCF4	5.12
315083	1SPRUNCA	19.06
315084	1SPRUNCB	19.06
315085	1SPRUNCC	14.13
315086	1SPRUNCD	14.13
315090	1YORKTN1	53.19
315091	1YORKTN2	55.2
315092	1YORKTN3	32.17
315233	1SURRY 2	34.94
923801	AB2-015 C O1	14.83
924241	AB2-068 O1	427.69
924501	AB2-099 C	0.97
924511	AB2-100 C	19.0
925051	AB2-160 C O1	9.87
925061	AB2-161 C O1	6.05
925331	AB2-190 C	37.05
925861	AC1-065 C	6.02

Bus #	Bus	MW Impact
926291	AC1-107 O1	645.57
926411	AC1-112 C	0.47
926751	AC1-161 C O1	55.47
926781	AC1-164 C	77.58
927041	AC1-191 C O1	17.01
927221	AC1-216 C O1	18.11
930121	AB1-027 C	0.6
932041	AC2-012 C	18.46
932501	AC2-070 C	0.39
932581	AC2-078 C O1	7.31
932591	AC2-079 C O1	10.25
932831	AC2-110 C	2.41
933061	AC2-130	4.5
933261	AC2-137 C	0.48
933291	AC2-141 C	55.47
933991	AD1-023 C	22.13
934011	AD1-025 C	31.13
934061	AD1-033 C	13.54
934141	AD1-041 C	9.39
934211	AD1-048 C	0.56
934521	AD1-076 C	92.19
934571	AD1-082 C	13.8
935161	AD1-151 C O1	29.78
936041	AD2-007	3.3
936051	AD2-008 C	5.42
936151	AD2-021	0.45
936241	AD2-030 C	4.04
936301	AD2-039 C	2.41
936391	AD2-049 C	3.3
936401	AD2-051 C O1	14.41
936661	AD2-085 C	6.15
936711	AD2-090 C O1	12.24
937221	AD2-160 C O1	10.5
937251	AD2-164	8.88
937541	AD2-215 C	3.15
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.0
938172	AE1-026 C2 O	6.8
938181	AE1-027 C	4.21
938191	AE1-028 C	2.44
938221	AE1-035 C	3.72
938491	AE1-068 C O1	93.03
938501	AE1-069 C O1	72.97
938531	AE1-072 C O1	31.41
938551	AE1-074 C	4.27
938631	AE1-085 C O1	19.6
938661	AE1-088	2.91
938771	AE1-103 C O1	6.28
939071	AE1-135 C O1	34.22
939191	AE1-149 C O1	19.26
939311	AE1-162 C	3.92
939411	AE1-173 C	149.1

Bus #	Bus	MW Impact
939421	AE1-174 C	0.68
939431	AE1-175 C	4.54
939611	AE1-191 C	18.79
939751	AE1-206 C O1	50.23
940061	AE1-248 C O1	28.67
940071	AE1-249 C	13.03
940231	AE2-005 C	2.41
940251	AE2-007	313.38
940431	AE2-027 C O1	23.66
940471	AE2-031 C O1	55.28
940481	AE2-033 C	26.48
940491	AE2-034 C	14.4
940521	AE2-037 C O1	13.19
940541	AE2-040	5.32
940551	AE2-041	12.87
940641	AE2-051 C O1	27.59
940651	AE2-052	6.45
940891	AE2-078 C	4.35
940901	AE2-079 C	4.35
940911	AE2-080 C	4.35
941031	AE2-094 C	60.66
941101	AE2-104 C O1	6.23
941281	AE2-122 C O1	51.3
941291	AE2-123 C O1	52.72
941301	AE2-124 C O1	47.93
941501	AE2-147 C	28.0
941541	AE2-151 C	1.79
941581	AE2-155 C	1.23
941591	AE2-156	32.42
941601	AE2-157 C O1	19.15
942001	AE2-212 C	3.9
942131	AE2-225 C	3.82
942151	AE2-227 C O1	3.9
942161	AE2-228 C O1	3.9
942171	AE2-229 C	3.82
942211	AE2-233 C	19.82
942341	AE2-247 C	2.67
942371	AE2-250 C O1	17.54
942401	AE2-253 C	11.05
942471	AE2-260 C O1	23.59
942531	AE2-268 C	3.08
942551	AE2-270	49.66
942851	AE2-304 C	1.11
942921	AE2-311 C O1	75.07
942931	AE2-313 C	54.81
943171	AE2-346 C	2.9
AA2-074	AA2-074	8.65
CARR	CARR	2.59
CBM-S1	CBM-S1	26.67
CBM-S2	CBM-S2	26.03
CBM-W1	CBM-W1	27.93
CBM-W2	CBM-W2	174.04

Bus #	Bus	MW Impact
CIN	CIN	13.03
CPLE	CPLE	12.72
IPL	IPL	8.21
LGEE	LGEE	3.84
MEC	MEC	27.75
MECS	MECS	11.64
RENSSELAER	RENSSELAER	2.05
WEC	WEC	3.42
Z1-043	Z1-043	13.47

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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
1842510	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	121.14	121.63	DC	29.55

Bus #	Bus	MW Impact
314229	6MT RD221	0.1
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.28
314309	6IRON208	0.38
315037	1LDYSMT1	3.9
315038	1LDYSMT2	3.9
315039	1LDYSMT3	4.13
315040	1LDYSMT4	4.14
315041	1LDYSMT5	4.15
315043	1FOUR RIVERA	3.08
315044	1FOUR RIVERB	2.39
315045	1FOUR RIVERC	3.08
315046	1FOUR RIVERD	2.39
315047	1FOUR RIVERE	2.39
315048	1FOUR RIVERF	3.08
315053	1BELMED1	19.81
315054	1BELMED2	19.81
315055	1BELMED3	16.44
315058	1CHESTF3	20.8
315059	1CHESTF4	33.71
315067	1DARBY 1	2.2
315068	1DARBY 2	2.2
315069	1DARBY 3	2.21
315070	1DARBY 4	2.21
315074	1HOPCGN1	9.53
315075	1HOPCGN2	9.41
315083	1SPRUNCA	12.12
315084	1SPRUNCB	12.12
315085	1SPRUNCC	8.99
315086	1SPRUNCD	8.99
315090	1YORKTN1	32.35
315091	1YORKTN2	33.57
315225	1N ANNA1	31.47
315226	1N ANNA2	31.54
919211	AA1-145	8.91
923801	AB2-015 C O1	9.19
923911	AB2-031 C O1	2.27
924061	AB2-050	0.52
924241	AB2-068 O1	230.43
924501	AB2-099 C	0.6
924511	AB2-100 C	11.97

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.19
925061	AB2-161 C O1	3.77
925171	AB2-174 C O1	7.15
925331	AB2-190 C	22.85
925861	AC1-065 C	3.83
926291	AC1-107 O1	347.82
926411	AC1-112 C	0.28
926551	AC1-134	1.31
926751	AC1-161 C O1	33.98
926781	AC1-164 C	46.3
927041	AC1-191 C O1	10.97
927221	AC1-216 C O1	11.16
930121	AB1-027 C	0.36
932041	AC2-012 C	11.38
932501	AC2-070 C	0.24
932581	AC2-078 C O1	4.57
932591	AC2-079 C O1	6.36
932831	AC2-110 C	1.53
933011	AC2-125	3.16
933021	AC2-126	3.18
933061	AC2-130	2.75
933261	AC2-137 C	0.29
933291	AC2-141 C	33.98
933991	AD1-023 C	13.69
934011	AD1-025 C	19.19
934061	AD1-033 C	8.35
934141	AD1-041 C	6.01
934201	AD1-047 C	8.14
934211	AD1-048 C	0.34
934521	AD1-076 C	57.01
934571	AD1-082 C	8.58
934781	AD1-105 C	7.94
935161	AD1-151 C O1	18.36
936041	AD2-007	2.04
936051	AD2-008 C	3.34
936151	AD2-021	0.27
936241	AD2-030 C	2.61
936301	AD2-039 C	1.53
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.94
936581	AD2-073 C	2.27
936591	AD2-074 C	6.04
936661	AD2-085 C	3.82
936711	AD2-090 C O1	7.6
937221	AD2-160 C O1	6.48
937251	AD2-164	5.41
937541	AD2-215 C	1.94
938031	AE1-004 C	1.53
938171	AE1-026 C1 O	29.09
938172	AE1-026 C2 O	4.21
938181	AE1-027 C	2.6

Bus #	Bus	MW Impact
938191	AE1-028 C	1.51
938221	AE1-035 C	2.3
938491	AE1-068 C O1	60.62
938501	AE1-069 C O1	47.51
938531	AE1-072 C O1	19.37
938551	AE1-074 C	2.79
938561	AE1-075 C	2.13
938631	AE1-085 C O1	12.25
938661	AE1-088	1.8
938771	AE1-103 C O1	3.89
939071	AE1-135 C O1	21.58
939191	AE1-149 C O1	12.05
939241	AE1-155 C	16.37
939261	AE1-157 C O1	16.56
939271	AE1-158 C O1	16.9
939311	AE1-162 C	2.41
939411	AE1-173 C	95.24
939421	AE1-174 C	0.22
939431	AE1-175 C	2.74
939611	AE1-191 C	12.03
939751	AE1-206 C O1	38.74
940061	AE1-248 C O1	17.84
940071	AE1-249 C	8.16
940231	AE2-005 C	1.53
940251	AE2-007	193.14
940431	AE2-027 C O1	14.78
940471	AE2-031 C O1	34.82
940481	AE2-033 C	16.79
940491	AE2-034 C	8.9
940521	AE2-037 C O1	8.18
940541	AE2-040	3.37
940551	AE2-041	8.11
940641	AE2-051 C O1	17.85
940651	AE2-052	4.04
940891	AE2-078 C	2.67
940901	AE2-079 C	2.67
940911	AE2-080 C	2.67
941031	AE2-094 C	39.6
941101	AE2-104 C O1	3.85
941141	AE2-108 C	1.47
941151	AE2-109 C	0.51
941281	AE2-122 C O1	31.62
941291	AE2-123 C O1	32.5
941301	AE2-124 C O1	29.55
941501	AE2-147 C	17.28
941541	AE2-151 C	1.11
941581	AE2-155 C	0.74
941591	AE2-156	19.98
941601	AE2-157 C O1	11.94
942001	AE2-212 C	2.45
942131	AE2-225 C	2.36
942151	AE2-227 C O1	2.45

Bus #	Bus	MW Impact
942161	AE2-228 C O1	2.45
942171	AE2-229 C	2.36
942191	AE2-231 C O1	6.4
942211	AE2-233 C	12.94
942341	AE2-247 C	1.65
942371	AE2-250 C O1	10.99
942401	AE2-253 C	6.81
942471	AE2-260 C O1	14.87
942531	AE2-268 C	1.94
942551	AE2-270	30.62
942851	AE2-304 C	0.68
942921	AE2-311 C O1	47.83
942931	AE2-313 C	35.77
943171	AE2-346 C	1.8
AA2-074	AA2-074	5.23
CARR	CARR	1.69
CBM-S1	CBM-S1	12.54
CBM-S2	CBM-S2	15.13
CBM-W1	CBM-W1	8.95
CBM-W2	CBM-W2	77.39
CIN	CIN	4.55
CPL	CPL	7.68
IPL	IPL	2.81
LGEE	LGEE	1.37
MEC	MEC	10.81
MECS	MECS	1.96
RENSSELAER	RENSSELAER	1.34
WEC	WEC	1.16

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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
1842132	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	158.05	159.79	DC	42.59

Bus #	Bus	MW Impact
314507	3THOMPSN	0.39
314638	6ELIZ CT	0.26
314639	6TANGLEW	0.48
314643	3O INLET	0.52
315053	1BELMED1	25.0
315054	1BELMED2	25.0
315055	1BELMED3	20.75
315058	1CHESTF3	25.07
315059	1CHESTF4	40.64
315074	1HOPCGN1	12.09
315075	1HOPCGN2	11.93
315083	1SPRUNCA	16.01
315084	1SPRUNCB	16.01
315085	1SPRUNCC	11.87
315086	1SPRUNCD	11.87
315090	1YORKTN1	42.39
315091	1YORKTN2	43.99
315098	1CHESPKA	0.52
315099	1CHESPKB	1.3
315102	1BRUNSWICKG1	10.29
315103	1BRUNSWICKG2	10.29
315104	1BRUNSWICKG3	10.29
315105	1BRUNSWICKS1	21.38
315108	1ELIZAR1	3.83
315109	1ELIZAR2	3.76
315110	1ELIZAR3	3.88
315116	1SURRY 1	28.17
315120	1GRAVEL4	2.9
315122	1GRAVEL6	2.9
315131	1EDGECEMA	13.5
315132	1EDGECEMB	13.5
315233	1SURRY 2	28.7
315260	1GOSPORTA	0.42
315261	1GOSPORTB	0.53
315262	1GOSPORTC	0.45
901081	W1-029 C	1.33
916041	Z1-036 C	1.31
916191	Z1-068 C	0.05
916301	Z1-086 C	62.63
919151	AA1-139 C	2.92
919701	AA2-057 C	10.5

Bus #	Bus	MW Impact
923801	AB2-015 C O1	13.47
923831	AB2-022 C	0.45
923851	AB2-025 C	0.48
923911	AB2-031 C O1	3.43
924241	AB2-068 O1	244.96
924401	AB2-089 C	3.06
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	17.96
925051	AB2-160 C O1	8.18
925061	AB2-161 C O1	5.3
925171	AB2-174 C O1	10.78
925331	AB2-190 C	29.95
925521	AC1-027 C	0.39
925591	AC1-034 C	9.94
925781	AC1-054 C O1	10.4
925861	AC1-065 C	4.34
926071	AC1-086 C	31.57
926201	AC1-098 C	9.23
926211	AC1-099 C	3.09
926291	AC1-107 O1	369.74
926661	AC1-147 C	0.44
926751	AC1-161 C O1	49.05
926781	AC1-164 C	52.57
927021	AC1-189 C	12.94
927141	AC1-208 C	13.51
927221	AC1-216 C O1	14.71
932041	AC2-012 C	16.34
932581	AC2-078 C O1	6.31
932591	AC2-079 C O1	9.05
932631	AC2-084 C	13.15
932831	AC2-110 C	1.74
933061	AC2-130	3.3
933291	AC2-141 C	49.05
933501	AC2-165 C	14.51
933731	AC2-196 C	0.35
933991	AD1-023 C	20.32
934011	AD1-025 C	25.28
934061	AD1-033 C	12.05
934201	AD1-047 C	12.28
934231	AD1-050 C	6.74
934331	AD1-057 C O1	14.87
934521	AD1-076 C	84.44
934571	AD1-082 C	12.07
934611	AD1-087 C O1	12.14
934621	AD1-088 C	18.61
935111	AD1-144 C	0.33
935161	AD1-151 C O1	24.07
935171	AD1-152 C O1	12.06
935211	AD1-156 C	0.41
936041	AD2-007	2.68
936051	AD2-008 C	4.4

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936301	AD2-039 C	1.74
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.38
936531	AD2-068 C	7.57
936661	AD2-085 C	5.43
936701	AD2-089 C	10.68
936711	AD2-090 C O1	11.19
937221	AD2-160 C O1	9.37
937251	AD2-164	7.16
937481	AD2-202 C O1	3.34
937541	AD2-215 C	2.75
937571	AD2-169 C	15.28
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.23
938172	AE1-026 C2 O	6.25
938181	AE1-027 C	3.75
938191	AE1-028 C	2.18
938221	AE1-035 C	3.44
938491	AE1-068 C O1	102.49
938501	AE1-069 C O1	80.25
938531	AE1-072 C O1	28.04
938551	AE1-074 C	4.0
938561	AE1-075 C	3.29
938631	AE1-085 C O1	16.95
938661	AE1-088	2.7
938771	AE1-103 C O1	5.69
939071	AE1-135 C O1	32.36
939191	AE1-149 C O1	16.57
939311	AE1-162 C	3.34
939411	AE1-173 C	152.3
939421	AE1-174 C	0.27
939431	AE1-175 C	3.41
940061	AE1-248 C O1	25.09
940071	AE1-249 C	10.79
940231	AE2-005 C	1.74
940251	AE2-007	277.69
940431	AE2-027 C O1	18.86
940471	AE2-031 C O1	53.99
940481	AE2-033 C	25.04
940491	AE2-034 C	13.11
940521	AE2-037 C O1	12.26
940541	AE2-040	5.03
940551	AE2-041	9.18
940571	AE2-044 C	6.51
940641	AE2-051 C O1	29.47
940651	AE2-052	5.55
940891	AE2-078 C	3.6
940901	AE2-079 C	3.6
940911	AE2-080 C	3.6
941031	AE2-094 C	67.04
941101	AE2-104 C O1	5.55

Bus #	Bus	MW Impact
941281	AE2-122 C O1	45.57
941291	AE2-123 C O1	46.83
941301	AE2-124 C O1	42.59
941501	AE2-147 C	25.12
941541	AE2-151 C	1.66
941591	AE2-156	28.71
941601	AE2-157 C O1	16.68
941791	AE2-182 C	3.37
941951	AE2-207	4.21
942001	AE2-212 C	3.24
942131	AE2-225 C	3.41
942151	AE2-227 C O1	3.24
942161	AE2-228 C O1	3.24
942171	AE2-229 C	3.41
942211	AE2-233 C	21.91
942341	AE2-247 C	2.35
942371	AE2-250 C O1	14.54
942401	AE2-253 C	9.85
942471	AE2-260 C O1	22.3
942531	AE2-268 C	2.2
942551	AE2-270	40.14
942711	AE2-287 C O1	19.27
942851	AE2-304 C	1.0
942921	AE2-311 C O1	76.29
942931	AE2-313 C	60.47
943171	AE2-346 C	2.69
AA2-074	AA2-074	8.49
CARR	CARR	2.07
CBM-S1	CBM-S1	23.16
CBM-S2	CBM-S2	24.91
CBM-W1	CBM-W1	22.47
CBM-W2	CBM-W2	149.64
CIN	CIN	10.49
CPLE	CPLE	12.48
IPL	IPL	6.58
LGEE	LGEE	3.08
MEC	MEC	23.08
MECS	MECS	8.8
RENSSELAER	RENSSELAER	1.64
WEC	WEC	2.76
Z1-043	Z1-043	10.88

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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
1842615	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	118.1	118.56	DC	32.48

Bus #	Bus	MW Impact
314236	6NRTHEST	0.17
314250	6ROCKVILLE	0.3
314309	6IRON208	0.4
314314	3LOCKS	0.26
314507	3THOMPSN	0.3
315053	1BELMED1	21.1
315054	1BELMED2	21.1
315055	1BELMED3	17.52
315058	1CHESTF3	21.87
315059	1CHESTF4	35.45
315065	1CHESTF6	18.16
315074	1HOPCGN1	10.14
315075	1HOPCGN2	10.01
315076	1HOPPOLC	1.42
315077	1HOPHCF1	2.21
315078	1HOPHCF2	2.21
315079	1HOPHCF3	2.21
315080	1HOPHCF4	3.36
315083	1SPRUNCA	13.09
315084	1SPRUNCB	13.09
315085	1SPRUNCC	9.7
315086	1SPRUNCD	9.7
315090	1YORKTN1	34.62
315091	1YORKTN2	35.93
315098	1CHESPKA	0.4
315099	1CHESPKB	0.99
315108	1ELIZAR1	2.92
315109	1ELIZAR2	2.87
315110	1ELIZAR3	2.96
315225	1N ANNA1	45.34
315226	1N ANNA2	45.44
315233	1SURRY 2	22.66
315260	1GOSPORTA	0.32
315261	1GOSPORTB	0.41
315262	1GOSPORTC	0.34
923801	AB2-015 C O1	10.16
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	230.57
924501	AB2-099 C	0.67
924511	AB2-100 C	13.34
925051	AB2-160 C O1	6.67

Bus #	Bus	MW Impact
925061	AB2-161 C O1	4.12
925171	AB2-174 C O1	7.98
925331	AB2-190 C	24.5
925821	AC1-061	0.01
925861	AC1-065 C	3.98
926071	AC1-086 C	23.3
926291	AC1-107 O1	348.03
926661	AC1-147 C	0.34
926751	AC1-161 C O1	37.34
926781	AC1-164 C	47.75
927041	AC1-191 C O1	11.08
927221	AC1-216 C O1	11.98
932041	AC2-012 C	12.49
932581	AC2-078 C O1	4.97
932591	AC2-079 C O1	6.97
932831	AC2-110 C	1.59
933011	AC2-125	2.87
933021	AC2-126	2.88
933061	AC2-130	2.88
933291	AC2-141 C	37.34
933501	AC2-165 C	11.0
933991	AD1-023 C	15.17
934011	AD1-025 C	20.6
934061	AD1-033 C	9.18
934141	AD1-041 C	6.26
934201	AD1-047 C	9.08
934521	AD1-076 C	63.11
934571	AD1-082 C	9.38
935161	AD1-151 C O1	19.68
935211	AD1-156 C	0.32
936041	AD2-007	2.19
936051	AD2-008 C	3.59
936151	AD2-021	0.28
936241	AD2-030 C	2.72
936301	AD2-039 C	1.59
936391	AD2-049 C	2.17
936401	AD2-051 C O1	9.93
936591	AD2-074 C	6.19
936661	AD2-085 C	4.18
936711	AD2-090 C O1	8.4
937221	AD2-160 C O1	7.13
937251	AD2-164	5.81
937541	AD2-215 C	2.12
937571	AD2-169 C	11.29
938031	AE1-004 C	1.59
938171	AE1-026 C1 O	32.23
938172	AE1-026 C2 O	4.66
938181	AE1-027 C	2.86
938191	AE1-028 C	1.66
938221	AE1-035 C	2.55
938491	AE1-068 C O1	70.23
938501	AE1-069 C O1	55.02

Bus #	Bus	MW Impact
938531	AE1-072 C O1	21.32
938551	AE1-074 C	3.09
938561	AE1-075 C	2.45
938631	AE1-085 C O1	13.34
938661	AE1-088	2.0
938771	AE1-103 C O1	4.3
939071	AE1-135 C O1	24.05
939191	AE1-149 C O1	13.11
939231	AE1-154 C	2.08
939241	AE1-155 C	16.72
939261	AE1-157 C O1	15.38
939271	AE1-158 C O1	15.69
939311	AE1-162 C	2.63
939411	AE1-173 C	108.28
939421	AE1-174 C	0.23
939431	AE1-175 C	2.89
939611	AE1-191 C	12.51
939751	AE1-206 C O1	38.21
940061	AE1-248 C O1	19.5
940071	AE1-249 C	8.79
940231	AE2-005 C	1.59
940251	AE2-007	212.16
940421	AE2-026 C	3.95
940431	AE2-027 C O1	15.77
940471	AE2-031 C O1	39.17
940481	AE2-033 C	18.69
940491	AE2-034 C	9.84
940521	AE2-037 C O1	9.09
940541	AE2-040	3.76
940551	AE2-041	8.42
940641	AE2-051 C O1	20.51
940651	AE2-052	4.39
940891	AE2-078 C	2.88
940901	AE2-079 C	2.88
940911	AE2-080 C	2.88
941031	AE2-094 C	45.9
941101	AE2-104 C O1	4.23
941281	AE2-122 C O1	34.76
941291	AE2-123 C O1	35.72
941301	AE2-124 C O1	32.48
941501	AE2-147 C	19.04
941541	AE2-151 C	1.23
941581	AE2-155 C	0.76
941591	AE2-156	21.94
941601	AE2-157 C O1	13.03
942001	AE2-212 C	2.64
942131	AE2-225 C	2.59
942151	AE2-227 C O1	2.64
942161	AE2-228 C O1	2.64
942171	AE2-229 C	2.59
942191	AE2-231 C O1	6.02
942211	AE2-233 C	15.0

Bus #	Bus	MW Impact
942341	AE2-247 C	1.81
942371	AE2-250 C O1	11.84
942401	AE2-253 C	7.5
942471	AE2-260 C O1	16.57
942531	AE2-268 C	2.02
942551	AE2-270	32.83
942851	AE2-304 C	0.75
942921	AE2-311 C O1	54.33
942931	AE2-313 C	41.45
943171	AE2-346 C	2.0
AA2-074	AA2-074	5.89
CARR	CARR	1.84
CBM-S1	CBM-S1	13.47
CBM-S2	CBM-S2	16.92
CBM-W1	CBM-W1	8.86
CBM-W2	CBM-W2	82.41
CIN	CIN	4.58
CPLE	CPLE	8.65
IPL	IPL	2.81
LGEE	LGEE	1.38
MEC	MEC	11.2
MECS	MECS	1.5
RENSSELAER	RENSSELAER	1.46
WEC	WEC	1.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841948	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	101.42	103.1	DC	118.95

Bus #	Bus	MW Impact
314093	6WARRNTN	0.31
314189	6PAPERMILL	5.82
314648	6SUNBURY	0.72
314651	6WINFALL	1.43
315037	1LDYSMT1	3.34
315038	1LDYSMT2	3.34
315039	1LDYSMT3	3.53
315040	1LDYSMT4	3.54
315041	1LDYSMT5	3.55
315053	1BELMED1	14.98
315054	1BELMED2	14.98
315055	1BELMED3	12.43
315058	1CHESTF3	15.76
315059	1CHESTF4	25.54
315073	1STONECA	5.96
315074	1HOPCGN1	7.18
315075	1HOPCGN2	7.09
315083	1SPRUNCA	9.18
315084	1SPRUNCB	9.18
315085	1SPRUNCC	6.81
315086	1SPRUNCD	6.81
315090	1YORKTN1	24.33
315091	1YORKTN2	25.25
315225	1N ANNA1	23.83
315226	1N ANNA2	23.88
901082	W1-029 E	37.37
913392	Y1-086 E	1.8
916042	Z1-036 E	36.63
916192	Z1-068 E	1.56
916302	Z1-086 E	7.1
917122	Z2-027 E	0.87
919152	AA1-139 E	5.3
923832	AB2-022 E	1.01
923842	AB2-024 E	0.98
923852	AB2-025 E	0.88
923892	AB2-029 E	1.94
924241	AB2-068 O1	169.58
924812	AB2-134 E O1	10.44
925021	AB2-158 C	1.28
925022	AB2-158 E	4.68
925051	AB2-160 C O1	4.66

Bus #	Bus	MW Impact
925052	AB2-160 E O1	7.61
925061	AB2-161 C O1	2.82
925062	AB2-161 E O1	4.6
925331	AB2-190 C	17.18
925332	AB2-190 E	7.36
925522	AC1-027 E	0.95
925671	AC1-043 C	6.63
925672	AC1-043 E	10.82
925861	AC1-065 C	2.98
925862	AC1-065 E	4.86
926001	AC1-076 C	4.6
926002	AC1-076 E	7.47
926291	AC1-107 O1	255.97
926412	AC1-112 E	0.98
926472	AC1-118 E	1.08
926481	AC1-120 C O1	7.03
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	6.76
926612	AC1-143 E O1	3.08
926662	AC1-147 E	1.1
926731	AC1-158 C	75.01
926732	AC1-158 E	32.92
926751	AC1-161 C O1	25.37
926752	AC1-161 E O1	10.83
926781	AC1-164 C	34.95
926782	AC1-164 E	15.7
927041	AC1-191 C O1	8.61
927042	AC1-191 E O1	4.29
927221	AC1-216 C O1	8.39
927222	AC1-216 E O1	6.6
930122	AB1-027 E	0.96
932041	AC2-012 C	8.5
932042	AC2-012 E	13.87
932502	AC2-070 E	0.61
932532	AC2-073 E	1.05
932581	AC2-078 C O1	3.43
932582	AC2-078 E O1	5.6
932591	AC2-079 C O1	4.76
932592	AC2-079 E O1	7.76
932781	AC2-102 C	5.37
932782	AC2-102 E	8.77
932831	AC2-110 C	1.19
932832	AC2-110 E	1.95
933011	AC2-125	2.7
933021	AC2-126	2.72
933061	AC2-130	2.08
933262	AC2-137 E	1.17
933272	AC2-138 E	0.95
933291	AC2-141 C	25.37
933292	AC2-141 E	10.83

Bus #	Bus	MW Impact
933732	AC2-196 E	0.99
934011	AD1-025 C	14.42
934012	AD1-025 E	8.54
934061	AD1-033 C	6.24
934062	AD1-033 E	4.16
934141	AD1-041 C	4.7
934142	AD1-041 E	3.13
934191	AD1-046 C	4.88
934192	AD1-046 E	3.26
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	6.43
934572	AD1-082 E	3.67
934781	AD1-105 C	7.25
934782	AD1-105 E	5.03
934861	AD1-115 C	3.31
934862	AD1-115 E	5.41
935112	AD1-144 E	0.78
935161	AD1-151 C O1	13.8
935162	AD1-151 E O1	9.2
935212	AD1-156 E	1.2
936041	AD2-007	1.53
936051	AD2-008 C	2.51
936052	AD2-008 E	5.47
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	1.95
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	1.05
936591	AD2-074 C	5.15
936592	AD2-074 E	8.4
936661	AD2-085 C	2.86
936662	AD2-085 E	4.66
937221	AD2-160 C O1	4.84
937222	AD2-160 E O1	2.54
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	1.95
938181	AE1-027 C	1.94
938182	AE1-027 E	1.02
938191	AE1-028 C	1.13
938192	AE1-028 E	0.65

Bus #	Bus	MW Impact
938291	AE1-044 C O1	20.43
938292	AE1-044 E O1	16.12
938491	AE1-068 C O1	45.24
938492	AE1-068 E O1	24.99
938501	AE1-069 C O1	35.43
938502	AE1-069 E O1	20.26
938531	AE1-072 C O1	14.46
938532	AE1-072 E O1	7.54
938551	AE1-074 C	2.12
938552	AE1-074 E	1.07
938631	AE1-085 C O1	9.19
938632	AE1-085 E O1	6.13
938961	AE1-124 C	2.11
938962	AE1-124 E	1.06
939191	AE1-149 C O1	9.05
939192	AE1-149 E O1	6.03
939221	AE1-153 C O1	13.69
939222	AE1-153 E O1	9.13
939231	AE1-154 C	1.72
939232	AE1-154 E	1.2
939241	AE1-155 C	14.09
939242	AE1-155 E	9.39
939261	AE1-157 C O1	13.79
939262	AE1-157 E O1	7.48
939271	AE1-158 C O1	14.07
939272	AE1-158 E O1	7.2
939281	AE1-159 C O1	11.86
939282	AE1-159 E O1	7.02
939311	AE1-162 C	1.81
939312	AE1-162 E	1.21
939411	AE1-173 C	71.22
939412	AE1-173 E	47.48
939421	AE1-174 C	0.16
939422	AE1-174 E	0.25
939431	AE1-175 C	2.06
939432	AE1-175 E	1.02
939611	AE1-191 C	9.4
939612	AE1-191 E	6.27
939751	AE1-206 C O1	29.89
939752	AE1-206 E O1	19.93
940061	AE1-248 C O1	13.36
940062	AE1-248 E O1	8.91
940071	AE1-249 C	6.15
940072	AE1-249 E	4.59
940231	AE2-005 C	1.19
940232	AE2-005 E	1.95
940251	AE2-007	144.36
940352	AE2-019 BAT	15.76
940421	AE2-026 C	3.27
940422	AE2-026 E	4.44
940431	AE2-027 C O1	11.16
940432	AE2-027 E O1	7.44

Bus #	Bus	MW Impact
940471	AE2-031 C O1	26.02
940472	AE2-031 E O1	17.35
940481	AE2-033 C	12.55
940482	AE2-033 E	8.46
940541	AE2-040	2.52
940551	AE2-041	6.3
940641	AE2-051 C O1	13.35
940642	AE2-051 E O1	8.9
940651	AE2-052	3.03
940891	AE2-078 C	2.0
940892	AE2-078 E	1.03
940901	AE2-079 C	2.0
940902	AE2-079 E	1.03
940911	AE2-080 C	2.0
940912	AE2-080 E	1.03
941031	AE2-094 C	29.58
941032	AE2-094 E	13.25
941101	AE2-104 C O1	2.88
941102	AE2-104 E O1	4.57
941141	AE2-108 C	1.34
941142	AE2-108 E	1.85
941151	AE2-109 C	0.47
941152	AE2-109 E	0.65
941281	AE2-122 C O1	23.63
941282	AE2-122 E O1	95.35
941291	AE2-123 C O1	24.28
941292	AE2-123 E O1	94.7
941301	AE2-124 C O1	22.08
941302	AE2-124 E O1	96.87
941361	AE2-132	2.77
941381	AE2-134	2.94
941501	AE2-147 C	12.89
941502	AE2-147 E	8.59
941581	AE2-155 C	0.56
941582	AE2-155 E	0.24
941591	AE2-156	14.94
941601	AE2-157 C O1	8.95
941602	AE2-157 E O1	5.97
941831	AE2-188	7.09
942001	AE2-212 C	1.84
942002	AE2-212 E	1.23
942131	AE2-225 C	1.76
942132	AE2-225 E	1.18
942151	AE2-227 C O1	1.84
942152	AE2-227 E O1	1.23
942161	AE2-228 C O1	1.84
942162	AE2-228 E O1	1.23
942171	AE2-229 C	1.76
942172	AE2-229 E	1.18
942191	AE2-231 C O1	5.25
942192	AE2-231 E O1	3.5
942211	AE2-233 C	9.66

Bus #	Bus	MW Impact
942212	AE2-233 E	3.75
942341	AE2-247 C	1.24
942342	AE2-247 E	1.71
942371	AE2-250 C O1	8.29
942372	AE2-250 E O1	4.37
942401	AE2-253 C	5.09
942402	AE2-253 E	2.29
942531	AE2-268 C	1.51
942532	AE2-268 E	0.85
942551	AE2-270	23.02
942851	AE2-304 C	0.51
942852	AE2-304 E	0.2
942921	AE2-311 C O1	35.76
942922	AE2-311 E O1	23.84
942931	AE2-313 C	26.73
942932	AE2-313 E	17.82
AA2-074	AA2-074	3.67
BLUEG	BLUEG	0.06
CARR	CARR	1.38
CBM-S1	CBM-S1	5.51
CBM-S2	CBM-S2	10.13
CBM-W2	CBM-W2	28.06
CPL	CPL	5.4
EDWARDS	EDWARDS	0.03
G-007	G-007	3.92
LGEE	LGEE	0.05
MEC	MEC	1.82
O-066	O-066	25.16
RENSSELAER	RENSSELAER	1.09
TILTON	TILTON	0.05
TRIMBLE	TRIMBLE	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1843200	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	113.67	114.54	DC	172.52

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.71
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.3
314309	6IRON208	0.39
314648	6SUNBURY	1.05
314651	6WINFALL	2.08
315053	1BELMED1	20.81
315054	1BELMED2	20.81
315055	1BELMED3	17.27
315058	1CHESTF3	21.56
315059	1CHESTF4	34.95
315065	1CHESTF6	17.91
315073	1STONECA	8.29
315074	1HOPCGN1	10.0
315075	1HOPCGN2	9.87
315083	1SPRUNCA	12.91
315084	1SPRUNCB	12.91
315085	1SPRUNCC	9.57
315086	1SPRUNCD	9.57
315090	1YORKTN1	34.12
315091	1YORKTN2	35.41
315225	1N ANNA1	44.44
315226	1N ANNA2	44.54
315233	1SURRY 2	22.34
901082	W1-029 E	54.46
913392	Y1-086 E	2.62
916192	Z1-068 E	2.26
916302	Z1-086 E	10.88
917122	Z2-027 E	1.26
919152	AA1-139 E	7.69
923832	AB2-022 E	1.48
923842	AB2-024 E	1.29
923852	AB2-025 E	1.29
924241	AB2-068 O1	227.18
924812	AB2-134 E O1	14.7
925021	AB2-158 C	1.7
925022	AB2-158 E	6.23
925051	AB2-160 C O1	6.57
925052	AB2-160 E O1	10.72
925061	AB2-161 C O1	4.06
925062	AB2-161 E O1	6.62

Bus #	Bus	MW Impact
925331	AB2-190 C	24.15
925332	AB2-190 E	10.35
925522	AC1-027 E	1.38
925861	AC1-065 C	3.92
925862	AC1-065 E	6.4
926001	AC1-076 C	7.21
926002	AC1-076 E	11.72
926291	AC1-107 O1	342.91
926412	AC1-112 E	1.3
926662	AC1-147 E	1.6
926731	AC1-158 C	193.79
926732	AC1-158 E	85.05
926751	AC1-161 C O1	36.81
926752	AC1-161 E O1	15.71
926781	AC1-164 C	47.05
926782	AC1-164 E	21.14
927221	AC1-216 C O1	11.81
927222	AC1-216 E O1	9.29
930122	AB1-027 E	1.28
932041	AC2-012 C	12.32
932042	AC2-012 E	20.09
932502	AC2-070 E	0.81
932532	AC2-073 E	1.39
932581	AC2-078 C O1	4.9
932582	AC2-078 E O1	8.0
932591	AC2-079 C O1	6.87
932592	AC2-079 E O1	11.22
932831	AC2-110 C	1.57
932832	AC2-110 E	2.56
933061	AC2-130	2.84
933262	AC2-137 E	1.58
933291	AC2-141 C	36.81
933292	AC2-141 E	15.71
933732	AC2-196 E	1.43
934011	AD1-025 C	20.31
934012	AD1-025 E	12.03
934061	AD1-033 C	9.05
934062	AD1-033 E	6.03
934141	AD1-041 C	1.26
934142	AD1-041 E	0.84
934212	AD1-048 E	1.44
934392	AD1-063 E	1.24
934541	AD1-078 C	4.41
934542	AD1-078 E	2.59
934571	AD1-082 C	9.25
934572	AD1-082 E	5.28
935112	AD1-144 E	1.13
935161	AD1-151 C O1	19.41
935162	AD1-151 E O1	12.94
935211	AD1-156 C	0.31
935212	AD1-156 E	1.71
936041	AD2-007	2.16

Bus #	Bus	MW Impact
936051	AD2-008 C	3.54
936052	AD2-008 E	7.7
936151	AD2-021	0.28
936301	AD2-039 C	1.57
936302	AD2-039 E	2.56
936391	AD2-049 C	2.14
936392	AD2-049 E	2.14
936661	AD2-085 C	4.13
936662	AD2-085 E	6.73
937221	AD2-160 C O1	7.03
937222	AD2-160 E O1	3.68
937251	AD2-164	5.73
937541	AD2-215 C	2.09
937542	AD2-215 E	1.11
938031	AE1-004 C	1.57
938032	AE1-004 E	2.56
938181	AE1-027 C	2.82
938182	AE1-027 E	1.48
938191	AE1-028 C	1.63
938192	AE1-028 E	0.95
938491	AE1-068 C O1	69.27
938492	AE1-068 E O1	38.26
938501	AE1-069 C O1	54.27
938502	AE1-069 E O1	31.03
938531	AE1-072 C O1	21.02
938532	AE1-072 E O1	10.96
938551	AE1-074 C	3.05
938552	AE1-074 E	1.53
938631	AE1-085 C O1	13.15
938632	AE1-085 E O1	8.77
939191	AE1-149 C O1	12.92
939192	AE1-149 E O1	8.61
939231	AE1-154 C	2.29
939232	AE1-154 E	1.6
939311	AE1-162 C	2.59
939312	AE1-162 E	1.73
939411	AE1-173 C	106.74
939412	AE1-173 E	71.16
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.85
939432	AE1-175 E	1.41
939611	AE1-191 C	12.33
939612	AE1-191 E	8.22
939751	AE1-206 C O1	37.61
939752	AE1-206 E O1	25.08
940061	AE1-248 C O1	19.23
940062	AE1-248 E O1	12.82
940071	AE1-249 C	8.67
940072	AE1-249 E	6.46
940231	AE2-005 C	1.57
940232	AE2-005 E	2.56

Bus #	Bus	MW Impact
940251	AE2-007	209.16
940421	AE2-026 C	4.35
940422	AE2-026 E	5.91
940431	AE2-027 C O1	15.55
940432	AE2-027 E O1	10.37
940471	AE2-031 C O1	38.61
940472	AE2-031 E O1	25.74
940481	AE2-033 C	18.44
940482	AE2-033 E	12.43
940541	AE2-040	3.71
940551	AE2-041	8.3
940641	AE2-051 C O1	20.22
940642	AE2-051 E O1	13.48
940651	AE2-052	4.33
940891	AE2-078 C	2.84
940892	AE2-078 E	1.46
940901	AE2-079 C	2.84
940902	AE2-079 E	1.46
940911	AE2-080 C	2.84
940912	AE2-080 E	1.46
941031	AE2-094 C	45.27
941032	AE2-094 E	20.27
941101	AE2-104 C O1	4.17
941102	AE2-104 E O1	6.63
941281	AE2-122 C O1	34.27
941282	AE2-122 E O1	138.28
941291	AE2-123 C O1	35.22
941292	AE2-123 E O1	137.33
941301	AE2-124 C O1	32.02
941302	AE2-124 E O1	140.5
941381	AE2-134	4.6
941501	AE2-147 C	18.78
941502	AE2-147 E	12.52
941581	AE2-155 C	0.75
941582	AE2-155 E	0.32
941591	AE2-156	21.63
941601	AE2-157 C O1	12.85
941602	AE2-157 E O1	8.57
942001	AE2-212 C	2.6
942002	AE2-212 E	1.73
942131	AE2-225 C	2.56
942132	AE2-225 E	1.71
942151	AE2-227 C O1	2.6
942152	AE2-227 E O1	1.73
942161	AE2-228 C O1	2.6
942162	AE2-228 E O1	1.73
942171	AE2-229 C	2.56
942172	AE2-229 E	1.71
942211	AE2-233 C	14.79
942212	AE2-233 E	5.75
942341	AE2-247 C	1.79
942342	AE2-247 E	2.47

Bus #	Bus	MW Impact
942371	AE2-250 C O1	11.67
942372	AE2-250 E O1	6.16
942401	AE2-253 C	7.39
942402	AE2-253 E	3.32
942531	AE2-268 C	1.99
942532	AE2-268 E	1.12
942551	AE2-270	32.36
942851	AE2-304 C	0.74
942852	AE2-304 E	0.29
942921	AE2-311 C O1	53.55
942922	AE2-311 E O1	35.7
942931	AE2-313 C	40.89
942932	AE2-313 E	27.26
AA2-074	AA2-074	5.83
CARR	CARR	1.84
CBM-S1	CBM-S1	13.45
CBM-S2	CBM-S2	16.79
CBM-W1	CBM-W1	8.92
CBM-W2	CBM-W2	82.32
CIN	CIN	4.61
CPL	CPL	8.57
G-007	G-007	5.77
IPL	IPL	2.83
LGEE	LGEE	1.39
MEC	MEC	11.22
MECS	MECS	1.54
O-066	O-066	36.8
RENSSELAER	RENSSELAER	1.46
WEC	WEC	1.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7903226	934610	AD1-087 TAP	DVP	314697	6SEGE HILL	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	113.69	114.93	DC	10.16

Bus #	Bus	MW Impact
314421	6WINCHST	0.04
314507	3THOMPSN	0.1
315090	1YORKTN1	10.65
315091	1YORKTN2	11.05
315092	1YORKTN3	6.44
315098	1CHESPKA	0.13
315099	1CHESPKB	0.31
315102	1BRUNSWICKG1	4.13
315103	1BRUNSWICKG2	4.13
315104	1BRUNSWICKG3	4.13
315105	1BRUNSWICKS1	8.59
315108	1ELIZAR1	0.93
315109	1ELIZAR2	0.92
315110	1ELIZAR3	0.94
315116	1SURRY 1	6.74
315153	1CLOVER1	16.29
315154	1CLOVER2	16.08
315191	1BEARGRDN G1	1.24
315192	1BEARGRDN G2	1.24
315193	1BEARGRDN S1	2.54
315233	1SURRY 2	7.49
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
916191	Z1-068 C	0.01
916301	Z1-086 C	24.14
920291	AA2-127	0.26
924031	AB2-045 C	0.15
925521	AC1-027 C	0.09
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.14
932041	AC2-012 C	3.97
932511	AC2-071 C	0.15
933291	AC2-141 C	13.14
933731	AC2-196 C	0.08
934061	AD1-033 C	2.86
934233	AD1-050 BAT	5.08
934611	AD1-087 C O1	20.5
934621	AD1-088 C	17.85
935171	AD1-152 C O1	20.38
937251	AD2-164	1.77

Bus #	Bus	MW Impact
937481	AD2-202 C O1	5.65
938181	AE1-027 C	0.87
938191	AE1-028 C	0.51
938491	AE1-068 C O1	38.23
938501	AE1-069 C O1	30.93
939311	AE1-162 C	0.81
939411	AE1-173 C	43.23
940251	AE2-007	67.63
940471	AE2-031 C O1	15.34
940641	AE2-051 C O1	8.77
940891	AE2-078 C	0.87
940901	AE2-079 C	0.87
940911	AE2-080 C	0.87
941031	AE2-094 C	23.49
941281	AE2-122 C O1	10.89
941291	AE2-123 C O1	11.19
941301	AE2-124 C O1	10.16
941591	AE2-156	6.99
941791	AE2-182 C	3.23
942211	AE2-233 C	7.68
942921	AE2-311 C O1	22.14
942931	AE2-313 C	23.68
943051	AE2-328 C	11.8
AC1-131	AC1-131	9.78
BLUEG	BLUEG	18.52
CALDERWOOD	CALDERWOOD	3.67
CANNELTON	CANNELTON	1.25
CATAWBA	CATAWBA	3.52
CBM-N	CBM-N	0.67
CHEOAH	CHEOAH	3.42
CHILHOWEE	CHILHOWEE	1.19
COFFEEN	COFFEEN	2.13
COTTONWOOD	COTTONWOOD	12.22
DUCKCREEK	DUCKCREEK	4.38
EDWARDS	EDWARDS	1.96
ELMERSMITH	ELMERSMITH	2.2
FARMERCITY	FARMERCITY	1.53
G-007A	G-007A	3.0
GIBSON	GIBSON	0.79
HAMLET	HAMLET	6.6
NEWTON	NEWTON	5.55
NYISO	NYISO	2.9
PRAIRIE	PRAIRIE	11.52
SANTEETLA	SANTEETLA	1.02
SMITHLAND	SMITHLAND	1.02
TATANKA	TATANKA	2.59
TILTON	TILTON	2.32
TRIMBLE	TRIMBLE	2.04
TVA	TVA	10.31
UNIONPOWER	UNIONPOWER	5.07
VFT	VFT	7.99

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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
7902741	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	132.92	134.62	DC	8.19

Bus #	Bus	MW Impact
314507	3THOMPSN	0.07
314589	3MURPHYS	0.04
314638	6ELIZ CT	0.07
314639	6TANGLEW	0.14
314643	3O INLET	0.12
315098	1CHESPKA	0.1
315099	1CHESPKB	0.24
315115	1S HAMPT1	0.5
315126	1ROARAP2	0.41
315128	1ROARAP4	0.39
315136	1ROSEMG1	0.62
315137	1ROSEMS1	0.38
315138	1ROSEMG2	0.29
315139	1GASTONA	0.96
315141	1GASTONB	0.96
315260	1GOSPORTA	0.08
315261	1GOSPORTB	0.1
315262	1GOSPORTC	0.08
315292	1DOMTR78	1.14
315293	1DOMTR9	0.93
315294	1DOMTR10	1.69
901081	W1-029 C	0.42
916041	Z1-036 C	0.51
916191	Z1-068 C	0.01
917331	Z2-043 C	0.2
917511	Z2-088 C OP1	1.34
918491	AA1-063AC OP	0.61
918511	AA1-065 C OP	1.15
918531	AA1-067 C	0.36
918561	AA1-072 C	0.03
919151	AA1-139 C	0.66
919691	AA2-053 C	0.54
920041	AA2-088 C OP	0.39
920671	AA2-174 C	0.02
920691	AA2-178 C	0.95
923801	AB2-015 C O1	3.81
923831	AB2-022 C	0.12
923911	AB2-031 C O1	0.79
923991	AB2-040 C O1	0.32
924491	AB2-098 C	0.99
924501	AB2-099 C	0.47

Bus #	Bus	MW Impact
924511	AB2-100 C	3.88
925061	AB2-161 C O1	1.01
925121	AB2-169 C	1.03
925171	AB2-174 C O1	2.41
925521	AC1-027 C	0.07
926071	AC1-086 C	8.9
926201	AC1-098 C	2.58
926211	AC1-099 C	0.87
926661	AC1-147 C	0.08
927021	AC1-189 C	12.0
930861	AB1-132 C O1	0.74
931231	AB1-173 C	0.1
931241	AB1-173AC	0.1
932041	AC2-012 C	3.0
932591	AC2-079 C O1	1.89
932631	AC2-084 C	3.68
933731	AC2-196 C	0.07
933991	AD1-023 C	12.68
934061	AD1-033 C	2.36
934201	AD1-047 C	2.84
934521	AD1-076 C	50.93
934571	AD1-082 C	2.31
935111	AD1-144 C	0.07
936401	AD2-051 C O1	7.58
936531	AD2-068 C	18.65
936661	AD2-085 C	1.13
936701	AD2-089 C	5.03
936711	AD2-090 C O1	3.34
937221	AD2-160 C O1	2.04
937541	AD2-215 C	0.59
937571	AD2-169 C	3.66
938171	AE1-026 C1 O	27.49
938172	AE1-026 C2 O	3.98
938181	AE1-027 C	0.77
938191	AE1-028 C	0.44
938221	AE1-035 C	2.35
938531	AE1-072 C O1	6.59
938661	AE1-088	4.36
938771	AE1-103 C O1	1.57
939071	AE1-135 C O1	6.73
940061	AE1-248 C O1	4.8
940251	AE2-007	50.77
940491	AE2-034 C	6.83
940521	AE2-037 C O1	6.62
941101	AE2-104 C O1	1.25
941281	AE2-122 C O1	8.73
941291	AE2-123 C O1	8.97
941301	AE2-124 C O1	8.19
941501	AE2-147 C	7.92
941541	AE2-151 C	0.94
941591	AE2-156	5.25
942131	AE2-225 C	0.77

Bus #	Bus	MW Impact
942171	AE2-229 C	0.77
942341	AE2-247 C	0.49
942401	AE2-253 C	2.14
942471	AE2-260 C O1	4.64
942851	AE2-304 C	0.35
943171	AE2-346 C	1.41
AC1-131	AC1-131	6.95
BLUEG	BLUEG	9.16
CALDERWOOD	CALDERWOOD	1.99
CANNELTON	CANNELTON	0.63
CATAWBA	CATAWBA	1.96
CBM-N	CBM-N	0.29
CHEOAH	CHEOAH	1.86
CHILHOWEE	CHILHOWEE	0.64
COFFEEN	COFFEEN	1.09
COTTONWOOD	COTTONWOOD	6.67
DUCKCREEK	DUCKCREEK	2.22
EDWARDS	EDWARDS	0.99
ELMERSMITH	ELMERSMITH	1.12
FARMERCITY	FARMERCITY	0.79
G-007A	G-007A	1.31
GIBSON	GIBSON	0.4
HAMLET	HAMLET	4.21
NEWTON	NEWTON	2.83
NYISO	NYISO	1.24
PRAIRIE	PRAIRIE	6.0
SANTEETLA	SANTEETLA	0.55
SMITHLAND	SMITHLAND	0.54
TATANKA	TATANKA	1.34
TILTON	TILTON	1.16
TRIMBLE	TRIMBLE	1.0
TVA	TVA	5.58
UNIONPOWER	UNIONPOWER	2.77
VFT	VFT	3.49

Short Circuit

12.7 Short Circuit

The following Breakers are overduty: None

13 Network Impacts – Secondary Point of Interconnection

The Queue Project AE2-124 was evaluated as a 800.1 MW (Capacity 148.5 MW) injection tapping the Landstown to Birdneck 230 kV line in the Dominion area. Project AE2-124 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-124 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

13.1 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
1842467	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 567	single	441.8	96.42	99.21	DC	12.29
1842523	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 574	single	3218.56	95.79	96.96	DC	37.89
1842709	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	90.82	92.57	DC	43.19

13.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841720	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	90.22	112.89	DC	370.85
1841721	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 23152	breaker	830.0	91.12	113.11	DC	380.06
1843210	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	830.0	86.76	113.9	DC	225.27
1843211	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 78-2118	tower	830.0	81.13	108.27	DC	225.24
12356508	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2128	breaker	830.0	97.21	113.26	DC	133.26
1841986	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P4-2: 545T594	breaker	3637.0	95.03	96.76	DC	137.35
1841975	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3938.0	97.86	99.21	DC	114.56
1841873	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	98.1	104.77	DC	237.15
1841680	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 23152	breaker	830.0	93.81	119.87	DC	380.06
1841681	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	92.86	119.48	DC	370.85

13.3 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
1842208	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	171.59	174.03	DC	10.84

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
1842210	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	122.91	125.69	DC	12.29
1841492	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	164.28	170.02	DC	131.98
1842323	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	160.2	162.64	DC	10.84
1842325	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 567	single	441.8	111.52	114.31	DC	12.29
1841888	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	104.19	108.92	DC	56.7
1842250	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	163.82	166.27	DC	10.84
1842252	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 567	single	441.8	115.14	117.93	DC	12.29
1842465	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	145.08	147.52	DC	10.84
1841801	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	116.08	119.93	DC	25.12
1841842	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	108.02	111.6	DC	23.37
1841719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	118.31	149.45	DC	427.17
1842380	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	138.33	140.14	DC	8.16
1842382	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 2167	single	449.32	122.39	124.08	DC	7.61
7902699	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	138.33	140.14	DC	8.16
7902700	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	138.33	140.14	DC	8.16
1842902	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570	single	814.98	108.71	109.95	DC	10.18
7903294	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	814.98	108.71	109.95	DC	10.18
7903295	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	108.68	109.93	DC	10.18
1841746	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	125.26	127.84	DC	246.13
1841747	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: H2T557	breaker	3938.0	118.5	121.06	DC	237.69
1842519	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	single	3218.56	121.53	122.87	DC	42.99
1841601	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	143.27	146.76	DC	260.08
1841602	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	139.74	143.44	DC	255.18
1842177	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	150.43	152.31	DC	46.05
1842181	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	145.71	147.59	DC	46.17
1842186	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	119.36	120.88	DC	36.96
1841815	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: H1T594	breaker	3351.0	116.06	117.5	DC	157.09

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
1841816	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P4-2: 573T594	breaker	3351.0	115.3	116.79	DC	156.63
1842390	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.86	132.41	DC	29.08
1842391	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 573	single	2442.12	127.9	128.44	DC	28.55
1841535	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	151.97	155.48	DC	258.26
1841536	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	151.97	155.48	DC	258.26
1842056	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.6	166.51	DC	47.94
1842057	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	154.71	155.47	DC	41.22
1842064	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	single	2442.12	113.07	113.66	DC	31.52
1841796	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	120.45	121.88	DC	158.46
1841797	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	119.2	120.74	DC	160.12
1842510	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	120.96	121.46	DC	29.55
1842511	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 594	single	2738.22	118.59	119.07	DC	28.47
1842682	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	116.69	117.15	DC	24.45
1841689	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P4-2: 557T574	breaker	3637.0	135.5	136.71	DC	253.88
1842132	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	157.87	159.6	DC	42.59
1842134	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	149.32	151.03	DC	41.59
1842141	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	single	2442.12	100.66	101.93	DC	31.16
1841844	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	110.72	112.33	DC	149.19
1842615	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	117.45	117.91	DC	32.48
1841948	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	101.38	103.06	DC	118.98
1841872	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	101.87	108.25	DC	244.85
1841836	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: 568T575	breaker	3938.0	110.62	112.37	DC	148.81
1841837	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P4-2: 57502	breaker	3938.0	108.86	110.49	DC	140.18
1843200	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	113.55	114.46	DC	172.55
1841679	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	118.28	152.6	DC	427.17
1842833	934610	AD1-087 TAP	DVP	314697	6SEGE HILL	DVP	1	DVP_P1-2: LN 570	single	814.98	114.33	115.57	DC	10.18
7903225	934610	AD1-087 TAP	DVP	314697	6SEGE HILL	DVP	1	DVP_P1-2: LN 6002_FSA	single	814.98	114.33	115.57	DC	10.18
7903226	934610	AD1-087 TAP	DVP	314697	6SEGE HILL	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	114.3	115.55	DC	10.18
1842441	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 570	single	478.0	133.85	135.55	DC	8.16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7902739	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 6002_FSA	single	478.0	133.87	135.57	DC	8.16
7902741	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	133.85	135.55	DC	8.16

13.4 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
1842207	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	173.46	179.46	DC	58.38
1842975	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	operation	678.68	94.02	97.68	DC	54.61
1842781	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	106.3	111.42	DC	93.48
1842710	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	118.54	122.92	DC	84.39
1842776	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	114.84	119.05	DC	84.78
1842865	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	109.77	112.22	DC	52.89
7903491	314227	6LAKESIDE	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 557	operation	740.72	89.48	92.63	DC	51.71
1842824	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	113.47	115.91	DC	52.89
1842322	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	162.08	168.08	DC	58.38
1842249	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	165.7	171.7	DC	58.38
1842464	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	146.96	152.96	DC	58.38
1842971	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P1-2: LN 2158	operation	255.21	94.54	97.68	DC	17.76

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
1842555	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2118-A	operation	598.78	107.1	142.96	DC	214.72
1842719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P1-2: LN 231	operation	678.68	111.14	137.75	DC	380.08
1842962	314481	6LANDSTN	DVP	314502	6STUMPY	DVP	1	DVP_P1-2: LN 271-A	operation	984.18	83.22	107.15	DC	398.53
1842516	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P1-2: LN 557	operation	3218.56	142.46	145.56	DC	231.64
1842522	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	Base Case	operation	3218.56	103.69	108.26	DC	166.6
1842175	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	176.64	181.06	DC	248.09
1842182	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	142.66	146.37	DC	199.11
1842387	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	158.14	160.21	DC	156.69
1842395	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	Base Case	operation	2442.12	95.21	97.08	DC	100.09
1842053	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	208.39	213.21	DC	258.31
1842061	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	Base Case	operation	2442.12	134.18	137.34	DC	169.85
1842507	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	144.97	146.99	DC	159.24
1842678	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	operation	2442.12	131.22	133.7	DC	131.72
1842130	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	183.11	186.03	DC	229.45
1842137	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	128.27	132.51	DC	167.91
1842610	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	135.47	136.86	DC	175.01
1842619	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	Base Case	operation	3218.56	103.52	104.3	DC	131.29
1842837	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 573	operation	3218.56	112.87	114.52	DC	114.27
1842968	314923	8SEPTA	DVP	314924	8SURREY	DVP	1	DVP_P1-2: LN 563	operation	2442.12	93.8	96.31	DC	135.36
1842704	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	121.36	129.79	DC	232.72
1842576	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P1-2: LN 552	operation	3218.56	137.98	139.05	DC	173.12
1842585	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	Base Case	operation	3218.56	107.6	108.16	DC	130.18
1842653	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	114.42	146.02	DC	380.08
13712756	941300	AE2-124 TAP	DVP	314295	6BIRDNECK	DVP	1	DVP_P1-2: LN 2118-B	operation	749.18	0.01	106.78	DC	800.1
13712757	941300	AE2-124 TAP	DVP	314481	6LANDSTN	DVP	1	DVP_P1-2: LN 2118-A	operation	749.18	0.01	106.78	DC	800.1

13.5 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.

13.5.1 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 END
DVP_P4-2: 215822-5	CONTINGENCY 'DVP_P4-2: 215822-5' /* PORTSMOUTH PS 230 KV OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00 OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 2 /* 3CHESAPK 115.00 - 6CHESAPK 230.00 OPEN BUS 313887 /* 6CHESAPK_STC230.00 KV END
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: 215822-6	CONTINGENCY 'DVP_P4-2: 215822-6' /* PORTSMOUTH PS 230 KV OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00 OPEN BRANCH FROM BUS 314448 TO BUS 314449 CKT 1 /* 3CHESAPK 115.00 - 6CHESAPK 230.00 END
DVP_P4-2: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: 545T594	CONTINGENCY 'DVP_P4-2: 545T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314900 TO BUS 314916 CKT 1 /* 8BRISTER 500.00 - 8MORRSVL 500.00 OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2118-B	CONTINGENCY 'DVP_P1-2: LN 2118-B' OPEN BRANCH FROM BUS 941300 TO BUS 314481 CKT 1 /* AE2-124 TAP 230.00 - 6LANDSTN 230.00 END
DVP_P7-1: LN 78-2118	CONTINGENCY 'DVP_P7-1: LN 78-2118' OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND
DVP_P1-2: LN 2158	CONTINGENCY 'DVP_P1-2: LN 2158' OPEN BRANCH FROM BUS 314449 TO BUS 314514 CKT 1 /* 6CHESAPK 230.00 - 6YADKIN 230.00 END
DVP_P4-2: 568T575	CONTINGENCY 'DVP_P4-2: 568T575' /* LADYSMITH 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314922 CKT 1 /* 8LADYSMITH 500.00 - 8POSSUM 500.00 OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 57502	CONTINGENCY 'DVP_P4-2: 57502' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314911 TO BUS 314918 CKT 1 /* 8LADYSMITH 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 147-2118	CONTINGENCY 'DVP_P7-1: LN 147-2118' OPEN BRANCH FROM BUS 314479 TO BUS 314492 CKT 1 /* 3LANDSTN 115.00 - 3P ANNE 115.00 OPEN BRANCH FROM BUS 314482 TO BUS 314491 CKT 1 /* 3LONDONB 115.00 - 3PEND
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 2167	CONTINGENCY 'DVP_P1-2: LN 2167' OPEN BRANCH FROM BUS 313845 TO BUS 314564 CKT 1 /* 6HATHAWAY 230.00 - 6EDGECOM 230.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P4-2: 23152	CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00 OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV END
DVP_P4-2: 231T2128	CONTINGENCY 'DVP_P4-2: 231T2128' /* THRASHER 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314466 TO BUS 314508 CKT 1 /* 6FENTRES 230.00 - 6THRASHER 230.00 END
DVP_P4-2: 231T2105	CONTINGENCY 'DVP_P4-2: 231T2105' /* THRASHER 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314508 TO BUS 314514 CKT 1 /* 6THRASHER 230.00 - 6YADKIN 230.00 END
DVP_P1-2: LN 6002_FSA	CONTINGENCY 'DVP_P1-2: LN 6002_FSA' OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 END
DVP_P1-2: LN 2118-A	CONTINGENCY 'DVP_P1-2: LN 2118-A' OPEN BRANCH FROM BUS 314295 TO BUS 941300 CKT 1 /* 6BIRDNECK 230.00 - AE2-124 TAP 230.00 OPEN BRANCH FROM BUS 314295 TO BUS 314490 CKT 1 /* 6BIRDNECK 230.00 - 6VA BCH 230.00 OPEN BUS 314295 /* ISLAND: 6BIRDNECK 230.00 OPEN BUS 916191 /* ISLAND: Z1-068 C 230.00 OPEN BUS 916192 /* ISLAND: Z1-068 E 230.00 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: 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 271-A	CONTINGENCY 'DVP_P1-2: LN 271-A' OPEN BRANCH FROM BUS 314466 TO BUS 934060 CKT 1 /* 6FENTRES 230.00 - AD1-033 TAP 230.00 END
DVP_P4-2: 231T2026	CONTINGENCY 'DVP_P4-2: 231T2026' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314481 TO BUS 314486 CKT 1 /* 6LANDSTN 230.00 - 6LYNHAVN 230.00 END
DVP_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: 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 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 231	CONTINGENCY 'DVP_P1-2: LN 231' OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 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: 557T574	CONTINGENCY 'DVP_P4-2: 557T574' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 570_FSA	CONTINGENCY 'DVP_P1-2: LN 570_FSA' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 END
Base Case	

Contingency Name	Contingency Definition
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P4-2: H1T594	CONTINGENCY 'DVP_P4-2: H1T594' /* MORRISVILLE 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314063 TO BUS 314916 CKT 1 /* 6MORRSVL 230.00 - 8MORRSVL 500.00 OPEN BUS 314897 /* 8MORRS_1 500.00 KV END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 END

13.5.2 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
1842465	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	145.08	147.52	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940491	AE2-034 C	2.86
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O2	1.42
941281	AE2-122 C O2	11.6
941291	AE2-123 C O2	11.92
941301	AE2-124 C O2	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.23
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O2	13.78
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

13.5.3 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
1841746	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	DVP_P4-2: 557T574	breaker	3938.0	125.26	127.84	DC	246.13

Bus #	Bus	MW Impact
314539	3UNCAMP	3.89
314541	3WATKINS	1.1
314566	3CRESWEL	3.94
314594	6PLYMOTH	1.38
314648	6SUNBURY	1.49
314651	6WINFALL	2.96
315102	1BRUNSWICKG1	11.92
315103	1BRUNSWICKG2	11.92
315104	1BRUNSWICKG3	11.92
315105	1BRUNSWICKS1	24.76
315108	1ELIZAR1	4.09
315109	1ELIZAR2	4.02
315110	1ELIZAR3	4.15
315233	1SURRY 2	32.32
901082	W1-029 E	77.45
907092	X1-038 E	9.72
913392	Y1-086 E	3.74
916042	Z1-036 E	76.13
916191	Z1-068 C	0.06
916192	Z1-068 E	3.23
916301	Z1-086 C	72.75
916302	Z1-086 E	18.68
917122	Z2-027 E	1.8
919151	AA1-139 C	3.13
919152	AA1-139 E	11.03
920692	AA2-178 E	6.75
923801	AB2-015 C O1	13.78
923802	AB2-015 E O1	11.3
923832	AB2-022 E	2.11
924241	AB2-068 O1	333.15
925521	AC1-027 C	0.42
925522	AC1-027 E	1.97
926291	AC1-107 O1	502.86
926662	AC1-147 E	2.26
926751	AC1-161 C O1	55.48
926752	AC1-161 E O1	23.68
932041	AC2-012 C	17.42
932042	AC2-012 E	28.43
932591	AC2-079 C O1	8.81
932592	AC2-079 E O1	14.37
933291	AC2-141 C	55.48

Bus #	Bus	MW Impact
933292	AC2-141 E	23.68
933731	AC2-196 C	0.38
933732	AC2-196 E	2.06
933991	AD1-023 C	21.18
933992	AD1-023 E	11.53
934061	AD1-033 C	12.98
934062	AD1-033 E	8.65
934521	AD1-076 C	88.28
934522	AD1-076 E	44.95
935112	AD1-144 E	1.53
936661	AD2-085 C	5.26
936662	AD2-085 E	8.59
936711	AD2-090 C O1	11.41
936712	AD2-090 E O1	7.6
937221	AD2-160 C O1	10.07
937222	AD2-160 E O1	5.28
937541	AD2-215 C	2.84
937542	AD2-215 E	1.51
938171	AE1-026 C1 O	30.52
938172	AE1-026 C2 O	4.42
938173	AE1-026 E O1	9.22
938181	AE1-027 C	4.04
938182	AE1-027 E	2.13
938191	AE1-028 C	2.34
938192	AE1-028 E	1.36
938491	AE1-068 C O1	119.31
938492	AE1-068 E O1	65.89
938501	AE1-069 C O1	93.21
938502	AE1-069 E O1	53.29
938531	AE1-072 C O1	30.11
938532	AE1-072 E O1	15.69
938771	AE1-103 C O1	5.83
938772	AE1-103 E O1	8.05
939411	AE1-173 C	175.24
939412	AE1-173 E	116.83
940251	AE2-007	296.93
940471	AE2-031 C O2	63.95
940472	AE2-031 E O2	42.63
940491	AE2-034 C	13.78
940492	AE2-034 E	5.91
941031	AE2-094 C	78.36
941032	AE2-094 E	35.09
941101	AE2-104 C O2	5.94
941102	AE2-104 E O2	9.43
941281	AE2-122 C O2	48.91
941282	AE2-122 E O2	197.37
941291	AE2-123 C O2	50.27
941292	AE2-123 E O2	196.01
941301	AE2-124 C O2	45.68
941302	AE2-124 E O2	200.45
941501	AE2-147 C	26.71
941502	AE2-147 E	17.8

Bus #	Bus	MW Impact
941591	AE2-156	30.39
942131	AE2-225 C	3.62
942132	AE2-225 E	2.41
942171	AE2-229 C	3.62
942172	AE2-229 E	2.41
942211	AE2-233 C	25.6
942212	AE2-233 E	9.95
942341	AE2-247 C	2.28
942342	AE2-247 E	3.15
942401	AE2-253 C	10.6
942402	AE2-253 E	4.76
942851	AE2-304 C	1.06
942852	AE2-304 E	0.41
942921	AE2-311 C O2	87.62
942922	AE2-311 E O2	58.41
942931	AE2-313 C	70.34
942932	AE2-313 E	46.89
AA2-074	AA2-074	8.87
CARR	CARR	1.73
CBM-S1	CBM-S1	21.71
CBM-S2	CBM-S2	25.48
CBM-W1	CBM-W1	19.63
CBM-W2	CBM-W2	139.15
CIN	CIN	9.13
CPL	CPL	13.04
G-007	G-007	5.72
IPL	IPL	5.69
LGEE	LGEE	2.67
MEC	MEC	20.8
MECS	MECS	7.23
O-066	O-066	36.38
RENSSELAER	RENSSELAER	1.37
WEC	WEC	2.42
Z1-043	Z1-043	9.53

13.5.4 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
1841872	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 56372	breaker	3144.0	101.87	108.25	DC	244.85

Bus #	Bus	MW Impact
314507	3THOMPSN	0.42
314539	3UNCAMP	3.29
314541	3WATKINS	0.91
314554	3BTLEBRO	0.84
314557	3BETHEL	0.9
314566	3CRESWEL	3.48
314574	6EVERETS	5.03
314578	3HORNRTN	3.34
314582	3KELFORD	4.11
314594	6PLYMOTH	1.19
314603	3SCOT NK	3.71
314617	3TUNIS	1.02
314620	6CASHIE	1.13
314623	3WITAKRS	1.43
314648	6SUNBURY	1.42
314651	6WINFALL	2.8
315090	1YORKTN1	39.38
315091	1YORKTN2	40.87
315098	1CHESPKA	0.55
315099	1CHESPKB	1.37
315108	1ELIZAR1	4.08
315109	1ELIZAR2	4.01
315110	1ELIZAR3	4.13
315131	1EDGECEMA	9.77
315132	1EDGECEMB	9.77
315233	1SURREY 2	40.44
315260	1GOSPORTA	0.44
315261	1GOSPORTB	0.56
315262	1GOSPORTC	0.48
900672	V4-068 E	0.36
901082	W1-029 E	73.37
907092	X1-038 E	8.22
913392	Y1-086 E	3.61
916042	Z1-036 E	70.49
916191	Z1-068 C	0.06
916192	Z1-068 E	3.21
916302	Z1-086 E	14.12
917122	Z2-027 E	1.72
917332	Z2-043 E	1.17
917342	Z2-044 E	0.61
917512	Z2-088 E OP1	4.52
918492	AA1-063AE OP	4.35

Bus #	Bus	MW Impact
918512	AA1-065 E OP	5.6
918532	AA1-067 E	0.89
918562	AA1-072 E	0.19
919151	AA1-139 C	3.09
919152	AA1-139 E	10.87
919692	AA2-053 E	3.92
919701	AA2-057 C	7.56
919702	AA2-057 E	3.78
920042	AA2-088 E OP	12.98
920592	AA2-165 E	0.5
920672	AA2-174 E	0.45
920692	AA2-178 E	5.96
923801	AB2-015 C O1	11.5
923802	AB2-015 E O1	9.43
923832	AB2-022 E	2.04
924152	AB2-059 E O1	5.74
924401	AB2-089 C	2.0
924402	AB2-089 E	1.03
924491	AB2-098 C	0.69
924492	AB2-098 E	0.3
924501	AB2-099 C	0.71
924502	AB2-099 E	0.31
925061	AB2-161 C O1	3.39
925062	AB2-161 E O1	5.54
925122	AB2-169 E	7.61
925521	AC1-027 C	0.42
925522	AC1-027 E	1.95
925591	AC1-034 C	7.21
925592	AC1-034 E	5.44
925781	AC1-054 C O1	6.82
925782	AC1-054 E O1	3.14
926071	AC1-086 C	19.38
926072	AC1-086 E	8.82
926201	AC1-098 C	6.76
926202	AC1-098 E	4.03
926211	AC1-099 C	2.27
926212	AC1-099 E	1.33
926271	AC1-105 C O1	5.3
926272	AC1-105 E O1	2.64
926661	AC1-147 C	0.47
926662	AC1-147 E	2.25
926751	AC1-161 C O1	60.92
926752	AC1-161 E O1	26.01
927021	AC1-189 C	10.21
927022	AC1-189 E	5.09
927141	AC1-208 C	9.6
927142	AC1-208 E	4.26
927251	AC1-221 C	2.26
927252	AC1-221 E	2.26
927261	AC1-222 C	3.46
927262	AC1-222 E	3.29
930402	AB1-081 E O1	4.05

Bus #	Bus	MW Impact
930862	AB1-132 E O1	5.64
932041	AC2-012 C	17.3
932042	AC2-012 E	28.23
932591	AC2-079 C O1	7.14
932592	AC2-079 E O1	11.66
932631	AC2-084 C	9.64
932632	AC2-084 E	4.75
932761	AC2-100 C	5.21
932762	AC2-100 E	2.54
933291	AC2-141 C	60.92
933292	AC2-141 E	26.01
933731	AC2-196 C	0.38
933732	AC2-196 E	2.06
933991	AD1-023 C	17.83
933992	AD1-023 E	9.71
934061	AD1-033 C	12.94
934062	AD1-033 E	8.63
934231	AD1-050 C	4.41
934232	AD1-050 E	2.41
934311	AD1-055 C	2.4
934312	AD1-055 E	0.62
934331	AD1-057 C O1	10.01
934332	AD1-057 E O1	5.34
934341	AD1-058 C	5.67
934342	AD1-058 E	1.44
934521	AD1-076 C	75.57
934522	AD1-076 E	38.48
934571	AD1-082 C	7.73
934572	AD1-082 E	4.41
934611	AD1-087 C O1	9.42
934612	AD1-087 E O1	4.43
934621	AD1-088 C	12.79
934622	AD1-088 E	6.0
934991	AD1-131 C	1.86
934992	AD1-131 E	1.24
935112	AD1-144 E	1.46
935171	AD1-152 C O1	9.36
935172	AD1-152 E O1	6.24
936331	AD2-043 C	4.49
936332	AD2-043 E	5.31
936391	AD2-049 C	2.51
936392	AD2-049 E	2.51
936401	AD2-051 C O1	10.66
936402	AD2-051 E O1	4.58
936531	AD2-068 C	5.94
936532	AD2-068 E	3.06
936661	AD2-085 C	4.24
936662	AD2-085 E	6.91
936701	AD2-089 C	8.06
936702	AD2-089 E	5.37
936711	AD2-090 C O1	9.26
936712	AD2-090 E O1	6.17

Bus #	Bus	MW Impact
937221	AD2-160 C O1	9.97
937222	AD2-160 E O1	5.23
937251	AD2-164	6.63
937481	AD2-202 C O1	2.59
937482	AD2-202 E O1	1.31
937541	AD2-215 C	2.69
937542	AD2-215 E	1.43
937571	AD2-169 C	9.08
937572	AD2-169 E	6.05
938171	AE1-026 C1 O	37.48
938172	AE1-026 C2 O	5.42
938173	AE1-026 E O1	11.32
938181	AE1-027 C	4.02
938182	AE1-027 E	2.12
938191	AE1-028 C	2.33
938192	AE1-028 E	1.35
938221	AE1-035 C	2.84
938222	AE1-035 E	1.4
938491	AE1-068 C O1	90.21
938492	AE1-068 E O1	49.83
938501	AE1-069 C O1	70.44
938502	AE1-069 E O1	40.27
938531	AE1-072 C O1	29.57
938532	AE1-072 E O1	15.42
938661	AE1-088	2.3
938771	AE1-103 C O1	4.93
938772	AE1-103 E O1	6.81
939311	AE1-162 C	2.94
939312	AE1-162 E	1.96
939411	AE1-173 C	149.42
939412	AE1-173 E	99.61
939421	AE1-174 C	0.17
939422	AE1-174 E	0.26
939431	AE1-175 C	2.18
939432	AE1-175 E	1.08
940061	AE1-248 C O1	16.07
940062	AE1-248 E O1	10.72
940251	AE2-007	295.65
940471	AE2-031 C O2	48.35
940472	AE2-031 E O2	32.23
940491	AE2-034 C	12.17
940492	AE2-034 E	5.21
940521	AE2-037 C O2	9.87
940522	AE2-037 E O2	4.77
940571	AE2-044 C	4.72
940572	AE2-044 E	2.02
940891	AE2-078 C	2.82
940892	AE2-078 E	1.46
940901	AE2-079 C	2.82
940902	AE2-079 E	1.46
940911	AE2-080 C	2.82
940912	AE2-080 E	1.46

Bus #	Bus	MW Impact
941031	AE2-094 C	59.31
941032	AE2-094 E	26.56
941101	AE2-104 C O2	5.72
941102	AE2-104 E O2	9.09
941281	AE2-122 C O2	48.67
941282	AE2-122 E O2	196.38
941291	AE2-123 C O2	50.01
941292	AE2-123 E O2	195.03
941301	AE2-124 C O2	45.44
941302	AE2-124 E O2	199.4
941501	AE2-147 C	25.3
941502	AE2-147 E	16.87
941541	AE2-151 C	1.32
941542	AE2-151 E	0.71
941591	AE2-156	30.04
941601	AE2-157 C O2	10.08
941602	AE2-157 E O2	6.72
941791	AE2-182 C	2.31
941792	AE2-182 E	1.09
941951	AE2-207	3.05
942131	AE2-225 C	3.48
942132	AE2-225 E	2.32
942171	AE2-229 C	3.48
942172	AE2-229 E	2.32
942211	AE2-233 C	19.38
942212	AE2-233 E	7.53
942341	AE2-247 C	1.84
942342	AE2-247 E	2.54
942401	AE2-253 C	10.48
942402	AE2-253 E	4.71
942851	AE2-304 C	0.99
942852	AE2-304 E	0.39
942921	AE2-311 C O2	74.71
942922	AE2-311 E O2	49.81
942931	AE2-313 C	53.22
942932	AE2-313 E	35.48
943171	AE2-346 C	2.14
943172	AE2-346 E	0.92
AA2-074	AA2-074	6.4
CARR	CARR	1.11
CBM-S1	CBM-S1	13.93
CBM-S2	CBM-S2	17.99
CBM-W1	CBM-W1	11.23
CBM-W2	CBM-W2	88.09
CIN	CIN	5.25
CPL	CPL	9.41
G-007	G-007	3.6
IPL	IPL	3.25
LGEE	LGEE	1.53
MEC	MEC	12.58
MECS	MECS	3.61
O-066	O-066	22.93

Bus #	Bus	MW Impact
RENSSELAER	RENSSELAER	0.88
WEC	WEC	1.39

13.5.5 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841719	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	118.31	149.45	DC	427.17

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.65
925522	AC1-027 E	3.07
926662	AC1-147 E	0.46
932041	AC2-012 C	3.54
932042	AC2-012 E	5.78
940251	AE2-007	56.06
941281	AE2-122 C O2	108.49
941282	AE2-122 E O2	437.79
941291	AE2-123 C O2	111.49
941292	AE2-123 E O2	434.78
941301	AE2-124 C O2	79.28
941302	AE2-124 E O2	347.88
941591	AE2-156	5.92
BLUEG	BLUEG	0.32
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.06
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.21
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.09
PRAIRIE	PRAIRIE	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.04
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.17
UNIONPOWER	UNIONPOWER	0.08
VFT	VFT	0.03

13.5.6 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
12356508	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2128	breaker	830.0	97.21	113.26	DC	133.26

Bus #	Bus	MW Impact
314566	3CRESWEL	0.76
314638	6ELIZ CT	0.12
314639	6TANGLEW	0.2
314643	3O INLET	0.3
314651	6WINFALL	0.87
901082	W1-029 E	19.69
913392	Y1-086 E	1.64
916042	Z1-036 E	20.02
917122	Z2-027 E	0.7
919151	AA1-139 C	1.78
919152	AA1-139 E	6.26
920692	AA2-178 E	1.31
923831	AB2-022 C	0.21
923832	AB2-022 E	0.93
925521	AC1-027 C	0.17
925522	AC1-027 E	0.78
933731	AC2-196 C	0.24
933732	AC2-196 E	1.33
934061	AD1-033 C	9.77
934062	AD1-033 E	6.51
937221	AD2-160 C O1	5.95
937222	AD2-160 E O1	3.12
938181	AE1-027 C	2.53
938182	AE1-027 E	1.33
938191	AE1-028 C	1.47
938192	AE1-028 E	0.85
938531	AE1-072 C O1	16.37
938532	AE1-072 E O1	8.53
940491	AE2-034 C	2.68
940492	AE2-034 E	1.15
941281	AE2-122 C O2	61.93
941282	AE2-122 E O2	249.91
941291	AE2-123 C O2	63.65
941292	AE2-123 E O2	248.19
941301	AE2-124 C O2	24.73
941302	AE2-124 E O2	108.52
941501	AE2-147 C	6.79
941502	AE2-147 E	4.53
941592	AE2-156 BAT	4.48
942401	AE2-253 C	6.26
942402	AE2-253 E	2.81

Bus #	Bus	MW Impact
942851	AE2-304 C	0.3
942852	AE2-304 E	0.12
CARR	CARR	0.0
CBM-S1	CBM-S1	0.42
CBM-S2	CBM-S2	0.45
CBM-W1	CBM-W1	0.49
CBM-W2	CBM-W2	2.83
CIN	CIN	0.22
CPL	CPL	0.24
G-007	G-007	0.02
IPL	IPL	0.14
LGEE	LGEE	0.06
MEC	MEC	0.46
MECS	MECS	0.24
O-066	O-066	0.11
RENSSELAER	RENSSELAER	0.0
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
1842682	314911	8LADYSMITH	DVP	314922	8POSSUM	DVP	1	DVP_P1-2: LN 581	single	2442.12	116.69	117.15	DC	24.45

Bus #	Bus	MW Impact
314229	6MT RD221	0.09
314236	6NRTHEST	0.13
314250	6ROCKVILLE	0.24
314309	6IRON208	0.32
315043	1FOUR RIVERA	2.6
315044	1FOUR RIVERB	2.01
315045	1FOUR RIVERC	2.6
315046	1FOUR RIVERD	2.01
315047	1FOUR RIVERE	2.01
315048	1FOUR RIVERF	2.6
315053	1BELMED1	16.48
315054	1BELMED2	16.48
315055	1BELMED3	13.68
315058	1CHESTF3	17.38
315059	1CHESTF4	28.18
315060	1CHESTF5	7.17
315061	1CHESTG7	2.81
315062	1CHESTS7	1.28
315063	1CHESTG8	2.76
315064	1CHESTS8	1.42
315067	1DARBY 1	1.85
315068	1DARBY 2	1.85
315069	1DARBY 3	1.86
315070	1DARBY 4	1.86
315074	1HOPCGN1	7.96
315075	1HOPCGN2	7.85
315083	1SPRUNCA	10.03
315084	1SPRUNCB	10.03
315085	1SPRUNCC	7.44
315086	1SPRUNCD	7.44
315090	1YORKTN1	26.95
315091	1YORKTN2	27.96
315225	1N ANNA1	20.59
315226	1N ANNA2	20.63
919211	AA1-145	7.51
924061	AB2-050	0.44
924241	AB2-068 O1	199.05
925051	AB2-160 C O1	5.14
925061	AB2-161 C O1	3.12
925331	AB2-190 C	19.03
925861	AC1-065 C	3.17

Bus #	Bus	MW Impact
926291	AC1-107 O1	300.45
926411	AC1-112 C	0.24
926551	AC1-134	1.1
926751	AC1-161 C O1	28.08
926781	AC1-164 C	39.06
927041	AC1-191 C O1	9.14
927221	AC1-216 C O1	9.29
930121	AB1-027 C	0.31
932041	AC2-012 C	9.41
932501	AC2-070 C	0.2
932581	AC2-078 C O1	3.79
932591	AC2-079 C O1	5.27
932831	AC2-110 C	1.27
933011	AC2-125	2.57
933021	AC2-126	2.59
933061	AC2-130	2.31
933261	AC2-137 C	0.25
933291	AC2-141 C	28.08
934011	AD1-025 C	15.97
934061	AD1-033 C	6.9
934141	AD1-041 C	4.97
934211	AD1-048 C	0.29
934571	AD1-082 C	7.12
935161	AD1-151 C O1	15.29
936041	AD2-007	1.7
936051	AD2-008 C	2.78
936151	AD2-021	0.23
936241	AD2-030 C	2.15
936301	AD2-039 C	1.27
936391	AD2-049 C	1.68
936661	AD2-085 C	3.16
937221	AD2-160 C O1	5.36
937251	AD2-164	4.51
937541	AD2-215 C	1.61
938031	AE1-004 C	1.27
938181	AE1-027 C	2.15
938191	AE1-028 C	1.25
938531	AE1-072 C O1	16.05
938551	AE1-074 C	2.28
938631	AE1-085 C O1	10.15
939191	AE1-149 C O1	9.99
939261	AE1-157 C O1	13.63
939271	AE1-158 C O1	13.91
939311	AE1-162 C	2.0
939411	AE1-173 C	77.4
939421	AE1-174 C	0.18
939431	AE1-175 C	2.29
939611	AE1-191 C	9.94
939751	AE1-206 C O1	32.76
940061	AE1-248 C O1	14.79
940071	AE1-249 C	6.78
940231	AE2-005 C	1.27

Bus #	Bus	MW Impact
940251	AE2-007	159.74
940431	AE2-027 C O2	12.16
940541	AE2-040	3.0
940551	AE2-041	6.73
940641	AE2-051 C O2	14.59
940651	AE2-052	3.35
940891	AE2-078 C	2.22
940901	AE2-079 C	2.22
940911	AE2-080 C	2.22
941101	AE2-104 C O2	3.21
941281	AE2-122 C O2	26.15
941291	AE2-123 C O2	26.88
941301	AE2-124 C O2	24.45
941581	AE2-155 C	0.63
941591	AE2-156	16.54
941601	AE2-157 C O2	9.88
942001	AE2-212 C	2.03
942131	AE2-225 C	1.95
942151	AE2-227 C O2	2.11
942161	AE2-228 C O2	2.05
942171	AE2-229 C	1.95
942191	AE2-231 C O2	5.3
942341	AE2-247 C	1.37
942401	AE2-253 C	5.64
942531	AE2-268 C	1.61
942551	AE2-270	25.5
942921	AE2-311 C O2	38.7
AA2-074	AA2-074	4.72
CARR	CARR	1.87
CBM-S1	CBM-S1	16.0
CBM-S2	CBM-S2	14.44
CBM-W1	CBM-W1	18.35
CBM-W2	CBM-W2	106.13
CIN	CIN	8.45
CPLE	CPLE	6.93
IPL	IPL	5.34
LGEE	LGEE	2.48
MEC	MEC	17.53
MECS	MECS	8.28
RENSSELAER	RENSSELAER	1.48
WEC	WEC	2.23
Z1-043	Z1-043	8.76

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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
1841975	314918	8NO ANNA	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3938.0	97.86	99.21	DC	114.56

Bus #	Bus	MW Impact
314539	3UNCAMP	1.95
314541	3WATKINS	0.56
314566	3CRESWEL	1.94
314572	3EMPORIA	0.35
314578	3HORNRTN	2.73
314594	6PLYMOTH	0.69
314617	3TUNIS	0.68
314620	6CASHIE	0.68
314648	6SUNBURY	0.71
314651	6WINFALL	1.41
315172	1LOISA A	2.16
315173	1LOISA B	2.17
315174	1LOISA C	2.17
315175	1LOISA D	2.17
315176	1LOISA E	4.43
315177	1S ANNAG1	1.32
315178	1S ANNAS1	0.68
315179	1S ANNAG2	1.32
315180	1S ANNAS2	0.68
315225	1N ANNA1	79.64
315226	1N ANNA2	79.82
900672	V4-068 E	0.24
901082	W1-029 E	36.91
907092	X1-038 E	4.88
913392	Y1-086 E	1.76
916042	Z1-036 E	36.68
916192	Z1-068 E	1.5
916302	Z1-086 E	9.93
917122	Z2-027 E	0.85
918492	AA1-063AE OP	3.28
918512	AA1-065 E OP	3.59
919152	AA1-139 E	5.15
919692	AA2-053 E	3.08
920042	AA2-088 E OP	8.57
920672	AA2-174 E	0.36
920692	AA2-178 E	3.32
923801	AB2-015 C O1	6.96
923802	AB2-015 E O1	5.71
923832	AB2-022 E	1.0
923852	AB2-025 E	0.94
923862	AB2-026 E	1.12

Bus #	Bus	MW Impact
923911	AB2-031 C O1	1.88
923912	AB2-031 E O1	0.92
923992	AB2-040 E O1	5.04
924022	AB2-043 E O1	4.22
924032	AB2-045 E	0.89
924162	AB2-060 E O1	3.49
924302	AB2-077 E O1	1.09
924312	AB2-078 E O1	1.09
924322	AB2-079 E O1	1.09
924501	AB2-099 C	0.48
924502	AB2-099 E	0.2
924511	AB2-100 C	9.71
924512	AB2-100 E	4.78
925021	AB2-158 C	3.03
925022	AB2-158 E	11.1
925061	AB2-161 C O1	2.59
925062	AB2-161 E O1	4.22
925171	AB2-174 C O1	5.91
925172	AB2-174 E O1	5.35
925522	AC1-027 E	0.92
925612	AC1-036 E	0.71
926071	AC1-086 C	17.11
926072	AC1-086 E	7.79
926662	AC1-147 E	1.05
926731	AC1-158 C	239.36
926732	AC1-158 E	105.04
926751	AC1-161 C O1	24.38
926752	AC1-161 E O1	10.41
930862	AB1-132 E O1	4.98
931232	AB1-173 E	0.88
931242	AB1-173AE	0.88
932041	AC2-012 C	8.12
932042	AC2-012 E	13.25
932512	AC2-071 E	0.95
932591	AC2-079 C O1	4.48
932592	AC2-079 E O1	7.3
933291	AC2-141 C	24.38
933292	AC2-141 E	10.41
933501	AC2-165 C	9.87
933502	AC2-165 E	7.43
933732	AC2-196 E	0.96
933991	AD1-023 C	10.64
933992	AD1-023 E	5.79
934061	AD1-033 C	6.03
934062	AD1-033 E	4.02
934201	AD1-047 C	6.72
934202	AD1-047 E	4.48
934521	AD1-076 C	44.05
934522	AD1-076 E	22.43
934571	AD1-082 C	5.9
934572	AD1-082 E	3.36
934611	AD1-087 C O1	7.47

Bus #	Bus	MW Impact
934612	AD1-087 E O1	3.51
934621	AD1-088 C	12.01
934622	AD1-088 E	5.64
935112	AD1-144 E	0.73
935171	AD1-152 C O1	7.42
935172	AD1-152 E O1	4.95
935212	AD1-156 E	1.09
935222	AD1-157 E	0.85
935231	AD1-160 C	0.93
935232	AD1-160 E	1.29
936261	AD2-033 C	10.78
936262	AD2-033 E	7.18
936401	AD2-051 C O1	7.12
936402	AD2-051 E O1	3.06
936481	AD2-063 C O1	12.34
936482	AD2-063 E O1	8.23
936661	AD2-085 C	2.68
936662	AD2-085 E	4.38
936711	AD2-090 C O1	5.83
936712	AD2-090 E O1	3.89
937221	AD2-160 C O1	4.7
937222	AD2-160 E O1	2.47
937481	AD2-202 C O1	2.06
937482	AD2-202 E O1	1.04
937541	AD2-215 C	1.35
937542	AD2-215 E	0.71
937571	AD2-169 C	8.36
937572	AD2-169 E	5.57
938171	AE1-026 C1 O	22.69
938172	AE1-026 C2 O	3.28
938173	AE1-026 E O1	6.85
938181	AE1-027 C	1.88
938182	AE1-027 E	0.99
938191	AE1-028 C	1.09
938192	AE1-028 E	0.63
938221	AE1-035 C	1.82
938222	AE1-035 E	0.9
938371	AE1-056 C	5.49
938372	AE1-056 E	3.0
938491	AE1-068 C O1	63.34
938492	AE1-068 E O1	34.98
938501	AE1-069 C O1	49.57
938502	AE1-069 E O1	28.34
938531	AE1-072 C O1	14.1
938532	AE1-072 E O1	7.35
938551	AE1-074 C	2.12
938552	AE1-074 E	1.07
938561	AE1-075 C	2.19
938562	AE1-075 E	1.07
938771	AE1-103 C O1	2.93
938772	AE1-103 E O1	4.04
939071	AE1-135 C O1	17.49

Bus #	Bus	MW Impact
939072	AE1-135 E O1	11.66
939231	AE1-154 C	4.08
939232	AE1-154 E	2.86
939371	AE1-168 C	12.59
939372	AE1-168 E	8.4
939411	AE1-173 C	87.97
939412	AE1-173 E	58.65
940061	AE1-248 C O1	12.26
940062	AE1-248 E O1	8.17
940241	AE2-006	0.4
940251	AE2-007	138.19
940421	AE2-026 C	7.75
940422	AE2-026 E	10.53
940471	AE2-031 C O2	34.15
940472	AE2-031 E O2	22.77
940481	AE2-033 C	13.45
940482	AE2-033 E	9.07
940491	AE2-034 C	6.79
940492	AE2-034 E	2.91
940641	AE2-051 C O2	14.09
940642	AE2-051 E O2	9.39
941031	AE2-094 C	41.48
941032	AE2-094 E	18.58
941101	AE2-104 C O2	2.8
941102	AE2-104 E O2	4.45
941281	AE2-122 C O2	22.76
941282	AE2-122 E O2	91.85
941291	AE2-123 C O2	23.39
941292	AE2-123 E O2	91.22
941301	AE2-124 C O2	21.26
941302	AE2-124 E O2	93.3
941501	AE2-147 C	12.73
941502	AE2-147 E	8.48
941541	AE2-151 C	0.88
941542	AE2-151 E	0.48
941591	AE2-156	14.2
941601	AE2-157 C O2	8.14
941602	AE2-157 E O2	5.43
941791	AE2-182 C	2.17
941792	AE2-182 E	1.02
942131	AE2-225 C	1.71
942132	AE2-225 E	1.14
942171	AE2-229 C	1.71
942172	AE2-229 E	1.14
942211	AE2-233 C	13.55
942212	AE2-233 E	5.27
942341	AE2-247 C	1.16
942342	AE2-247 E	1.61
942371	AE2-250 C O2	7.69
942372	AE2-250 E O2	4.06
942401	AE2-253 C	4.94
942402	AE2-253 E	2.22

Bus #	Bus	MW Impact
942451	AE2-258	1.92
942461	AE2-259 C O2	8.6
942462	AE2-259 E O2	5.73
942471	AE2-260 C O2	12.04
942472	AE2-260 E O2	17.08
942711	AE2-287 C O2	10.92
942712	AE2-287 E O2	7.28
942851	AE2-304 C	0.51
942852	AE2-304 E	0.2
942921	AE2-311 C O2	43.99
942922	AE2-311 E O2	29.32
942931	AE2-313 C	37.44
942932	AE2-313 E	24.96
943051	AE2-328 C	10.38
943052	AE2-328 E	4.86
943171	AE2-346 C	1.43
943172	AE2-346 E	0.61
AA2-074	AA2-074	4.87
CARR	CARR	1.55
CBM-S1	CBM-S1	11.54
CBM-S2	CBM-S2	14.0
CBM-W1	CBM-W1	9.11
CBM-W2	CBM-W2	72.41
CIN	CIN	4.43
CPL	CPL	7.15
G-007	G-007	5.04
IPL	IPL	2.74
LGEE	LGEE	1.31
MEC	MEC	10.38
MECS	MECS	2.63
O-066	O-066	32.09
RENSSELAER	RENSSELAER	1.23
WEC	WEC	1.15

13.5.9 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841679	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2026	breaker	830.0	118.28	152.6	DC	427.17

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.65
925522	AC1-027 E	3.07
934061	AD1-033 C	36.53
934062	AD1-033 E	24.36
941281	AE2-122 C O2	108.49
941282	AE2-122 E O2	437.79
941291	AE2-123 C O2	111.49
941292	AE2-123 E O2	434.78
941301	AE2-124 C O2	79.28
941302	AE2-124 E O2	347.88
BLUEG	BLUEG	0.32
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.06
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.21
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.09
PRAIRIE	PRAIRIE	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.04
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.17
UNIONPOWER	UNIONPOWER	0.08
VFT	VFT	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842208	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	171.59	174.03	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940491	AE2-034 C	2.86
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O2	1.42
941281	AE2-122 C O2	11.6
941291	AE2-123 C O2	11.92
941301	AE2-124 C O2	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.23
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O2	13.78
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

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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
1841492	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	164.28	170.02	DC	131.98

Bus #	Bus	MW Impact
314189	6PAPERMILL	8.73
314229	6MT RD221	0.17
314236	6NRTHEST	0.23
314250	6ROCKVILLE	0.39
314309	6IRON208	0.49
314539	3UNCAMP	2.16
314541	3WATKINS	0.6
314648	6SUNBURY	0.8
314651	6WINFALL	1.57
315043	1FOUR RIVERA	4.24
315044	1FOUR RIVERB	3.29
315045	1FOUR RIVERC	4.24
315046	1FOUR RIVERD	3.29
315047	1FOUR RIVERE	3.29
315048	1FOUR RIVERF	4.24
315053	1BELMED1	25.27
315054	1BELMED2	25.27
315055	1BELMED3	20.97
315058	1CHESTF3	26.83
315059	1CHESTF4	43.49
315067	1DARBY 1	3.07
315068	1DARBY 2	3.08
315069	1DARBY 3	3.09
315070	1DARBY 4	3.09
315073	1STONECA	9.28
315074	1HOPCGN1	11.19
315075	1HOPCGN2	11.05
315083	1SPRUNCA	14.77
315084	1SPRUNCB	14.77
315085	1SPRUNCC	10.95
315086	1SPRUNCD	10.95
315090	1YORKTN1	30.6
315091	1YORKTN2	31.75
901082	W1-029 E	41.2
907092	X1-038 E	5.4
913392	Y1-086 E	1.98
916042	Z1-036 E	40.19
916192	Z1-068 E	1.73
917122	Z2-027 E	0.95
919152	AA1-139 E	5.84
919211	AA1-145	12.27

Bus #	Bus	MW Impact
923801	AB2-015 C O1	7.63
923802	AB2-015 E O1	6.25
923832	AB2-022 E	1.12
923842	AB2-024 E	1.47
923852	AB2-025 E	1.07
924061	AB2-050	0.72
924241	AB2-068 O1	175.77
924511	AB2-100 C	10.3
924512	AB2-100 E	5.07
924812	AB2-134 E O1	14.7
925051	AB2-160 C O1	7.07
925052	AB2-160 E O1	11.54
925061	AB2-161 C O1	3.58
925062	AB2-161 E O1	5.84
925331	AB2-190 C	24.53
925332	AB2-190 E	10.51
925522	AC1-027 E	1.06
925861	AC1-065 C	4.33
925862	AC1-065 E	7.06
926291	AC1-107 O1	265.31
926411	AC1-112 C	0.42
926412	AC1-112 E	1.92
926472	AC1-118 E	1.06
926551	AC1-134	1.8
926662	AC1-147 E	1.23
926751	AC1-161 C O1	26.82
926752	AC1-161 E O1	11.45
926781	AC1-164 C	57.92
926782	AC1-164 E	26.02
927041	AC1-191 C O1	17.43
927042	AC1-191 E O1	8.68
927221	AC1-216 C O1	11.81
927222	AC1-216 E O1	9.29
930121	AB1-027 C	0.54
930122	AB1-027 E	1.89
932041	AC2-012 C	9.5
932042	AC2-012 E	15.5
932501	AC2-070 C	0.35
932502	AC2-070 E	1.2
932532	AC2-073 E	1.54
932581	AC2-078 C O1	4.69
932582	AC2-078 E O1	7.65
932591	AC2-079 C O1	5.74
932592	AC2-079 E O1	9.36
932831	AC2-110 C	1.73
932832	AC2-110 E	2.83
933061	AC2-130	3.44
933261	AC2-137 C	0.38
933262	AC2-137 E	2.03
933272	AC2-138 E	1.07
933291	AC2-141 C	26.82
933292	AC2-141 E	11.45

Bus #	Bus	MW Impact
933732	AC2-196 E	1.09
934011	AD1-025 C	20.31
934012	AD1-025 E	12.03
934061	AD1-033 C	6.88
934062	AD1-033 E	4.59
934141	AD1-041 C	6.72
934142	AD1-041 E	4.48
934211	AD1-048 C	0.46
934212	AD1-048 E	1.91
934392	AD1-063 E	1.38
934571	AD1-082 C	8.15
934572	AD1-082 E	4.65
934781	AD1-105 C	11.44
934782	AD1-105 E	7.95
935112	AD1-144 E	0.91
935161	AD1-151 C O1	19.71
935162	AD1-151 E O1	13.14
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	6.32
936592	AD2-074 E	10.32
936661	AD2-085 C	3.45
936662	AD2-085 E	5.64
936711	AD2-090 C O1	6.26
936712	AD2-090 E O1	4.17
937221	AD2-160 C O1	5.33
937222	AD2-160 E O1	2.8
937251	AD2-164	5.08
937541	AD2-215 C	1.67
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
938531	AE1-072 C O1	15.94
938532	AE1-072 E O1	8.31
938551	AE1-074 C	3.1

Bus #	Bus	MW Impact
938552	AE1-074 E	1.56
938631	AE1-085 C O1	12.45
938632	AE1-085 E O1	8.3
938771	AE1-103 C O1	3.24
938772	AE1-103 E O1	4.47
939071	AE1-135 C O1	18.69
939072	AE1-135 E O1	12.46
939191	AE1-149 C O1	12.54
939192	AE1-149 E O1	8.36
939241	AE1-155 C	17.01
939242	AE1-155 E	11.34
939281	AE1-159 C O1	12.01
939282	AE1-159 E O1	7.1
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	2.86
939432	AE1-175 E	1.42
939611	AE1-191 C	13.43
939612	AE1-191 E	8.96
939751	AE1-206 C O1	56.7
939752	AE1-206 E O1	37.8
940061	AE1-248 C O1	16.95
940062	AE1-248 E O1	11.3
940071	AE1-249 C	9.33
940072	AE1-249 E	6.96
940231	AE2-005 C	1.73
940232	AE2-005 E	2.83
940251	AE2-007	160.86
940431	AE2-027 C O2	16.68
940432	AE2-027 E O2	11.12
940481	AE2-033 C	15.17
940482	AE2-033 E	10.23
940541	AE2-040	4.13
940551	AE2-041	9.23
940641	AE2-051 C O2	16.67
940642	AE2-051 E O2	11.11
940651	AE2-052	4.2
940891	AE2-078 C	2.59
940892	AE2-078 E	1.33
940901	AE2-079 C	2.59
940902	AE2-079 E	1.33
940911	AE2-080 C	2.59
940912	AE2-080 E	1.33
941101	AE2-104 C O2	3.22
941102	AE2-104 E O2	5.12
941141	AE2-108 C	2.12
941142	AE2-108 E	2.92
941151	AE2-109 C	0.74
941152	AE2-109 E	1.02
941281	AE2-122 C O2	26.18

Bus #	Bus	MW Impact
941282	AE2-122 E O2	105.65
941291	AE2-123 C O2	26.91
941292	AE2-123 E O2	104.93
941301	AE2-124 C O2	24.5
941302	AE2-124 E O2	107.48
941501	AE2-147 C	14.21
941502	AE2-147 E	9.47
941581	AE2-155 C	1.1
941582	AE2-155 E	0.47
941591	AE2-156	16.8
941601	AE2-157 C O2	11.46
941602	AE2-157 E O2	7.64
942001	AE2-212 C	2.82
942002	AE2-212 E	1.88
942131	AE2-225 C	1.96
942132	AE2-225 E	1.31
942151	AE2-227 C O2	3.27
942152	AE2-227 E O2	2.18
942161	AE2-228 C O2	2.97
942162	AE2-228 E O2	1.98
942171	AE2-229 C	1.96
942172	AE2-229 E	1.31
942191	AE2-231 C O2	5.33
942192	AE2-231 E O2	3.55
942341	AE2-247 C	1.5
942342	AE2-247 E	2.07
942401	AE2-253 C	5.61
942402	AE2-253 E	2.52
942471	AE2-260 C O2	12.85
942472	AE2-260 E O2	18.23
942531	AE2-268 C	2.21
942532	AE2-268 E	1.24
942551	AE2-270	32.87
942851	AE2-304 C	0.56
942852	AE2-304 E	0.22
AA2-074	AA2-074	3.26
CARR	CARR	0.78
CBM-S1	CBM-S1	4.14
CBM-S2	CBM-S2	8.5
CBM-W2	CBM-W2	22.9
CIN	CIN	0.19
CPLE	CPLE	4.79
G-007	G-007	2.36
IPL	IPL	0.05
LGEE	LGEE	0.06
MEC	MEC	1.89
O-066	O-066	15.05
RENSSELAER	RENSSELAER	0.61
WEC	WEC	0.04

13.5.12 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842323	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	160.2	162.64	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940491	AE2-034 C	2.86
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O2	1.42
941281	AE2-122 C O2	11.6
941291	AE2-123 C O2	11.92
941301	AE2-124 C O2	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.23
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O2	13.78
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPL	CPL	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

13.5.13 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841888	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	104.19	108.92	DC	56.7

Bus #	Bus	MW Impact
315073	1STONECA	13.17
315074	1HOPCGN1	15.88
315075	1HOPCGN2	15.67
315076	1HOPPOLC	2.22
315077	1HOPHCF1	3.47
315078	1HOPHCF2	3.47
315079	1HOPHCF3	3.47
315080	1HOPHCF4	5.26
315090	1YORKTN1	11.37
315091	1YORKTN2	11.8
315116	1SURREY 1	16.54
315120	1GRAVEL4	1.7
315122	1GRAVEL6	1.7
916192	Z1-068 E	0.75
924811	AB2-134 C O1	2.08
924812	AB2-134 E O1	16.23
925331	AB2-190 C	28.2
925332	AB2-190 E	12.09
925522	AC1-027 E	0.46
926662	AC1-147 E	0.56
927221	AC1-216 C O1	13.04
927222	AC1-216 E O1	10.26
932041	AC2-012 C	4.33
932042	AC2-012 E	7.07
933061	AC2-130	1.75
933732	AC2-196 E	0.45
934011	AD1-025 C	22.42
934012	AD1-025 E	13.28
934061	AD1-033 C	2.86
934062	AD1-033 E	1.9
935112	AD1-144 E	0.41
935161	AD1-151 C O1	22.66
935162	AD1-151 E O1	15.11
936041	AD2-007	2.38
936051	AD2-008 C	3.9
936052	AD2-008 E	8.5
936391	AD2-049 C	0.82
936392	AD2-049 E	0.82
937251	AD2-164	2.01
937541	AD2-215 C	0.75
937542	AD2-215 E	0.4
939311	AE1-162 C	1.54

Bus #	Bus	MW Impact
939312	AE1-162 E	1.03
940251	AE2-007	72.32
940542	AE2-040 BAT	0.94
940891	AE2-078 C	1.96
940892	AE2-078 E	1.01
940901	AE2-079 C	1.96
940902	AE2-079 E	1.01
940911	AE2-080 C	1.96
940912	AE2-080 E	1.01
941281	AE2-122 C O2	11.18
941282	AE2-122 E O2	45.11
941291	AE2-123 C O2	11.49
941292	AE2-123 E O2	44.8
941301	AE2-124 C O2	10.52
941302	AE2-124 E O2	46.18
941591	AE2-156	7.93
942151	AE2-227 C O2	0.91
942152	AE2-227 E O2	0.6
942551	AE2-270	37.8
CARR	CARR	0.17
CBM-S1	CBM-S1	0.92
CBM-S2	CBM-S2	1.5
CBM-W1	CBM-W1	0.3
CBM-W2	CBM-W2	5.4
CIN	CIN	0.18
CPL	CPL	0.78
G-007	G-007	0.53
IPL	IPL	0.1
LGEE	LGEE	0.05
MEC	MEC	0.59
O-066	O-066	3.37
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.04

13.5.14 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842250	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	163.82	166.27	DC	10.84

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSN	0.1
314638	6ELIZ CT	0.06
314639	6TANGLEW	0.12
314643	3O INLET	0.13
315090	1YORKTN1	22.98
315091	1YORKTN2	23.85
315092	1YORKTN3	13.98
315098	1CHESPKA	0.13
315099	1CHESPKB	0.33
315108	1ELIZAR1	0.97
315109	1ELIZAR2	0.96
315110	1ELIZAR3	0.99
315116	1SURRY 1	6.16
315120	1GRAVEL4	0.63
315121	1GRAVEL5	0.63
315122	1GRAVEL6	0.63
315233	1SURRY 2	9.95
315260	1GOSPORTA	0.11
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
901081	W1-029 C	0.32
916041	Z1-036 C	0.31
916191	Z1-068 C	0.01
919151	AA1-139 C	0.73
923801	AB2-015 C O1	2.73
923831	AB2-022 C	0.11
924241	AB2-068 O1	102.57
925521	AC1-027 C	0.1
926291	AC1-107 O1	154.82
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.95
932041	AC2-012 C	4.14
932591	AC2-079 C O1	1.66
933291	AC2-141 C	13.95
933731	AC2-196 C	0.09
933991	AD1-023 C	4.14
934061	AD1-033 C	3.07
934521	AD1-076 C	17.59
935111	AD1-144 C	0.09
936391	AD2-049 C	1.14

Bus #	Bus	MW Impact
936661	AD2-085 C	0.98
936711	AD2-090 C O1	2.18
937221	AD2-160 C O1	2.37
937251	AD2-164	3.53
937541	AD2-215 C	0.75
938171	AE1-026 C1 O	8.68
938172	AE1-026 C2 O	1.26
938181	AE1-027 C	0.95
938191	AE1-028 C	0.55
938531	AE1-072 C O1	7.03
938771	AE1-103 C O1	1.17
939311	AE1-162 C	0.78
939411	AE1-173 C	27.56
939421	AE1-174 C	0.16
939431	AE1-175 C	1.08
940251	AE2-007	70.58
940491	AE2-034 C	2.86
940891	AE2-078 C	0.95
940901	AE2-079 C	0.95
940911	AE2-080 C	0.95
941101	AE2-104 C O2	1.42
941281	AE2-122 C O2	11.6
941291	AE2-123 C O2	11.92
941301	AE2-124 C O2	10.84
941501	AE2-147 C	6.08
941591	AE2-156	7.23
942131	AE2-225 C	0.86
942171	AE2-229 C	0.86
942341	AE2-247 C	0.43
942401	AE2-253 C	2.49
942851	AE2-304 C	0.24
942921	AE2-311 C O2	13.78
CARR	CARR	0.19
CBM-S1	CBM-S1	2.44
CBM-S2	CBM-S2	3.12
CBM-W1	CBM-W1	2.03
CBM-W2	CBM-W2	15.52
CIN	CIN	0.94
CPLE	CPLE	1.65
IPL	IPL	0.58
LGEE	LGEE	0.27
MEC	MEC	2.24
MECS	MECS	0.68
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.25

13.5.15 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841801	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	116.08	119.93	DC	25.12

Bus #	Bus	MW Impact
940251	AE2-007	263.29
941281	AE2-122 C O2	4.3
941282	AE2-122 E O2	17.33
941291	AE2-123 C O2	4.41
941292	AE2-123 E O2	17.21
941301	AE2-124 C O2	4.66
941302	AE2-124 E O2	20.46
941592	AE2-156 BAT	16.31
CBM-N	CBM-N	0.01
CBM-S1	CBM-S1	0.1
CBM-S2	CBM-S2	0.09
CBM-W1	CBM-W1	0.14
CBM-W2	CBM-W2	0.68
CIN	CIN	0.06
CPL	CPL	0.05
G-007A	G-007A	0.02
IPL	IPL	0.04
LGEE	LGEE	0.02
MEC	MEC	0.12
MECS	MECS	0.07
NYISO	NYISO	0.03
VFT	VFT	0.05
WEC	WEC	0.02

13.5.16 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841842	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	108.02	111.6	DC	23.37

Bus #	Bus	MW Impact
940251	AE2-007	244.98
941281	AE2-122 C O2	4.0
941282	AE2-122 E O2	16.13
941291	AE2-123 C O2	4.11
941292	AE2-123 E O2	16.02
941301	AE2-124 C O2	4.34
941302	AE2-124 E O2	19.03
941592	AE2-156 BAT	15.17
CBM-N	CBM-N	0.01
CBM-S1	CBM-S1	0.09
CBM-S2	CBM-S2	0.08
CBM-W1	CBM-W1	0.12
CBM-W2	CBM-W2	0.64
CIN	CIN	0.05
CPL	CPL	0.04
G-007A	G-007A	0.01
IPL	IPL	0.03
LGEE	LGEE	0.02
MEC	MEC	0.11
MECS	MECS	0.07
NYISO	NYISO	0.02
VFT	VFT	0.04
WEC	WEC	0.01

13.5.17 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7902700	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	138.33	140.14	DC	8.16

Bus #	Bus	MW Impact
314507	3THOMPSN	0.07
314589	3MURPHYS	0.04
314638	6ELIZ CT	0.07
314639	6TANGLEW	0.14
314643	3O INLET	0.12
315098	1CHESPKA	0.1
315099	1CHESPKB	0.24
315115	1S HAMPT1	0.5
315126	1ROARAP2	0.41
315128	1ROARAP4	0.39
315136	1ROSEMG1	0.62
315137	1ROSEMS1	0.38
315138	1ROSEMG2	0.29
315139	1GASTONA	0.96
315141	1GASTONB	0.96
315260	1GOSPORTA	0.08
315261	1GOSPORTB	0.1
315262	1GOSPORTC	0.08
315292	1DOMTR78	1.14
315293	1DOMTR9	0.93
315294	1DOMTR10	1.69
901081	W1-029 C	0.42
916041	Z1-036 C	0.51
916191	Z1-068 C	0.01
917331	Z2-043 C	0.2
917511	Z2-088 C OP1	1.34
918491	AA1-063AC OP	0.61
918511	AA1-065 C OP	1.15
918531	AA1-067 C	0.36
918561	AA1-072 C	0.03
919151	AA1-139 C	0.66
919691	AA2-053 C	0.54
920041	AA2-088 C OP	0.39
920671	AA2-174 C	0.02
920691	AA2-178 C	0.95
923801	AB2-015 C O1	3.81
923831	AB2-022 C	0.12
923911	AB2-031 C O1	0.79
923991	AB2-040 C O1	0.32
924491	AB2-098 C	0.99
924501	AB2-099 C	0.47

Bus #	Bus	MW Impact
924511	AB2-100 C	3.88
925061	AB2-161 C O1	1.01
925121	AB2-169 C	1.03
925171	AB2-174 C O1	2.41
925521	AC1-027 C	0.07
926071	AC1-086 C	8.9
926201	AC1-098 C	2.58
926211	AC1-099 C	0.87
926661	AC1-147 C	0.08
927021	AC1-189 C	12.0
930861	AB1-132 C O1	0.74
931231	AB1-173 C	0.1
931241	AB1-173AC	0.1
932041	AC2-012 C	3.0
932591	AC2-079 C O1	1.89
932631	AC2-084 C	3.68
933731	AC2-196 C	0.07
933991	AD1-023 C	12.68
934061	AD1-033 C	2.36
934201	AD1-047 C	2.84
934521	AD1-076 C	50.93
934571	AD1-082 C	2.31
935111	AD1-144 C	0.07
936401	AD2-051 C O1	7.58
936661	AD2-085 C	1.13
936701	AD2-089 C	5.03
936711	AD2-090 C O1	3.34
937221	AD2-160 C O1	2.04
937541	AD2-215 C	0.59
937571	AD2-169 C	3.66
938171	AE1-026 C1 O	27.49
938172	AE1-026 C2 O	3.98
938181	AE1-027 C	0.77
938191	AE1-028 C	0.44
938221	AE1-035 C	2.35
938531	AE1-072 C O1	6.59
938661	AE1-088	4.36
938771	AE1-103 C O1	1.57
939071	AE1-135 C O1	6.73
940061	AE1-248 C O1	4.8
940251	AE2-007	50.77
940491	AE2-034 C	6.83
940521	AE2-037 C O2	11.03
941101	AE2-104 C O2	1.26
941281	AE2-122 C O2	8.76
941291	AE2-123 C O2	9.01
941301	AE2-124 C O2	8.16
941501	AE2-147 C	7.92
941541	AE2-151 C	0.94
942131	AE2-225 C	0.77
942171	AE2-229 C	0.77
942341	AE2-247 C	0.49

Bus #	Bus	MW Impact
942371	AE2-250 C O2	2.87
942401	AE2-253 C	2.14
942471	AE2-260 C O2	4.66
942851	AE2-304 C	0.35
943171	AE2-346 C	1.41
AC1-131	AC1-131	6.95
BLUEG	BLUEG	9.16
CALDERWOOD	CALDERWOOD	1.99
CANNELTON	CANNELTON	0.63
CATAWBA	CATAWBA	1.96
CBM-N	CBM-N	0.29
CHEOAH	CHEOAH	1.86
CHILHOWEE	CHILHOWEE	0.64
COFFEEN	COFFEEN	1.09
COTTONWOOD	COTTONWOOD	6.67
DUCKCREEK	DUCKCREEK	2.22
EDWARDS	EDWARDS	0.99
ELMERSMITH	ELMERSMITH	1.12
FARMERCITY	FARMERCITY	0.79
G-007A	G-007A	1.31
GIBSON	GIBSON	0.4
HAMLET	HAMLET	4.21
NEWTON	NEWTON	2.83
NYISO	NYISO	1.24
PRAIRIE	PRAIRIE	6.0
SANTEETLA	SANTEETLA	0.55
SMITHLAND	SMITHLAND	0.54
TATANKA	TATANKA	1.34
TILTON	TILTON	1.16
TRIMBLE	TRIMBLE	1.0
TVA	TVA	5.58
UNIONPOWER	UNIONPOWER	2.77
VFT	VFT	3.49

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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
7903295	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	108.68	109.93	DC	10.18

Bus #	Bus	MW Impact
314421	6WINCHST	0.04
314507	3THOMPSN	0.1
315090	1YORKTN1	10.65
315091	1YORKTN2	11.05
315092	1YORKTN3	6.44
315098	1CHESPKA	0.13
315099	1CHESPKB	0.31
315102	1BRUNSWICKG1	4.13
315103	1BRUNSWICKG2	4.13
315104	1BRUNSWICKG3	4.13
315105	1BRUNSWICKS1	8.59
315108	1ELIZAR1	0.93
315109	1ELIZAR2	0.92
315110	1ELIZAR3	0.94
315116	1SURRY 1	6.74
315153	1CLOVER1	16.29
315154	1CLOVER2	16.08
315191	1BEARGRDN G1	1.24
315192	1BEARGRDN G2	1.24
315193	1BEARGRDN S1	2.54
315233	1SURRY 2	7.49
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
916191	Z1-068 C	0.01
916301	Z1-086 C	24.14
920291	AA2-127	0.26
924031	AB2-045 C	0.15
925521	AC1-027 C	0.09
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.14
932041	AC2-012 C	3.97
932511	AC2-071 C	0.15
933291	AC2-141 C	13.14
933731	AC2-196 C	0.08
934061	AD1-033 C	2.86
934233	AD1-050 BAT	5.08
934621	AD1-088 C	17.85
937251	AD2-164	1.77
938181	AE1-027 C	0.87
938191	AE1-028 C	0.51

Bus #	Bus	MW Impact
938491	AE1-068 C O1	38.23
938501	AE1-069 C O1	30.93
939311	AE1-162 C	0.81
939411	AE1-173 C	43.23
940251	AE2-007	67.63
940471	AE2-031 C O2	22.98
940641	AE2-051 C O2	6.07
940891	AE2-078 C	0.87
940901	AE2-079 C	0.87
940911	AE2-080 C	0.87
941031	AE2-094 C	23.49
941281	AE2-122 C O2	10.87
941291	AE2-123 C O2	11.17
941301	AE2-124 C O2	10.18
941591	AE2-156	6.96
941791	AE2-182 C	3.23
942211	AE2-233 C	7.68
942921	AE2-311 C O2	21.61
942931	AE2-313 C	23.68
943051	AE2-328 C	11.8
AC1-131	AC1-131	9.78
BLUEG	BLUEG	18.52
CALDERWOOD	CALDERWOOD	3.67
CANNELTON	CANNELTON	1.25
CATAWBA	CATAWBA	3.52
CBM-N	CBM-N	0.67
CHEOAH	CHEOAH	3.42
CHILHOWEE	CHILHOWEE	1.19
COFFEEN	COFFEEN	2.13
COTTONWOOD	COTTONWOOD	12.22
DUCKCREEK	DUCKCREEK	4.38
EDWARDS	EDWARDS	1.96
ELMERSMITH	ELMERSMITH	2.2
FARMERCITY	FARMERCITY	1.53
G-007A	G-007A	3.0
GIBSON	GIBSON	0.79
HAMLET	HAMLET	6.6
NEWTON	NEWTON	5.55
NYISO	NYISO	2.89
PRAIRIE	PRAIRIE	11.53
SANTEETLA	SANTEETLA	1.02
SMITHLAND	SMITHLAND	1.02
TATANKA	TATANKA	2.59
TILTON	TILTON	2.32
TRIMBLE	TRIMBLE	2.04
TVA	TVA	10.32
UNIONPOWER	UNIONPOWER	5.07
VFT	VFT	7.99

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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
1842177	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	150.43	152.31	DC	46.05

Bus #	Bus	MW Impact
314421	6WINCHST	0.19
314507	3THOMPSN	0.43
314638	6ELIZ CT	0.28
314639	6TANGLEW	0.5
314643	3O INLET	0.56
315074	1HOPCGN1	9.52
315075	1HOPCGN2	9.4
315090	1YORKTN1	50.95
315091	1YORKTN2	52.87
315092	1YORKTN3	30.89
315098	1CHESPKA	0.56
315099	1CHESPKB	1.4
315108	1ELIZAR1	4.14
315109	1ELIZAR2	4.07
315110	1ELIZAR3	4.2
315116	1SURRY 1	28.48
315120	1GRAVEL4	2.93
315121	1GRAVEL5	2.89
315122	1GRAVEL6	2.93
315131	1EDGECEMA	11.15
315132	1EDGECEMB	11.15
315233	1SURRY 2	37.58
315260	1GOSPORTA	0.45
315261	1GOSPORTB	0.57
315262	1GOSPORTC	0.49
901081	W1-029 C	1.38
916041	Z1-036 C	1.34
916191	Z1-068 C	0.06
919151	AA1-139 C	3.13
919701	AA2-057 C	8.79
923801	AB2-015 C O1	12.96
923831	AB2-022 C	0.47
923841	AB2-024 C	0.47
923911	AB2-031 C O1	2.78
924241	AB2-068 O1	607.0
924491	AB2-098 C	0.76
924501	AB2-099 C	0.82
924511	AB2-100 C	14.25
925061	AB2-161 C O1	4.78
925171	AB2-174 C O1	8.68
925331	AB2-190 C	27.02

Bus #	Bus	MW Impact
925521	AC1-027 C	0.42
925591	AC1-034 C	8.21
925861	AC1-065 C	5.05
926071	AC1-086 C	26.3
926201	AC1-098 C	7.92
926211	AC1-099 C	2.65
926291	AC1-107 O1	916.22
926661	AC1-147 C	0.48
926751	AC1-161 C O1	56.99
926781	AC1-164 C	64.03
927021	AC1-189 C	11.37
927141	AC1-208 C	11.41
927221	AC1-216 C O1	13.51
932041	AC2-012 C	17.66
932581	AC2-078 C O1	5.08
932591	AC2-079 C O1	8.71
932631	AC2-084 C	11.29
932831	AC2-110 C	2.02
933061	AC2-130	2.81
933291	AC2-141 C	56.99
933731	AC2-196 C	0.38
933991	AD1-023 C	19.44
934011	AD1-025 C	23.23
934061	AD1-033 C	13.04
934141	AD1-041 C	8.0
934201	AD1-047 C	9.95
934331	AD1-057 C O1	12.33
934521	AD1-076 C	81.69
934571	AD1-082 C	10.9
935111	AD1-144 C	0.35
935161	AD1-151 C O1	21.71
936041	AD2-007	2.47
936051	AD2-008 C	4.04
936151	AD2-021	0.3
936241	AD2-030 C	3.51
936301	AD2-039 C	2.02
936391	AD2-049 C	3.09
936401	AD2-051 C O1	12.17
936531	AD2-068 C	6.41
936591	AD2-074 C	7.02
936661	AD2-085 C	5.21
936701	AD2-089 C	9.09
936711	AD2-090 C O1	10.57
937221	AD2-160 C O1	10.08
937251	AD2-164	8.44
937541	AD2-215 C	2.93
937571	AD2-169 C	12.48
938031	AE1-004 C	2.02
938171	AE1-026 C1 O	41.09
938172	AE1-026 C2 O	5.94
938181	AE1-027 C	4.05
938191	AE1-028 C	2.35

Bus #	Bus	MW Impact
938221	AE1-035 C	3.18
938491	AE1-068 C O1	82.21
938501	AE1-069 C O1	64.27
938531	AE1-072 C O1	30.01
938631	AE1-085 C O1	13.85
938661	AE1-088	2.52
938771	AE1-103 C O1	5.52
939071	AE1-135 C O1	25.53
939191	AE1-149 C O1	13.01
939241	AE1-155 C	18.61
939311	AE1-162 C	3.48
939411	AE1-173 C	139.64
939421	AE1-174 C	0.63
939431	AE1-175 C	4.2
939611	AE1-191 C	16.0
940061	AE1-248 C O1	22.66
940231	AE2-005 C	2.02
940251	AE2-007	300.6
940471	AE2-031 C O2	44.1
940481	AE2-033 C	19.16
940491	AE2-034 C	12.98
940521	AE2-037 C O2	10.99
940551	AE2-041	11.04
940571	AE2-044 C	5.38
940641	AE2-051 C O2	19.6
940651	AE2-052	4.36
940891	AE2-078 C	3.73
940901	AE2-079 C	3.73
940911	AE2-080 C	3.73
941031	AE2-094 C	53.94
941101	AE2-104 C O2	5.93
941281	AE2-122 C O2	49.27
941291	AE2-123 C O2	50.64
941301	AE2-124 C O2	46.05
941501	AE2-147 C	26.21
941541	AE2-151 C	1.51
941591	AE2-156	30.9
941601	AE2-157 C O2	14.84
941951	AE2-207	3.47
942131	AE2-225 C	3.61
942171	AE2-229 C	3.61
942211	AE2-233 C	17.62
942341	AE2-247 C	2.26
942371	AE2-250 C O2	11.08
942401	AE2-253 C	10.6
942471	AE2-260 C O2	17.59
942531	AE2-268 C	2.64
942551	AE2-270	36.21
942711	AE2-287 C O2	14.61
942851	AE2-304 C	1.03
942921	AE2-311 C O2	69.82
942931	AE2-313 C	48.46

Bus #	Bus	MW Impact
943171	AE2-346 C	2.45
AA2-074	AA2-074	6.33
CARR	CARR	1.23
CBM-S1	CBM-S1	12.44
CBM-S2	CBM-S2	17.46
CBM-W1	CBM-W1	8.49
CBM-W2	CBM-W2	77.13
CIN	CIN	4.08
CPL	CPL	9.31
IPL	IPL	2.49
LGEE	LGEE	1.19
MEC	MEC	10.4
MECS	MECS	1.96
RENSSELAER	RENSSELAER	0.97
WEC	WEC	1.08

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1842390	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	single	2442.12	131.86	132.41	DC	29.08

Bus #	Bus	MW Impact
314229	6MT RD221	0.1
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.28
314309	6IRON208	0.37
315037	1LDYSMT1	3.81
315038	1LDYSMT2	3.8
315039	1LDYSMT3	4.02
315040	1LDYSMT4	4.03
315041	1LDYSMT5	4.04
315043	1FOUR RIVERA	3.02
315044	1FOUR RIVERB	2.34
315045	1FOUR RIVERC	3.02
315046	1FOUR RIVERD	2.34
315047	1FOUR RIVERE	2.34
315048	1FOUR RIVERF	3.02
315053	1BELMED1	19.48
315054	1BELMED2	19.48
315055	1BELMED3	16.17
315058	1CHESTF3	20.44
315059	1CHESTF4	33.13
315067	1DARBY 1	2.16
315068	1DARBY 2	2.16
315069	1DARBY 3	2.17
315070	1DARBY 4	2.17
315074	1HOPCGN1	9.37
315075	1HOPCGN2	9.25
315083	1SPRUNCA	11.93
315084	1SPRUNCB	11.93
315085	1SPRUNCC	8.84
315086	1SPRUNCD	8.84
315090	1YORKTN1	31.8
315091	1YORKTN2	33.0
315225	1N ANNA1	30.98
315226	1N ANNA2	31.05
919211	AA1-145	8.72
923801	AB2-015 C O1	9.06
924061	AB2-050	0.51
924241	AB2-068 O1	226.15
924501	AB2-099 C	0.59
924511	AB2-100 C	11.8
925051	AB2-160 C O1	6.09

Bus #	Bus	MW Impact
925061	AB2-161 C O1	3.71
925331	AB2-190 C	22.46
925861	AC1-065 C	3.76
926001	AC1-076 C	4.92
926291	AC1-107 O1	341.36
926411	AC1-112 C	0.28
926551	AC1-134	1.28
926731	AC1-158 C	93.16
926751	AC1-161 C O1	33.44
926781	AC1-164 C	45.47
927041	AC1-191 C O1	10.76
927221	AC1-216 C O1	10.98
930121	AB1-027 C	0.36
932041	AC2-012 C	11.19
932501	AC2-070 C	0.23
932581	AC2-078 C O1	4.49
932591	AC2-079 C O1	6.26
932831	AC2-110 C	1.5
933011	AC2-125	3.08
933021	AC2-126	3.1
933061	AC2-130	2.7
933261	AC2-137 C	0.29
933291	AC2-141 C	33.44
933991	AD1-023 C	13.49
934011	AD1-025 C	18.87
934061	AD1-033 C	8.21
934141	AD1-041 C	5.9
934211	AD1-048 C	0.34
934521	AD1-076 C	56.18
934541	AD1-078 C	3.04
934571	AD1-082 C	8.45
934781	AD1-105 C	7.77
935161	AD1-151 C O1	18.05
936041	AD2-007	2.0
936051	AD2-008 C	3.28
936151	AD2-021	0.27
936241	AD2-030 C	2.56
936301	AD2-039 C	1.5
936341	AD2-044 C	0.26
936391	AD2-049 C	1.98
936591	AD2-074 C	5.92
936661	AD2-085 C	3.76
936711	AD2-090 C O1	7.49
937221	AD2-160 C O1	6.37
937251	AD2-164	5.32
937541	AD2-215 C	1.91
938031	AE1-004 C	1.5
938171	AE1-026 C1 O	28.67
938172	AE1-026 C2 O	4.15
938181	AE1-027 C	2.56
938191	AE1-028 C	1.48
938221	AE1-035 C	2.27

Bus #	Bus	MW Impact
938491	AE1-068 C O1	59.76
938501	AE1-069 C O1	46.84
938531	AE1-072 C O1	19.07
938551	AE1-074 C	2.74
938561	AE1-075 C	2.13
938631	AE1-085 C O1	12.05
938771	AE1-103 C O1	3.84
939071	AE1-135 C O1	21.27
939191	AE1-149 C O1	11.85
939241	AE1-155 C	16.04
939261	AE1-157 C O1	16.17
939271	AE1-158 C O1	16.5
939311	AE1-162 C	2.37
939411	AE1-173 C	93.79
939421	AE1-174 C	0.21
939431	AE1-175 C	2.69
939611	AE1-191 C	11.81
939751	AE1-206 C O1	37.97
940061	AE1-248 C O1	17.55
940071	AE1-249 C	8.03
940231	AE2-005 C	1.5
940251	AE2-007	190.05
940431	AE2-027 C O2	14.41
940471	AE2-031 C O2	32.22
940481	AE2-033 C	16.54
940491	AE2-034 C	8.77
940541	AE2-040	3.55
940551	AE2-041	7.96
940641	AE2-051 C O2	17.49
940651	AE2-052	3.97
940891	AE2-078 C	2.63
940901	AE2-079 C	2.63
940911	AE2-080 C	2.63
941031	AE2-094 C	39.03
941101	AE2-104 C O2	3.81
941141	AE2-108 C	1.44
941151	AE2-109 C	0.5
941281	AE2-122 C O2	31.11
941291	AE2-123 C O2	31.97
941301	AE2-124 C O2	29.08
941381	AE2-134	3.14
941501	AE2-147 C	17.01
941581	AE2-155 C	0.73
941591	AE2-156	19.67
941601	AE2-157 C O2	11.72
942001	AE2-212 C	2.41
942131	AE2-225 C	2.32
942151	AE2-227 C O2	2.47
942161	AE2-228 C O2	2.42
942171	AE2-229 C	2.32
942191	AE2-231 C O2	6.25
942211	AE2-233 C	12.75

Bus #	Bus	MW Impact
942341	AE2-247 C	1.63
942371	AE2-250 C O2	9.17
942401	AE2-253 C	6.7
942471	AE2-260 C O2	14.65
942531	AE2-268 C	1.91
942551	AE2-270	30.11
942851	AE2-304 C	0.67
942921	AE2-311 C O2	46.89
942931	AE2-313 C	35.26
943171	AE2-346 C	1.78
AA2-074	AA2-074	5.17
CARR	CARR	1.69
CBM-S1	CBM-S1	12.53
CBM-S2	CBM-S2	15.01
CBM-W1	CBM-W1	9.07
CBM-W2	CBM-W2	77.48
CIN	CIN	4.6
CPLE	CPLE	7.61
IPL	IPL	2.84
LGEE	LGEE	1.38
MEC	MEC	10.87
MECS	MECS	2.05
RENSSELAER	RENSSELAER	1.34
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
1842056	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	165.6	166.51	DC	47.94

Bus #	Bus	MW Impact
314229	6MT RD221	0.17
314236	6NRTHEST	0.26
314309	6IRON208	0.62
314421	6WINCHST	0.2
315053	1BELMED1	31.5
315054	1BELMED2	31.5
315055	1BELMED3	26.14
315058	1CHESTF3	33.46
315059	1CHESTF4	54.23
315060	1CHESTF5	13.99
315061	1CHESTG7	5.48
315062	1CHESTS7	2.49
315063	1CHESTG8	5.38
315064	1CHESTS8	2.77
315067	1DARBY 1	3.58
315068	1DARBY 2	3.58
315069	1DARBY 3	3.6
315070	1DARBY 4	3.6
315074	1HOPCGN1	15.43
315075	1HOPCGN2	15.23
315076	1HOPPOLC	2.16
315077	1HOPHCF1	3.37
315078	1HOPHCF2	3.37
315079	1HOPHCF3	3.37
315080	1HOPHCF4	5.12
315083	1SPRUNCA	19.06
315084	1SPRUNCB	19.06
315085	1SPRUNCC	14.13
315086	1SPRUNCD	14.13
315090	1YORKTN1	53.19
315091	1YORKTN2	55.2
315092	1YORKTN3	32.17
315233	1SURRY 2	34.94
923801	AB2-015 C O1	14.83
924241	AB2-068 O1	427.69
924501	AB2-099 C	0.97
924511	AB2-100 C	19.0
925051	AB2-160 C O1	9.87
925061	AB2-161 C O1	6.05
925331	AB2-190 C	37.05
925861	AC1-065 C	6.02

Bus #	Bus	MW Impact
926291	AC1-107 O1	645.57
926411	AC1-112 C	0.47
926751	AC1-161 C O1	55.47
926781	AC1-164 C	77.58
927041	AC1-191 C O1	17.01
927221	AC1-216 C O1	18.11
930121	AB1-027 C	0.6
932041	AC2-012 C	18.46
932501	AC2-070 C	0.39
932581	AC2-078 C O1	7.31
932591	AC2-079 C O1	10.25
932831	AC2-110 C	2.41
933061	AC2-130	4.5
933261	AC2-137 C	0.48
933291	AC2-141 C	55.47
933991	AD1-023 C	22.13
934011	AD1-025 C	31.13
934061	AD1-033 C	13.54
934141	AD1-041 C	9.39
934211	AD1-048 C	0.56
934521	AD1-076 C	92.19
934571	AD1-082 C	13.8
935161	AD1-151 C O1	29.78
936041	AD2-007	3.3
936051	AD2-008 C	5.42
936151	AD2-021	0.45
936241	AD2-030 C	4.04
936301	AD2-039 C	2.41
936391	AD2-049 C	3.3
936401	AD2-051 C O1	14.41
936661	AD2-085 C	6.15
936711	AD2-090 C O1	12.24
937221	AD2-160 C O1	10.5
937251	AD2-164	8.88
937541	AD2-215 C	3.15
938031	AE1-004 C	2.41
938171	AE1-026 C1 O	47.0
938172	AE1-026 C2 O	6.8
938181	AE1-027 C	4.21
938191	AE1-028 C	2.44
938221	AE1-035 C	3.72
938491	AE1-068 C O1	93.03
938501	AE1-069 C O1	72.97
938531	AE1-072 C O1	31.41
938551	AE1-074 C	4.27
938631	AE1-085 C O1	19.6
938661	AE1-088	2.91
938771	AE1-103 C O1	6.28
939071	AE1-135 C O1	34.22
939191	AE1-149 C O1	19.26
939311	AE1-162 C	3.92
939411	AE1-173 C	149.1

Bus #	Bus	MW Impact
939421	AE1-174 C	0.68
939431	AE1-175 C	4.54
939611	AE1-191 C	18.79
939751	AE1-206 C O1	50.23
940061	AE1-248 C O1	28.67
940071	AE1-249 C	13.03
940231	AE2-005 C	2.41
940251	AE2-007	313.38
940431	AE2-027 C O2	23.32
940471	AE2-031 C O2	50.13
940481	AE2-033 C	26.48
940491	AE2-034 C	14.4
940541	AE2-040	5.76
940551	AE2-041	12.87
940641	AE2-051 C O2	27.88
940651	AE2-052	6.45
940891	AE2-078 C	4.35
940901	AE2-079 C	4.35
940911	AE2-080 C	4.35
941031	AE2-094 C	60.66
941101	AE2-104 C O2	6.28
941281	AE2-122 C O2	51.29
941291	AE2-123 C O2	52.7
941301	AE2-124 C O2	47.94
941501	AE2-147 C	28.0
941541	AE2-151 C	1.79
941581	AE2-155 C	1.23
941591	AE2-156	32.43
941601	AE2-157 C O2	19.13
942001	AE2-212 C	3.9
942131	AE2-225 C	3.82
942151	AE2-227 C O2	4.07
942161	AE2-228 C O2	3.94
942171	AE2-229 C	3.82
942211	AE2-233 C	19.82
942341	AE2-247 C	2.67
942371	AE2-250 C O2	14.77
942401	AE2-253 C	11.05
942471	AE2-260 C O2	23.57
942531	AE2-268 C	3.08
942551	AE2-270	49.66
942851	AE2-304 C	1.11
942921	AE2-311 C O2	74.55
942931	AE2-313 C	54.81
943171	AE2-346 C	2.9
AA2-074	AA2-074	8.65
CARR	CARR	2.59
CBM-S1	CBM-S1	26.68
CBM-S2	CBM-S2	26.03
CBM-W1	CBM-W1	27.93
CBM-W2	CBM-W2	174.07
CIN	CIN	13.04

Bus #	Bus	MW Impact
CPL	CPL	12.72
IPL	IPL	8.21
LGEE	LGEE	3.84
MEC	MEC	27.76
MECS	MECS	11.64
RENSSELAER	RENSSELAER	2.05
WEC	WEC	3.42
Z1-043	Z1-043	13.47

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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
1842510	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	single	2738.22	120.96	121.46	DC	29.55

Bus #	Bus	MW Impact
314229	6MT RD221	0.1
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.28
314309	6IRON208	0.38
315037	1LDYSMT1	3.9
315038	1LDYSMT2	3.9
315039	1LDYSMT3	4.13
315040	1LDYSMT4	4.14
315041	1LDYSMT5	4.15
315043	1FOUR RIVERA	3.08
315044	1FOUR RIVERB	2.39
315045	1FOUR RIVERC	3.08
315046	1FOUR RIVERD	2.39
315047	1FOUR RIVERE	2.39
315048	1FOUR RIVERF	3.08
315053	1BELMED1	19.81
315054	1BELMED2	19.81
315055	1BELMED3	16.44
315058	1CHESTF3	20.8
315059	1CHESTF4	33.71
315067	1DARBY 1	2.2
315068	1DARBY 2	2.2
315069	1DARBY 3	2.21
315070	1DARBY 4	2.21
315074	1HOPCGN1	9.53
315075	1HOPCGN2	9.41
315083	1SPRUNCA	12.12
315084	1SPRUNCB	12.12
315085	1SPRUNCC	8.99
315086	1SPRUNCD	8.99
315090	1YORKTN1	32.35
315091	1YORKTN2	33.57
315225	1N ANNA1	31.47
315226	1N ANNA2	31.54
919211	AA1-145	8.91
923801	AB2-015 C O1	9.19
923911	AB2-031 C O1	2.27
924061	AB2-050	0.52
924241	AB2-068 O1	230.43
924501	AB2-099 C	0.6
924511	AB2-100 C	11.97

Bus #	Bus	MW Impact
925051	AB2-160 C O1	6.19
925061	AB2-161 C O1	3.77
925171	AB2-174 C O1	7.15
925331	AB2-190 C	22.84
925861	AC1-065 C	3.83
926291	AC1-107 O1	347.82
926411	AC1-112 C	0.28
926551	AC1-134	1.31
926751	AC1-161 C O1	33.98
926781	AC1-164 C	46.3
927041	AC1-191 C O1	10.97
927221	AC1-216 C O1	11.16
930121	AB1-027 C	0.36
932041	AC2-012 C	11.38
932501	AC2-070 C	0.24
932581	AC2-078 C O1	4.57
932591	AC2-079 C O1	6.36
932831	AC2-110 C	1.53
933011	AC2-125	3.16
933021	AC2-126	3.18
933061	AC2-130	2.75
933261	AC2-137 C	0.29
933291	AC2-141 C	33.98
933991	AD1-023 C	13.69
934011	AD1-025 C	19.19
934061	AD1-033 C	8.35
934141	AD1-041 C	6.01
934201	AD1-047 C	8.14
934211	AD1-048 C	0.34
934521	AD1-076 C	57.01
934571	AD1-082 C	8.58
934781	AD1-105 C	7.94
935161	AD1-151 C O1	18.36
936041	AD2-007	2.04
936051	AD2-008 C	3.34
936151	AD2-021	0.27
936241	AD2-030 C	2.61
936301	AD2-039 C	1.53
936341	AD2-044 C	0.27
936391	AD2-049 C	2.02
936401	AD2-051 C O1	8.94
936581	AD2-073 C	2.27
936591	AD2-074 C	6.04
936661	AD2-085 C	3.82
936711	AD2-090 C O1	7.6
937221	AD2-160 C O1	6.48
937251	AD2-164	5.41
937541	AD2-215 C	1.94
938031	AE1-004 C	1.53
938171	AE1-026 C1 O	29.09
938172	AE1-026 C2 O	4.21
938181	AE1-027 C	2.6

Bus #	Bus	MW Impact
938191	AE1-028 C	1.51
938221	AE1-035 C	2.3
938491	AE1-068 C O1	60.62
938501	AE1-069 C O1	47.5
938531	AE1-072 C O1	19.37
938551	AE1-074 C	2.79
938561	AE1-075 C	2.13
938631	AE1-085 C O1	12.25
938661	AE1-088	1.8
938771	AE1-103 C O1	3.89
939071	AE1-135 C O1	21.58
939191	AE1-149 C O1	12.05
939241	AE1-155 C	16.37
939261	AE1-157 C O1	16.56
939271	AE1-158 C O1	16.9
939311	AE1-162 C	2.41
939411	AE1-173 C	95.24
939421	AE1-174 C	0.22
939431	AE1-175 C	2.74
939611	AE1-191 C	12.03
939751	AE1-206 C O1	38.74
940061	AE1-248 C O1	17.84
940071	AE1-249 C	8.16
940231	AE2-005 C	1.53
940251	AE2-007	193.14
940431	AE2-027 C O2	14.65
940471	AE2-031 C O2	32.68
940481	AE2-033 C	16.79
940491	AE2-034 C	8.9
940541	AE2-040	3.61
940551	AE2-041	8.11
940641	AE2-051 C O2	17.76
940651	AE2-052	4.04
940891	AE2-078 C	2.67
940901	AE2-079 C	2.67
940911	AE2-080 C	2.67
941031	AE2-094 C	39.6
941101	AE2-104 C O2	3.87
941141	AE2-108 C	1.47
941151	AE2-109 C	0.51
941281	AE2-122 C O2	31.61
941291	AE2-123 C O2	32.49
941301	AE2-124 C O2	29.55
941501	AE2-147 C	17.28
941541	AE2-151 C	1.11
941581	AE2-155 C	0.74
941591	AE2-156	19.99
941601	AE2-157 C O2	11.91
942001	AE2-212 C	2.45
942131	AE2-225 C	2.36
942151	AE2-227 C O2	2.52
942161	AE2-228 C O2	2.47

Bus #	Bus	MW Impact
942171	AE2-229 C	2.36
942191	AE2-231 C O2	6.4
942211	AE2-233 C	12.94
942341	AE2-247 C	1.65
942371	AE2-250 C O2	9.3
942401	AE2-253 C	6.81
942471	AE2-260 C O2	14.86
942531	AE2-268 C	1.94
942551	AE2-270	30.62
942851	AE2-304 C	0.68
942921	AE2-311 C O2	47.62
942931	AE2-313 C	35.76
943171	AE2-346 C	1.8
AA2-074	AA2-074	5.23
CARR	CARR	1.69
CBM-S1	CBM-S1	12.54
CBM-S2	CBM-S2	15.13
CBM-W1	CBM-W1	8.96
CBM-W2	CBM-W2	77.41
CIN	CIN	4.55
CPL	CPL	7.68
IPL	IPL	2.81
LGEE	LGEE	1.37
MEC	MEC	10.81
MECS	MECS	1.96
RENSSELAER	RENSSELAER	1.34
WEC	WEC	1.16

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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
1842132	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	157.87	159.6	DC	42.59

Bus #	Bus	MW Impact
314507	3THOMPSN	0.39
314638	6ELIZ CT	0.26
314639	6TANGLEW	0.48
314643	3O INLET	0.52
315053	1BELMED1	25.0
315054	1BELMED2	25.0
315055	1BELMED3	20.75
315058	1CHESTF3	25.07
315059	1CHESTF4	40.64
315074	1HOPCGN1	12.09
315075	1HOPCGN2	11.93
315083	1SPRUNCA	16.01
315084	1SPRUNCB	16.01
315085	1SPRUNCC	11.87
315086	1SPRUNCD	11.87
315090	1YORKTN1	42.39
315091	1YORKTN2	43.99
315098	1CHESPKA	0.52
315099	1CHESPKB	1.3
315102	1BRUNSWICKG1	10.29
315103	1BRUNSWICKG2	10.29
315104	1BRUNSWICKG3	10.29
315105	1BRUNSWICKS1	21.38
315108	1ELIZAR1	3.83
315109	1ELIZAR2	3.76
315110	1ELIZAR3	3.88
315116	1SURRY 1	28.17
315120	1GRAVEL4	2.9
315122	1GRAVEL6	2.9
315131	1EDGECEMA	13.5
315132	1EDGECEMB	13.5
315233	1SURRY 2	28.7
315260	1GOSPORTA	0.42
315261	1GOSPORTB	0.53
315262	1GOSPORTC	0.45
901081	W1-029 C	1.33
916041	Z1-036 C	1.31
916191	Z1-068 C	0.05
916301	Z1-086 C	62.63
919151	AA1-139 C	2.92
919701	AA2-057 C	10.5

Bus #	Bus	MW Impact
923801	AB2-015 C O1	13.47
923831	AB2-022 C	0.45
923851	AB2-025 C	0.48
923911	AB2-031 C O1	3.43
924241	AB2-068 O1	244.96
924401	AB2-089 C	3.06
924491	AB2-098 C	0.86
924501	AB2-099 C	0.9
924511	AB2-100 C	17.96
925051	AB2-160 C O1	8.18
925061	AB2-161 C O1	5.3
925171	AB2-174 C O1	10.78
925331	AB2-190 C	29.95
925521	AC1-027 C	0.39
925591	AC1-034 C	9.94
925781	AC1-054 C O1	10.4
925861	AC1-065 C	4.34
926071	AC1-086 C	31.57
926201	AC1-098 C	9.23
926211	AC1-099 C	3.09
926291	AC1-107 O1	369.74
926661	AC1-147 C	0.44
926751	AC1-161 C O1	49.05
926781	AC1-164 C	52.57
927021	AC1-189 C	12.94
927141	AC1-208 C	13.51
927221	AC1-216 C O1	14.71
932041	AC2-012 C	16.34
932581	AC2-078 C O1	6.31
932591	AC2-079 C O1	9.05
932631	AC2-084 C	13.15
932831	AC2-110 C	1.74
933061	AC2-130	3.3
933291	AC2-141 C	49.05
933501	AC2-165 C	14.51
933731	AC2-196 C	0.35
933991	AD1-023 C	20.32
934011	AD1-025 C	25.28
934061	AD1-033 C	12.05
934201	AD1-047 C	12.28
934231	AD1-050 C	6.74
934331	AD1-057 C O1	14.87
934521	AD1-076 C	84.44
934571	AD1-082 C	12.07
934611	AD1-087 C O1	12.14
934621	AD1-088 C	18.61
935111	AD1-144 C	0.33
935161	AD1-151 C O1	24.07
935171	AD1-152 C O1	12.06
935211	AD1-156 C	0.41
936041	AD2-007	2.68
936051	AD2-008 C	4.4

Bus #	Bus	MW Impact
936151	AD2-021	0.31
936301	AD2-039 C	1.74
936391	AD2-049 C	2.72
936401	AD2-051 C O1	13.38
936531	AD2-068 C	7.57
936661	AD2-085 C	5.43
936701	AD2-089 C	10.68
936711	AD2-090 C O1	11.19
937221	AD2-160 C O1	9.37
937251	AD2-164	7.16
937481	AD2-202 C O1	3.34
937541	AD2-215 C	2.75
937571	AD2-169 C	15.28
938031	AE1-004 C	1.74
938171	AE1-026 C1 O	43.23
938172	AE1-026 C2 O	6.25
938181	AE1-027 C	3.75
938191	AE1-028 C	2.18
938221	AE1-035 C	3.44
938491	AE1-068 C O1	102.49
938501	AE1-069 C O1	80.25
938531	AE1-072 C O1	28.04
938551	AE1-074 C	4.0
938561	AE1-075 C	3.29
938631	AE1-085 C O1	16.95
938661	AE1-088	2.7
938771	AE1-103 C O1	5.69
939071	AE1-135 C O1	32.36
939191	AE1-149 C O1	16.57
939311	AE1-162 C	3.34
939411	AE1-173 C	152.3
939421	AE1-174 C	0.27
939431	AE1-175 C	3.41
940061	AE1-248 C O1	25.09
940071	AE1-249 C	10.79
940231	AE2-005 C	1.74
940251	AE2-007	277.69
940431	AE2-027 C O2	19.56
940471	AE2-031 C O2	55.18
940481	AE2-033 C	25.04
940491	AE2-034 C	13.11
940521	AE2-037 C O2	12.09
940541	AE2-040	4.78
940551	AE2-041	9.18
940571	AE2-044 C	6.51
940641	AE2-051 C O2	26.37
940651	AE2-052	5.55
940891	AE2-078 C	3.6
940901	AE2-079 C	3.6
940911	AE2-080 C	3.6
941031	AE2-094 C	67.04
941101	AE2-104 C O2	5.59

Bus #	Bus	MW Impact
941281	AE2-122 C O2	45.57
941291	AE2-123 C O2	46.83
941301	AE2-124 C O2	42.59
941501	AE2-147 C	25.12
941541	AE2-151 C	1.66
941591	AE2-156	28.65
941601	AE2-157 C O2	16.71
941791	AE2-182 C	3.37
941951	AE2-207	4.21
942001	AE2-212 C	3.24
942131	AE2-225 C	3.41
942151	AE2-227 C O2	3.03
942161	AE2-228 C O2	3.18
942171	AE2-229 C	3.41
942211	AE2-233 C	21.91
942341	AE2-247 C	2.35
942371	AE2-250 C O2	14.01
942401	AE2-253 C	9.85
942471	AE2-260 C O2	22.28
942531	AE2-268 C	2.2
942551	AE2-270	40.14
942711	AE2-287 C O2	19.23
942851	AE2-304 C	1.0
942921	AE2-311 C O2	76.15
942931	AE2-313 C	60.47
943171	AE2-346 C	2.69
AA2-074	AA2-074	8.49
CARR	CARR	2.07
CBM-S1	CBM-S1	23.17
CBM-S2	CBM-S2	24.91
CBM-W1	CBM-W1	22.48
CBM-W2	CBM-W2	149.66
CIN	CIN	10.5
CPLE	CPLE	12.48
IPL	IPL	6.58
LGEE	LGEE	3.08
MEC	MEC	23.09
MECS	MECS	8.8
RENSSELAER	RENSSELAER	1.64
WEC	WEC	2.76
Z1-043	Z1-043	10.89

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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
1842615	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	single	3218.56	117.45	117.91	DC	32.48

Bus #	Bus	MW Impact
314236	6NRTHEST	0.17
314250	6ROCKVILLE	0.3
314309	6IRON208	0.4
314314	3LOCKS	0.26
314507	3THOMPSN	0.3
315053	1BELMED1	21.1
315054	1BELMED2	21.1
315055	1BELMED3	17.52
315058	1CHESTF3	21.87
315059	1CHESTF4	35.45
315065	1CHESTF6	18.16
315074	1HOPCGN1	10.14
315075	1HOPCGN2	10.01
315076	1HOPPOLC	1.42
315077	1HOPHCF1	2.21
315078	1HOPHCF2	2.21
315079	1HOPHCF3	2.21
315080	1HOPHCF4	3.36
315083	1SPRUNCA	13.09
315084	1SPRUNCB	13.09
315085	1SPRUNCC	9.7
315086	1SPRUNCD	9.7
315090	1YORKTN1	34.62
315091	1YORKTN2	35.92
315098	1CHESPKA	0.4
315099	1CHESPKB	0.99
315108	1ELIZAR1	2.92
315109	1ELIZAR2	2.87
315110	1ELIZAR3	2.96
315225	1N ANNA1	45.34
315226	1N ANNA2	45.44
315233	1SURREY 2	22.66
315260	1GOSPORTA	0.32
315261	1GOSPORTB	0.41
315262	1GOSPORTC	0.34
923801	AB2-015 C O1	10.16
923911	AB2-031 C O1	2.53
924241	AB2-068 O1	230.56
924501	AB2-099 C	0.67
924511	AB2-100 C	13.34
925051	AB2-160 C O1	6.67

Bus #	Bus	MW Impact
925061	AB2-161 C O1	4.12
925171	AB2-174 C O1	7.98
925331	AB2-190 C	24.5
925821	AC1-061	0.01
925861	AC1-065 C	3.98
926071	AC1-086 C	23.3
926291	AC1-107 O1	348.02
926661	AC1-147 C	0.34
926751	AC1-161 C O1	37.34
926781	AC1-164 C	47.75
927041	AC1-191 C O1	11.08
927221	AC1-216 C O1	11.98
932041	AC2-012 C	12.49
932581	AC2-078 C O1	4.97
932591	AC2-079 C O1	6.97
932831	AC2-110 C	1.59
933011	AC2-125	2.87
933021	AC2-126	2.88
933061	AC2-130	2.88
933291	AC2-141 C	37.34
933501	AC2-165 C	10.99
933991	AD1-023 C	15.17
934011	AD1-025 C	20.6
934061	AD1-033 C	9.18
934141	AD1-041 C	6.26
934201	AD1-047 C	9.08
934521	AD1-076 C	63.11
934571	AD1-082 C	9.38
935161	AD1-151 C O1	19.68
935211	AD1-156 C	0.32
936041	AD2-007	2.19
936051	AD2-008 C	3.59
936151	AD2-021	0.28
936241	AD2-030 C	2.72
936301	AD2-039 C	1.59
936391	AD2-049 C	2.17
936401	AD2-051 C O1	9.93
936591	AD2-074 C	6.19
936661	AD2-085 C	4.18
936711	AD2-090 C O1	8.4
937221	AD2-160 C O1	7.13
937251	AD2-164	5.81
937541	AD2-215 C	2.12
937571	AD2-169 C	11.29
938031	AE1-004 C	1.59
938171	AE1-026 C1 O	32.23
938172	AE1-026 C2 O	4.66
938181	AE1-027 C	2.86
938191	AE1-028 C	1.66
938221	AE1-035 C	2.55
938491	AE1-068 C O1	70.23
938501	AE1-069 C O1	55.01

Bus #	Bus	MW Impact
938531	AE1-072 C O1	21.32
938551	AE1-074 C	3.09
938561	AE1-075 C	2.45
938631	AE1-085 C O1	13.34
938661	AE1-088	2.0
938771	AE1-103 C O1	4.3
939071	AE1-135 C O1	24.05
939191	AE1-149 C O1	13.1
939231	AE1-154 C	2.08
939241	AE1-155 C	16.72
939261	AE1-157 C O1	15.38
939271	AE1-158 C O1	15.69
939311	AE1-162 C	2.63
939411	AE1-173 C	108.28
939421	AE1-174 C	0.23
939431	AE1-175 C	2.89
939611	AE1-191 C	12.51
939751	AE1-206 C O1	38.21
940061	AE1-248 C O1	19.5
940071	AE1-249 C	8.79
940231	AE2-005 C	1.59
940251	AE2-007	212.15
940421	AE2-026 C	3.95
940431	AE2-027 C O2	15.82
940471	AE2-031 C O2	37.86
940481	AE2-033 C	18.69
940491	AE2-034 C	9.84
940521	AE2-037 C O2	8.93
940541	AE2-040	3.89
940551	AE2-041	8.42
940641	AE2-051 C O2	19.77
940651	AE2-052	4.39
940891	AE2-078 C	2.88
940901	AE2-079 C	2.88
940911	AE2-080 C	2.88
941031	AE2-094 C	45.9
941101	AE2-104 C O2	4.26
941281	AE2-122 C O2	34.75
941291	AE2-123 C O2	35.71
941301	AE2-124 C O2	32.48
941501	AE2-147 C	19.04
941541	AE2-151 C	1.23
941581	AE2-155 C	0.76
941591	AE2-156	21.94
941601	AE2-157 C O2	13.01
942001	AE2-212 C	2.64
942131	AE2-225 C	2.59
942151	AE2-227 C O2	2.64
942161	AE2-228 C O2	2.64
942171	AE2-229 C	2.59
942191	AE2-231 C O2	6.02
942211	AE2-233 C	15.0

Bus #	Bus	MW Impact
942341	AE2-247 C	1.81
942371	AE2-250 C O2	10.37
942401	AE2-253 C	7.5
942471	AE2-260 C O2	16.55
942531	AE2-268 C	2.02
942551	AE2-270	32.83
942851	AE2-304 C	0.75
942921	AE2-311 C O2	54.14
942931	AE2-313 C	41.45
943171	AE2-346 C	2.0
AA2-074	AA2-074	5.89
CARR	CARR	1.84
CBM-S1	CBM-S1	13.48
CBM-S2	CBM-S2	16.92
CBM-W1	CBM-W1	8.87
CBM-W2	CBM-W2	82.44
CIN	CIN	4.59
CPLE	CPLE	8.65
IPL	IPL	2.81
LGEE	LGEE	1.38
MEC	MEC	11.2
MECS	MECS	1.5
RENSSELAER	RENSSELAER	1.46
WEC	WEC	1.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1841948	314919	8OX	DVP	314904	8CLIFTON	DVP	1	DVP_P4-2: 541T569	breaker	3144.0	101.38	103.06	DC	118.98

Bus #	Bus	MW Impact
314093	6WARRNTN	0.31
314189	6PAPERMILL	5.82
314648	6SUNBURY	0.72
314651	6WINFALL	1.43
315037	1LDYSMT1	3.34
315038	1LDYSMT2	3.34
315039	1LDYSMT3	3.53
315040	1LDYSMT4	3.54
315041	1LDYSMT5	3.55
315053	1BELMED1	14.98
315054	1BELMED2	14.98
315055	1BELMED3	12.43
315058	1CHESTF3	15.76
315059	1CHESTF4	25.54
315073	1STONECA	5.96
315074	1HOPCGN1	7.18
315075	1HOPCGN2	7.09
315083	1SPRUNCA	9.18
315084	1SPRUNCB	9.18
315085	1SPRUNCC	6.81
315086	1SPRUNCD	6.81
315090	1YORKTN1	24.33
315091	1YORKTN2	25.25
315225	1N ANNA1	23.83
315226	1N ANNA2	23.88
901082	W1-029 E	37.37
913392	Y1-086 E	1.8
916042	Z1-036 E	36.63
916192	Z1-068 E	1.56
916302	Z1-086 E	7.1
917122	Z2-027 E	0.87
919152	AA1-139 E	5.3
923832	AB2-022 E	1.01
923842	AB2-024 E	0.98
923852	AB2-025 E	0.88
923892	AB2-029 E	1.94
924241	AB2-068 O1	169.57
924812	AB2-134 E O1	10.44
925021	AB2-158 C	1.28
925022	AB2-158 E	4.68
925051	AB2-160 C O1	4.66

Bus #	Bus	MW Impact
925052	AB2-160 E O1	7.61
925061	AB2-161 C O1	2.82
925062	AB2-161 E O1	4.6
925331	AB2-190 C	17.18
925332	AB2-190 E	7.36
925522	AC1-027 E	0.95
925671	AC1-043 C	6.63
925672	AC1-043 E	10.82
925861	AC1-065 C	2.98
925862	AC1-065 E	4.86
926001	AC1-076 C	4.6
926002	AC1-076 E	7.47
926291	AC1-107 O1	255.95
926412	AC1-112 E	0.98
926472	AC1-118 E	1.08
926481	AC1-120 C O1	7.03
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	6.76
926612	AC1-143 E O1	3.08
926662	AC1-147 E	1.1
926731	AC1-158 C	75.01
926732	AC1-158 E	32.92
926751	AC1-161 C O1	25.37
926752	AC1-161 E O1	10.83
926781	AC1-164 C	34.95
926782	AC1-164 E	15.7
927041	AC1-191 C O1	8.61
927042	AC1-191 E O1	4.29
927221	AC1-216 C O1	8.39
927222	AC1-216 E O1	6.6
930122	AB1-027 E	0.96
932041	AC2-012 C	8.5
932042	AC2-012 E	13.87
932502	AC2-070 E	0.61
932532	AC2-073 E	1.05
932581	AC2-078 C O1	3.43
932582	AC2-078 E O1	5.6
932591	AC2-079 C O1	4.76
932592	AC2-079 E O1	7.76
932781	AC2-102 C	5.37
932782	AC2-102 E	8.77
932831	AC2-110 C	1.19
932832	AC2-110 E	1.95
933011	AC2-125	2.7
933021	AC2-126	2.72
933061	AC2-130	2.08
933262	AC2-137 E	1.17
933272	AC2-138 E	0.95
933291	AC2-141 C	25.37
933292	AC2-141 E	10.83

Bus #	Bus	MW Impact
933732	AC2-196 E	0.99
934011	AD1-025 C	14.42
934012	AD1-025 E	8.54
934061	AD1-033 C	6.24
934062	AD1-033 E	4.16
934141	AD1-041 C	4.7
934142	AD1-041 E	3.13
934191	AD1-046 C	4.88
934192	AD1-046 E	3.26
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	6.43
934572	AD1-082 E	3.67
934781	AD1-105 C	7.24
934782	AD1-105 E	5.03
934861	AD1-115 C	3.31
934862	AD1-115 E	5.41
935112	AD1-144 E	0.78
935161	AD1-151 C O1	13.8
935162	AD1-151 E O1	9.2
935212	AD1-156 E	1.2
936041	AD2-007	1.53
936051	AD2-008 C	2.51
936052	AD2-008 E	5.47
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	1.95
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	1.05
936591	AD2-074 C	5.15
936592	AD2-074 E	8.4
936661	AD2-085 C	2.86
936662	AD2-085 E	4.66
937221	AD2-160 C O1	4.84
937222	AD2-160 E O1	2.54
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	1.95
938181	AE1-027 C	1.94
938182	AE1-027 E	1.02
938191	AE1-028 C	1.13
938192	AE1-028 E	0.65

Bus #	Bus	MW Impact
938291	AE1-044 C O1	20.43
938292	AE1-044 E O1	16.12
938491	AE1-068 C O1	45.24
938492	AE1-068 E O1	24.99
938501	AE1-069 C O1	35.43
938502	AE1-069 E O1	20.26
938531	AE1-072 C O1	14.46
938532	AE1-072 E O1	7.54
938551	AE1-074 C	2.12
938552	AE1-074 E	1.07
938631	AE1-085 C O1	9.19
938632	AE1-085 E O1	6.13
938961	AE1-124 C	2.11
938962	AE1-124 E	1.06
939191	AE1-149 C O1	9.05
939192	AE1-149 E O1	6.03
939221	AE1-153 C O1	13.69
939222	AE1-153 E O1	9.13
939231	AE1-154 C	1.72
939232	AE1-154 E	1.2
939241	AE1-155 C	14.09
939242	AE1-155 E	9.39
939261	AE1-157 C O1	13.79
939262	AE1-157 E O1	7.48
939271	AE1-158 C O1	14.07
939272	AE1-158 E O1	7.2
939281	AE1-159 C O1	11.86
939282	AE1-159 E O1	7.02
939311	AE1-162 C	1.81
939312	AE1-162 E	1.21
939411	AE1-173 C	71.22
939412	AE1-173 E	47.48
939421	AE1-174 C	0.16
939422	AE1-174 E	0.25
939431	AE1-175 C	2.06
939432	AE1-175 E	1.02
939611	AE1-191 C	9.4
939612	AE1-191 E	6.27
939751	AE1-206 C O1	29.89
939752	AE1-206 E O1	19.92
940061	AE1-248 C O1	13.36
940062	AE1-248 E O1	8.91
940071	AE1-249 C	6.15
940072	AE1-249 E	4.59
940231	AE2-005 C	1.19
940232	AE2-005 E	1.95
940251	AE2-007	144.36
940352	AE2-019 BAT	15.76
940421	AE2-026 C	3.27
940422	AE2-026 E	4.44
940431	AE2-027 C O2	11.02
940432	AE2-027 E O2	7.35

Bus #	Bus	MW Impact
940471	AE2-031 C O2	24.41
940472	AE2-031 E O2	16.27
940481	AE2-033 C	12.55
940482	AE2-033 E	8.46
940541	AE2-040	2.72
940551	AE2-041	6.3
940641	AE2-051 C O2	13.32
940642	AE2-051 E O2	8.88
940651	AE2-052	3.03
940891	AE2-078 C	2.0
940892	AE2-078 E	1.03
940901	AE2-079 C	2.0
940902	AE2-079 E	1.03
940911	AE2-080 C	2.0
940912	AE2-080 E	1.03
941031	AE2-094 C	29.58
941032	AE2-094 E	13.25
941101	AE2-104 C O2	2.89
941102	AE2-104 E O2	4.6
941141	AE2-108 C	1.34
941142	AE2-108 E	1.85
941151	AE2-109 C	0.47
941152	AE2-109 E	0.65
941281	AE2-122 C O2	23.62
941282	AE2-122 E O2	95.33
941291	AE2-123 C O2	24.28
941292	AE2-123 E O2	94.67
941301	AE2-124 C O2	22.08
941302	AE2-124 E O2	96.9
941361	AE2-132	2.77
941381	AE2-134	2.94
941501	AE2-147 C	12.89
941502	AE2-147 E	8.59
941581	AE2-155 C	0.56
941582	AE2-155 E	0.24
941591	AE2-156	14.94
941601	AE2-157 C O2	8.93
941602	AE2-157 E O2	5.95
941831	AE2-188	7.09
942001	AE2-212 C	1.84
942002	AE2-212 E	1.23
942131	AE2-225 C	1.76
942132	AE2-225 E	1.18
942151	AE2-227 C O2	1.9
942152	AE2-227 E O2	1.27
942161	AE2-228 C O2	1.86
942162	AE2-228 E O2	1.24
942171	AE2-229 C	1.76
942172	AE2-229 E	1.18
942191	AE2-231 C O2	5.25
942192	AE2-231 E O2	3.5
942211	AE2-233 C	9.66

Bus #	Bus	MW Impact
942212	AE2-233 E	3.75
942341	AE2-247 C	1.24
942342	AE2-247 E	1.71
942401	AE2-253 C	5.09
942402	AE2-253 E	2.29
942531	AE2-268 C	1.51
942532	AE2-268 E	0.85
942551	AE2-270	23.02
942851	AE2-304 C	0.51
942852	AE2-304 E	0.2
942921	AE2-311 C O2	35.61
942922	AE2-311 E O2	23.74
942931	AE2-313 C	26.73
942932	AE2-313 E	17.82
AA2-074	AA2-074	3.67
BLUEG	BLUEG	0.05
CARR	CARR	1.38
CBM-S1	CBM-S1	5.51
CBM-S2	CBM-S2	10.13
CBM-W2	CBM-W2	28.06
CPL	CPL	5.4
EDWARDS	EDWARDS	0.03
G-007	G-007	3.92
LGEE	LGEE	0.05
MEC	MEC	1.82
O-066	O-066	25.16
RENSSELAER	RENSSELAER	1.09
TILTON	TILTON	0.05
TRIMBLE	TRIMBLE	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1843200	314934	8SPOTSYL	DVP	314916	8MORRSVL	DVP	1	DVP_P7-1: LN 198-581	tower	3938.0	113.55	114.46	DC	172.55

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.71
314236	6NRTHEST	0.16
314250	6ROCKVILLE	0.3
314309	6IRON208	0.39
314648	6SUNBURY	1.05
314651	6WINFALL	2.08
315053	1BELMED1	20.81
315054	1BELMED2	20.81
315055	1BELMED3	17.27
315058	1CHESTF3	21.56
315059	1CHESTF4	34.95
315065	1CHESTF6	17.91
315073	1STONECA	8.29
315074	1HOPCGN1	10.0
315075	1HOPCGN2	9.87
315083	1SPRUNCA	12.91
315084	1SPRUNCB	12.91
315085	1SPRUNCC	9.57
315086	1SPRUNCD	9.57
315090	1YORKTN1	34.12
315091	1YORKTN2	35.41
315225	1N ANNA1	44.44
315226	1N ANNA2	44.53
315233	1SURRY 2	22.34
901082	W1-029 E	54.46
913392	Y1-086 E	2.62
916042	Z1-036 E	23.33
916192	Z1-068 E	2.26
916302	Z1-086 E	10.88
917122	Z2-027 E	1.26
919152	AA1-139 E	7.69
923832	AB2-022 E	1.48
923842	AB2-024 E	1.29
923852	AB2-025 E	1.29
924241	AB2-068 O1	227.18
924812	AB2-134 E O1	14.7
925021	AB2-158 C	1.7
925022	AB2-158 E	6.23
925051	AB2-160 C O1	6.57
925052	AB2-160 E O1	10.72
925061	AB2-161 C O1	4.06

Bus #	Bus	MW Impact
925062	AB2-161 E O1	6.62
925331	AB2-190 C	24.15
925332	AB2-190 E	10.35
925522	AC1-027 E	1.38
925861	AC1-065 C	3.92
925862	AC1-065 E	6.4
926001	AC1-076 C	7.21
926002	AC1-076 E	11.72
926291	AC1-107 O1	342.91
926412	AC1-112 E	1.3
926662	AC1-147 E	1.6
926731	AC1-158 C	193.79
926732	AC1-158 E	85.05
926751	AC1-161 C O1	36.81
926752	AC1-161 E O1	15.71
926781	AC1-164 C	47.05
926782	AC1-164 E	21.14
927221	AC1-216 C O1	11.81
927222	AC1-216 E O1	9.29
930122	AB1-027 E	1.28
932041	AC2-012 C	12.32
932042	AC2-012 E	20.09
932502	AC2-070 E	0.81
932532	AC2-073 E	1.39
932581	AC2-078 C O1	4.9
932582	AC2-078 E O1	8.0
932591	AC2-079 C O1	6.87
932592	AC2-079 E O1	11.22
932831	AC2-110 C	1.57
932832	AC2-110 E	2.56
933061	AC2-130	2.84
933262	AC2-137 E	1.58
933291	AC2-141 C	36.81
933292	AC2-141 E	15.71
933732	AC2-196 E	1.43
934011	AD1-025 C	20.31
934012	AD1-025 E	12.03
934061	AD1-033 C	9.05
934062	AD1-033 E	6.03
934141	AD1-041 C	6.16
934142	AD1-041 E	4.11
934212	AD1-048 E	1.44
934392	AD1-063 E	1.24
934541	AD1-078 C	4.41
934542	AD1-078 E	2.59
934571	AD1-082 C	9.25
934572	AD1-082 E	5.28
935112	AD1-144 E	1.13
935161	AD1-151 C O1	19.41
935162	AD1-151 E O1	12.94
935211	AD1-156 C	0.31
935212	AD1-156 E	1.71

Bus #	Bus	MW Impact
936041	AD2-007	2.16
936051	AD2-008 C	3.54
936052	AD2-008 E	7.7
936151	AD2-021	0.28
936301	AD2-039 C	1.57
936302	AD2-039 E	2.56
936391	AD2-049 C	2.14
936392	AD2-049 E	2.14
936661	AD2-085 C	4.13
936662	AD2-085 E	6.73
937221	AD2-160 C O1	7.03
937222	AD2-160 E O1	3.68
937251	AD2-164	5.73
937541	AD2-215 C	2.09
937542	AD2-215 E	1.11
938031	AE1-004 C	1.57
938032	AE1-004 E	2.56
938181	AE1-027 C	2.82
938182	AE1-027 E	1.48
938191	AE1-028 C	1.63
938192	AE1-028 E	0.95
938491	AE1-068 C O1	69.27
938492	AE1-068 E O1	38.26
938501	AE1-069 C O1	54.27
938502	AE1-069 E O1	31.03
938531	AE1-072 C O1	21.02
938532	AE1-072 E O1	10.96
938551	AE1-074 C	3.05
938552	AE1-074 E	1.53
938631	AE1-085 C O1	13.15
938632	AE1-085 E O1	8.77
939191	AE1-149 C O1	12.92
939192	AE1-149 E O1	8.61
939231	AE1-154 C	2.29
939232	AE1-154 E	1.6
939311	AE1-162 C	2.59
939312	AE1-162 E	1.73
939411	AE1-173 C	106.74
939412	AE1-173 E	71.16
939421	AE1-174 C	0.23
939422	AE1-174 E	0.34
939431	AE1-175 C	2.85
939432	AE1-175 E	1.41
939611	AE1-191 C	12.33
939612	AE1-191 E	8.22
939751	AE1-206 C O1	37.61
939752	AE1-206 E O1	25.08
940061	AE1-248 C O1	19.23
940062	AE1-248 E O1	12.82
940071	AE1-249 C	8.67
940072	AE1-249 E	6.46
940231	AE2-005 C	1.57

Bus #	Bus	MW Impact
940232	AE2-005 E	2.56
940251	AE2-007	209.15
940421	AE2-026 C	4.35
940422	AE2-026 E	5.91
940431	AE2-027 C O2	15.6
940432	AE2-027 E O2	10.4
940471	AE2-031 C O2	37.35
940472	AE2-031 E O2	24.9
940481	AE2-033 C	18.44
940482	AE2-033 E	12.43
940541	AE2-040	3.83
940551	AE2-041	8.3
940641	AE2-051 C O2	19.49
940642	AE2-051 E O2	12.99
940651	AE2-052	4.33
940891	AE2-078 C	2.84
940892	AE2-078 E	1.46
940901	AE2-079 C	2.84
940902	AE2-079 E	1.46
940911	AE2-080 C	2.84
940912	AE2-080 E	1.46
941031	AE2-094 C	45.27
941032	AE2-094 E	20.27
941101	AE2-104 C O2	4.2
941102	AE2-104 E O2	6.67
941281	AE2-122 C O2	34.26
941282	AE2-122 E O2	138.25
941291	AE2-123 C O2	35.21
941292	AE2-123 E O2	137.3
941301	AE2-124 C O2	32.03
941302	AE2-124 E O2	140.52
941381	AE2-134	4.6
941501	AE2-147 C	18.78
941502	AE2-147 E	12.52
941581	AE2-155 C	0.75
941582	AE2-155 E	0.32
941591	AE2-156	21.63
941601	AE2-157 C O2	12.83
941602	AE2-157 E O2	8.56
942001	AE2-212 C	2.6
942002	AE2-212 E	1.73
942131	AE2-225 C	2.56
942132	AE2-225 E	1.71
942151	AE2-227 C O2	2.61
942152	AE2-227 E O2	1.74
942161	AE2-228 C O2	2.6
942162	AE2-228 E O2	1.73
942171	AE2-229 C	2.56
942172	AE2-229 E	1.71
942211	AE2-233 C	14.79
942212	AE2-233 E	5.75
942341	AE2-247 C	1.79

Bus #	Bus	MW Impact
942342	AE2-247 E	2.47
942401	AE2-253 C	7.39
942402	AE2-253 E	3.32
942531	AE2-268 C	1.99
942532	AE2-268 E	1.12
942551	AE2-270	32.36
942851	AE2-304 C	0.74
942852	AE2-304 E	0.29
942921	AE2-311 C O2	53.37
942922	AE2-311 E O2	35.58
942931	AE2-313 C	40.89
942932	AE2-313 E	27.26
AA2-074	AA2-074	5.83
CARR	CARR	1.84
CBM-S1	CBM-S1	13.45
CBM-S2	CBM-S2	16.79
CBM-W1	CBM-W1	8.92
CBM-W2	CBM-W2	82.32
CIN	CIN	4.61
CPL	CPL	8.57
G-007	G-007	5.77
IPL	IPL	2.83
LGEE	LGEE	1.39
MEC	MEC	11.22
MECS	MECS	1.54
O-066	O-066	36.81
RENSSELAER	RENSSELAER	1.46
WEC	WEC	1.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7903226	934610	AD1-087 TAP	DVP	314697	6SEGE HILL	DVP	1	DVP_P1-2: LN 570_FSA	single	814.98	114.3	115.55	DC	10.18

Bus #	Bus	MW Impact
314421	6WINCHST	0.04
314507	3THOMPSN	0.1
315090	1YORKTN1	10.65
315091	1YORKTN2	11.05
315092	1YORKTN3	6.44
315098	1CHESPKA	0.13
315099	1CHESPKB	0.31
315102	1BRUNSWICKG1	4.13
315103	1BRUNSWICKG2	4.13
315104	1BRUNSWICKG3	4.13
315105	1BRUNSWICKS1	8.59
315108	1ELIZAR1	0.93
315109	1ELIZAR2	0.92
315110	1ELIZAR3	0.94
315116	1SURRY 1	6.74
315153	1CLOVER1	16.29
315154	1CLOVER2	16.08
315191	1BEARGRDN G1	1.24
315192	1BEARGRDN G2	1.24
315193	1BEARGRDN S1	2.54
315233	1SURRY 2	7.49
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.13
315262	1GOSPORTC	0.11
916191	Z1-068 C	0.01
916301	Z1-086 C	24.14
920291	AA2-127	0.26
924031	AB2-045 C	0.15
925521	AC1-027 C	0.09
926661	AC1-147 C	0.11
926751	AC1-161 C O1	13.14
932041	AC2-012 C	3.97
932511	AC2-071 C	0.15
933291	AC2-141 C	13.14
933731	AC2-196 C	0.08
934061	AD1-033 C	2.86
934233	AD1-050 BAT	5.08
934611	AD1-087 C O1	20.5
934621	AD1-088 C	17.85
935171	AD1-152 C O1	20.38
937251	AD2-164	1.77

Bus #	Bus	MW Impact
937481	AD2-202 C O1	5.65
938181	AE1-027 C	0.87
938191	AE1-028 C	0.51
938491	AE1-068 C O1	38.23
938501	AE1-069 C O1	30.93
939311	AE1-162 C	0.81
939411	AE1-173 C	43.23
940251	AE2-007	67.63
940471	AE2-031 C O2	22.98
940641	AE2-051 C O2	6.07
940891	AE2-078 C	0.87
940901	AE2-079 C	0.87
940911	AE2-080 C	0.87
941031	AE2-094 C	23.49
941281	AE2-122 C O2	10.87
941291	AE2-123 C O2	11.17
941301	AE2-124 C O2	10.18
941591	AE2-156	6.96
941791	AE2-182 C	3.23
942211	AE2-233 C	7.68
942921	AE2-311 C O2	21.61
942931	AE2-313 C	23.68
943051	AE2-328 C	11.8
AC1-131	AC1-131	9.78
BLUEG	BLUEG	18.52
CALDERWOOD	CALDERWOOD	3.67
CANNELTON	CANNELTON	1.25
CATAWBA	CATAWBA	3.52
CBM-N	CBM-N	0.67
CHEOAH	CHEOAH	3.42
CHILHOWEE	CHILHOWEE	1.19
COFFEEN	COFFEEN	2.13
COTTONWOOD	COTTONWOOD	12.22
DUCKCREEK	DUCKCREEK	4.38
EDWARDS	EDWARDS	1.96
ELMERSMITH	ELMERSMITH	2.2
FARMERCITY	FARMERCITY	1.53
G-007A	G-007A	3.0
GIBSON	GIBSON	0.79
HAMLET	HAMLET	6.6
NEWTON	NEWTON	5.55
NYISO	NYISO	2.89
PRAIRIE	PRAIRIE	11.53
SANTEETLA	SANTEETLA	1.02
SMITHLAND	SMITHLAND	1.02
TATANKA	TATANKA	2.59
TILTON	TILTON	2.32
TRIMBLE	TRIMBLE	2.04
TVA	TVA	10.32
UNIONPOWER	UNIONPOWER	5.07
VFT	VFT	7.99

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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
7902741	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	133.85	135.55	DC	8.16

Bus #	Bus	MW Impact
314507	3THOMPSN	0.07
314589	3MURPHYS	0.04
314638	6ELIZ CT	0.07
314639	6TANGLEW	0.14
314643	3O INLET	0.12
315098	1CHESPKA	0.1
315099	1CHESPKB	0.24
315115	1S HAMPT1	0.5
315126	1ROARAP2	0.41
315128	1ROARAP4	0.39
315136	1ROSEMG1	0.62
315137	1ROSEMS1	0.38
315138	1ROSEMG2	0.29
315139	1GASTONA	0.96
315141	1GASTONB	0.96
315260	1GOSPORTA	0.08
315261	1GOSPORTB	0.1
315262	1GOSPORTC	0.08
315292	1DOMTR78	1.14
315293	1DOMTR9	0.93
315294	1DOMTR10	1.69
901081	W1-029 C	0.42
916041	Z1-036 C	0.51
916191	Z1-068 C	0.01
917331	Z2-043 C	0.2
917511	Z2-088 C OP1	1.34
918491	AA1-063AC OP	0.61
918511	AA1-065 C OP	1.15
918531	AA1-067 C	0.36
918561	AA1-072 C	0.03
919151	AA1-139 C	0.66
919691	AA2-053 C	0.54
920041	AA2-088 C OP	0.39
920671	AA2-174 C	0.02
920691	AA2-178 C	0.95
923801	AB2-015 C O1	3.81
923831	AB2-022 C	0.12
923911	AB2-031 C O1	0.79
923991	AB2-040 C O1	0.32
924491	AB2-098 C	0.99
924501	AB2-099 C	0.47

Bus #	Bus	MW Impact
924511	AB2-100 C	3.88
925061	AB2-161 C O1	1.01
925121	AB2-169 C	1.03
925171	AB2-174 C O1	2.41
925521	AC1-027 C	0.07
926071	AC1-086 C	8.9
926201	AC1-098 C	2.58
926211	AC1-099 C	0.87
926661	AC1-147 C	0.08
927021	AC1-189 C	12.0
930861	AB1-132 C O1	0.74
931231	AB1-173 C	0.1
931241	AB1-173AC	0.1
932041	AC2-012 C	3.0
932591	AC2-079 C O1	1.89
932631	AC2-084 C	3.68
933731	AC2-196 C	0.07
933991	AD1-023 C	12.68
934061	AD1-033 C	2.36
934201	AD1-047 C	2.84
934521	AD1-076 C	50.93
934571	AD1-082 C	2.31
935111	AD1-144 C	0.07
936401	AD2-051 C O1	7.58
936531	AD2-068 C	18.65
936661	AD2-085 C	1.13
936701	AD2-089 C	5.03
936711	AD2-090 C O1	3.34
937221	AD2-160 C O1	2.04
937541	AD2-215 C	0.59
937571	AD2-169 C	3.66
938171	AE1-026 C1 O	27.49
938172	AE1-026 C2 O	3.98
938181	AE1-027 C	0.77
938191	AE1-028 C	0.44
938221	AE1-035 C	2.35
938531	AE1-072 C O1	6.59
938661	AE1-088	4.36
938771	AE1-103 C O1	1.57
939071	AE1-135 C O1	6.73
940061	AE1-248 C O1	4.8
940251	AE2-007	50.77
940491	AE2-034 C	6.83
940521	AE2-037 C O2	11.03
941101	AE2-104 C O2	1.26
941281	AE2-122 C O2	8.76
941291	AE2-123 C O2	9.01
941301	AE2-124 C O2	8.16
941501	AE2-147 C	7.92
941541	AE2-151 C	0.94
942131	AE2-225 C	0.77
942171	AE2-229 C	0.77

Bus #	Bus	MW Impact
942341	AE2-247 C	0.49
942371	AE2-250 C O2	2.87
942401	AE2-253 C	2.14
942471	AE2-260 C O2	4.66
942851	AE2-304 C	0.35
943171	AE2-346 C	1.41
AC1-131	AC1-131	6.95
BLUEG	BLUEG	9.16
CALDERWOOD	CALDERWOOD	1.99
CANNELTON	CANNELTON	0.63
CATAWBA	CATAWBA	1.96
CBM-N	CBM-N	0.29
CHEOAH	CHEOAH	1.86
CHILHOWEE	CHILHOWEE	0.64
COFFEEN	COFFEEN	1.09
COTTONWOOD	COTTONWOOD	6.67
DUCKCREEK	DUCKCREEK	2.22
EDWARDS	EDWARDS	0.99
ELMERSMITH	ELMERSMITH	1.12
FARMERCITY	FARMERCITY	0.79
G-007A	G-007A	1.31
GIBSON	GIBSON	0.4
HAMLET	HAMLET	4.21
NEWTON	NEWTON	2.83
NYISO	NYISO	1.24
PRAIRIE	PRAIRIE	6.0
SANTEETLA	SANTEETLA	0.55
SMITHLAND	SMITHLAND	0.54
TATANKA	TATANKA	1.34
TILTON	TILTON	1.16
TRIMBLE	TRIMBLE	1.0
TVA	TVA	5.58
UNIONPOWER	UNIONPOWER	2.77
VFT	VFT	3.49

Short Circuit

13.6 Short Circuit

The following Breakers are overduty: None

Affected Systems

14 Affected Systems

14.1 LG&E

LG&E Impacts to be determined during later study phases (as applicable).

14.2 MISO

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

14.3 TVA

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

14.4 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

14.5 NYISO

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

Attachment 1

System Configuration

