



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE2-156
YADKIN 115 KV
100 MW Capacity / 100 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.

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 Storage generating facility located in City of Chesapeake in Virginia. The installed facilities will have a total capability of 100 MW with 100 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 12/01/2021. This study does not imply a TO commitment to this in-service date.

Queue Number	AE2-156
Project Name	YADKIN 115 KV
Interconnection Customer	
State	Virginia
County	City of Chesapeake
Transmission Owner	Dominion
MFO	100
MWE	100
MWC	100
Fuel	Storage
Basecase Study Year	2022

3.1 Point of Interconnection

AE2-156 “Yadkin 115 kV” will interconnect with the Dominion’s transmission system through a two breaker bay at Yadkin 115 kV switching station. 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 “Bowers Hill – Deep Creek 115 kV” be reviewed for network impacts. This report does not provide costs for the physical interconnection of the secondary POI. 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 AE2-156 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 1,700,000
Direct Connection Network Upgrade	\$ 3,600,000
Non Direct Connection Network Upgrades	\$ 0
Total Costs	\$ 5,300,000

In addition, the AE2-156 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$335,310,000

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 AE2-156 was evaluated as a 100.0 MW Capacity (100.0 MW Energy) injection at the Yadkin 115 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 AE2-156 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 AE2-156 Project, Dominion Energy will install one span of overhead 115 kV line to the point of interconnection ("POI") including 115 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)	\$ 500,000
Transmission (one span)	\$ 1,200,000
Total Attachment Facility Costs	\$ 1,700,000

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 AE2-156 Project, Dominion Energy will build a two breaker bay at the existing Yadkin 115 kV 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	\$ 2,000,000
Transmission (one span)	\$ 1,600,000
	\$
Total Direct Connection Facility Costs	\$ 3,600,000

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 17.5 miles of 230 kV Line 218 from Everetts to AD2-068 Tap	\$ 26,250,000
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 3 miles of 230 kV Line 211 from Hopewell to Chesterfield	\$ 7,500,000
Rebuild 27.72 miles of 500 kV Line 557 from Chickahominy to Elmont	\$ 85,932,000
Add additional 500/230 kV transformer at Chickahominy substation.	\$ 22,000,000
Rebuild 41.13 miles of 500 kV Line 576 from Midlothian to North Anna	\$ 127,503,000
Rebuild 3 miles of 230 kV Line 228 from Hopewell to Chesterfield	\$ 7,500,000
Add additional 500/230 kV transformer at Elmont Substation	\$ 22,000,000
Add additional 230/115 kV transformer at Chesapeake substation.	\$ 6,000,000
Rebuild 8.2 miles of 230 kV Line 271 from Landstown to AD1-033 Tap	\$ 20,500,000
Rebuild 3 miles of 230 kV Line 218 from AD2-068 Tap to Greenville DEP	\$ 4,500,000

Description	Total Cost
Total Non-Direct Connection Facility Costs	\$ 335,310,000

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 AE2-156 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 AE2-156 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 AE2-156 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.

11.2 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 AE2-156 was evaluated as a 100.0 MW (Capacity 100.0 MW) injection at the Yadkin 115 kV substation in the Dominion area. Project AE2-156 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-156 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
1899536	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	single	678.68	97.78	98.78	DC	6.81
1899269	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	94.81	95.98	DC	28.98

12.2 Multiple Facility Contingency

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

None

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
1898768	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	178.45	180.09	DC	7.29
1898770	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	130.81	132.69	DC	8.27
1898052	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	171.92	172.64	DC	16.67
1898883	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	167.06	168.71	DC	7.29
1898885	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 567	single	441.8	119.4	121.28	DC	8.27
1898448	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	109.01	109.65	DC	7.57
1898451	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 228T268	breaker	549.0	104.48	105.24	DC	9.17
1899159	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	single	449.32	135.02	136.73	DC	8.87
1899162	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	130.2	131.64	DC	6.52
1899168	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	single	449.32	103.67	104.9	DC	5.64
1899296	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P1-2: LN 228	single	449.32	117.54	119.56	DC	9.17
1898810	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	170.69	172.33	DC	7.29
1898812	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 567	single	441.8	123.04	124.92	DC	8.27
1899025	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	151.97	153.61	DC	7.29
1899027	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 567	single	441.8	104.3	106.18	DC	8.27
1898361	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	120.47	124.79	DC	12.7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1898402	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	112.1	116.12	DC	11.82
1898280	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	107.7	107.93	DC	8.79
1898940	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	141.11	142.27	DC	5.25
7940555	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	141.11	142.27	DC	5.25
7940556	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	141.11	142.27	DC	5.25
1898161	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	147.77	148.21	DC	32.57
1898162	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	146.02	146.47	DC	31.93
1898488	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	103.65	104.9	DC	11.86
1898737	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	155.54	156.81	DC	31.06
1898741	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	150.13	151.4	DC	31.17
1898746	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	122.68	123.71	DC	24.97
1898616	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	167.46	168.07	DC	32.42
1898617	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	156.1	157.25	DC	27.87
1898692	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	160.84	162.01	DC	28.71
1898694	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	151.34	152.44	DC	28.0
1898241	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	114.29	114.57	DC	8.79
1899001	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 570	single	478.0	136.46	137.55	DC	5.25
7940595	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 6002_FSA	single	478.0	136.48	137.58	DC	5.25
7940597	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	136.46	137.55	DC	5.25

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
1898767	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	183.25	184.0	DC	7.29
1899535	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	operation	678.68	99.5	99.95	DC	6.81
1899341	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	114.06	114.71	DC	11.81
1899270	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	122.95	123.5	DC	10.66
1899336	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	119.06	119.59	DC	10.71
1898882	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	171.87	172.62	DC	7.29
1898809	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	175.49	176.24	DC	7.29
1899553	314391	6LIGH209	DVP	314388	6LANEXA	DVP	1	DVP_P1-2: LN 557	operation	663.64	97.42	97.92	DC	7.29
1899024	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	156.77	157.52	DC	7.29
1899115	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2118-A	operation	598.78	142.96	143.58	DC	7.07
1899279	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P1-2: LN 231	operation	678.68	131.24	131.47	DC	7.67
1898735	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	182.59	183.15	DC	31.06
1898742	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	147.1	147.57	DC	24.97
1899474	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	106.98	108.4	DC	11.8
1898613	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	214.72	215.33	DC	32.42
1898690	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	186.26	186.62	DC	28.71
1899528	314923	8SEPTA	DVP	314924	8SURRY	DVP	1	DVP_P1-2: LN 563	operation	2442.12	99.99	100.3	DC	17.01
1899264	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	131.96	132.99	DC	28.98
1899213	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	139.51	139.79	DC	7.67
7941285	938490	AE1-068 TAP	DVP	941030	AE2-094 TAP	DVP	1	DVP_P1-2: LN 511-A	operation	4070.2	99.81	100.03	DC	16.69
7941302	940470	AE2-031 TAP	DVP	314923	8SEPTA	DVP	1	DVP_P1-2: LN 544-B	operation	2442.12	92.82	94.12	DC	31.77
7941352	940640	AE2-051 TAP	DVP	314902	8CARSON	DVP	1	DVP_P1-2: LN 557	operation	2442.12	86.03	87.17	DC	27.79
7941350	942920	AE2-311 TAP	DVP	940470	AE2-031 TAP	DVP	1	DVP_P1-2: LN 544-B	operation	2442.12	87.65	88.95	DC	31.77

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
1898940,7940555,7940556	13	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
1898241	18	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
1898770,1898768	3	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
1899296,1898451,1898448	6	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
1898810,1898812	8	6KINGS M 230.0 kV - 6PENNIMAN 230.0 kV Ckt 1	b3057 (278) : PJM Baseline Upgrade b3057. Rebuild 6.1 miles of Waller-Skiffes 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
1899536	1	6SKIFF CREEK 230.0 kV - 6WALR285 230.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation	\$0

ID	Index	Facility	Upgrade Description	Cost
1898161,1898162,1898746,1898737,1898741	14	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
1898488	15	8CHCKAHM 500.0 kV - 6CHCKAHM 230.0 kV Ckt 1	dom-022 (83) : Add additional 500/230 kV transformer at Chickahominy substation. Project Type : CON Cost : \$22,000,000 Time Estimate : 16-18 Months	\$22,000,000
1898694,1898692	17	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	\$127,503,000
1899168,1899162,1899159	7	6HOPEWLL 230.0 kV - 6CHESTF A 230.0 kV Ckt 1	dom-074 (169) : Rebuild 3 miles of 230 kV Line 228 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
1899269	2	8SURRY 500.0 kV - 8CHCKAHM 500.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation	\$0
1898052	4	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
1898361	10	6CHESAPK 230.0 kV - 3CHESAPK 115.0 kV Ckt 1	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
1898402	11	6CHESAPK 230.0 kV - 3CHESAPK 115.0 kV Ckt 2		
1898616,1898617	16	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	\$0

ID	Index	Facility	Upgrade Description	Cost
1899027,1899025	9	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	\$0
1898280	12	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
7940595,7940597,1899001	19	AD2-068 TAP 230.0 kV - 6GREENVILE 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>CPL</u> NonPJMArea (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	\$4,500,000
1898885,1898883	5	6PENNIMAN 230.0 kV - 6WALR209 230.0 kV Ckt 1	b3057 (278) : PJM Baseline Upgrade b3057. Rebuild 6.1 miles of Waller-Skiffes 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
			TOTAL COST	\$335,310,000

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:

- 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.
- 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: 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: G2T567	CONTINGENCY 'DVP_P4-2: G2T567' /* SURRY 500 KV OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURRY 500.00 OPEN BRANCH FROM BUS 314924 TO BUS 315233 CKT 1 /* 8SURRY 500.00 - 1SURRY 2 22.000 OPEN BUS 315233 /* ISLAND: 1SURRY 2 22.000 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

Contingency Name	Contingency Definition
DVP_P1-2: LN 544-B	CONTINGENCY 'DVP_P1-2: LN 544-B' OPEN BRANCH FROM BUS 939410 TO BUS 314928 CKT 1 /* AE1-173 TAP 500.00 - 8SUFFOLK 500.00 END
DVP_P1-2: LN 228	CONTINGENCY 'DVP_P1-2: LN 228' OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 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
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 511-A	CONTINGENCY 'DVP_P1-2: LN 511-A' OPEN BRANCH FROM BUS 314902 TO BUS 942930 CKT 1 /* 8CARSON 500.00 - AE2-313 TAP 500.00 END
DVP_P1-2: LN 211	CONTINGENCY 'DVP_P1-2: LN 211' OPEN BRANCH FROM BUS 314287 TO BUS 314303 CKT 1 /* 6CHESTF B 230.00 - 6HOPEWLL 230.00 END

Contingency Name	Contingency Definition
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 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_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_P4-2: 228T268	CONTINGENCY 'DVP_P4-2: 228T268' /* HOPEWELL 230 KV OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 230.00 OPEN BRANCH FROM BUS 314303 TO BUS 315074 CKT 1 /* 6HOPEWLL 230.00 - 1HOPCGN1 13.800 OPEN BRANCH FROM BUS 314303 TO BUS 315075 CKT 1 /* 6HOPEWLL 230.00 - 1HOPCGN2 13.800 OPEN BUS 315074 /* ISLAND: 1HOPCGN1 13.800 OPEN BUS 315075 /* ISLAND: 1HOPCGN2 13.800 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 /* 8MDLTAN 500.00 - 8NO ANNA 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

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
1899536	314209	6SKIFF CREEK	DVP	314413	6WALR285	DVP	1	DVP_P1-2: LN 557	single	678.68	97.78	98.78	DC	6.81

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
1899269	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	94.81	95.98	DC	28.98

Bus #	Bus	MW Impact
314421	6WINCHST	0.14
314507	3THOMPSN	0.4
314638	6ELIZ CT	0.26
314639	6TANGLEW	0.47
314643	3O INLET	0.52
315090	1YORKTN1	38.25
315091	1YORKTN2	39.7
315092	1YORKTN3	23.01
315098	1CHESPKA	0.52
315099	1CHESPKB	1.31
315102	1BRUNSWICKG1	7.74
315103	1BRUNSWICKG2	7.74
315104	1BRUNSWICKG3	7.74
315105	1BRUNSWICKS1	16.08
315108	1ELIZAR1	3.87
315109	1ELIZAR2	3.81
315110	1ELIZAR3	3.92
315115	1S HAMPT1	1.48
315131	1EDGECEMA	10.03
315132	1EDGECEMB	10.03
315233	1SURRY 2	38.77
315260	1GOSPORTA	0.42
315261	1GOSPORTB	0.53
315262	1GOSPORTC	0.45
315292	1DOMTR78	1.37
315294	1DOMTR10	2.03
901081	W1-029 C	1.29
916041	Z1-036 C	1.24
916191	Z1-068 C	0.05
916301	Z1-086 C	47.21
919151	AA1-139 C	2.94
919701	AA2-057 C	7.87
920691	AA2-178 C	1.66
923801	AB2-015 C O1	11.63
923831	AB2-022 C	0.44
923911	AB2-031 C O1	2.38
924401	AB2-089 C	2.07
924491	AB2-098 C	0.69
924501	AB2-099 C	0.74
924511	AB2-100 C	11.75
925061	AB2-161 C O1	3.81

Bus #	Bus	MW Impact
925171	AB2-174 C O1	7.4
925521	AC1-027 C	0.4
925591	AC1-034 C	7.39
925781	AC1-054 C O1	7.11
926071	AC1-086 C	22.77
926201	AC1-098 C	7.08
926211	AC1-099 C	2.37
926661	AC1-147 C	0.44
926751	AC1-161 C O1	57.28
927021	AC1-189 C	10.3
927141	AC1-208 C	10.16
927221	AC1-216 C O1	8.45
932041	AC2-012 C	16.46
932581	AC2-078 C O1	3.49
932591	AC2-079 C O1	7.43
932631	AC2-084 C	10.09
933291	AC2-141 C	57.28
933731	AC2-196 C	0.36
933991	AD1-023 C	17.76
934011	AD1-025 C	14.52
934061	AD1-033 C	12.29
934201	AD1-047 C	8.53
934231	AD1-050 C	4.56
934331	AD1-057 C O1	10.9
934521	AD1-076 C	74.84
934571	AD1-082 C	8.68
934611	AD1-087 C O1	8.32
934621	AD1-088 C	11.27
935111	AD1-144 C	0.31
935171	AD1-152 C O1	8.27
936041	AD2-007	1.54
936051	AD2-008 C	2.53
936361	AD2-046 C O1	8.21
936391	AD2-049 C	2.44
936401	AD2-051 C O1	10.96
936531	AD2-068 C	5.85
936661	AD2-085 C	4.42
936701	AD2-089 C	8.2
936711	AD2-090 C O1	9.46
937221	AD2-160 C O1	9.49
937251	AD2-164	6.44
937481	AD2-202 C O1	2.29
937541	AD2-215 C	2.6
937571	AD2-169 C	10.76
938171	AE1-026 C1 O	37.47
938172	AE1-026 C2 O	5.42
938181	AE1-027 C	3.82
938191	AE1-028 C	2.22
938221	AE1-035 C	2.88
938491	AE1-068 C O1	77.4
938501	AE1-069 C O1	60.49
938531	AE1-072 C O1	28.2

Bus #	Bus	MW Impact
938631	AE1-085 C O1	9.72
938661	AE1-088	2.3
938771	AE1-103 C O1	4.96
939071	AE1-135 C O1	20.91
939181	AE1-148 C O1	8.07
939311	AE1-162 C	2.87
939411	AE1-173 C	133.22
939421	AE1-174 C	0.17
939431	AE1-175 C	2.14
940061	AE1-248 C O1	18.05
940251	AE2-007	281.0
940471	AE2-031 C O1	52.97
940481	AE2-033 C	15.06
940491	AE2-034 C	11.94
940521	AE2-037 C O1	9.98
940541	AE2-040	2.99
940571	AE2-044 C	4.84
940641	AE2-051 C O1	24.42
940661	AE2-053	3.0
940891	AE2-078 C	2.81
940901	AE2-079 C	2.81
940911	AE2-080 C	2.81
941031	AE2-094 C	50.81
941101	AE2-104 C O1	5.14
941281	AE2-122 C O1	46.22
941291	AE2-123 C O1	47.5
941301	AE2-124 C O1	43.23
941501	AE2-147 C	24.35
941541	AE2-151 C	1.36
941591	AE2-156	28.98
941601	AE2-157 C O1	11.09
941791	AE2-182 C	2.04
941951	AE2-207	3.13
942131	AE2-225 C	3.34
942171	AE2-229 C	3.34
942211	AE2-233 C	16.6
942341	AE2-247 C	1.92
942401	AE2-253 C	9.98
942471	AE2-260 C O1	14.41
942711	AE2-287 C O1	12.53
942851	AE2-304 C	0.96
942921	AE2-311 C O1	69.55
942931	AE2-313 C	45.62
943171	AE2-346 C	2.21
AA2-074	AA2-074	5.91
CARR	CARR	1.04
CBM-S1	CBM-S1	12.57
CBM-S2	CBM-S2	16.49
CBM-W1	CBM-W1	9.9
CBM-W2	CBM-W2	79.23
CIN	CIN	4.64
CPL	CPL	8.69

Bus #	Bus	MW Impact
IPL	IPL	2.86
LGEE	LGEE	1.35
MEC	MEC	11.22
MECS	MECS	3.06
RENSSELAER	RENSSELAER	0.83
WEC	WEC	1.23

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
1898768	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	178.45	180.09	DC	7.29

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
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

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
1898052	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	171.92	172.64	DC	16.67

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
1898883	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	167.06	168.71	DC	7.29

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
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

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
1899296	314303	6HOPEWLL	DVP	314287	6CHESTFB	DVP	1	DVP_P1-2: LN 228	single	449.32	117.54	119.56	DC	9.17

Bus #	Bus	MW Impact
314421	6WINCHST	0.06
314507	3THOMPSN	0.13
315074	1HOPCGN1	26.28
315075	1HOPCGN2	25.93
315076	1HOPPOLC	3.67
315077	1HOPHCF1	5.74
315078	1HOPHCF2	5.74
315079	1HOPHCF3	5.74
315080	1HOPHCF4	8.71
315098	1CHESPKA	0.17
315099	1CHESPKB	0.42
315108	1ELIZAR1	1.2
315110	1ELIZAR3	1.21
315116	1SURRY 1	24.94
315117	1GRAVELC	0.87
315119	1GRAVEL3	2.53
315120	1GRAVEL4	2.57
315121	1GRAVEL5	2.53
315122	1GRAVEL6	2.56
315260	1GOSPORTA	0.13
315261	1GOSPORTB	0.17
315262	1GOSPORTC	0.15
924811	AB2-134 C O1	3.33
925331	AB2-190 C	45.35
926661	AC1-147 C	0.14
927221	AC1-216 C O1	20.84
932041	AC2-012 C	5.27
934011	AD1-025 C	35.82
935111	AD1-144 C	0.12
935161	AD1-151 C O1	36.44
936041	AD2-007	3.8
936051	AD2-008 C	6.24
936391	AD2-049 C	0.99
937541	AD2-215 C	0.98
939311	AE1-162 C	2.22
940251	AE2-007	87.13
940891	AE2-078 C	2.9
940901	AE2-079 C	2.9
940911	AE2-080 C	2.9
941591	AE2-156	9.17
942551	AE2-270	60.77

Bus #	Bus	MW Impact
BLUEG	BLUEG	0.33
CANNELTON	CANNELTON	0.01
CARR	CARR	0.19
CBM-S1	CBM-S1	0.45
CBM-S2	CBM-S2	1.25
CBM-W2	CBM-W2	2.03
COFFEEN	COFFEEN	0.01
CPL	CPL	0.74
DUCKCREEK	DUCKCREEK	0.06
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.0
GIBSON	GIBSON	0.01
NEWTON	NEWTON	0.04
RENSSELAER	RENSSELAER	0.15
TATANKA	TATANKA	0.01
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.04

12.6.8 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1899159	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	single	449.32	135.02	136.73	DC	8.87

Bus #	Bus	MW Impact
314507	3THOMPSN	0.12
315074	1HOPCGN1	25.49
315075	1HOPCGN2	25.16
315076	1HOPPOLC	3.56
315077	1HOPHCF1	5.57
315078	1HOPHCF2	5.57
315079	1HOPHCF3	5.57
315080	1HOPHCF4	8.45
315098	1CHESPKA	0.16
315099	1CHESPKB	0.4
315110	1ELIZAR3	1.17
315116	1SURRY 1	23.82
315117	1GRAVELC	0.83
315119	1GRAVEL3	2.42
315120	1GRAVEL4	2.45
315121	1GRAVEL5	2.42
315122	1GRAVEL6	2.45
315260	1GOSPORTA	0.13
315261	1GOSPORTB	0.17
315262	1GOSPORTC	0.14
924811	AB2-134 C O1	3.21
925061	AB2-161 C O1	1.97
925331	AB2-190 C	43.79
926661	AC1-147 C	0.14
927221	AC1-216 C O1	20.1
932041	AC2-012 C	5.1
932581	AC2-078 C O1	2.81
932591	AC2-079 C O1	2.97
934011	AD1-025 C	34.56
934571	AD1-082 C	4.5
935111	AD1-144 C	0.11
935161	AD1-151 C O1	35.19
936041	AD2-007	3.67
936051	AD2-008 C	6.02
936661	AD2-085 C	1.8
937541	AD2-215 C	0.95
938631	AE1-085 C O1	7.38
939191	AE1-149 C O1	7.61
939311	AE1-162 C	2.13
940061	AE1-248 C O1	9.35
940251	AE2-007	84.27

Bus #	Bus	MW Impact
940651	AE2-052	2.55
940891	AE2-078 C	2.74
940901	AE2-079 C	2.74
940911	AE2-080 C	2.74
941591	AE2-156	8.87
941601	AE2-157 C O1	6.61
942341	AE2-247 C	0.78
942551	AE2-270	58.69
CARR	CARR	0.22
CBM-S1	CBM-S1	1.43
CBM-S2	CBM-S2	2.36
CBM-W1	CBM-W1	0.58
CBM-W2	CBM-W2	8.49
CIN	CIN	0.31
CPL	CPL	1.31
IPL	IPL	0.18
LGEE	LGEE	0.09
MEC	MEC	0.98
RENSSELAER	RENSSELAER	0.18
WEC	WEC	0.08

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
1898810	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	170.69	172.33	DC	7.29

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
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

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
1899025	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	151.97	153.61	DC	7.29

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
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

12.6.11 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1898361	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	120.47	124.79	DC	12.7

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

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
1898402	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	112.1	116.12	DC	11.82

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

12.6.13 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
1898280	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	107.7	107.93	DC	8.79

Bus #	Bus	MW Impact
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.08
916192	Z1-068 E	4.51
925521	AC1-027 C	0.58
925522	AC1-027 E	2.73
926662	AC1-147 E	0.72
932041	AC2-012 C	5.52
932042	AC2-012 E	9.01
940251	AE2-007	95.74
941281	AE2-122 C O1	73.65
941282	AE2-122 E O1	297.2
941291	AE2-123 C O1	75.69
941292	AE2-123 E O1	295.16
941301	AE2-124 C O1	76.82
941302	AE2-124 E O1	337.08
941591	AE2-156	8.79
BLUEG	BLUEG	0.56
CALDERWOOD	CALDERWOOD	0.11
CANNELTON	CANNELTON	0.04
CATAWBA	CATAWBA	0.11
CBM-N	CBM-N	0.01
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.07
COTTONWOOD	COTTONWOOD	0.38
DUCKCREEK	DUCKCREEK	0.13
EDWARDS	EDWARDS	0.06
ELMERSMITH	ELMERSMITH	0.07
FARMERCITY	FARMERCITY	0.05
G-007A	G-007A	0.05
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.22
NEWTON	NEWTON	0.17
NYISO	NYISO	0.03
PRAIRIE	PRAIRIE	0.35
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.08
TILTON	TILTON	0.07

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.06
TVA	TVA	0.32
UNIONPOWER	UNIONPOWER	0.15
VFT	VFT	0.12

12.6.14 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
7940556	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	141.11	142.27	DC	5.25

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

12.6.15 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
1898737	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	155.54	156.81	DC	31.06

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
1898488	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	103.65	104.9	DC	11.86

Bus #	Bus	MW Impact
924241	AB2-068 O1	314.62
926291	AC1-107 O1	474.9
936391	AD2-049 C	1.48
936392	AD2-049 E	1.48
939421	AE1-174 C	0.42
939422	AE1-174 E	0.63
940063	AE1-248 EBAT	17.3
940552	AE2-041 BAT	9.39
940652	AE2-052 BAT	2.32
941532	AE2-150 EBAT	4.64
941592	AE2-156 BAT	11.86
942552	AE2-270 BAT	21.43
BLUEG	BLUEG	1.28
CALDERWOOD	CALDERWOOD	0.86
CANNELTON	CANNELTON	0.13
CATAWBA	CATAWBA	1.07
CBM-N	CBM-N	0.93
CHEOAH	CHEOAH	0.81
CHILHOWEE	CHILHOWEE	0.28
COFFEEN	COFFEEN	0.22
COTTONWOOD	COTTONWOOD	2.54
DUCKCREEK	DUCKCREEK	0.37
EDWARDS	EDWARDS	0.15
ELMERSMITH	ELMERSMITH	0.25
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	3.2
GIBSON	GIBSON	0.07
HAMLET	HAMLET	2.33
MECS	MECS	0.28
NEWTON	NEWTON	0.56
NYISO	NYISO	4.05
PRAIRIE	PRAIRIE	1.56
SANTEETLA	SANTEETLA	0.24
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.29
TILTON	TILTON	0.17
TRIMBLE	TRIMBLE	0.13
TVA	TVA	2.14
UNIONPOWER	UNIONPOWER	1.17
VFT	VFT	8.57

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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
1898616	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	167.46	168.07	DC	32.42

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
1898692	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	160.84	162.01	DC	28.71

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
1898241	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	114.29	114.57	DC	8.79

Bus #	Bus	MW Impact
315260	1GOSPORTA	0.15
315261	1GOSPORTB	0.19
315262	1GOSPORTC	0.16
916191	Z1-068 C	0.08
916192	Z1-068 E	4.51
925521	AC1-027 C	0.58
925522	AC1-027 E	2.73
926662	AC1-147 E	0.72
932041	AC2-012 C	5.52
932042	AC2-012 E	9.01
934061	AD1-033 C	33.11
934062	AD1-033 E	22.07
940251	AE2-007	95.74
941281	AE2-122 C O1	73.65
941282	AE2-122 E O1	297.2
941291	AE2-123 C O1	75.69
941292	AE2-123 E O1	295.16
941301	AE2-124 C O1	76.82
941302	AE2-124 E O1	337.08
941591	AE2-156	8.79
BLUEG	BLUEG	0.56
CALDERWOOD	CALDERWOOD	0.11
CANNELTON	CANNELTON	0.04
CATAWBA	CATAWBA	0.11
CBM-N	CBM-N	0.01
CHEOAH	CHEOAH	0.1
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.07
COTTONWOOD	COTTONWOOD	0.38
DUCKCREEK	DUCKCREEK	0.13
EDWARDS	EDWARDS	0.06
ELMERSMITH	ELMERSMITH	0.07
FARMERCITY	FARMERCITY	0.05
G-007A	G-007A	0.05
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.22
NEWTON	NEWTON	0.17
NYISO	NYISO	0.03
PRAIRIE	PRAIRIE	0.35
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.03

Bus #	Bus	MW Impact
TATANKA	TATANKA	0.08
TILTON	TILTON	0.07
TRIMBLE	TRIMBLE	0.06
TVA	TVA	0.32
UNIONPOWER	UNIONPOWER	0.15
VFT	VFT	0.12

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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
7940597	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P1-2: LN 570_FSA	single	478.0	136.46	137.55	DC	5.25

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 AE2-156 was evaluated as a 100 MW (Capacity 100 MW) injection tapping the Deep Creek to Bowers 115 kV line in the Dominion area. Project AE2-156 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-156 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
1899299	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P1-2: LN 7113	single	449.32	95.3	96.68	DC	6.21
1899269	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	93.58	94.74	DC	28.61

13.2 Multiple Facility Contingency

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

None

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
1898768	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	175.4	177.03	DC	7.23
1898770	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 567	single	441.8	127.3	129.16	DC	8.22
1898052	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	171.2	171.93	DC	16.8
1898883	314296	6PENNNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	164.02	165.64	DC	7.23
1898885	314296	6PENNNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 567	single	441.8	115.91	117.78	DC	8.22
1898333	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P4-2: 211T2124	breaker	549.0	126.59	127.44	DC	10.34
1898448	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 56372	breaker	549.0	108.92	109.59	DC	7.93
1898451	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P4-2: 228T268	breaker	549.0	104.48	105.29	DC	9.82
1899159	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 211	single	449.32	135.03	136.86	DC	9.48
1899162	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	134.47	136.0	DC	6.93
1899168	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	single	449.32	106.71	108.03	DC	6.02
1899296	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P1-2: LN 228	single	449.32	117.54	119.7	DC	9.82
1898810	314386	6KINGS M	DVP	314296	6PENNNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	167.64	169.27	DC	7.23
1898812	314386	6KINGS M	DVP	314296	6PENNNIMAN	DVP	1	DVP_P1-2: LN 567	single	441.8	119.53	121.4	DC	8.22
1899025	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	148.9	150.52	DC	7.23
1899027	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 567	single	441.8	100.81	102.68	DC	8.22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
1898361	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	119.93	125.48	DC	16.31
1898402	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	111.6	116.76	DC	15.17
1898280	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	112.89	113.15	DC	9.34
1898281	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 23152	breaker	830.0	113.11	113.33	DC	8.52
1899770	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 147-2118	tower	830.0	113.9	114.44	DC	8.48
1899771	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P7-1: LN 78-2118	tower	830.0	108.27	108.81	DC	8.49
12376416	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2128	breaker	830.0	113.87	114.41	DC	8.45
1898161	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	147.41	147.84	DC	32.42
1898162	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 56372	breaker	3144.0	144.12	144.58	DC	31.74
1898488	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	103.87	105.14	DC	11.94
1898737	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	153.42	154.68	DC	30.9
1898741	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 576	single	2442.12	148.69	149.95	DC	31.05
1898746	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	single	2442.12	121.75	122.77	DC	24.88
1898616	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	167.12	167.73	DC	32.43
1898617	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 563	single	2442.12	155.99	157.13	DC	27.86
1898692	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	160.66	161.82	DC	28.65
1898694	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 557	single	2442.12	152.05	153.19	DC	27.87
1898240	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 23152	breaker	830.0	119.87	120.13	DC	8.52
1898241	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 231T2105	breaker	830.0	119.48	119.79	DC	9.34

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
1898767	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	operation	441.8	180.51	181.25	DC	7.23
1899341	314214	6CHCKAHM	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	112.43	113.08	DC	11.89
1899270	314218	6ELMONT	DVP	314908	8ELMONT	DVP	2	DVP_P1-2: LN 557	operation	879.84	123.82	124.38	DC	10.74
1899336	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	119.91	120.45	DC	10.79
1898882	314296	6PENNNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	operation	441.8	169.12	169.86	DC	7.23
1899295	314303	6HOPEWLL	DVP	314287	6CHESTF B	DVP	1	DVP_P1-2: LN 228	operation	449.32	126.38	127.37	DC	9.82
1898809	314386	6KINGS M	DVP	314296	6PENNNIMAN	DVP	1	DVP_P1-2: LN 557	operation	441.8	172.74	173.49	DC	7.23
1899024	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	operation	441.8	154.0	154.74	DC	7.23
1899531	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P1-2: LN 2158	operation	255.21	97.68	102.19	DC	11.53
13750444	314452	3CHRLND	DVP	314477	3HODGE F	DVP	1	DVP_P1-2: LN 87-B	operation	165.44	43.04	103.48	DC	100.0
1899115	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P1-2: LN 2118-A	operation	598.78	142.96	143.66	DC	7.92
1899279	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P1-2: LN 231	operation	678.68	137.75	138.02	DC	8.54
1898735	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	181.88	182.42	DC	30.9
1898742	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	147.06	147.52	DC	24.88
1899474	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P1-2: LN 567	operation	828.8	107.24	108.68	DC	11.88
1898613	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	214.2	214.81	DC	32.43
1898690	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	186.27	186.43	DC	28.65
1899264	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	130.48	130.95	DC	28.61
1899213	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P1-2: LN 231	operation	678.68	146.02	146.34	DC	8.54

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_P4-2: 211T2124	CONTINGENCY 'DVP_P4-2: 211T2124' /* HOPEWELL 230 KV OPEN BRANCH FROM BUS 314287 TO BUS 314303 CKT 1 /* 6CHESTF B 230.00 - 6HOPEWLL 230.00 OPEN BRANCH FROM BUS 314269 TO BUS 314291 CKT 1 /* 6PRGEORG 230.00 - 3PRGEORG 115.00 OPEN BRANCH FROM BUS 314269 TO BUS 314303 CKT 1 /* 6PRGEORG 230.00 - 6HOPEWLL 230.00 OPEN BUS 314269 /* ISLAND: 6PRGEORG 230.00 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_P1-2: LN 567	CONTINGENCY 'DVP_P1-2: LN 567' OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURREY 500.00 END
DVP_P4-2: G2T567	CONTINGENCY 'DVP_P4-2: G2T567' /* SURREY 500 KV OPEN BRANCH FROM BUS 314903 TO BUS 314924 CKT 1 /* 8CHCKAHM 500.00 - 8SURREY 500.00 OPEN BRANCH FROM BUS 314924 TO BUS 315233 CKT 1 /* 8SURREY 500.00 - 1SURREY 2 22.000 OPEN BUS 315233 /* ISLAND: 1SURREY 2 22.000 END
DVP_P7-1: LN 78-2118	CONTINGENCY 'DVP_P7-1: LN 78-2118' OPEN BRANCH FROM BUS 314491 TO BUS 314511 CKT 1 /* 3PEND

Contingency Name	Contingency Definition
DVP_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_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 228	CONTINGENCY 'DVP_P1-2: LN 228' OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 230.00 END
DVP_P1-2: LN 7113	CONTINGENCY 'DVP_P1-2: LN 7113' OPEN BRANCH FROM BUS 314287 TO BUS 315065 CKT 1 /* 6CHESTF B 230.00 - 1CHESTF6 24.000 OPEN BUS 315065 /* ISLAND: 1CHESTF6 24.000 END
DVP_P4-2: 56372	CONTINGENCY 'DVP_P4-2: 56372' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 END
DVP_P1-2: LN 87-B	CONTINGENCY 'DVP_P1-2: LN 87-B' OPEN BRANCH FROM BUS 941590 TO BUS 314462 CKT 1 /* AE2-156 TAP 115.00 - 3DEEPC87 115.00 OPEN BRANCH FROM BUS 314448 TO BUS 314462 CKT 1 /* 3CHESAPK 115.00 - 3DEEPC87 115.00 OPEN BUS 314462 /* ISLAND: 3DEEPC87 115.00 END
DVP_P4-2: 23152	CONTINGENCY 'DVP_P4-2: 23152' /* LANDSTOWN 230 KV OPEN BRANCH FROM BUS 314481 TO BUS 314502 CKT 1 /* 6LANDSTN 230.00 - 6STUMPY 230.00 OPEN BRANCH FROM BUS 314502 TO BUS 314508 CKT 1 /* 6STUMPY 230.00 - 6THRASHER 230.00 OPEN BUS 314502 /* ISLAND: 6STUMPY 230.00 OPEN BRANCH FROM BUS 314479 TO BUS 314481 CKT 2 /* 3LANDSTN 115.00 - 6LANDSTN 230.00 OPEN BUS 313890 /* 6LANDSTN_STC230.00 KV END
DVP_P4-2: 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

Contingency Name	Contingency Definition
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 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 211	CONTINGENCY 'DVP_P1-2: LN 211' OPEN BRANCH FROM BUS 314287 TO BUS 314303 CKT 1 /* 6CHESTF B 230.00 - 6HOPEWLL 230.00 END
DVP_P1-2: LN 557	CONTINGENCY 'DVP_P1-2: LN 557' OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 259	CONTINGENCY 'DVP_P1-2: LN 259' OPEN BRANCH FROM BUS 314276 TO BUS 314287 CKT 1 /* 6BASIN 230.00 - 6CHESTF B 230.00 END
DVP_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_P4-2: 228T268	CONTINGENCY 'DVP_P4-2: 228T268' /* HOPEWELL 230 KV OPEN BRANCH FROM BUS 314286 TO BUS 314303 CKT 1 /* 6CHESTF A 230.00 - 6HOPEWLL 230.00 OPEN BRANCH FROM BUS 314303 TO BUS 315074 CKT 1 /* 6HOPEWLL 230.00 - 1HOPCGN1 13.800 OPEN BRANCH FROM BUS 314303 TO BUS 315075 CKT 1 /* 6HOPEWLL 230.00 - 1HOPCGN2 13.800 OPEN BUS 315074 /* ISLAND: 1HOPCGN1 13.800 OPEN BUS 315075 /* ISLAND: 1HOPCGN2 13.800 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
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
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

13.5.3 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
1899296	314303	6HOPEWLL	DVP	314287	6CHESTFB	DVP	1	DVP_P1-2: LN 228	single	449.32	117.54	119.7	DC	9.82

Bus #	Bus	MW Impact
314421	6WINCHST	0.06
314507	3THOMPSN	0.13
315074	1HOPCGN1	26.28
315075	1HOPCGN2	25.93
315076	1HOPPOLC	3.67
315077	1HOPHCF1	5.74
315078	1HOPHCF2	5.74
315079	1HOPHCF3	5.74
315080	1HOPHCF4	8.71
315098	1CHESPKA	0.17
315099	1CHESPKB	0.42
315108	1ELIZAR1	1.2
315110	1ELIZAR3	1.21
315116	1SURRY 1	24.94
315117	1GRAVELC	0.87
315119	1GRAVEL3	2.53
315120	1GRAVEL4	2.57
315121	1GRAVEL5	2.53
315122	1GRAVEL6	2.56
315260	1GOSPORTA	0.13
315261	1GOSPORTB	0.17
315262	1GOSPORTC	0.15
924811	AB2-134 C O1	3.33
925331	AB2-190 C	45.35
926661	AC1-147 C	0.14
927221	AC1-216 C O1	20.84
932041	AC2-012 C	5.27
934011	AD1-025 C	35.82
935111	AD1-144 C	0.12
935161	AD1-151 C O1	36.44
936041	AD2-007	3.8
936051	AD2-008 C	6.24
936391	AD2-049 C	0.99
937541	AD2-215 C	0.98
939311	AE1-162 C	2.22
940251	AE2-007	87.13
940891	AE2-078 C	2.9
940901	AE2-079 C	2.9
940911	AE2-080 C	2.9
941591	AE2-156	9.82
942551	AE2-270	60.77

Bus #	Bus	MW Impact
BLUEG	BLUEG	0.33
CANNELTON	CANNELTON	0.01
CARR	CARR	0.19
CBM-S1	CBM-S1	0.45
CBM-S2	CBM-S2	1.25
CBM-W2	CBM-W2	2.03
COFFEEN	COFFEEN	0.01
CPL	CPL	0.74
DUCKCREEK	DUCKCREEK	0.06
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.0
GIBSON	GIBSON	0.01
NEWTON	NEWTON	0.04
RENSSELAER	RENSSELAER	0.15
TATANKA	TATANKA	0.01
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.04

13.5.4 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
1899269	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	single	2442.12	93.58	94.74	DC	28.61

Bus #	Bus	MW Impact
314421	6WINCHST	0.14
314507	3THOMPSN	0.4
314638	6ELIZ CT	0.26
314639	6TANGLEW	0.47
314643	3O INLET	0.52
315090	1YORKTN1	38.25
315091	1YORKTN2	39.7
315092	1YORKTN3	23.01
315098	1CHESPKA	0.52
315099	1CHESPKB	1.31
315102	1BRUNSWICKG1	7.74
315103	1BRUNSWICKG2	7.74
315104	1BRUNSWICKG3	7.74
315105	1BRUNSWICKS1	16.08
315108	1ELIZAR1	3.87
315109	1ELIZAR2	3.81
315110	1ELIZAR3	3.92
315115	1S HAMPT1	1.48
315131	1EDGECEMA	10.03
315132	1EDGECEMB	10.03
315233	1SURREY 2	38.77
315260	1GOSPORTA	0.42
315261	1GOSPORTB	0.53
315262	1GOSPORTC	0.45
315292	1DOMTR78	1.37
315294	1DOMTR10	2.03
901081	W1-029 C	1.29
916041	Z1-036 C	1.24
916191	Z1-068 C	0.05
916301	Z1-086 C	47.21
919151	AA1-139 C	2.94
919701	AA2-057 C	7.87
920691	AA2-178 C	1.66
923801	AB2-015 C O1	11.63
923831	AB2-022 C	0.44
923911	AB2-031 C O1	2.38
924401	AB2-089 C	2.07
924491	AB2-098 C	0.69
924501	AB2-099 C	0.74
924511	AB2-100 C	11.75
925061	AB2-161 C O1	3.81

Bus #	Bus	MW Impact
925171	AB2-174 C O1	7.4
925521	AC1-027 C	0.4
925591	AC1-034 C	7.39
925781	AC1-054 C O1	7.11
926071	AC1-086 C	22.77
926201	AC1-098 C	7.08
926211	AC1-099 C	2.37
926661	AC1-147 C	0.44
926751	AC1-161 C O1	57.28
927021	AC1-189 C	10.3
927141	AC1-208 C	10.16
927221	AC1-216 C O1	8.45
932041	AC2-012 C	16.46
932581	AC2-078 C O1	3.49
932591	AC2-079 C O1	7.43
932631	AC2-084 C	10.09
933291	AC2-141 C	57.28
933731	AC2-196 C	0.36
933991	AD1-023 C	17.76
934011	AD1-025 C	14.52
934061	AD1-033 C	12.29
934201	AD1-047 C	8.53
934231	AD1-050 C	4.56
934331	AD1-057 C O1	10.9
934521	AD1-076 C	74.84
934571	AD1-082 C	8.68
934611	AD1-087 C O1	8.32
934621	AD1-088 C	11.27
935111	AD1-144 C	0.31
935171	AD1-152 C O1	8.27
936041	AD2-007	1.54
936051	AD2-008 C	2.53
936361	AD2-046 C O1	8.21
936391	AD2-049 C	2.44
936401	AD2-051 C O1	10.96
936531	AD2-068 C	5.85
936661	AD2-085 C	4.42
936701	AD2-089 C	8.2
936711	AD2-090 C O1	9.46
937221	AD2-160 C O1	9.49
937251	AD2-164	6.44
937481	AD2-202 C O1	2.29
937541	AD2-215 C	2.6
937571	AD2-169 C	10.76
938171	AE1-026 C1 O	37.47
938172	AE1-026 C2 O	5.42
938181	AE1-027 C	3.82
938191	AE1-028 C	2.22
938221	AE1-035 C	2.88
938491	AE1-068 C O1	77.4
938501	AE1-069 C O1	60.49
938531	AE1-072 C O1	28.2

Bus #	Bus	MW Impact
938631	AE1-085 C O1	9.72
938661	AE1-088	2.3
938771	AE1-103 C O1	4.96
939071	AE1-135 C O1	20.91
939181	AE1-148 C O1	8.07
939311	AE1-162 C	2.87
939411	AE1-173 C	133.22
939421	AE1-174 C	0.17
939431	AE1-175 C	2.14
940061	AE1-248 C O1	18.05
940251	AE2-007	280.99
940471	AE2-031 C O2	41.49
940481	AE2-033 C	15.06
940491	AE2-034 C	11.94
940521	AE2-037 C O2	9.97
940571	AE2-044 C	4.84
940641	AE2-051 C O2	14.77
940661	AE2-053	3.0
940891	AE2-078 C	2.81
940901	AE2-079 C	2.81
940911	AE2-080 C	2.81
941031	AE2-094 C	50.81
941101	AE2-104 C O2	5.48
941281	AE2-122 C O2	46.25
941291	AE2-123 C O2	47.53
941301	AE2-124 C O2	43.19
941501	AE2-147 C	24.35
941541	AE2-151 C	1.36
941591	AE2-156	28.61
941601	AE2-157 C O2	11.59
941791	AE2-182 C	2.04
941951	AE2-207	3.13
942131	AE2-225 C	3.34
942171	AE2-229 C	3.34
942211	AE2-233 C	16.6
942341	AE2-247 C	1.92
942371	AE2-250 C O2	9.31
942401	AE2-253 C	9.98
942471	AE2-260 C O2	14.42
942711	AE2-287 C O2	12.49
942851	AE2-304 C	0.96
942921	AE2-311 C O2	66.61
942931	AE2-313 C	45.62
943171	AE2-346 C	2.21
AA2-074	AA2-074	5.91
CARR	CARR	1.04
CBM-S1	CBM-S1	12.57
CBM-S2	CBM-S2	16.48
CBM-W1	CBM-W1	9.89
CBM-W2	CBM-W2	79.23
CIN	CIN	4.64
CPL	CPL	8.69

Bus #	Bus	MW Impact
IPL	IPL	2.87
LGEE	LGEE	1.35
MEC	MEC	11.22
MECS	MECS	3.06
RENSSELAER	RENSSELAER	0.83
WEC	WEC	1.23

13.5.5 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
1898768	314209	6SKIFF CREEK	DVP	314386	6KINGS M	DVP	1	DVP_P1-2: LN 557	single	441.8	175.4	177.03	DC	7.23

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

13.5.6 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
1898052	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	171.2	171.93	DC	16.8

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
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

13.5.7 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
1898883	314296	6PENNIMAN	DVP	314415	6WALR209	DVP	1	DVP_P1-2: LN 557	single	441.8	164.02	165.64	DC	7.23

Bus #	Bus	MW Impact
314421	6WINCHST	0.08
314507	3THOMPSON	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

13.5.8 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
1899162	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	134.47	136.0	DC	6.93

Bus #	Bus	MW Impact
314314	3LOCKS	0.11
314507	3THOMPSN	0.09
315065	1CHESTF6	16.12
315074	1HOPCGN1	17.65
315075	1HOPCGN2	17.42
315076	1HOPPOLC	2.47
315077	1HOPHCF1	3.85
315078	1HOPHCF2	3.85
315079	1HOPHCF3	3.85
315080	1HOPHCF4	5.85
315098	1CHESPKA	0.12
315099	1CHESPKB	0.3
315116	1SURRY 1	16.45
315117	1GRAVELC	0.58
315119	1GRAVEL3	1.67
315120	1GRAVEL4	1.69
315121	1GRAVEL5	1.67
315122	1GRAVEL6	1.69
315260	1GOSPORTA	0.1
315261	1GOSPORTB	0.12
315262	1GOSPORTC	0.1
923851	AB2-025 C	0.16
924511	AB2-100 C	5.06
924811	AB2-134 C O1	2.22
925051	AB2-160 C O1	2.91
925061	AB2-161 C O1	2.17
925331	AB2-190 C	30.3
925821	AC1-061	0.0
926661	AC1-147 C	0.1
927221	AC1-216 C O1	13.9
932041	AC2-012 C	3.75
932581	AC2-078 C O1	3.43
932591	AC2-079 C O1	2.98
934011	AD1-025 C	23.9
934571	AD1-082 C	4.96
935111	AD1-144 C	0.08
935161	AD1-151 C O1	24.34
935211	AD1-156 C	0.21
936041	AD2-007	2.54
936051	AD2-008 C	4.16
936661	AD2-085 C	1.81

Bus #	Bus	MW Impact
937541	AD2-215 C	0.7
938631	AE1-085 C O1	8.94
939071	AE1-135 C O1	9.27
939191	AE1-149 C O1	9.47
939311	AE1-162 C	1.49
940061	AE1-248 C O1	10.3
940071	AE1-249 C	3.84
940251	AE2-007	62.04
940431	AE2-027 C O2	11.32
940481	AE2-033 C	8.03
940541	AE2-040	1.7
940641	AE2-051 C O2	9.29
940651	AE2-052	3.17
940891	AE2-078 C	1.87
940901	AE2-079 C	1.87
940911	AE2-080 C	1.87
941591	AE2-156	6.93
941601	AE2-157 C O2	7.2
942001	AE2-212 C	1.95
942161	AE2-228 C O2	2.24
942341	AE2-247 C	0.79
942371	AE2-250 C O2	3.57
942471	AE2-260 C O2	6.37
942551	AE2-270	40.6
CARR	CARR	0.22
CBM-S1	CBM-S1	2.14
CBM-S2	CBM-S2	3.04
CBM-W1	CBM-W1	1.44
CBM-W2	CBM-W2	13.23
CIN	CIN	0.7
CPL	CPL	1.65
IPL	IPL	0.42
LGEE	LGEE	0.2
MEC	MEC	1.78
MECS	MECS	0.33
RENSSELAER	RENSSELAER	0.17
WEC	WEC	0.18

13.5.9 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1898810	314386	6KINGS M	DVP	314296	6PENNIMAN	DVP	1	DVP_P1-2: LN 557	single	441.8	167.64	169.27	DC	7.23

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

13.5.10 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
1899025	314415	6WALR209	DVP	314391	6LIGH209	DVP	1	DVP_P1-2: LN 557	single	441.8	148.9	150.52	DC	7.23

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

13.5.11 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
1898361	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	1	DVP_P4-2: 215822-5	breaker	293.9	119.93	125.48	DC	16.31

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

13.5.12 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1898402	314449	6CHESAPK	DVP	314448	3CHESAPK	DVP	2	DVP_P4-2: 215822-6	breaker	293.9	111.6	116.76	DC	15.17

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

13.5.13 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
1898281	314481	6LANDSTN	DVP	934060	AD1-033 TAP	DVP	1	DVP_P4-2: 23152	breaker	830.0	113.11	113.33	DC	8.52

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.58
925522	AC1-027 E	2.71
926662	AC1-147 E	0.66
932041	AC2-012 C	5.12
932042	AC2-012 E	8.35
940251	AE2-007	83.49
941281	AE2-122 C O2	84.35
941282	AE2-122 E O2	340.36
941291	AE2-123 C O2	86.68
941292	AE2-123 E O2	338.03
941301	AE2-124 C O2	70.54
941302	AE2-124 E O2	309.52
941591	AE2-156	8.52
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.03
CATAWBA	CATAWBA	0.08
CBM-N	CBM-N	0.0
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.3
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.04
G-007A	G-007A	0.02
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.17
NEWTON	NEWTON	0.14
NYISO	NYISO	0.01
PRAIRIE	PRAIRIE	0.28
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.25
UNIONPOWER	UNIONPOWER	0.12
VFT	VFT	0.06

13.5.14 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
12376416	314481	6LANDSTN	DVP	314486	6LYNHAVN	DVP	1	DVP_P4-2: 231T2128	breaker	830.0	113.87	114.41	DC	8.45

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

13.5.15 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
1898737	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	single	2442.12	153.42	154.68	DC	30.9

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

13.5.16 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
1898488	314903	8CHCKAHM	DVP	314214	6CHCKAHM	DVP	1	DVP_P4-2: G2T567	breaker	944.6	103.87	105.14	DC	11.94

Bus #	Bus	MW Impact
924241	AB2-068 O1	314.63
926291	AC1-107 O1	474.91
936391	AD2-049 C	1.48
936392	AD2-049 E	1.48
939421	AE1-174 C	0.42
939422	AE1-174 E	0.63
940063	AE1-248 EBAT	17.3
940542	AE2-040 BAT	2.11
940552	AE2-041 BAT	9.39
940652	AE2-052 BAT	2.32
941532	AE2-150 EBAT	4.64
941592	AE2-156 BAT	11.94
942552	AE2-270 BAT	21.43
BLUEG	BLUEG	1.28
CALDERWOOD	CALDERWOOD	0.86
CANNELTON	CANNELTON	0.13
CATAWBA	CATAWBA	1.07
CBM-N	CBM-N	0.93
CHEOAH	CHEOAH	0.81
CHILHOWEE	CHILHOWEE	0.28
COFFEEN	COFFEEN	0.22
COTTONWOOD	COTTONWOOD	2.54
DUCKCREEK	DUCKCREEK	0.37
EDWARDS	EDWARDS	0.15
ELMERSMITH	ELMERSMITH	0.25
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	3.2
GIBSON	GIBSON	0.07
HAMLET	HAMLET	2.33
MECS	MECS	0.28
NEWTON	NEWTON	0.56
NYISO	NYISO	4.05
PRAIRIE	PRAIRIE	1.56
SANTEETLA	SANTEETLA	0.24
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.29
TILTON	TILTON	0.17
TRIMBLE	TRIMBLE	0.13
TVA	TVA	2.14
UNIONPOWER	UNIONPOWER	1.17
VFT	VFT	8.58

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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
1898616	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	single	2442.12	167.12	167.73	DC	32.43

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
1898692	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	single	2442.12	160.66	161.82	DC	28.65

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
1898240	934060	AD1-033 TAP	DVP	314466	6FENTRES	DVP	1	DVP_P4-2: 23152	breaker	830.0	119.87	120.13	DC	8.52

Bus #	Bus	MW Impact
916191	Z1-068 C	0.08
916192	Z1-068 E	4.61
925521	AC1-027 C	0.58
925522	AC1-027 E	2.71
926662	AC1-147 E	0.66
932041	AC2-012 C	5.12
932042	AC2-012 E	8.35
934061	AD1-033 C	33.93
934062	AD1-033 E	22.62
940251	AE2-007	83.49
941281	AE2-122 C O2	84.35
941282	AE2-122 E O2	340.36
941291	AE2-123 C O2	86.68
941292	AE2-123 E O2	338.03
941301	AE2-124 C O2	70.54
941302	AE2-124 E O2	309.52
941591	AE2-156	8.52
BLUEG	BLUEG	0.45
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.03
CATAWBA	CATAWBA	0.08
CBM-N	CBM-N	0.0
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.3
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.04
G-007A	G-007A	0.02
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.17
NEWTON	NEWTON	0.14
NYISO	NYISO	0.01
PRAIRIE	PRAIRIE	0.28
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.25

Bus #	Bus	MW Impact
UNIONPOWER	UNIONPOWER	0.12
VFT	VFT	0.06

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

