



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE2-260
CLUBHOUSE 230 KV
82.7 MW Capacity / 200 MW Energy**

July, 2019

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1 Preface

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

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

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

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

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a \$10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

2 General

The Interconnection Customer (IC), has proposed a Solar; Storage generating facility located in Greenville County, Virginia. The installed facilities will have a total capability of 200 MW with 82.7 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 30, 2020. This study does not imply a Transmission Owner (TO) commitment to this in-service date.

Queue Number	AE2-260
Project Name	CLUBHOUSE 230 KV
Interconnection Customer	
State	Virginia
County	Greenville
Transmission Owner	Dominion
MFO	200
MWE	200
MWC	82.7
Fuel	Solar; Storage
Basecase Study Year	2022

2.1 Point of Interconnection

2.1.1 Primary Point of Interconnection

AE2-260 “Clubhouse 230 kV” will interconnect with the Dominion’s transmission system through the existing Clubhouse 230 kV substation which will be adjacent to the transmission right-of-way. 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.

2.1.2 Secondary Point of Interconnection

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

2.2 Cost Summary

The AE2-260 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 2,100,000
Direct Connection Network Upgrade	\$ 6,300,000
Non Direct Connection Network Upgrades	\$ TBD in facilities phase
Total Costs	\$ 8,400,000 + remote terminal work

In addition, the AE2-260 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$ 1,131,698,000

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

3 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project. AE2-260 was evaluated as a 82.7 MW Capacity (200.0 MW Energy) injection at the existing Clubhouse 230 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2022 AE2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: <http://www.dominionenergy.com>.

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

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AE2-260 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.

4 Attachment Facilities

To accommodate the proposed AE2-260 Project, Dominion Energy will install one span of overhead 230 kV line to the point of interconnection ("POI") including 230 kV interconnection metering. The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Substation (Metering)	\$ 600,000

Transmission (one span)	\$ 1,500,000
Total Attachment Facility Costs	\$ 2,100,000

It is estimated to take 18-24 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. See Attachment 1.

5 Direct Connection Cost Estimate

To accommodate the proposed AE2-260 Project, Dominion Energy will build a three breaker ring bus at the existing Clubhouse 230 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
Three Breaker Ring bus and Associated Equipment	\$ 4,500,000
Transmission (one span)	\$ 1,800,000
Total Direct Connection Facility Costs	\$ 6,300,000

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.

6 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
Remote Terminal Work	\$ TBD in facilities phase
Total Non-Direct Connection Facility Costs	\$ TBD in facilities phase

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.

7 System Reinforcement Cost Estimates

Upgrade Description	Cost
dom-017 (76) : Rebuild 13.7 miles of 230 kV Line 246 from Earleys to Nucor Tap with 2-636 ACSR. Project Type : FAC Cost : \$20,550,000 Time Estimate : 30-36 Months	\$20,550,000
dom-105 (215) : Rebuild 34.83 miles of 230 kV Line 2012 from Northhampton to Earleys with 2-636 ACSR. Project Type : FAC Cost : \$87,075,000 Time Estimate : 48-60 Months	\$87,075,000
dom-064 (154) : Rebuild 13.35 miles of 230 kV Line 246 from Nucor Tap to AA1-138 Tap with 2-636 ACSR. Project Type : FAC Cost : \$20,025,000 Time Estimate : 30-36 Months	\$20,025,000
dom-050 (132) : Rebuild 2.47 miles of 230 kV Line 238 from AE2-033 TAP to Sapony with 2-795 150C ACSR. Project Type : FAC Cost : \$3,705,000 Time Estimate : 30-36 Months	\$3,705,000
dom-065 (156) : Rebuild 17.3 miles of 230 kV Line 246 from AA1-138 Tap to Suffolk with 2-636 ACSR. Project Type : FAC Cost : \$25,950,000 Time Estimate : 36-40 Months	\$25,950,000
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
dom-078 (174) : Rebuild 7.47 miles of 230 kV Line 249 from Carson to Chaparral with 2-636 ACSR. Project Type : FAC Cost : \$18,675,000 Time Estimate : 30-36 Months	\$18,675,000

Upgrade Description	Cost
dom-079 (175) : Rebuild 2.86 miles of 230 kV Line 249 from Chaparral to Locks with 2-636 ACSR. Project Type : FAC Cost : \$7,150,000 Time Estimate : 30-36 Months	\$7,150,000
dom-107 (219) : Rebuild 4.06 miles of 230 kV Line 2060 from Carolina to Roanoke Valley with 2-636 ACSR. Project Type : FAC Cost : \$10,150,000 Time Estimate : 30-36 Months	\$10,150,000
b3021 (276) : PJM baseline upgrade b3021: Rebuild 500kV Line #581 Ladysmith to Chancellor - 15.2 miles long. The baseline project has an projected in-service date of 12/31/2023. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
<u>DVP</u> dom-003 (56) : For DEV portion, rebuild 4.13 miles of 230 kV Line 2058 from Hathaway to Rocky Mountain with 2-636 ACSR. Project Type : FAC Cost : \$10,325,000 Time Estimate : 30-36 Months <u>CPL</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$10,325,000
<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 : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$4,500,000
dom-012 (70) : Rebuild 12.4 miles of 230 kV Line 259 from Chesterfield to Basin with 2-636 ACSR. Project Type : FAC Cost : \$31,000,000 Time Estimate : 30-36 Months	\$31,000,000
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

Upgrade Description	Cost
<u>DVP</u> dom-005 (58) : For DEV portion, rebuild 3.3 miles of 230 kV Line 2181 from Nash to Parmount with 2-636 ACSR. Project Type : FAC Cost : \$8,250,000 Time Estimate : 30-36 Months	\$8,250,000
<u>CPLE</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	
<u>DVP</u> dom-007 (63) : Build new 500 kV line between Everetts and Suffolk. Project Type : CON Cost : \$570,000,000 Time Estimate : 48-60 Months	\$570,000,000
<u>CPLE</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	
dom-036 (104) : Rebuild 4.5 miles of 230 kV Line 2003 from Harrowgate to Tyler with 2-636 ACSR. Project Type : FAC Cost : \$11,250,000 Time Estimate : 30-36 Months	\$11,250,000
dom-037 (106) : Rebuild 12.3 miles of 230 kV Line 2003 from Poe to Harrowgate with 2-636 ACSR. Project Type : FAC Cost : \$30,750,000 Time Estimate : 30-36 Months	\$30,750,000
dom-076 (172) : Rebuild 12.8 miles of 230 KV Line 2056 from AD1-057 Tap to Hathaway with 2-636 ACSR. Project Type : FAC Cost : \$19,200,000 Time Estimate : 30-36 Months	\$19,200,000
dom-049 (129) : Rebuild 16.0 miles of 230 kV Line 254 from AB2-100 Tap to Lakeview with 2-636 ACSR. Project Type : FAC Cost : \$24,000,000 Time Estimate : 30-36 Months	\$24,000,000
dom-048 (127) : Rebuild 2.0 miles of 230 kV Line 254 from Clubhouse to AB2-100 Tap with 2-636 ACSR. Project Type : FAC Cost : \$3,000,000 Time Estimate : 30-36 Months	\$3,000,000

Upgrade Description	Cost
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 Months	\$7,500,000
dom-143 (272) : Rebuild 0.76 miles of 230 kV Line 2181 from Hathaway to Nash with 2-636 ACSR. Project Type : FAC Cost : \$1,900,000 Time Estimate : 30-36 Months	\$1,900,000
dom-051 (134) : Rebuild 11.79 miles of 230 kV Line 238 from Sapony to Carson with 2-795 150C ACSR. Project Type : FAC Cost : \$17,685,000 Time Estimate : 30-36 Months	\$17,685,000
dom-106 (217) : Rebuild 2.87 miles of 230 kV Line 2012 from Roanoke Valley to Northhampton with 2-636 ACSR. Project Type : FAC Cost : \$7,175,000 Time Estimate : 30-36 Months	\$7,175,000
dom-010 (67) : Add additional 230/115 kV transformer at Clubhouse substation. Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
dom-077 (173) : Rebuild 16 miles of 230 kV Line 2056 from Hornertown to AD1-057 TAP with 2-636 ACSR. Project Type : FAC Cost : \$24,000,000 Time Estimate : 36-40 Months	\$24,000,000
dom-047 (124) : Rebuild 14.28 miles of 230 kV Line 238 from Clubhouse to AE2-033 Tap with 2-795 150C ACSR. Project Type : FAC Cost : \$21,420,000 Time Estimate : 30-36 Months	\$21,420,000
dom-040 (111) : Replace Terminal Equipment at Surry and Chickahominy Substations Project Type : FAC Cost : \$4,000,000 Time Estimate : 16-18 Months	\$4,000,000

Upgrade Description	Cost
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
dom-061 (149) : Rebuild 1.37 miles of 230 kV Line 2141 from Lakeview to Carolina with 2-636 ACSR. Project Type : FAC Cost : \$1,781,000 Time Estimate : 30-36 Months	\$1,781,000
b3020 (274) : PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has an projected in-service date of 12/31/2022. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
dom-118 (235) : Replace Breaker Leads at Pleasant Hill and Carolina substations. Project Type : FAC Cost : \$500,000 Time Estimate : 30-36 Months	\$500,000
TOTAL COST	\$1,131,698,000

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 AE2-260 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 AE2-260 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 AE2-260 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 AE2-260 was evaluated as a 200.0 MW (Capacity 82.7 MW) injection at the Clubhouse 230kV substation in the Dominion area. Project AE2-260 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-260 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
8058731	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	single	441.8	93.01	95.09	DC	9.28
8058728	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	single	441.8	93.03	95.12	DC	9.28
8058232	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2060	single	678.68	97.67	104.72	DC	48.2
8058233	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2012	single	678.68	97.61	104.66	DC	48.2
8058077	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	single	598.78	95.78	103.14	DC	44.59
8058577	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	single	441.8	92.42	98.44	DC	26.62
8058099	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P1-2: LN 238-B	single	375.06	81.78	98.45	DC	62.49

12.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703779	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 238T2002	breaker	658.0	100.0	109.62	DC	63.22
7703859	314282	6CARSON	DVP	314331	6POE	DVP	1	DVP_P4-2: 24972-4	breaker	830.0	89.43	99.34	DC	82.26
7703568	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	92.93	97.09	DC	22.54
7703566	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	92.94	97.11	DC	22.54
7703796	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 23872	breaker	671.0	98.95	108.39	DC	63.25
7703797	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	98.77	108.2	DC	63.22
7703535	314563	6CLUBHSE	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 23872	breaker	427.0	91.53	126.93	DC	151.14
7703536	314563	6CLUBHSE	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 238T2002	breaker	427.0	91.53	126.93	DC	151.14
7703799	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 23872	breaker	671.0	98.91	108.34	DC	63.25
7703800	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	98.72	108.15	DC	63.22
7703818	314600	3PLHITP	DVP	314559	3CAROLNA	DVP	1	DVP_P4-2: 239T2141	breaker	351.0	92.68	100.3	DC	26.72

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
8058007	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	144.06	146.66	DC	9.71
8058012	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 218-A	single	374.0	101.59	103.24	DC	6.19
8058250	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	129.0	131.2	DC	9.91
8058255	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 218-A	single	449.32	101.78	103.28	DC	6.75
7703266	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	176.11	177.46	DC	31.15
7703778	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 23872	breaker	658.0	100.19	109.81	DC	63.25
8058478	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	118.83	120.62	DC	12.86
8058559	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	115.16	116.95	DC	12.86
8057841	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	154.44	156.27	DC	8.16
8057842	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	151.88	153.85	DC	8.85
8057849	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	107.94	109.34	DC	6.31
7703567	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	117.13	128.63	DC	62.23
8058290	314303	6HOPEWELL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	135.89	137.3	DC	6.39
8058291	314303	6HOPEWELL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	134.36	135.76	DC	6.39
8058297	314303	6HOPEWELL	DVP	314286	6CHESTF A	DVP	1	Base Case	single	449.32	108.15	109.21	DC	4.84
7703565	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	117.15	128.65	DC	62.23
7703515	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 239T2141	breaker	830.0	117.85	133.82	DC	157.0
7703516	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 201262	breaker	830.0	115.85	129.93	DC	116.89
8233671	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 56-2060	tower	830.0	117.07	131.37	DC	118.67
8233672	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 56-2012	tower	830.0	117.01	131.31	DC	118.67
8233537	314554	38TLEBRO	DVP	304223	3ROCKYMT115T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	309.76	313.88	DC	14.94
7703293	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	138.5	163.0	DC	157.02
7703294	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 205602	breaker	637.0	141.49	159.94	DC	117.45

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
7703603	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	208.6	109.4	129.85	DC	42.65
8058072	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	107.44	115.39	DC	48.55
8058073	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	103.42	111.36	DC	48.55
8233583	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	144.81	162.37	DC	111.75
8057968	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	122.97	124.38	DC	8.05
8057969	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	122.19	123.6	DC	8.06
8058179	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	143.19	144.22	DC	4.64
8058180	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	143.19	144.22	DC	4.64
8058181	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	143.19	144.22	DC	4.64
8058184	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	single	449.32	121.5	122.78	DC	5.72
8233577	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	173.31	174.92	DC	17.24
8058021	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	116.58	117.99	DC	8.05
8058022	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	115.8	117.21	DC	8.06
8058264	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	single	441.8	119.37	125.38	DC	26.54
8058265	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-A	single	441.8	107.61	114.71	DC	31.37
8057780	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	single	375.06	134.52	148.15	DC	51.12
8057781	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 2056-A	single	375.06	136.87	143.27	DC	24.03
8058411	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	single	470.0	117.87	119.98	DC	9.91
7703395	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	149.6	150.21	DC	45.71
7703330	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	158.94	159.72	DC	57.04
7703331	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	158.94	159.71	DC	57.04
7703638	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	123.16	123.31	DC	35.79
7703639	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	122.27	122.61	DC	36.16
7703640	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	122.26	122.61	DC	36.15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
7703732	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	106.6	107.05	DC	36.02
8058032	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	116.56	117.97	DC	8.05
8058033	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	115.78	117.19	DC	8.06
7703387	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 238T2002	breaker	427.0	108.78	144.18	DC	151.14
7703388	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 23872	breaker	427.0	108.76	144.16	DC	151.14
8058162	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	single	441.8	127.66	133.67	DC	26.54
8058163	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-A	single	441.8	116.1	123.2	DC	31.37
8058224	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	single	478.0	118.36	119.55	DC	5.72
8233572	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	180.88	182.5	DC	17.24
7703234	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	156.72	181.28	DC	157.02
7703235	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 201262	breaker	637.0	152.1	170.46	DC	116.91
8057915	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	113.46	121.47	DC	48.55
8057916	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2060	single	598.78	111.86	119.85	DC	48.2
8057920	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	single	598.78	101.87	109.27	DC	44.59
8233567	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	161.71	179.26	DC	111.75
8233568	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 56-2060	tower	637.0	154.11	172.74	DC	118.69

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
8058006	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	operation	374.0	176.55	179.4	DC	23.49
8058249	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	156.58	159.0	DC	23.96
8058702	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 557	operation	920.92	122.13	123.13	DC	20.01
8058781	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	114.29	115.16	DC	18.84
8058971	314227	6LAKESIDE	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 557	operation	740.72	95.99	96.98	DC	16.29
8058621	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 238-B	operation	559.3	117.56	128.87	DC	63.22
8058477	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	operation	559.3	130.42	135.99	DC	31.1
8058558	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	operation	559.3	126.76	132.33	DC	31.1
8057838	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	operation	449.32	188.23	190.22	DC	19.73
8057848	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	118.94	120.48	DC	15.26
8058732	314287	6CHESTF B	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	118.0	118.87	DC	18.84
8058729	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operation	441.8	112.24	117.32	DC	22.44
8058726	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operation	441.8	112.26	117.34	DC	22.44
8058226	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2060	operation	678.68	139.73	156.91	DC	116.55
8058231	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operation	678.68	128.7	144.59	DC	107.82
8058588	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P1-2: LN 238-B	operation	548.02	120.84	132.38	DC	63.22
8058066	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	operation	598.78	150.14	169.76	DC	117.41
8058071	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	operation	598.78	137.29	155.31	DC	107.84
8058285	314563	6CLUBHSE	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 238-B	operation	375.06	104.18	144.48	DC	151.13
8058921	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P1-2: LN 238-B	operation	182.64	78.7	105.45	DC	48.87
8057963	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	182.96	184.5	DC	19.46
8057972	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operation	571.52	113.61	114.88	DC	16.16
8058174	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	operation	449.32	165.6	166.99	DC	13.84
8058016	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operation	571.52	176.58	178.12	DC	19.46

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058025	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operation	571.52	107.2	108.48	DC	16.16
8058259	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	142.83	157.38	DC	64.19
8058269	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	Base Case	operation	441.8	94.76	101.67	DC	30.47
8057775	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	operation	375.06	176.14	209.1	DC	123.63
8057784	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	Base Case	operation	351.56	112.94	123.9	DC	38.56
8058572	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	115.86	130.44	DC	64.37
8058410	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	operation	470.0	144.25	146.56	DC	23.96
8058594	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P1-2: LN 238-B	operation	548.02	120.78	132.33	DC	63.22
8058369	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	Base Case	operation	3218.56	110.87	111.34	DC	38.69
8057887	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operation	2442.12	184.61	185.37	DC	42.54
8057894	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operation	2442.12	148.95	149.53	DC	31.17
8058192	314905	8CHANCE	DVP	314900	8BRISTER	DVP	1	DVP_P1-2: LN 594	operation	2442.12	162.26	162.28	DC	35.46
8057726	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operation	2442.12	217.96	219.02	DC	57.04
8058344	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	148.98	149.43	DC	35.97
8057868	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	187.56	187.87	DC	53.94
8057875	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	134.5	134.97	DC	41.12
8058489	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	138.65	138.86	DC	40.08
8058846	314923	8SEPTA	DVP	314924	8SURREY	DVP	1	DVP_P1-2: LN 563	operation	2442.12	101.56	102.05	DC	26.13
8058506	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	134.51	135.07	DC	34.85
8058027	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	176.56	178.1	DC	19.46
8058036	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	107.2	108.48	DC	16.16
8058097	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P1-2: LN 238-B	operation	375.06	123.82	164.12	DC	151.13
8058157	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	153.58	168.13	DC	64.19
8058167	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	Base Case	operation	441.8	104.43	111.34	DC	30.47
8058214	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	operation	478.0	161.98	163.29	DC	13.84

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8057909	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 239	operation	598.78	160.76	180.38	DC	117.47
8057914	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	148.36	166.38	DC	107.84

12.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
8057968,8057969	22	6EARLEYS 230.0 kV - 6NUCO TP 230.0 kV Ckt 1	dom-017 (76) : Rebuild 13.7 miles of 230 kV Line 246 from Earleys to Nucor Tap with 2-636 ACSR. Project Type : FAC Cost : \$20,550,000 Time Estimate : 30-36 Months	\$20,550,000
7703778,7703779	7	6NORTHAMPTON 230.0 kV - 6EARLEYS 230.0 kV Ckt 1	dom-105 (215) : Rebuild 34.83 miles of 230 kV Line 2012 from Northhampton to Earleys with 2-636 ACSR. Project Type : FAC Cost : \$87,075,000 Time Estimate : 48-60 Months	\$87,075,000
8058021,8058022	24	6NUCO TP 230.0 kV - AA1-138 TAP 230.0 kV Ckt 1	dom-064 (154) : Rebuild 13.35 miles of 230 kV Line 246 from Nucor Tap to AA1-138 Tap with 2-636 ACSR. Project Type : FAC Cost : \$20,025,000 Time Estimate : 30-36 Months	\$20,025,000
8233567,8233568,8057915,7703235,7703234,8057920,8057916	35	AE2-033 TAP 230.0 kV - 6SAPONY 230.0 kV Ckt 1	dom-050 (132) : Rebuild 2.47 miles of 230 kV Line 238 from AE2-033 TAP to Sapony with 2-795 150C ACSR. Project Type : FAC Cost : \$3,705,000 Time Estimate : 30-36 Months	\$3,705,000
8058033,8058032	32	AA1-138 TAP 230.0 kV - 6SUFFOLK 230.0 kV Ckt 1	dom-065 (156) : Rebuild 17.3 miles of 230 kV Line 246 from AA1-138 Tap to Suffolk with 2-636 ACSR. Project Type : FAC Cost : \$25,950,000 Time Estimate : 36-40 Months	\$25,950,000
7703395	28	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
8058478	16	6CARSON 230.0 kV - 6CHRL249 230.0 kV Ckt 1	dom-078 (174) : Rebuild 7.47 miles of 230 kV Line 249 from Carson to Chaparral with 2-636 ACSR. Project Type : FAC Cost : \$18,675,000 Time Estimate : 30-36 Months	\$18,675,000
8058559	17	6CHRL249 230.0 kV - 6LOCKS 230.0 kV Ckt 1	dom-079 (175) : Rebuild 2.86 miles of 230 kV Line 249 from Chaparral to Locks with 2-636 ACSR. Project Type : FAC Cost : \$7,150,000 Time Estimate : 30-36 Months	\$7,150,000

ID	Index	Facility	Upgrade Description	Cost
7703796,7703797	9	6CAROLNA 230.0 kV - 6ROA VAL 230.0 kV Ckt 1	dom-107 (219) : Rebuild 4.06 miles of 230 kV Line 2060 from Carolina to Roanoke Valley with 2-636 ACSR. Project Type : FAC Cost : \$10,150,000 Time Estimate : 30-36 Months	\$10,150,000
7703639,7703638,7703640	30	8LADYSMITH 500.0 kV - 8CHANCE 500.0 kV Ckt 1	b3021 (276) : PJM baseline upgrade b3021: Rebuild 500kV Line #581 Ladysmith to Chancellor - 15.2 miles long. The baseline project has an projected in-service date of 12/31/2023. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
8058007,8058012	13	6HATHAWAY 230.0 kV - 6ROCKYMT230T 230.0 kV Ckt 1	<u>DVP</u> dom-003 (56) : For DEV portion, rebuild 4.13 miles of 230 kV Line 2058 from Hathaway to Rocky Mountain with 2-636 ACSR. Project Type : FAC Cost : \$10,325,000 Time Estimate : 30-36 Months <u>CPL</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$10,325,000
8233572,8058224	34	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 : The external (i.e. Non-PJM) Transmission Owner, CPL, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$4,500,000
8057842,8057841,8057849	18	6CHESTF B 230.0 kV - 6BASIN 230.0 kV Ckt 1	dom-012 (70) : Rebuild 12.4 miles of 230 kV Line 259 from Chesterfield to Basin with 2-636 ACSR. Project Type : FAC Cost : \$31,000,000 Time Estimate : 30-36 Months	\$31,000,000
8058184,8058181,8058180,8233577,8058179	23	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

ID	Index	Facility	Upgrade Description	Cost
8058577	5	6LAKEVEW 230.0 kV - 6HORNRTN 230.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation ¹	\$0
8058411	27	6NASH 230.0 kV - 6PA- RMOUNT#4 230.0 kV Ckt 1	<u>DVP</u> dom-005 (58) : For DEV portion, rebuild 3.3 miles of 230 kV Line 2181 from Nash to Parmount with 2-636 ACSR. Project Type : FAC Cost : \$8,250,000 Time Estimate : 30-36 Months <u>CPL</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$8,250,000
8233537	20	3BTLEBRO 115.0 kV - 3ROCKYMT115T 115.0 kV Ckt 1	<u>DVP</u> dom-007 (63) : Build new 500 kV line between Everetts and Suffolk. Project Type : CON Cost : \$570,000,000 Time Estimate : 48-60 Months <u>CPL</u> NonPJMArea : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$570,000,000
8058731,7703568,77 03567	1	6HARROWG 230.0 kV - 6TYLER1 230.0 kV Ckt 1	dom-036 (104) : Rebuild 4.5 miles of 230 kV Line 2003 from Harrowgate to Tyler with 2-636 ACSR. Project Type : FAC Cost : \$11,250,000 Time Estimate : 30-36 Months	\$11,250,000
8058728,7703566,77 03565	2	6POE 230.0 kV - 6HARROWG 230.0 kV Ckt 1	dom-037 (106) : Rebuild 12.3 miles of 230 kV Line 2003 from Poe to Harrowgate with 2-636 ACSR. Project Type : FAC Cost : \$30,750,000 Time Estimate : 30-36 Months	\$30,750,000

¹ 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.

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.

ID	Index	Facility	Upgrade Description	Cost
8058163,8058162	33	AD1-057 TAP 230.0 kV - 6HATHAWAY 230.0 kV Ckt 1	dom-076 (172) : Rebuild 12.8 miles of 230 kV Line 2056 from AD1-057 Tap to Hathaway with 2-636 ACSR. Project Type : FAC Cost : \$19,200,000 Time Estimate : 30-36 Months	\$19,200,000
7703387,8058099,77 03388	6	AB2-100 TAP 230.0 kV - 6LAKEVEW 230.0 kV Ckt 1	dom-049 (129) : Rebuild 16.0 miles of 230 kV Line 254 from AB2-100 Tap to Lakeview with 2-636 ACSR. Project Type : FAC Cost : \$24,000,000 Time Estimate : 30-36 Months	\$24,000,000
7703535,7703536	10	6CLUBHSE 230.0 kV - AB2-100 TAP 230.0 kV Ckt 1	dom-048 (127) : Rebuild 2.0 miles of 230 kV Line 254 from Clubhouse to AB2-100 Tap with 2-636 ACSR. Project Type : FAC Cost : \$3,000,000 Time Estimate : 30-36 Months	\$3,000,000
7703859	8	6CARSON 230.0 kV - 6POE 230.0 kV Ckt 1	No Reinforcement Needed. Not a valid violation ¹	\$0
8058291,8058290,80 58297	19	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 Months	\$7,500,000
8058255,8058250	14	6HATHAWAY 230.0 kV - 6NASH 230.0 kV Ckt 1	dom-143 (272) : Rebuild 0.76 miles of 230 kV Line 2181 from Hathaway to Nash with 2-636 ACSR. Project Type : FAC Cost : \$1,900,000 Time Estimate : 30-36 Months	\$1,900,000
7703516,7703515,80 58233,8233671,8233 672,8058232	3	6SAPONY 230.0 kV - 6CARSON 230.0 kV Ckt 1	dom-051 (134) : Rebuild 11.79 miles of 230 kV Line 238 from Sapony to Carson with 2-795 150C ACSR. Project Type : FAC Cost : \$17,685,000 Time Estimate : 30-36 Months	\$17,685,000
7703799,7703800	11	6ROA VAL 230.0 kV - 6NORTHAMPTON 230.0 kV Ckt 1	dom-106 (217) : Rebuild 2.87 miles of 230 kV Line 2012 from Roanoke Valley to Northampton with 2-636 ACSR. Project Type : FAC Cost : \$7,175,000 Time Estimate : 30-36 Months	\$7,175,000

ID	Index	Facility	Upgrade Description	Cost
7703603	21	6CLUBHSE 230.0 kV - 3CLUBHSE 115.0 kV Ckt 1	dom-010 (67) : Add additional 230/115 kV transformer at Clubhouse substation. Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
8058264,8058265	25	6HORNRTN 230.0 kV - AD1-057 TAP 230.0 kV Ckt 1	dom-077 (173) : Rebuild 16 miles of 230 kV Line 2056 from Hornertown to AD1-057 TAP with 2-636 ACSR. Project Type : FAC Cost : \$24,000,000 Time Estimate : 36-40 Months	\$24,000,000
7703293,8233583,77 03294,8058077,8058 073,8058072	4	6CLUBHSE 230.0 kV - AE2- 033 TAP 230.0 kV Ckt 1	dom-047 (124) : Rebuild 14.28 miles of 230 kV Line 238 from Clubhouse to AE2-033 Tap with 2-795 150C ACSR. Project Type : FAC Cost : \$21,420,000 Time Estimate : 30-36 Months	\$21,420,000
7703732	31	8SURREY 500.0 kV - 8CHCKAHM 500.0 kV Ckt 1	dom-040 (111) : Replace Terminal Equipment at Surry and Chickahominy Substations Project Type : FAC Cost : \$4,000,000 Time Estimate : 16-18 Months	\$4,000,000
7703266	15	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
8057780,8057781	26	6LAKEVEW 230.0 kV - 6CAROLNA 230.0 kV Ckt 1	dom-061 (149) : Rebuild 1.37 miles of 230 kV Line 2141 from Lakeview to Carolina with 2-636 ACSR. Project Type : FAC Cost : \$1,781,000 Time Estimate : 30-36 Months	\$1,781,000
7703330,7703331	29	8ELMONT 500.0 kV - 8LADYSMITH 500.0 kV Ckt 1	b3020 (274) : PJM baseline upgrade b3020: Rebuild 500kV Line #574 Ladysmith to Elmont - 26.2 miles long. The baseline project has an projected in-service date of 12/31/2022. Project Type : FAC Cost : \$0 Time Estimate : N/A Months	\$0
7703818	12	3PLHITP 115.0 kV - 3CAROLNA 115.0 kV Ckt 1	dom-118 (235) : Replace Breaker Leads at Pleasant Hill and Carolina substations. Project Type : FAC Cost : \$500,000 Time Estimate : 30-36 Months	\$500,000
			TOTAL COST	\$1,131,698,000

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 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
7703567	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	117.13	128.63	DC	62.23

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.29
315126	1ROARAP2	0.93
315131	1EDGECEMA	5.88
315132	1EDGECEMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

Bus #	Bus	MW Impact
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	0.84
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O1	5.01
940522	AE2-037 E O1	2.42
940541	AE2-040	7.45
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O1	13.21
941602	AE2-157 E O1	8.81
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49
942451	AE2-258	1.17

Bus #	Bus	MW Impact
942471	AE2-260 C O1	25.73
942472	AE2-260 E O1	36.5
942711	AE2-287 C O1	14.19
942712	AE2-287 E O1	9.46
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPL	CPL	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

12.6.2 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
7703565	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	117.15	128.65	DC	62.23

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.29
315126	1ROARAP2	0.93
315131	1EDGECEMA	5.88
315132	1EDGECEMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

Bus #	Bus	MW Impact
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	0.84
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O1	5.01
940522	AE2-037 E O1	2.42
940541	AE2-040	7.45
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O1	13.21
941602	AE2-157 E O1	8.81
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49
942451	AE2-258	1.17

Bus #	Bus	MW Impact
942471	AE2-260 C O1	25.73
942472	AE2-260 E O1	36.5
942711	AE2-287 C O1	14.19
942712	AE2-287 E O1	9.46
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPL	CPL	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

12.6.3 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
7703515	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 239T2141	breaker	830.0	117.85	133.82	DC	157.0

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918492	AA1-063AE OP	2.96
919692	AA2-053 E	3.15
920672	AA2-174 E	0.36
923851	AB2-025 C	1.48
923852	AB2-025 E	5.44
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924022	AB2-043 E O1	4.05
924162	AB2-060 E O1	3.3
924302	AB2-077 E O1	1.02
924312	AB2-078 E O1	1.02
924322	AB2-079 E O1	1.02
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.73
925172	AB2-174 E O1	16.04
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.11
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.04
934202	AD1-047 E	12.03
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.2
939072	AE1-135 E O1	62.8
940481	AE2-033 C	76.88

Bus #	Bus	MW Impact
940482	AE2-033 E	51.83
940541	AE2-040	15.57
942451	AE2-258	1.84
942471	AE2-260 C O1	64.92
942472	AE2-260 E O1	92.08
942711	AE2-287 C O1	30.26
942712	AE2-287 E O1	20.17
CARR	CARR	0.13
CBM-S1	CBM-S1	1.39
CBM-S2	CBM-S2	1.82
CBM-W1	CBM-W1	1.12
CBM-W2	CBM-W2	8.8
CIN	CIN	0.53
CPL	CPL	1.02
G-007	G-007	0.44
IPL	IPL	0.33
LGEE	LGEE	0.16
MEC	MEC	1.26
MECS	MECS	0.35
O-066	O-066	2.77
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.14

12.6.4 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
7703293	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	138.5	163.0	DC	157.02

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315128	1ROARAP4	0.94
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918491	AA1-063AC OP	0.77
918492	AA1-063AE OP	2.96
919691	AA2-053 C	0.9
919692	AA2-053 E	3.15
920671	AA2-174 C	0.04
920672	AA2-174 E	0.36
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924021	AB2-043 C O1	0.3
924022	AB2-043 E O1	4.06
924161	AB2-060 C O1	0.86
924162	AB2-060 E O1	3.3
924301	AB2-077 C O1	0.19
924302	AB2-077 E O1	1.02
924311	AB2-078 C O1	0.19
924312	AB2-078 E O1	1.02
924321	AB2-079 C O1	0.19
924322	AB2-079 E O1	1.02
924401	AB2-089 C	1.6
924402	AB2-089 E	0.83
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.74
925172	AB2-174 E O1	16.05
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.12
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37

Bus #	Bus	MW Impact
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.05
934202	AD1-047 E	12.03
934231	AD1-050 C	3.53
934232	AD1-050 E	1.93
936261	AD2-033 C	8.4
936262	AD2-033 E	5.6
936361	AD2-046 C O1	6.38
936362	AD2-046 E O1	2.93
936481	AD2-063 C O1	10.79
936482	AD2-063 E O1	7.19
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.21
939072	AE1-135 E O1	62.81
939181	AE1-148 C O1	6.33
939182	AE1-148 E O1	4.22
940542	AE2-040 BAT	2.16
940661	AE2-053	2.36
942451	AE2-258	1.85
942471	AE2-260 C O1	64.93
942472	AE2-260 E O1	92.09
942711	AE2-287 C O1	30.27
942712	AE2-287 E O1	20.18
CARR	CARR	0.13
CBM-S1	CBM-S1	1.42
CBM-S2	CBM-S2	1.84
CBM-W1	CBM-W1	1.17
CBM-W2	CBM-W2	8.98
CIN	CIN	0.55
CPL	CPL	1.02
G-007	G-007	0.43
IPL	IPL	0.34
LGEE	LGEE	0.16
MEC	MEC	1.3
MECS	MECS	0.38
O-066	O-066	2.72
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.15

12.6.5 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
8058577	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	single	441.8	92.42	98.44	DC	26.62

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.6
315126	1ROARAP2	1.2
315128	1ROARAP4	1.16
315139	1GASTONA	4.79
315141	1GASTONB	4.79
315150	1BUGGS 1	4.58
315151	1BUGGS 2	4.58
315158	1KERR 1	0.14
315159	1KERR 2	0.55
315160	1KERR 3	0.55
315161	1KERR 4	0.55
315162	1KERR 5	0.55
315163	1KERR 6	0.55
315164	1KERR 7	0.55
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.12
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.3
923911	AB2-031 C O1	3.12
923991	AB2-040 C O1	1.25
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.51
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.37
924501	AB2-099 C	0.34
924511	AB2-100 C	21.83
925171	AB2-174 C O1	10.09
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.08
926071	AC1-086 C	44.21
930861	AB1-132 C O1	3.66
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38

Bus #	Bus	MW Impact
933991	AD1-023 C	4.56
934201	AD1-047 C	11.18
934231	AD1-050 C	3.02
934521	AD1-076 C	16.4
936261	AD2-033 C	5.07
936361	AD2-046 C O1	4.64
936401	AD2-051 C O1	4.76
936481	AD2-063 C O1	6.46
936711	AD2-090 C O1	4.2
937571	AD2-169 C	13.49
938171	AE1-026 C1 O	10.44
938172	AE1-026 C2 O	1.51
938221	AE1-035 C	1.07
938771	AE1-103 C O1	1.65
939071	AE1-135 C O1	38.62
939181	AE1-148 C O1	4.55
939371	AE1-168 C	4.77
940241	AE2-006	0.18
940481	AE2-033 C	28.65
940521	AE2-037 C O1	4.12
940661	AE2-053	1.69
941541	AE2-151 C	0.59
942451	AE2-258	1.1
942471	AE2-260 C O1	26.62
942711	AE2-287 C O1	14.88
943171	AE2-346 C	1.01
BLUEG	BLUEG	2.99
CALDERWOOD	CALDERWOOD	0.63
CANNELTON	CANNELTON	0.2
CATAWBA	CATAWBA	0.62
CBM-N	CBM-N	0.06
CHEOAH	CHEOAH	0.59
CHILHOWEE	CHILHOWEE	0.2
COFFEEN	COFFEEN	0.35
COTTONWOOD	COTTONWOOD	2.11
DUCKCREEK	DUCKCREEK	0.72
EDWARDS	EDWARDS	0.32
ELMERSMITH	ELMERSMITH	0.36
FARMERCITY	FARMERCITY	0.26
G-007A	G-007A	0.32
GIBSON	GIBSON	0.13
HAMLET	HAMLET	1.28
NEWTON	NEWTON	0.91
NYISO	NYISO	0.27
PRAIRIE	PRAIRIE	1.92
SANTEETLA	SANTEETLA	0.18
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.43
TILTON	TILTON	0.38
TRIMBLE	TRIMBLE	0.33
TVA	TVA	1.77
UNIONPOWER	UNIONPOWER	0.88

Bus #	Bus	MW Impact
VFT	VFT	0.85

12.6.6 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
7703388	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 23872	breaker	427.0	108.76	144.16	DC	151.14

Bus #	Bus	MW Impact
314572	3EMPORIA	1.1
314704	3LAWRENC	0.55
923911	AB2-031 C O1	4.0
923912	AB2-031 E O1	1.97
923991	AB2-040 C O1	1.6
923992	AB2-040 E O1	10.75
924022	AB2-043 E O1	3.03
924162	AB2-060 E O1	2.47
924302	AB2-077 E O1	0.75
924312	AB2-078 E O1	0.75
924322	AB2-079 E O1	0.75
924511	AB2-100 C	51.74
924512	AB2-100 E	25.48
925171	AB2-174 C O1	14.8
925172	AB2-174 E O1	13.39
925612	AC1-036 E	0.4
931231	AB1-173 C	0.49
931232	AB1-173 E	1.88
931241	AB1-173AC	0.49
931242	AB1-173AE	1.88
934201	AD1-047 C	14.34
934202	AD1-047 E	9.56
936261	AD2-033 C	6.32
936262	AD2-033 E	4.21
936481	AD2-063 C O1	8.08
936482	AD2-063 E O1	5.39
937571	AD2-169 C	14.41
937572	AD2-169 E	9.61
939071	AE1-135 C O1	90.68
939072	AE1-135 E O1	60.45
940241	AE2-006	0.22
940481	AE2-033 C	67.26
940482	AE2-033 E	45.34
942451	AE2-258	1.38
942471	AE2-260 C O1	62.49
942472	AE2-260 E O1	88.64
942711	AE2-287 C O1	26.85
942712	AE2-287 E O1	17.9
BLUEG	BLUEG	0.16
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.01
CARR	CARR	0.0

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	0.07
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.2
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02
G-007	G-007	0.0
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.06
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.14
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.09

12.6.7 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
7703778	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 23872	breaker	658.0	100.19	109.81	DC	63.25

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.45
314572	3EMPORIA	0.63
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.63
315132	1EDGECEMB	5.63
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.53
315151	1BUGGS 2	5.53
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.19
919692	AA2-053 E	3.14
919701	AA2-057 C	4.16
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.11
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.35
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.44
924512	AB2-100 E	10.56
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.08
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36
925781	AC1-054 C O1	5.59

Bus #	Bus	MW Impact
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.26
926072	AC1-086 E	19.69
926201	AC1-098 C	2.47
926202	AC1-098 E	1.47
926211	AC1-099 C	0.83
926212	AC1-099 E	0.49
927141	AC1-208 C	6.05
927142	AC1-208 E	2.69
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
932631	AC2-084 C	3.52
932632	AC2-084 E	1.74
934201	AD1-047 C	11.13
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.73
934332	AD1-057 E O1	6.79
936261	AD2-033 C	5.69
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.3
936482	AD2-063 E O1	4.87
937571	AD2-169 C	13.45
937572	AD2-169 E	8.97
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.08
938661	AE1-088	0.92
939071	AE1-135 C O1	37.95
939072	AE1-135 E O1	25.3
939181	AE1-148 C O1	5.31
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.14
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.98
941951	AE2-207	1.64
942451	AE2-258	1.25
942471	AE2-260 C O1	26.15
942472	AE2-260 E O1	37.09
942711	AE2-287 C O1	15.09
942712	AE2-287 E O1	10.06
CARR	CARR	0.09

Bus #	Bus	MW Impact
CBM-S1	CBM-S1	1.68
CBM-S2	CBM-S2	1.87
CBM-W1	CBM-W1	1.69
CBM-W2	CBM-W2	10.92
CIN	CIN	0.77
CPL	CPL	0.94
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.7
MECS	MECS	0.7
O-066	O-066	1.98
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

12.6.8 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
7703859	314282	6CARSON	DVP	314331	6POE	DVP	1	DVP_P4-2: 24972-4	breaker	830.0	89.43	99.34	DC	82.26

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.61
314557	3BETHELC	0.58
314572	3EMPORIA	0.75
314574	6EVERETS	2.53
314578	3HORNRTN	3.68
314582	3KELFORD	2.67
314603	3SCOT NK	2.69
314617	3TUNIS	0.58
314620	6CASHIE	0.44
314623	3WITAKRS	1.08
314704	3LAWRENC	0.37
315126	1ROARAP2	1.15
315131	1EDGECEMA	7.24
315132	1EDGECEMB	7.24
315136	1ROSEMG1	2.19
315137	1ROSEMS1	1.36
315138	1ROSEMG2	1.03
315139	1GASTONA	3.26
315141	1GASTONB	3.26
315150	1BUGGS 1	6.46
315151	1BUGGS 2	6.46
900672	V4-068 E	0.2
917332	Z2-043 E	0.76
917342	Z2-044 E	0.46
917512	Z2-088 E OP1	2.58
918492	AA1-063AE OP	3.88
918512	AA1-065 E OP	2.79
918532	AA1-067 E	0.45
918562	AA1-072 E	0.13
919692	AA2-053 E	3.92
919701	AA2-057 C	5.95
919702	AA2-057 E	2.98
920042	AA2-088 E OP	6.76
920592	AA2-165 E	0.39
920672	AA2-174 E	0.45
923851	AB2-025 C	0.94
923852	AB2-025 E	3.48
923911	AB2-031 C O1	3.5
923912	AB2-031 E O1	1.72
923991	AB2-040 C O1	1.4
923992	AB2-040 E O1	9.39

Bus #	Bus	MW Impact
924022	AB2-043 E O1	3.24
924152	AB2-059 E O1	4.16
924162	AB2-060 E O1	2.64
924302	AB2-077 E O1	0.83
924312	AB2-078 E O1	0.83
924322	AB2-079 E O1	0.83
924401	AB2-089 C	1.64
924402	AB2-089 E	0.85
924491	AB2-098 C	0.35
924492	AB2-098 E	0.15
924501	AB2-099 C	0.41
924502	AB2-099 E	0.18
924511	AB2-100 C	26.3
924512	AB2-100 E	12.96
925122	AB2-169 E	3.03
925171	AB2-174 C O1	11.6
925172	AB2-174 E O1	10.49
925591	AC1-034 C	5.23
925592	AC1-034 E	3.95
925781	AC1-054 C O1	5.85
925782	AC1-054 E O1	2.7
926071	AC1-086 C	30.05
926072	AC1-086 E	13.68
926201	AC1-098 C	5.25
926202	AC1-098 E	3.13
926211	AC1-099 C	1.76
926212	AC1-099 E	1.03
927021	AC1-189 C	5.59
927022	AC1-189 E	2.79
927141	AC1-208 C	8.29
927142	AC1-208 E	3.68
930402	AB1-081 E O1	2.94
930861	AB1-132 C O1	2.49
930862	AB1-132 E O1	8.74
931231	AB1-173 C	0.43
931232	AB1-173 E	1.64
931241	AB1-173AC	0.43
931242	AB1-173AE	1.64
932631	AC2-084 C	7.48
932632	AC2-084 E	3.69
934201	AD1-047 C	12.53
934202	AD1-047 E	8.35
934231	AD1-050 C	3.62
934232	AD1-050 E	1.98
934331	AD1-057 C O1	10.81
934332	AD1-057 E O1	5.77
936261	AD2-033 C	6.73
936262	AD2-033 E	4.49
936361	AD2-046 C O1	6.06
936362	AD2-046 E O1	2.79
936401	AD2-051 C O1	6.21
936402	AD2-051 E O1	2.67

Bus #	Bus	MW Impact
936481	AD2-063 C O1	8.62
936482	AD2-063 E O1	5.75
936531	AD2-068 C	2.81
936532	AD2-068 E	1.45
936701	AD2-089 C	5.19
936702	AD2-089 E	3.46
936711	AD2-090 C O1	3.71
936712	AD2-090 E O1	2.47
937571	AD2-169 C	14.66
937572	AD2-169 E	9.78
938171	AE1-026 C1 O	14.49
938172	AE1-026 C2 O	2.1
938173	AE1-026 E O1	4.38
938221	AE1-035 C	1.41
938222	AE1-035 E	0.7
938661	AE1-088	0.92
939071	AE1-135 C O1	49.36
939072	AE1-135 E O1	32.9
939181	AE1-148 C O1	5.96
939182	AE1-148 E O1	3.97
940481	AE2-033 C	48.0
940482	AE2-033 E	32.36
940521	AE2-037 C O1	5.81
940522	AE2-037 E O1	2.81
940541	AE2-040	9.96
940571	AE2-044 C	3.43
940572	AE2-044 E	1.47
940652	AE2-052 BAT	1.4
940661	AE2-053	2.22
941532	AE2-150 EBAT	2.43
941541	AE2-151 C	0.77
941542	AE2-151 E	0.41
941951	AE2-207	2.22
942451	AE2-258	1.47
942471	AE2-260 C O1	34.01
942472	AE2-260 E O1	48.25
942711	AE2-287 C O1	18.42
942712	AE2-287 E O1	12.28
943171	AE2-346 C	1.24
943172	AE2-346 E	0.53
AA2-074	AA2-074	1.9
CARR	CARR	0.18
CBM-S1	CBM-S1	4.45
CBM-S2	CBM-S2	5.15
CBM-W1	CBM-W1	4.55
CBM-W2	CBM-W2	29.12
CIN	CIN	2.05
CPL	CPL	2.8
G-007	G-007	0.61
IPL	IPL	1.29
LGEE	LGEE	0.59
MEC	MEC	4.54

Bus #	Bus	MW Impact
MECS	MECS	1.95
O-066	O-066	3.89
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.55

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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
7703797	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	98.77	108.2	DC	63.22

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.44
314572	3EMPORIA	0.62
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.62
315132	1EDGECEMB	5.62
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.52
315151	1BUGGS 2	5.52
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.18
919692	AA2-053 E	3.13
919701	AA2-057 C	4.15
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.1
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.34
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.43
924512	AB2-100 E	10.55
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.07
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36

Bus #	Bus	MW Impact
925781	AC1-054 C O1	5.58
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.25
926072	AC1-086 E	19.69
926201	AC1-098 C	2.47
926202	AC1-098 E	1.47
926211	AC1-099 C	0.83
926212	AC1-099 E	0.49
927141	AC1-208 C	6.05
927142	AC1-208 E	2.68
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
932631	AC2-084 C	3.52
932632	AC2-084 E	1.73
934201	AD1-047 C	11.12
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.72
934332	AD1-057 E O1	6.78
936261	AD2-033 C	5.68
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.29
936482	AD2-063 E O1	4.86
937571	AD2-169 C	13.44
937572	AD2-169 E	8.96
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.09
938661	AE1-088	0.92
939071	AE1-135 C O1	37.93
939072	AE1-135 E O1	25.29
939181	AE1-148 C O1	5.3
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.13
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.97
941951	AE2-207	1.64
942451	AE2-258	1.25
942471	AE2-260 C O1	26.14
942472	AE2-260 E O1	37.08
942711	AE2-287 C O1	15.08
942712	AE2-287 E O1	10.05

Bus #	Bus	MW Impact
CARR	CARR	0.09
CBM-S1	CBM-S1	1.67
CBM-S2	CBM-S2	1.86
CBM-W1	CBM-W1	1.67
CBM-W2	CBM-W2	10.82
CIN	CIN	0.76
CPLE	CPLE	0.93
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.69
MECS	MECS	0.7
O-066	O-066	1.97
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703536	314563	6CLUBHSE	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 238T2002	breaker	427.0	91.53	126.93	DC	151.14

Bus #	Bus	MW Impact
314572	3EMPORIA	1.1
314704	3LAWRENC	0.55
923911	AB2-031 C O1	4.0
923912	AB2-031 E O1	1.97
923991	AB2-040 C O1	1.6
923992	AB2-040 E O1	10.75
924022	AB2-043 E O1	3.03
924162	AB2-060 E O1	2.47
924302	AB2-077 E O1	0.75
924312	AB2-078 E O1	0.75
924322	AB2-079 E O1	0.75
925171	AB2-174 C O1	14.8
925172	AB2-174 E O1	13.39
925612	AC1-036 E	0.4
931231	AB1-173 C	0.49
931232	AB1-173 E	1.88
931241	AB1-173AC	0.49
931242	AB1-173AE	1.88
934201	AD1-047 C	14.34
934202	AD1-047 E	9.56
936261	AD2-033 C	6.32
936262	AD2-033 E	4.21
936481	AD2-063 C O1	8.08
936482	AD2-063 E O1	5.38
937571	AD2-169 C	14.41
937572	AD2-169 E	9.61
939071	AE1-135 C O1	90.68
939072	AE1-135 E O1	60.45
939181	AE1-148 C O1	3.86
939182	AE1-148 E O1	2.58
940241	AE2-006	0.22
940481	AE2-033 C	67.26
940482	AE2-033 E	45.34
940661	AE2-053	1.44
942451	AE2-258	1.38
942471	AE2-260 C O1	62.49
942472	AE2-260 E O1	88.64
942711	AE2-287 C O1	26.85
942712	AE2-287 E O1	17.9
BLUEG	BLUEG	0.16
CALDERWOOD	CALDERWOOD	0.06

Bus #	Bus	MW Impact
CANNELTON	CANNELTON	0.01
CARR	CARR	0.0
CATAWBA	CATAWBA	0.07
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.2
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.06
PRAIRIE	PRAIRIE	0.14
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.09

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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
7703800	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	98.72	108.15	DC	63.22

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.44
314572	3EMPORIA	0.62
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.62
315132	1EDGECEMB	5.62
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.52
315151	1BUGGS 2	5.52
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.18
919692	AA2-053 E	3.13
919701	AA2-057 C	4.15
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.1
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.34
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.43
924512	AB2-100 E	10.55
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.07
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36

Bus #	Bus	MW Impact
925781	AC1-054 C O1	5.58
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.25
926072	AC1-086 E	19.69
926201	AC1-098 C	2.47
926202	AC1-098 E	1.47
926211	AC1-099 C	0.83
926212	AC1-099 E	0.49
927141	AC1-208 C	6.05
927142	AC1-208 E	2.68
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
932631	AC2-084 C	3.52
932632	AC2-084 E	1.73
934201	AD1-047 C	11.12
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.72
934332	AD1-057 E O1	6.78
936261	AD2-033 C	5.68
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.29
936482	AD2-063 E O1	4.86
937571	AD2-169 C	13.44
937572	AD2-169 E	8.96
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.09
938661	AE1-088	0.92
939071	AE1-135 C O1	37.93
939072	AE1-135 E O1	25.29
939181	AE1-148 C O1	5.3
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.13
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.97
941951	AE2-207	1.64
942451	AE2-258	1.25
942471	AE2-260 C O1	26.14
942472	AE2-260 E O1	37.08
942711	AE2-287 C O1	15.08
942712	AE2-287 E O1	10.05

Bus #	Bus	MW Impact
CARR	CARR	0.09
CBM-S1	CBM-S1	1.67
CBM-S2	CBM-S2	1.86
CBM-W1	CBM-W1	1.67
CBM-W2	CBM-W2	10.82
CIN	CIN	0.76
CPLE	CPLE	0.93
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.69
MECS	MECS	0.7
O-066	O-066	1.97
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

12.6.12 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
7703818	314600	3PLHITP	DVP	314559	3CAROLNA	DVP	1	DVP_P4-2: 239T2141	breaker	351.0	92.68	100.3	DC	26.72

Bus #	Bus	MW Impact
314572	3EMPORIA	0.88
314704	3LAWRENC	0.3
315139	1GASTONA	1.79
315141	1GASTONB	1.79
923852	AB2-025 E	0.46
923911	AB2-031 C O1	6.95
923912	AB2-031 E O1	3.42
923991	AB2-040 C O1	2.78
923992	AB2-040 E O1	18.68
924511	AB2-100 C	8.95
924512	AB2-100 E	4.41
925171	AB2-174 C O1	19.11
925172	AB2-174 E O1	17.29
926071	AC1-086 C	16.53
926072	AC1-086 E	7.52
930861	AB1-132 C O1	1.37
930862	AB1-132 E O1	4.81
931231	AB1-173 C	0.85
931232	AB1-173 E	3.27
931241	AB1-173AC	0.85
931242	AB1-173AE	3.27
934201	AD1-047 C	24.91
934202	AD1-047 E	16.6
937571	AD2-169 C	35.3
937572	AD2-169 E	23.53
939071	AE1-135 C O1	16.03
939072	AE1-135 E O1	10.69
940481	AE2-033 C	7.42
940482	AE2-033 E	5.0
940541	AE2-040	1.32
942471	AE2-260 C O1	11.05
942472	AE2-260 E O1	15.67
942711	AE2-287 C O1	14.32
942712	AE2-287 E O1	9.55
BLUEG	BLUEG	1.24
CALDERWOOD	CALDERWOOD	0.28
CANNELTON	CANNELTON	0.09
CATAWBA	CATAWBA	0.28
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.26
CHILHOWEE	CHILHOWEE	0.09

Bus #	Bus	MW Impact
COFFEEN	COFFEEN	0.15
COTTONWOOD	COTTONWOOD	0.92
DUCKCREEK	DUCKCREEK	0.3
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.15
FARMERCITY	FARMERCITY	0.11
G-007A	G-007A	0.27
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.57
NEWTON	NEWTON	0.38
NYISO	NYISO	0.29
PRAIRIE	PRAIRIE	0.82
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.18
TILTON	TILTON	0.16
TRIMBLE	TRIMBLE	0.14
TVA	TVA	0.77
UNIONPOWER	UNIONPOWER	0.39
VFT	VFT	0.73

12.6.13 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
8058007	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	144.06	146.66	DC	9.71

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.54
315126	1ROARAP2	0.81
315128	1ROARAP4	0.78
315131	1EDGECEMA	24.75
315132	1EDGECEMB	24.75
315136	1ROSEMG1	2.1
315137	1ROSEMS1	1.3
315138	1ROSEMG2	0.98
315139	1GASTONA	2.52
315141	1GASTONB	2.52
315292	1DOMTR78	0.58
315293	1DOMTR9	0.48
315294	1DOMTR10	0.86
901081	W1-029 C	0.25
916041	Z1-036 C	0.29
917331	Z2-043 C	0.23
917341	Z2-044 C	0.2
917511	Z2-088 C OP1	1.46
918491	AA1-063AC OP	0.79
918511	AA1-065 C OP	0.72
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.83
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.46
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.54
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.61
923991	AB2-040 C O1	0.64
924151	AB2-059 C O1	2.06
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4
924511	AB2-100 C	8.39
925121	AB2-169 C	0.49
925171	AB2-174 C O1	4.93

Bus #	Bus	MW Impact
925591	AC1-034 C	10.93
925781	AC1-054 C O1	2.83
926071	AC1-086 C	23.24
926201	AC1-098 C	5.92
926211	AC1-099 C	1.98
927021	AC1-189 C	9.72
927141	AC1-208 C	9.06
930401	AB1-081 C O1	1.74
930861	AB1-132 C O1	1.92
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.44
933991	AD1-023 C	7.4
934201	AD1-047 C	5.77
934231	AD1-050 C	1.6
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.78
936401	AD2-051 C O1	6.14
936701	AD2-089 C	14.05
936711	AD2-090 C O1	3.69
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.32
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.48
938661	AE1-088	2.05
938771	AE1-103 C O1	1.56
939071	AE1-135 C O1	14.1
940481	AE2-033 C	7.06
940491	AE2-034 C	3.88
940521	AE2-037 C O1	5.83
940541	AE2-040	1.29
940571	AE2-044 C	7.16
941501	AE2-147 C	4.64
941541	AE2-151 C	0.76
941951	AE2-207	4.63
942471	AE2-260 C O1	9.71
942711	AE2-287 C O1	6.3
942851	AE2-304 C	0.2
943171	AE2-346 C	1.2
BLUEG	BLUEG	5.91
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.17
CBM-N	CBM-N	0.12
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	4.01
DUCKCREEK	DUCKCREEK	1.41
EDWARDS	EDWARDS	0.63
ELMERSMITH	ELMERSMITH	0.71
FARMERCITY	FARMERCITY	0.49

Bus #	Bus	MW Impact
G-007A	G-007A	0.65
GIBSON	GIBSON	0.25
HAMLET	HAMLET	2.3
NEWTON	NEWTON	1.79
NYISO	NYISO	0.54
PRAIRIE	PRAIRIE	3.73
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.84
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.65
TVA	TVA	3.37
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	1.72

12.6.14 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
8058250	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	129.0	131.2	DC	9.91

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O1	5.95
940541	AE2-040	1.32
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942471	AE2-260 C O1	9.91
942711	AE2-287 C O1	6.42
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

12.6.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703266	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	176.11	177.46	DC	31.15

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

12.6.16 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058478	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	118.83	120.62	DC	12.86

Bus #	Bus	MW Impact
314589	3MURPHYS	0.03
314704	3LAWRENC	0.16
315102	1BRUNSWICKG1	2.54
315103	1BRUNSWICKG2	2.54
315104	1BRUNSWICKG3	2.54
315105	1BRUNSWICKS1	5.29
315126	1ROARAP2	0.56
315128	1ROARAP4	0.54
315131	1EDGECEMA	4.32
315132	1EDGECEMB	4.32
315136	1ROSEMG1	0.99
315137	1ROSEMS1	0.62
315138	1ROSEMG2	0.47
315139	1GASTONA	1.44
315141	1GASTONB	1.44
315150	1BUGGS 1	4.46
315151	1BUGGS 2	4.46
315159	1KERR 2	0.45
315161	1KERR 4	0.44
315162	1KERR 5	0.44
315163	1KERR 6	0.44
315164	1KERR 7	0.44
916301	Z1-086 C	15.49
917331	Z2-043 C	0.13
917341	Z2-044 C	0.08
918491	AA1-063AC OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	0.56
919701	AA2-057 C	3.39
920591	AA2-165 C	0.06
920671	AA2-174 C	0.03
923851	AB2-025 C	0.33
923911	AB2-031 C O1	1.5
923991	AB2-040 C O1	0.6
924151	AB2-059 C O1	0.59
924401	AB2-089 C	0.96
924491	AB2-098 C	0.23
924501	AB2-099 C	0.25
924511	AB2-100 C	10.06
925171	AB2-174 C O1	4.9
925591	AC1-034 C	3.16

Bus #	Bus	MW Impact
925781	AC1-054 C O1	3.33
926071	AC1-086 C	13.29
926201	AC1-098 C	2.93
926211	AC1-099 C	0.98
927021	AC1-189 C	3.64
927141	AC1-208 C	4.48
930401	AB1-081 C O1	0.5
930861	AB1-132 C O1	1.1
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932631	AC2-084 C	4.18
933991	AD1-023 C	4.74
934201	AD1-047 C	5.39
934231	AD1-050 C	2.12
934331	AD1-057 C O1	5.45
934521	AD1-076 C	18.8
934611	AD1-087 C O1	2.89
935171	AD1-152 C O1	2.87
935211	AD1-156 C	0.11
936361	AD2-046 C O1	3.75
936401	AD2-051 C O1	3.75
936481	AD2-063 C O1	5.54
936531	AD2-068 C	2.08
936701	AD2-089 C	3.22
936711	AD2-090 C O1	2.62
937481	AD2-202 C O1	0.79
937571	AD2-169 C	6.45
938171	AE1-026 C1 O	10.34
938172	AE1-026 C2 O	1.5
938221	AE1-035 C	0.91
938491	AE1-068 C O1	25.35
938501	AE1-069 C O1	19.84
938661	AE1-088	0.66
939071	AE1-135 C O1	18.66
939181	AE1-148 C O1	3.69
939411	AE1-173 C	31.68
940471	AE2-031 C O1	10.27
940481	AE2-033 C	17.11
940521	AE2-037 C O1	3.48
940541	AE2-040	3.52
940571	AE2-044 C	2.07
940641	AE2-051 C O1	6.79
940661	AE2-053	1.37
941031	AE2-094 C	16.59
941541	AE2-151 C	0.46
941951	AE2-207	1.34
942211	AE2-233 C	5.42
942451	AE2-258	0.92
942471	AE2-260 C O1	12.86
942711	AE2-287 C O1	8.14
942921	AE2-311 C O1	15.91
942931	AE2-313 C	14.91

Bus #	Bus	MW Impact
943171	AE2-346 C	0.75
AA2-074	AA2-074	2.19
CARR	CARR	0.26
CBM-S1	CBM-S1	5.47
CBM-S2	CBM-S2	6.25
CBM-W1	CBM-W1	5.42
CBM-W2	CBM-W2	35.58
CIN	CIN	2.46
CPL	CPL	3.23
IPL	IPL	1.54
LGEE	LGEE	0.71
MEC	MEC	5.48
MECS	MECS	2.25
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.66

12.6.17 Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058559	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	115.16	116.95	DC	12.86

Bus #	Bus	MW Impact
314589	3MURPHYS	0.03
314704	3LAWRENC	0.16
315102	1BRUNSWICKG1	2.54
315103	1BRUNSWICKG2	2.54
315104	1BRUNSWICKG3	2.54
315105	1BRUNSWICKS1	5.29
315126	1ROARAP2	0.56
315128	1ROARAP4	0.54
315131	1EDGECEMA	4.32
315132	1EDGECEMB	4.32
315136	1ROSEMG1	0.99
315137	1ROSEMS1	0.62
315138	1ROSEMG2	0.47
315139	1GASTONA	1.44
315141	1GASTONB	1.44
315150	1BUGGS 1	4.46
315151	1BUGGS 2	4.46
315159	1KERR 2	0.45
315161	1KERR 4	0.44
315162	1KERR 5	0.44
315163	1KERR 6	0.44
315164	1KERR 7	0.44
916301	Z1-086 C	15.49
917331	Z2-043 C	0.13
917341	Z2-044 C	0.08
918491	AA1-063AC OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	0.56
919701	AA2-057 C	3.39
920591	AA2-165 C	0.06
920671	AA2-174 C	0.03
923851	AB2-025 C	0.33
923911	AB2-031 C O1	1.5
923991	AB2-040 C O1	0.6
924151	AB2-059 C O1	0.59
924401	AB2-089 C	0.96
924491	AB2-098 C	0.23
924501	AB2-099 C	0.25
924511	AB2-100 C	10.06
925171	AB2-174 C O1	4.9
925591	AC1-034 C	3.16

Bus #	Bus	MW Impact
925781	AC1-054 C O1	3.33
926071	AC1-086 C	13.29
926201	AC1-098 C	2.93
926211	AC1-099 C	0.98
927021	AC1-189 C	3.64
927141	AC1-208 C	4.48
930401	AB1-081 C O1	0.5
930861	AB1-132 C O1	1.1
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932631	AC2-084 C	4.18
933991	AD1-023 C	4.74
934201	AD1-047 C	5.39
934231	AD1-050 C	2.12
934331	AD1-057 C O1	5.45
934521	AD1-076 C	18.8
934611	AD1-087 C O1	2.89
935171	AD1-152 C O1	2.87
935211	AD1-156 C	0.11
936361	AD2-046 C O1	3.75
936401	AD2-051 C O1	3.75
936481	AD2-063 C O1	5.54
936531	AD2-068 C	2.08
936701	AD2-089 C	3.22
936711	AD2-090 C O1	2.62
937481	AD2-202 C O1	0.79
937571	AD2-169 C	6.45
938171	AE1-026 C1 O	10.34
938172	AE1-026 C2 O	1.5
938221	AE1-035 C	0.91
938491	AE1-068 C O1	25.35
938501	AE1-069 C O1	19.84
938661	AE1-088	0.66
939071	AE1-135 C O1	18.66
939181	AE1-148 C O1	3.69
939411	AE1-173 C	31.68
940471	AE2-031 C O1	10.27
940481	AE2-033 C	17.11
940521	AE2-037 C O1	3.48
940541	AE2-040	3.52
940571	AE2-044 C	2.07
940641	AE2-051 C O1	6.79
940661	AE2-053	1.37
941031	AE2-094 C	16.59
941541	AE2-151 C	0.46
941951	AE2-207	1.34
942211	AE2-233 C	5.42
942451	AE2-258	0.92
942471	AE2-260 C O1	12.86
942711	AE2-287 C O1	8.14
942921	AE2-311 C O1	15.91
942931	AE2-313 C	14.91

Bus #	Bus	MW Impact
943171	AE2-346 C	0.75
AA2-074	AA2-074	2.19
CARR	CARR	0.26
CBM-S1	CBM-S1	5.47
CBM-S2	CBM-S2	6.25
CBM-W1	CBM-W1	5.42
CBM-W2	CBM-W2	35.58
CIN	CIN	2.46
CPL	CPL	3.23
IPL	IPL	1.54
LGEE	LGEE	0.71
MEC	MEC	5.48
MECS	MECS	2.25
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.66

12.6.18 Index 18

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8057841	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	154.44	156.27	DC	8.16

Bus #	Bus	MW Impact
314314	3LOCKS	0.14
314704	3LAWRENC	0.11
315065	1CHESTF6	20.96
315074	1HOPCGN1	6.04
315075	1HOPCGN2	5.96
315076	1HOPPOLC	0.84
315077	1HOPHCF1	1.32
315078	1HOPHCF2	1.32
315079	1HOPHCF3	1.32
315080	1HOPHCF4	2.0
315116	1SURRY 1	8.12
315117	1GRAVELC	0.28
315119	1GRAVEL3	0.82
315120	1GRAVEL4	0.84
315121	1GRAVEL5	0.82
315122	1GRAVEL6	0.83
315136	1ROSEMG1	0.71
315137	1ROSEMS1	0.44
315138	1ROSEMG2	0.33
315139	1GASTONA	1.02
315141	1GASTONB	1.02
923801	AB2-015 C O1	3.37
923851	AB2-025 C	0.2
923911	AB2-031 C O1	1.04
923991	AB2-040 C O1	0.42
924501	AB2-099 C	0.22
924511	AB2-100 C	6.44
924811	AB2-134 C O1	0.88
925051	AB2-160 C O1	3.5
925061	AB2-161 C O1	1.96
925171	AB2-174 C O1	3.33
925331	AB2-190 C	11.72
925821	AC1-061	0.0
926071	AC1-086 C	9.45
926201	AC1-098 C	2.35
926211	AC1-099 C	0.79
927141	AC1-208 C	3.49
927221	AC1-216 C O1	5.52
930861	AB1-132 C O1	0.78
931231	AB1-173 C	0.13
931241	AB1-173AC	0.13

Bus #	Bus	MW Impact
932581	AC2-078 C O1	2.99
932591	AC2-079 C O1	2.78
932631	AC2-084 C	3.36
934011	AD1-025 C	9.49
934201	AD1-047 C	3.72
934331	AD1-057 C O1	4.03
934571	AD1-082 C	4.47
935161	AD1-151 C O1	9.42
935211	AD1-156 C	0.25
936041	AD2-007	1.01
936051	AD2-008 C	1.65
936401	AD2-051 C O1	3.33
936661	AD2-085 C	1.69
936711	AD2-090 C O1	2.83
937571	AD2-169 C	4.53
938221	AE1-035 C	0.84
938491	AE1-068 C O1	20.11
938501	AE1-069 C O1	15.73
938631	AE1-085 C O1	7.83
938771	AE1-103 C O1	1.42
939071	AE1-135 C O1	11.84
939191	AE1-149 C O1	8.22
939311	AE1-162 C	0.86
939411	AE1-173 C	29.65
940061	AE1-248 C O1	9.3
940071	AE1-249 C	4.62
940481	AE2-033 C	10.34
940521	AE2-037 C O1	3.06
940541	AE2-040	2.11
940641	AE2-051 C O1	5.69
940651	AE2-052	2.75
940891	AE2-078 C	0.97
940901	AE2-079 C	0.97
940911	AE2-080 C	0.97
941031	AE2-094 C	13.19
941101	AE2-104 C O1	1.33
941541	AE2-151 C	0.41
941601	AE2-157 C O1	6.75
942001	AE2-212 C	2.53
942151	AE2-227 C O1	2.53
942161	AE2-228 C O1	2.53
942211	AE2-233 C	4.31
942341	AE2-247 C	0.73
942371	AE2-250 C O1	6.22
942471	AE2-260 C O1	8.16
942551	AE2-270	15.71
942711	AE2-287 C O1	5.38
942931	AE2-313 C	11.81
943171	AE2-346 C	0.67
AA2-074	AA2-074	1.68
CARR	CARR	0.32
CBM-S1	CBM-S1	3.53

Bus #	Bus	MW Impact
CBM-S2	CBM-S2	4.67
CBM-W1	CBM-W1	2.7
CBM-W2	CBM-W2	22.14
CIN	CIN	1.28
CPL	CPL	2.47
IPL	IPL	0.79
LGEE	LGEE	0.37
MEC	MEC	3.11
MECS	MECS	0.79
RENSSELAER	RENSSELAER	0.26
WEC	WEC	0.34

12.6.19 Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058290	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	135.89	137.3	DC	6.39

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
940481	AE2-033 C	8.03
940541	AE2-040	1.64
940651	AE2-052	3.17
940891	AE2-078 C	1.87
940901	AE2-079 C	1.87
940911	AE2-080 C	1.87
941101	AE2-104 C O1	1.35
941591	AE2-156	6.52
941601	AE2-157 C O1	7.58
942001	AE2-212 C	1.95
942151	AE2-227 C O1	1.95
942161	AE2-228 C O1	1.95
942341	AE2-247 C	0.79
942371	AE2-250 C O1	5.16
942471	AE2-260 C O1	6.39
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

12.6.20 Index 20

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8233537	314554	3BTLEBRO	DVP	304223	3ROCKYMT11ST	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	309.76	313.88	DC	14.94

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHEL	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.87
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECEMA	13.53
315132	1EDGECEMB	13.53
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315139	1GASTONA	1.55
315141	1GASTONB	1.55
900672	V4-068 E	0.15
917331	Z2-043 C	0.23
917332	Z2-043 E	0.82
917341	Z2-044 C	0.36
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	0.83
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.91
918532	AA1-067 E	0.31
918561	AA1-072 C	0.03
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.32
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.22
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2
923912	AB2-031 E O1	0.59

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	2.89
924152	AB2-059 E O1	12.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.31
924512	AB2-100 E	2.62
925122	AB2-169 E	2.21
925171	AB2-174 C O1	3.6
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.34
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.66
926212	AC1-099 E	1.56
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.51
927142	AC1-208 E	5.56
930401	AB1-081 C O1	2.45
930402	AB1-081 E O1	8.62
930861	AB1-132 C O1	1.19
930862	AB1-132 E O1	4.17
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.33
932632	AC2-084 E	5.58
933991	AD1-023 C	4.78
933992	AD1-023 E	2.6
934201	AD1-047 C	4.3
934202	AD1-047 E	2.86
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.96
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.83
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.58
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O1	3.19
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
938661	AE1-088	0.67

Bus #	Bus	MW Impact
939071	AE1-135 C O1	8.96
939072	AE1-135 E O1	5.98
940521	AE2-037 C O1	4.96
940522	AE2-037 E O1	2.4
940571	AE2-044 C	10.06
940572	AE2-044 E	4.31
941541	AE2-151 C	0.59
941542	AE2-151 E	0.32
941951	AE2-207	6.5
942471	AE2-260 C O1	6.18
942472	AE2-260 E O1	8.76
943171	AE2-346 C	0.94
943172	AE2-346 E	0.4
BLUEG	BLUEG	3.99
CALDERWOOD	CALDERWOOD	0.81
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.79
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.76
CHILHOWEE	CHILHOWEE	0.26
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	2.71
DUCKCREEK	DUCKCREEK	0.95
EDWARDS	EDWARDS	0.43
ELMERSMITH	ELMERSMITH	0.48
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.39
GIBSON	GIBSON	0.17
HAMLET	HAMLET	1.57
NEWTON	NEWTON	1.21
NYISO	NYISO	0.3
PRAIRIE	PRAIRIE	2.52
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.57
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.44
TVA	TVA	2.27
UNIONPOWER	UNIONPOWER	1.13
VFT	VFT	1.03

12.6.21 Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703603	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	208.6	109.4	129.85	DC	42.65

Bus #	Bus	MW Impact
315139	1GASTONA	2.86
315141	1GASTONB	2.86
923851	AB2-025 C	0.2
923852	AB2-025 E	0.75
924511	AB2-100 C	14.29
924512	AB2-100 E	7.04
926071	AC1-086 C	26.38
926072	AC1-086 E	12.01
930861	AB1-132 C O1	2.18
930862	AB1-132 E O1	7.68
934233	AD1-050 BAT	5.54
939071	AE1-135 C O1	25.59
939072	AE1-135 E O1	17.06
940481	AE2-033 C	11.96
940482	AE2-033 E	8.07
940541	AE2-040	2.14
940662	AE2-053 BAT	2.38
942471	AE2-260 C O1	17.64
942472	AE2-260 E O1	25.01
BLUEG	BLUEG	1.94
CALDERWOOD	CALDERWOOD	0.41
CANNELTON	CANNELTON	0.13
CATAWBA	CATAWBA	0.4
CBM-N	CBM-N	0.15
CHEOAH	CHEOAH	0.39
CHILHOWEE	CHILHOWEE	0.13
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	1.37
DUCKCREEK	DUCKCREEK	0.46
EDWARDS	EDWARDS	0.21
ELMERSMITH	ELMERSMITH	0.24
FARMERCITY	FARMERCITY	0.16
G-007A	G-007A	0.58
GIBSON	GIBSON	0.08
HAMLET	HAMLET	0.78
NEWTON	NEWTON	0.59
NYISO	NYISO	0.63
PRAIRIE	PRAIRIE	1.25
SANTEETLA	SANTEETLA	0.11
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.28

Bus #	Bus	MW Impact
TILTON	TILTON	0.24
TRIMBLE	TRIMBLE	0.21
TVA	TVA	1.15
UNIONPOWER	UNIONPOWER	0.57
VFT	VFT	1.54

12.6.22 Index 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
8057968	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	122.97	124.38	DC	8.05

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O1	14.19
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.05
942711	AE2-287 C O1	7.0
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPL	CPL	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

12.6.23 Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8233577	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	173.31	174.92	DC	17.24

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGECEMA	8.55
315132	1EDGECEMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938531	AE1-072 C O1	6.69
938532	AE1-072 E O1	3.49
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O1	8.41
940522	AE2-037 E O1	4.06
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942471	AE2-260 C O1	7.13
942472	AE2-260 E O1	10.11
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

12.6.24 Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058022	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	115.8	117.21	DC	8.06

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.12
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.21
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49

Bus #	Bus	MW Impact
926071	AC1-086 C	21.85
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.7
927141	AC1-208 C	10.09
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.15
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.33
934521	AD1-076 C	110.74
936401	AD2-051 C O1	15.92
936531	AD2-068 C	6.56
936701	AD2-089 C	9.29
937571	AD2-169 C	8.21
938171	AE1-026 C1 O	58.58
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.69
940491	AE2-034 C	16.92
940521	AE2-037 C O1	14.2
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.06
942711	AE2-287 C O1	7.01
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.74
CARR	CARR	0.19
CBM-S1	CBM-S1	6.01
CBM-S2	CBM-S2	7.07
CBM-W1	CBM-W1	6.25
CBM-W2	CBM-W2	39.45
CIN	CIN	2.8
CPLE	CPLE	4.02
IPL	IPL	1.76
LGEE	LGEE	0.81
MEC	MEC	6.18
MECS	MECS	2.74
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

12.6.25 Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058264	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	single	441.8	119.37	125.38	DC	26.54

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.59
315126	1ROARAP2	1.2
315128	1ROARAP4	1.15
315136	1ROSEMG1	3.99
315137	1ROSEMS1	2.47
315138	1ROSEMG2	1.87
315139	1GASTONA	4.78
315141	1GASTONB	4.78
315150	1BUGGS 1	4.52
315151	1BUGGS 2	4.52
315158	1KERR 1	0.13
315159	1KERR 2	0.55
315160	1KERR 3	0.54
315161	1KERR 4	0.54
315162	1KERR 5	0.54
315163	1KERR 6	0.54
315164	1KERR 7	0.54
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.11
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.25
923911	AB2-031 C O1	3.11
923991	AB2-040 C O1	1.24
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.5
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.36
924501	AB2-099 C	0.33
924511	AB2-100 C	21.77
925171	AB2-174 C O1	10.05
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.04
926071	AC1-086 C	44.1

Bus #	Bus	MW Impact
930861	AB1-132 C O1	3.65
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38
933991	AD1-023 C	4.49
934201	AD1-047 C	11.13
934231	AD1-050 C	3.0
934521	AD1-076 C	16.11
936261	AD2-033 C	5.0
936361	AD2-046 C O1	4.59
936401	AD2-051 C O1	4.71
936481	AD2-063 C O1	6.38
936711	AD2-090 C O1	4.16
937571	AD2-169 C	13.44
938171	AE1-026 C1 O	10.29
938172	AE1-026 C2 O	1.49
938221	AE1-035 C	1.06
938771	AE1-103 C O1	1.63
939071	AE1-135 C O1	38.52
939181	AE1-148 C O1	4.5
939371	AE1-168 C	4.69
940241	AE2-006	0.18
940481	AE2-033 C	28.57
940521	AE2-037 C O1	4.08
940661	AE2-053	1.67
941541	AE2-151 C	0.58
942451	AE2-258	1.09
942471	AE2-260 C O1	26.54
942711	AE2-287 C O1	14.81
943171	AE2-346 C	1.0
BLUEG	BLUEG	3.44
CALDERWOOD	CALDERWOOD	0.68
CANNELTON	CANNELTON	0.23
CARR	CARR	0.0
CATAWBA	CATAWBA	0.66
CHEOAH	CHEOAH	0.64
CHILHOWEE	CHILHOWEE	0.22
COFFEEN	COFFEEN	0.4
COTTONWOOD	COTTONWOOD	2.3
DUCKCREEK	DUCKCREEK	0.82
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.41
FARMERCITY	FARMERCITY	0.29
G-007A	G-007A	0.11
GIBSON	GIBSON	0.15
HAMLET	HAMLET	1.33
NEWTON	NEWTON	1.04
PRAIRIE	PRAIRIE	2.16
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.19
SMITHLAND	SMITHLAND	0.19
TATANKA	TATANKA	0.49
TILTON	TILTON	0.44

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.38
TVA	TVA	1.93
UNIONPOWER	UNIONPOWER	0.95
VFT	VFT	0.26

12.6.26 Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8057780	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	single	375.06	134.52	148.15	DC	51.12

Bus #	Bus	MW Impact
315131	1EDGECEMA	10.32
315132	1EDGECEMB	10.32
315136	1ROSEMG1	5.41
315137	1ROSEMS1	3.36
315138	1ROSEMG2	2.53
315139	1GASTONA	8.29
315141	1GASTONB	8.29
917341	Z2-044 C	0.08
924151	AB2-059 C O1	1.09
924511	AB2-100 C	41.41
925591	AC1-034 C	5.77
926071	AC1-086 C	76.46
930401	AB1-081 C O1	0.92
930861	AB1-132 C O1	6.33
934233	AD1-050 BAT	4.08
934331	AD1-057 C O1	22.7
936701	AD2-089 C	4.8
938174	AE1-026 CBAT	1.68
939071	AE1-135 C O1	74.18
940571	AE2-044 C	3.78
941951	AE2-207	2.44
942471	AE2-260 C O1	51.12
CARR	CARR	0.09
CBM-S1	CBM-S1	2.39
CBM-S2	CBM-S2	2.9
CBM-W1	CBM-W1	2.35
CBM-W2	CBM-W2	15.56
CIN	CIN	1.06
CPLE	CPLE	1.59
IPL	IPL	0.66
LGEE	LGEE	0.3
MEC	MEC	2.38
MECS	MECS	0.98
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.28

12.6.27 Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058411	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	single	470.0	117.87	119.98	DC	9.91

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O1	5.95
940541	AE2-040	1.32
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942471	AE2-260 C O1	9.91
942711	AE2-287 C O1	6.42
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

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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
7703395	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	149.6	150.21	DC	45.71

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.92
314421	6WINCHST	0.2
314539	3UNCAMP	3.89
314541	3WATKINS	1.08
314557	3BETHEL	1.07
314566	3CRESWEL	3.91
314572	3EMPORIA	0.55
314574	6EVERETS	5.91
314578	3HORNRTN	4.47
314582	3KELFORD	5.02
314594	6PLYMOTH	1.35
314603	3SCOT NK	4.59
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.75
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.69
315074	1HOPCGN1	10.48
315075	1HOPCGN2	10.35
315090	1YORKTN1	53.4
315091	1YORKTN2	55.41
315092	1YORKTN3	32.37
315110	1ELIZAR3	4.4
315233	1SURRY 2	39.04
900672	V4-068 E	0.45
901082	W1-029 E	79.86
907092	X1-038 E	9.73
913392	Y1-086 E	3.88
916042	Z1-036 E	77.45
916192	Z1-068 E	3.41
916302	Z1-086 E	13.6
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.36
918492	AA1-063AE OP	5.6
918512	AA1-065 E OP	6.64
918532	AA1-067 E	1.04
918562	AA1-072 E	0.24
919152	AA1-139 E	11.54

Bus #	Bus	MW Impact
919692	AA2-053 E	5.16
919701	AA2-057 C	9.37
919702	AA2-057 E	4.68
920042	AA2-088 E OP	15.93
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.7
923801	AB2-015 C O1	13.7
923802	AB2-015 E O1	11.23
923832	AB2-022 E	2.19
923842	AB2-024 E	1.84
923852	AB2-025 E	1.44
923911	AB2-031 C O1	2.98
923912	AB2-031 E O1	1.47
923992	AB2-040 E O1	8.0
924241	AB2-068 O1	618.92
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.3
924512	AB2-100 E	7.54
924812	AB2-134 E O1	18.08
925061	AB2-161 C O1	5.11
925062	AB2-161 E O1	8.34
925122	AB2-169 E	8.78
925171	AB2-174 C O1	9.31
925172	AB2-174 E O1	8.43
925331	AB2-190 C	29.13
925332	AB2-190 E	12.48
925522	AC1-027 E	2.08
925861	AC1-065 C	5.36
925862	AC1-065 E	8.74
926071	AC1-086 C	28.08
926072	AC1-086 E	12.78
926201	AC1-098 C	8.43
926202	AC1-098 E	5.02
926211	AC1-099 C	2.82
926212	AC1-099 E	1.66
926291	AC1-107 O1	934.22
926662	AC1-147 E	2.4
926751	AC1-161 C O1	59.4
926752	AC1-161 E O1	25.36
926781	AC1-164 C	67.85
926782	AC1-164 E	30.48
927021	AC1-189 C	12.06
927022	AC1-189 E	6.01
927141	AC1-208 C	12.15
927142	AC1-208 E	5.4
927221	AC1-216 C O1	14.53
927222	AC1-216 E O1	11.43
930862	AB1-132 E O1	8.17

Bus #	Bus	MW Impact
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.52
932042	AC2-012 E	30.22
932532	AC2-073 E	1.95
932581	AC2-078 C O1	5.5
932582	AC2-078 E O1	8.98
932591	AC2-079 C O1	9.24
932592	AC2-079 E O1	15.07
932631	AC2-084 C	12.01
932632	AC2-084 E	5.92
932831	AC2-110 C	2.14
932832	AC2-110 E	3.5
933061	AC2-130	3.09
933262	AC2-137 E	1.87
933291	AC2-141 C	59.4
933292	AC2-141 E	25.36
933732	AC2-196 E	2.17
933991	AD1-023 C	20.53
933992	AD1-023 E	11.18
934011	AD1-025 C	24.98
934012	AD1-025 E	14.8
934061	AD1-033 C	13.67
934062	AD1-033 E	9.11
934141	AD1-041 C	8.47
934142	AD1-041 E	5.65
934201	AD1-047 C	10.67
934202	AD1-047 E	7.11
934331	AD1-057 C O1	13.14
934332	AD1-057 E O1	7.01
934392	AD1-063 E	1.75
934521	AD1-076 C	86.19
934522	AD1-076 E	43.89
934571	AD1-082 C	11.65
934572	AD1-082 E	6.64
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.41
935162	AD1-151 E O1	15.6
935212	AD1-156 E	1.72
936041	AD2-007	2.65
936051	AD2-008 C	4.35
936052	AD2-008 E	9.47
936151	AD2-021	0.33
936241	AD2-030 C	3.71
936242	AD2-030 E	1.9
936301	AD2-039 C	2.14
936302	AD2-039 E	3.5
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.9
936402	AD2-051 E O1	5.54
936531	AD2-068 C	6.81

Bus #	Bus	MW Impact
936532	AD2-068 E	3.51
936591	AD2-074 C	7.44
936592	AD2-074 E	12.13
936661	AD2-085 C	5.52
936662	AD2-085 E	9.01
936701	AD2-089 C	9.66
936702	AD2-089 E	6.44
936711	AD2-090 C O1	11.18
936712	AD2-090 E O1	7.45
937221	AD2-160 C O1	10.56
937222	AD2-160 E O1	5.54
937251	AD2-164	8.85
937541	AD2-215 C	3.08
937542	AD2-215 E	1.64
937571	AD2-169 C	13.36
937572	AD2-169 E	8.91
938031	AE1-004 C	2.14
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.41
938172	AE1-026 C2 O	6.28
938173	AE1-026 E O1	13.11
938181	AE1-027 C	4.25
938182	AE1-027 E	2.24
938191	AE1-028 C	2.46
938192	AE1-028 E	1.43
938221	AE1-035 C	3.37
938222	AE1-035 E	1.66
938491	AE1-068 C O1	86.81
938492	AE1-068 E O1	47.95
938501	AE1-069 C O1	67.88
938502	AE1-069 E O1	38.81
938531	AE1-072 C O1	31.48
938532	AE1-072 E O1	16.41
938631	AE1-085 C O1	14.98
938632	AE1-085 E O1	9.99
938661	AE1-088	2.66
938771	AE1-103 C O1	5.84
938772	AE1-103 E O1	8.06
939071	AE1-135 C O1	27.43
939072	AE1-135 E O1	18.28
939191	AE1-149 C O1	14.15
939192	AE1-149 E O1	9.43
939241	AE1-155 C	19.7
939242	AE1-155 E	13.14
939311	AE1-162 C	3.67
939312	AE1-162 E	2.45
939411	AE1-173 C	146.7
939412	AE1-173 E	97.8
939421	AE1-174 C	0.66
939422	AE1-174 E	1.0
939431	AE1-175 C	4.42
939432	AE1-175 E	2.19

Bus #	Bus	MW Impact
939611	AE1-191 C	16.95
939612	AE1-191 E	11.3
940061	AE1-248 C O1	24.21
940062	AE1-248 E O1	16.14
940071	AE1-249 C	2.83
940072	AE1-249 E	2.11
940231	AE2-005 C	2.14
940232	AE2-005 E	3.5
940251	AE2-007	315.17
940471	AE2-031 C O1	56.48
940472	AE2-031 E O1	37.65
940481	AE2-033 C	20.66
940482	AE2-033 E	13.93
940491	AE2-034 C	13.67
940492	AE2-034 E	5.86
940521	AE2-037 C O1	11.76
940522	AE2-037 E O1	5.69
940541	AE2-040	4.13
940551	AE2-041	11.68
940641	AE2-051 C O1	26.85
940642	AE2-051 E O1	17.9
940651	AE2-052	4.74
940891	AE2-078 C	3.95
940892	AE2-078 E	2.04
940901	AE2-079 C	3.95
940902	AE2-079 E	2.04
940911	AE2-080 C	3.95
940912	AE2-080 E	2.04
941031	AE2-094 C	56.92
941032	AE2-094 E	25.5
941101	AE2-104 C O1	5.99
941102	AE2-104 E O1	9.52
941281	AE2-122 C O1	51.65
941282	AE2-122 E O1	208.43
941291	AE2-123 C O1	53.08
941292	AE2-123 E O1	207.0
941301	AE2-124 C O1	48.27
941302	AE2-124 E O1	211.82
941501	AE2-147 C	27.54
941502	AE2-147 E	18.36
941541	AE2-151 C	1.6
941542	AE2-151 E	0.86
941591	AE2-156	32.57
941601	AE2-157 C O1	15.6
941602	AE2-157 E O1	10.4
942131	AE2-225 C	3.79
942132	AE2-225 E	2.53
942171	AE2-229 C	3.79
942172	AE2-229 E	2.53
942211	AE2-233 C	18.6
942212	AE2-233 E	7.23
942341	AE2-247 C	2.39

Bus #	Bus	MW Impact
942342	AE2-247 E	3.31
942371	AE2-250 C O1	11.1
942372	AE2-250 E O1	5.86
942401	AE2-253 C	11.11
942402	AE2-253 E	4.99
942471	AE2-260 C O1	18.9
942472	AE2-260 E O1	26.81
942531	AE2-268 C	2.8
942532	AE2-268 E	1.57
942551	AE2-270	39.04
942851	AE2-304 C	1.08
942852	AE2-304 E	0.42
942921	AE2-311 C O1	75.12
942922	AE2-311 E O1	50.08
942931	AE2-313 C	51.18
942932	AE2-313 E	34.12
943171	AE2-346 C	2.6
943172	AE2-346 E	1.11
AA2-074	AA2-074	6.77
CARR	CARR	1.34
CBM-S1	CBM-S1	13.6
CBM-S2	CBM-S2	18.72
CBM-W1	CBM-W1	9.58
CBM-W2	CBM-W2	84.58
CIN	CIN	4.59
CPL	CPL	9.95
G-007	G-007	4.29
IPL	IPL	2.81
LGEE	LGEE	1.34
MEC	MEC	11.54
MECS	MECS	2.37
O-066	O-066	27.32
RENSSELAER	RENSSELAER	1.06
WEC	WEC	1.21

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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
7703331	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	158.94	159.71	DC	57.04

Bus #	Bus	MW Impact
314189	6PAPERMILL	12.1
314229	6MT RD221	0.17
314236	6NRTHEST	0.26
314309	6IRON208	0.62
314539	3UNCAMP	4.19
314541	3WATKINS	1.18
314566	3CRESWEL	4.12
314572	3EMPORIA	0.68
314594	6PLYMOTH	1.44
314617	3TUNIS	1.39
314620	6CASHIE	1.42
314648	6SUNBURY	1.57
314651	6WINFALL	3.1
315053	1BELMED1	31.49
315054	1BELMED2	31.49
315055	1BELMED3	26.13
315058	1CHESTF3	33.44
315059	1CHESTF4	54.21
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	3.59
315070	1DARBY 4	3.6
315073	1STONECA	12.79
315074	1HOPCGN1	15.42
315075	1HOPCGN2	15.22
315083	1SPRUNCA	19.06
315084	1SPRUNCB	19.06
315085	1SPRUNCC	14.13
315086	1SPRUNCD	14.13
315090	1YORKTN1	53.17
315091	1YORKTN2	55.18
315233	1SURRY 2	34.93
900672	V4-068 E	0.5
901082	W1-029 E	81.19
907092	X1-038 E	10.47
913392	Y1-086 E	3.91

Bus #	Bus	MW Impact
916042	Z1-036 E	79.67
916192	Z1-068 E	3.39
916302	Z1-086 E	14.62
917122	Z2-027 E	1.88
918512	AA1-065 E OP	7.32
919152	AA1-139 E	11.5
920042	AA2-088 E OP	17.7
920692	AA2-178 E	7.05
923801	AB2-015 C O1	14.82
923802	AB2-015 E O1	12.16
923832	AB2-022 E	2.2
923842	AB2-024 E	2.04
923852	AB2-025 E	1.86
924241	AB2-068 O1	427.46
924501	AB2-099 C	0.97
924502	AB2-099 E	0.41
924511	AB2-100 C	19.0
924512	AB2-100 E	9.36
924812	AB2-134 E O1	22.53
925051	AB2-160 C O1	9.87
925052	AB2-160 E O1	16.11
925061	AB2-161 C O1	6.05
925062	AB2-161 E O1	9.87
925122	AB2-169 E	9.62
925331	AB2-190 C	37.04
925332	AB2-190 E	15.88
925522	AC1-027 E	2.07
925861	AC1-065 C	6.02
925862	AC1-065 E	9.82
926291	AC1-107 O1	645.22
926411	AC1-112 C	0.47
926412	AC1-112 E	2.15
926662	AC1-147 E	2.4
926751	AC1-161 C O1	55.45
926752	AC1-161 E O1	23.67
926781	AC1-164 C	77.55
926782	AC1-164 E	34.84
927041	AC1-191 C O1	17.0
927042	AC1-191 E O1	8.47
927221	AC1-216 C O1	18.1
927222	AC1-216 E O1	14.24
930121	AB1-027 C	0.6
930122	AB1-027 E	2.11
932041	AC2-012 C	18.45
932042	AC2-012 E	30.11
932501	AC2-070 C	0.39
932502	AC2-070 E	1.34
932532	AC2-073 E	2.15
932581	AC2-078 C O1	7.31
932582	AC2-078 E O1	11.92
932591	AC2-079 C O1	10.25
932592	AC2-079 E O1	16.72

Bus #	Bus	MW Impact
932831	AC2-110 C	2.41
932832	AC2-110 E	3.93
933061	AC2-130	4.5
933261	AC2-137 C	0.48
933262	AC2-137 E	2.58
933291	AC2-141 C	55.45
933292	AC2-141 E	23.67
933732	AC2-196 E	2.15
933991	AD1-023 C	22.13
933992	AD1-023 E	12.05
934011	AD1-025 C	31.12
934012	AD1-025 E	18.43
934061	AD1-033 C	13.54
934062	AD1-033 E	9.02
934141	AD1-041 C	9.39
934142	AD1-041 E	6.26
934211	AD1-048 C	0.56
934212	AD1-048 E	2.32
934392	AD1-063 E	1.93
934521	AD1-076 C	92.19
934522	AD1-076 E	46.94
934571	AD1-082 C	13.79
934572	AD1-082 E	7.87
935112	AD1-144 E	1.7
935161	AD1-151 C O1	29.77
935162	AD1-151 E O1	19.84
935212	AD1-156 E	2.52
936041	AD2-007	3.3
936051	AD2-008 C	5.42
936052	AD2-008 E	11.79
936151	AD2-021	0.45
936241	AD2-030 C	4.04
936242	AD2-030 E	2.06
936301	AD2-039 C	2.41
936302	AD2-039 E	3.93
936391	AD2-049 C	3.3
936392	AD2-049 E	3.3
936401	AD2-051 C O1	14.41
936402	AD2-051 E O1	6.19
936661	AD2-085 C	6.15
936662	AD2-085 E	10.04
936711	AD2-090 C O1	12.24
936712	AD2-090 E O1	8.16
937221	AD2-160 C O1	10.5
937222	AD2-160 E O1	5.51
937251	AD2-164	8.88
937541	AD2-215 C	3.15
937542	AD2-215 E	1.67
938031	AE1-004 C	2.41
938032	AE1-004 E	3.93
938171	AE1-026 C1 O	47.0
938172	AE1-026 C2 O	6.8

Bus #	Bus	MW Impact
938173	AE1-026 E O1	14.19
938181	AE1-027 C	4.21
938182	AE1-027 E	2.22
938191	AE1-028 C	2.44
938192	AE1-028 E	1.41
938221	AE1-035 C	3.72
938222	AE1-035 E	1.83
938491	AE1-068 C O1	93.04
938492	AE1-068 E O1	51.38
938501	AE1-069 C O1	72.97
938502	AE1-069 E O1	41.72
938531	AE1-072 C O1	31.41
938532	AE1-072 E O1	16.37
938551	AE1-074 C	4.27
938552	AE1-074 E	2.15
938631	AE1-085 C O1	19.6
938632	AE1-085 E O1	13.06
938661	AE1-088	2.91
938771	AE1-103 C O1	6.28
938772	AE1-103 E O1	8.67
939071	AE1-135 C O1	34.22
939072	AE1-135 E O1	22.82
939191	AE1-149 C O1	19.25
939192	AE1-149 E O1	12.83
939311	AE1-162 C	3.92
939312	AE1-162 E	2.61
939411	AE1-173 C	149.08
939412	AE1-173 E	99.39
939421	AE1-174 C	0.68
939422	AE1-174 E	1.02
939431	AE1-175 C	4.54
939432	AE1-175 E	2.25
939611	AE1-191 C	18.78
939612	AE1-191 E	12.52
939751	AE1-206 C O1	50.18
939752	AE1-206 E O1	33.45
940061	AE1-248 C O1	28.67
940062	AE1-248 E O1	19.11
940071	AE1-249 C	13.02
940072	AE1-249 E	9.71
940231	AE2-005 C	2.41
940232	AE2-005 E	3.93
940251	AE2-007	313.3
940431	AE2-027 C O1	23.65
940432	AE2-027 E O1	15.77
940471	AE2-031 C O1	55.27
940472	AE2-031 E O1	36.85
940481	AE2-033 C	26.48
940482	AE2-033 E	17.85
940491	AE2-034 C	14.4
940492	AE2-034 E	6.17
940521	AE2-037 C O1	13.19

Bus #	Bus	MW Impact
940522	AE2-037 E O1	6.38
940541	AE2-040	5.32
940551	AE2-041	12.87
940641	AE2-051 C O1	27.59
940642	AE2-051 E O1	18.39
940651	AE2-052	6.45
940891	AE2-078 C	4.35
940892	AE2-078 E	2.24
940901	AE2-079 C	4.35
940902	AE2-079 E	2.24
940911	AE2-080 C	4.35
940912	AE2-080 E	2.24
941031	AE2-094 C	60.67
941032	AE2-094 E	27.17
941101	AE2-104 C O1	6.23
941102	AE2-104 E O1	9.89
941281	AE2-122 C O1	51.29
941282	AE2-122 E O1	206.97
941291	AE2-123 C O1	52.71
941292	AE2-123 E O1	205.55
941301	AE2-124 C O1	47.92
941302	AE2-124 E O1	210.26
941501	AE2-147 C	28.0
941502	AE2-147 E	18.66
941541	AE2-151 C	1.79
941542	AE2-151 E	0.96
941581	AE2-155 C	1.23
941582	AE2-155 E	0.53
941591	AE2-156	32.41
941601	AE2-157 C O1	19.15
941602	AE2-157 E O1	12.77
942001	AE2-212 C	3.9
942002	AE2-212 E	2.6
942131	AE2-225 C	3.82
942132	AE2-225 E	2.55
942151	AE2-227 C O1	3.9
942152	AE2-227 E O1	2.6
942161	AE2-228 C O1	3.9
942162	AE2-228 E O1	2.6
942171	AE2-229 C	3.82
942172	AE2-229 E	2.55
942211	AE2-233 C	19.82
942212	AE2-233 E	7.7
942341	AE2-247 C	2.67
942342	AE2-247 E	3.68
942371	AE2-250 C O1	17.54
942372	AE2-250 E O1	9.25
942401	AE2-253 C	11.05
942402	AE2-253 E	4.96
942471	AE2-260 C O1	23.59
942472	AE2-260 E O1	33.45
942531	AE2-268 C	3.08

Bus #	Bus	MW Impact
942532	AE2-268 E	1.73
942551	AE2-270	49.64
942851	AE2-304 C	1.11
942852	AE2-304 E	0.43
942921	AE2-311 C O1	75.06
942922	AE2-311 E O1	50.04
942931	AE2-313 C	54.81
942932	AE2-313 E	36.54
943171	AE2-346 C	2.9
943172	AE2-346 E	1.24
AA2-074	AA2-074	8.66
CARR	CARR	2.6
CBM-S1	CBM-S1	26.71
CBM-S2	CBM-S2	26.05
CBM-W1	CBM-W1	27.98
CBM-W2	CBM-W2	174.3
CIN	CIN	13.06
CPLE	CPLE	12.73
G-007	G-007	8.75
IPL	IPL	8.22
LGEE	LGEE	3.85
MEC	MEC	27.8
MECS	MECS	11.67
O-066	O-066	55.56
RENSSELAER	RENSSELAER	2.06
WEC	WEC	3.43
Z1-043	Z1-043	13.49

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703638	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: SPOTS H1T594	breaker	3351.0	123.16	123.31	DC	35.79

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.5
314229	6MT RD221	0.1
314250	6ROCKVILLE	0.28
314539	3UNCAMP	2.58
314541	3WATKINS	0.73
314566	3CRESWEL	2.53
314648	6SUNBURY	0.96
314651	6WINFALL	1.9
315039	1LDYSMT3	4.11
315040	1LDYSMT4	4.12
315041	1LDYSMT5	4.13
315043	1FOUR RIVERA	3.07
315044	1FOUR RIVERB	2.38
315045	1FOUR RIVERC	3.07
315046	1FOUR RIVERD	2.38
315047	1FOUR RIVERE	2.38
315048	1FOUR RIVERF	3.06
315053	1BELMED1	19.71
315054	1BELMED2	19.71
315055	1BELMED3	16.36
315058	1CHESTF3	20.7
315059	1CHESTF4	33.55
315073	1STONECA	7.87
315074	1HOPCGN1	9.49
315075	1HOPCGN2	9.36
315083	1SPRUNCA	12.06
315084	1SPRUNCB	12.06
315085	1SPRUNCC	8.94
315086	1SPRUNCD	8.94
315090	1YORKTN1	32.19
315091	1YORKTN2	33.41
315225	1N ANNA1	31.31
315226	1N ANNA2	31.38
901082	W1-029 E	49.88
907092	X1-038 E	6.46
913392	Y1-086 E	2.4
916042	Z1-036 E	48.96
916192	Z1-068 E	2.08
916302	Z1-086 E	9.47
917122	Z2-027 E	1.15
919152	AA1-139 E	7.06

Bus #	Bus	MW Impact
919211	AA1-145	8.87
920692	AA2-178 E	4.34
923801	AB2-015 C O1	9.15
923802	AB2-015 E O1	7.5
923832	AB2-022 E	1.35
923842	AB2-024 E	1.26
923852	AB2-025 E	1.17
924061	AB2-050	0.52
924241	AB2-068 O1	229.37
924812	AB2-134 E O1	13.82
925051	AB2-160 C O1	6.16
925052	AB2-160 E O1	10.05
925061	AB2-161 C O1	3.75
925062	AB2-161 E O1	6.11
925331	AB2-190 C	22.73
925332	AB2-190 E	9.74
925522	AC1-027 E	1.27
925861	AC1-065 C	3.81
925862	AC1-065 E	6.21
926291	AC1-107 O1	346.22
926411	AC1-112 C	0.28
926412	AC1-112 E	1.29
926551	AC1-134	1.3
926662	AC1-147 E	1.47
926731	AC1-158 C	94.09
926732	AC1-158 E	41.29
926751	AC1-161 C O1	33.82
926752	AC1-161 E O1	14.44
926781	AC1-164 C	46.09
926782	AC1-164 E	20.71
927041	AC1-191 C O1	10.92
927042	AC1-191 E O1	5.44
927221	AC1-216 C O1	11.11
927222	AC1-216 E O1	8.74
930121	AB1-027 C	0.36
930122	AB1-027 E	1.27
932041	AC2-012 C	11.32
932042	AC2-012 E	18.47
932501	AC2-070 C	0.24
932502	AC2-070 E	0.8
932532	AC2-073 E	1.35
932581	AC2-078 C O1	4.55
932582	AC2-078 E O1	7.42
932591	AC2-079 C O1	6.33
932592	AC2-079 E O1	10.32
932831	AC2-110 C	1.52
932832	AC2-110 E	2.49
933011	AC2-125	3.15
933021	AC2-126	3.17
933061	AC2-130	2.74
933262	AC2-137 E	1.55
933291	AC2-141 C	33.82

Bus #	Bus	MW Impact
933292	AC2-141 E	14.44
933732	AC2-196 E	1.32
934011	AD1-025 C	19.09
934012	AD1-025 E	11.31
934061	AD1-033 C	8.31
934062	AD1-033 E	5.54
934141	AD1-041 C	5.99
934142	AD1-041 E	3.99
934212	AD1-048 E	1.41
934392	AD1-063 E	1.21
934571	AD1-082 C	8.54
934572	AD1-082 E	4.87
935112	AD1-144 E	1.04
935161	AD1-151 C O1	18.27
935162	AD1-151 E O1	12.18
935212	AD1-156 E	1.58
936041	AD2-007	2.03
936051	AD2-008 C	3.32
936052	AD2-008 E	7.24
936151	AD2-021	0.27
936241	AD2-030 C	2.6
936242	AD2-030 E	1.33
936301	AD2-039 C	1.52
936302	AD2-039 E	2.49
936391	AD2-049 C	2.01
936392	AD2-049 E	2.01
936591	AD2-074 C	6.02
936592	AD2-074 E	9.81
936661	AD2-085 C	3.8
936662	AD2-085 E	6.2
936711	AD2-090 C O1	7.56
936712	AD2-090 E O1	5.04
937221	AD2-160 C O1	6.45
937222	AD2-160 E O1	3.38
937251	AD2-164	5.39
937541	AD2-215 C	1.93
937542	AD2-215 E	1.02
938031	AE1-004 C	1.52
938032	AE1-004 E	2.49
938181	AE1-027 C	2.58
938182	AE1-027 E	1.36
938191	AE1-028 C	1.5
938192	AE1-028 E	0.87
938491	AE1-068 C O1	60.31
938492	AE1-068 E O1	33.31
938501	AE1-069 C O1	47.27
938502	AE1-069 E O1	27.02
938531	AE1-072 C O1	19.28
938532	AE1-072 E O1	10.05
938551	AE1-074 C	2.77
938552	AE1-074 E	1.4
938631	AE1-085 C O1	12.19

Bus #	Bus	MW Impact
938632	AE1-085 E O1	8.12
938771	AE1-103 C O1	3.87
938772	AE1-103 E O1	5.35
939191	AE1-149 C O1	11.99
939192	AE1-149 E O1	7.99
939241	AE1-155 C	16.29
939242	AE1-155 E	10.86
939261	AE1-157 C O1	16.49
939262	AE1-157 E O1	8.95
939271	AE1-158 C O1	16.83
939272	AE1-158 E O1	8.61
939311	AE1-162 C	2.4
939312	AE1-162 E	1.6
939411	AE1-173 C	94.77
939412	AE1-173 E	63.18
939421	AE1-174 C	0.22
939422	AE1-174 E	0.33
939431	AE1-175 C	2.73
939432	AE1-175 E	1.35
939611	AE1-191 C	11.97
939612	AE1-191 E	7.98
939751	AE1-206 C O1	38.56
939752	AE1-206 E O1	25.71
940061	AE1-248 C O1	17.75
940062	AE1-248 E O1	11.83
940071	AE1-249 C	8.12
940072	AE1-249 E	6.06
940231	AE2-005 C	1.52
940232	AE2-005 E	2.49
940251	AE2-007	192.19
940431	AE2-027 C O1	14.71
940432	AE2-027 E O1	9.81
940471	AE2-031 C O1	34.64
940472	AE2-031 E O1	23.1
940481	AE2-033 C	16.7
940482	AE2-033 E	11.26
940491	AE2-034 C	8.86
940492	AE2-034 E	3.8
940541	AE2-040	3.36
940551	AE2-041	8.07
940641	AE2-051 C O1	17.76
940642	AE2-051 E O1	11.84
940651	AE2-052	4.02
940891	AE2-078 C	2.66
940892	AE2-078 E	1.37
940901	AE2-079 C	2.66
940902	AE2-079 E	1.37
940911	AE2-080 C	2.66
940912	AE2-080 E	1.37
941031	AE2-094 C	39.39
941032	AE2-094 E	17.64
941101	AE2-104 C O1	3.83

Bus #	Bus	MW Impact
941102	AE2-104 E O1	6.09
941281	AE2-122 C O1	31.47
941282	AE2-122 E O1	126.99
941291	AE2-123 C O1	32.34
941292	AE2-123 E O1	126.12
941301	AE2-124 C O1	29.4
941302	AE2-124 E O1	129.01
941501	AE2-147 C	17.2
941502	AE2-147 E	11.47
941581	AE2-155 C	0.74
941582	AE2-155 E	0.32
941591	AE2-156	19.88
941601	AE2-157 C O1	11.88
941602	AE2-157 E O1	7.92
942001	AE2-212 C	2.43
942002	AE2-212 E	1.62
942131	AE2-225 C	2.35
942132	AE2-225 E	1.57
942151	AE2-227 C O1	2.43
942152	AE2-227 E O1	1.62
942161	AE2-228 C O1	2.43
942162	AE2-228 E O1	1.62
942171	AE2-229 C	2.35
942172	AE2-229 E	1.57
942191	AE2-231 C O1	6.37
942192	AE2-231 E O1	4.25
942211	AE2-233 C	12.87
942212	AE2-233 E	5.0
942341	AE2-247 C	1.65
942342	AE2-247 E	2.27
942371	AE2-250 C O1	10.94
942372	AE2-250 E O1	5.77
942401	AE2-253 C	6.78
942402	AE2-253 E	3.05
942471	AE2-260 C O1	6.99
942472	AE2-260 E O1	9.92
942531	AE2-268 C	1.93
942532	AE2-268 E	1.09
942551	AE2-270	30.47
942851	AE2-304 C	0.68
942852	AE2-304 E	0.26
942921	AE2-311 C O1	47.59
942922	AE2-311 E O1	31.73
942931	AE2-313 C	35.58
942932	AE2-313 E	23.72
AA2-074	AA2-074	5.2
CARR	CARR	1.68
CBM-S1	CBM-S1	12.47
CBM-S2	CBM-S2	15.05
CBM-W1	CBM-W1	8.91
CBM-W2	CBM-W2	76.99
CIN	CIN	4.53

Bus #	Bus	MW Impact
CPLE	CPLE	7.64
G-007	G-007	5.29
IPL	IPL	2.79
LGEE	LGEE	1.36
MEC	MEC	10.75
MECS	MECS	1.96
O-066	O-066	33.73
RENSSELAER	RENSSELAER	1.33
WEC	WEC	1.16

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703732	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	106.6	107.05	DC	36.02

Bus #	Bus	MW Impact
314539	3UNCAMP	3.39
314541	3WATKINS	0.94
314554	3BTLEBRO	0.89
314557	3BETHELC	0.94
314566	3CRESWEL	3.49
314572	3EMPORIA	0.45
314574	6EVERETS	5.18
314578	3HORNRTN	3.79
314582	3KELFORD	4.36
314594	6PLYMOTH	1.2
314603	3SCOT NK	3.97
314617	3TUNIS	1.08
314620	6CASHIE	1.16
314623	3WITAKRS	1.52
314648	6SUNBURY	1.39
314651	6WINFALL	2.75
315090	1YORKTN1	39.16
315091	1YORKTN2	40.64
315108	1ELIZAR1	3.95
315109	1ELIZAR2	3.88
315110	1ELIZAR3	4.0
315131	1EDGECEMA	10.3
315132	1EDGECEMB	10.3
315233	1SURREY 2	39.31
900672	V4-068 E	0.39
901082	W1-029 E	72.03
907092	X1-038 E	8.47
913392	Y1-086 E	3.53
916042	Z1-036 E	69.67
916191	Z1-068 C	0.05
916192	Z1-068 E	3.11
916302	Z1-086 E	12.39
917122	Z2-027 E	1.69
917332	Z2-043 E	1.24
917342	Z2-044 E	0.65
917512	Z2-088 E OP1	4.68
918492	AA1-063AE OP	4.79
918512	AA1-065 E OP	5.82
918532	AA1-067 E	0.91
918562	AA1-072 E	0.21
919152	AA1-139 E	10.55

Bus #	Bus	MW Impact
919692	AA2-053 E	4.39
919701	AA2-057 C	8.08
919702	AA2-057 E	4.04
920042	AA2-088 E OP	13.76
920592	AA2-165 E	0.53
920672	AA2-174 E	0.51
920692	AA2-178 E	5.98
923801	AB2-015 C O1	11.91
923802	AB2-015 E O1	9.76
923832	AB2-022 E	1.99
923852	AB2-025 E	1.08
923911	AB2-031 C O1	2.45
923912	AB2-031 E O1	1.21
923992	AB2-040 E O1	6.59
924152	AB2-059 E O1	6.03
924401	AB2-089 C	2.14
924402	AB2-089 E	1.1
924491	AB2-098 C	0.71
924492	AB2-098 E	0.3
924501	AB2-099 C	0.75
924502	AB2-099 E	0.32
924511	AB2-100 C	12.14
924512	AB2-100 E	5.98
924812	AB2-134 E O1	10.98
925061	AB2-161 C O1	3.93
925062	AB2-161 E O1	6.41
925122	AB2-169 E	7.76
925171	AB2-174 C O1	7.63
925172	AB2-174 E O1	6.91
925521	AC1-027 C	0.4
925522	AC1-027 E	1.89
925591	AC1-034 C	7.58
925592	AC1-034 E	5.72
925781	AC1-054 C O1	7.33
925782	AC1-054 E O1	3.38
926071	AC1-086 C	23.43
926072	AC1-086 E	10.66
926201	AC1-098 C	7.27
926202	AC1-098 E	4.33
926211	AC1-099 C	2.44
926212	AC1-099 E	1.43
926662	AC1-147 E	2.18
926751	AC1-161 C O1	58.18
926752	AC1-161 E O1	24.83
927021	AC1-189 C	10.56
927022	AC1-189 E	5.26
927141	AC1-208 C	10.43
927142	AC1-208 E	4.63
927221	AC1-216 C O1	8.82
927222	AC1-216 E O1	6.94
930402	AB1-081 E O1	4.26
930862	AB1-132 E O1	6.82

Bus #	Bus	MW Impact
931232	AB1-173 E	1.15
931242	AB1-173AE	1.15
932041	AC2-012 C	16.77
932042	AC2-012 E	27.37
932581	AC2-078 C O1	3.64
932582	AC2-078 E O1	5.95
932591	AC2-079 C O1	7.62
932592	AC2-079 E O1	12.43
932631	AC2-084 C	10.36
932632	AC2-084 E	5.1
933291	AC2-141 C	58.18
933292	AC2-141 E	24.83
933731	AC2-196 C	0.36
933732	AC2-196 E	1.99
933991	AD1-023 C	18.16
933992	AD1-023 E	9.89
934011	AD1-025 C	15.16
934012	AD1-025 E	8.98
934061	AD1-033 C	12.53
934062	AD1-033 E	8.35
934201	AD1-047 C	8.79
934202	AD1-047 E	5.86
934231	AD1-050 C	4.71
934232	AD1-050 E	2.57
934331	AD1-057 C O1	11.2
934332	AD1-057 E O1	5.97
934521	AD1-076 C	76.5
934522	AD1-076 E	38.96
934571	AD1-082 C	8.96
934572	AD1-082 E	5.11
934611	AD1-087 C O1	8.56
934612	AD1-087 E O1	4.02
934621	AD1-088 C	11.73
934622	AD1-088 E	5.51
935112	AD1-144 E	1.43
935171	AD1-152 C O1	8.51
935172	AD1-152 E O1	5.67
936041	AD2-007	1.61
936051	AD2-008 C	2.64
936052	AD2-008 E	5.75
936361	AD2-046 C O1	8.49
936362	AD2-046 E O1	3.91
936391	AD2-049 C	2.5
936392	AD2-049 E	2.5
936401	AD2-051 C O1	11.23
936402	AD2-051 E O1	4.82
936531	AD2-068 C	6.0
936532	AD2-068 E	3.09
936661	AD2-085 C	4.54
936662	AD2-085 E	7.41
936701	AD2-089 C	8.42
936702	AD2-089 E	5.61

Bus #	Bus	MW Impact
936711	AD2-090 C O1	9.69
936712	AD2-090 E O1	6.46
937221	AD2-160 C O1	9.67
937222	AD2-160 E O1	5.07
937251	AD2-164	6.6
937481	AD2-202 C O1	2.36
937482	AD2-202 E O1	1.19
937541	AD2-215 C	2.65
937542	AD2-215 E	1.41
937571	AD2-169 C	11.08
937572	AD2-169 E	7.39
938171	AE1-026 C1 O	38.33
938172	AE1-026 C2 O	5.54
938173	AE1-026 E O1	11.58
938181	AE1-027 C	3.89
938182	AE1-027 E	2.05
938191	AE1-028 C	2.26
938192	AE1-028 E	1.31
938221	AE1-035 C	2.95
938222	AE1-035 E	1.45
938491	AE1-068 C O1	79.1
938492	AE1-068 E O1	43.69
938501	AE1-069 C O1	61.83
938502	AE1-069 E O1	35.35
938531	AE1-072 C O1	28.74
938532	AE1-072 E O1	14.98
938631	AE1-085 C O1	10.14
938632	AE1-085 E O1	6.76
938661	AE1-088	2.35
938771	AE1-103 C O1	5.08
938772	AE1-103 E O1	7.01
939071	AE1-135 C O1	21.61
939072	AE1-135 E O1	14.41
939181	AE1-148 C O1	8.34
939182	AE1-148 E O1	5.56
939311	AE1-162 C	2.95
939312	AE1-162 E	1.96
939411	AE1-173 C	135.83
939412	AE1-173 E	90.55
939421	AE1-174 C	0.18
939422	AE1-174 E	0.27
939431	AE1-175 C	2.22
939432	AE1-175 E	1.1
940061	AE1-248 C O1	18.62
940062	AE1-248 E O1	12.41
940251	AE2-007	286.38
940471	AE2-031 C O1	53.91
940472	AE2-031 E O1	35.94
940481	AE2-033 C	15.61
940482	AE2-033 E	10.53
940491	AE2-034 C	12.2
940492	AE2-034 E	5.23

Bus #	Bus	MW Impact
940521	AE2-037 C O1	10.23
940522	AE2-037 E O1	4.95
940541	AE2-040	3.1
940571	AE2-044 C	4.97
940572	AE2-044 E	2.13
940641	AE2-051 C O1	24.9
940642	AE2-051 E O1	16.6
940661	AE2-053	3.11
940891	AE2-078 C	2.89
940892	AE2-078 E	1.49
940901	AE2-079 C	2.89
940902	AE2-079 E	1.49
940911	AE2-080 C	2.89
940912	AE2-080 E	1.49
941031	AE2-094 C	51.91
941032	AE2-094 E	23.25
941101	AE2-104 C O1	5.26
941102	AE2-104 E O1	8.35
941281	AE2-122 C O1	47.1
941282	AE2-122 E O1	190.05
941291	AE2-123 C O1	48.4
941292	AE2-123 E O1	188.75
941301	AE2-124 C O1	44.05
941302	AE2-124 E O1	193.28
941501	AE2-147 C	24.84
941502	AE2-147 E	16.56
941541	AE2-151 C	1.39
941542	AE2-151 E	0.75
941591	AE2-156	29.54
941601	AE2-157 C O1	11.49
941602	AE2-157 E O1	7.66
941791	AE2-182 C	2.12
941792	AE2-182 E	1.0
941951	AE2-207	3.21
942131	AE2-225 C	3.4
942132	AE2-225 E	2.27
942171	AE2-229 C	3.4
942172	AE2-229 E	2.27
942211	AE2-233 C	16.96
942212	AE2-233 E	6.59
942341	AE2-247 C	1.97
942342	AE2-247 E	2.72
942401	AE2-253 C	10.17
942402	AE2-253 E	4.57
942471	AE2-260 C O1	14.89
942472	AE2-260 E O1	21.13
942711	AE2-287 C O1	12.96
942712	AE2-287 E O1	8.64
942851	AE2-304 C	0.98
942852	AE2-304 E	0.38
942921	AE2-311 C O1	70.84
942922	AE2-311 E O1	47.23

Bus #	Bus	MW Impact
942931	AE2-313 C	46.62
942932	AE2-313 E	31.08
943171	AE2-346 C	2.26
943172	AE2-346 E	0.97
AA2-074	AA2-074	6.07
CARR	CARR	1.09
CBM-S1	CBM-S1	13.0
CBM-S2	CBM-S2	16.95
CBM-W1	CBM-W1	10.29
CBM-W2	CBM-W2	81.99
CIN	CIN	4.83
CPLE	CPLE	8.92
G-007	G-007	3.51
IPL	IPL	2.98
LGEE	LGEE	1.4
MEC	MEC	11.64
MECS	MECS	3.21
O-066	O-066	22.38
RENSSELAER	RENSSELAER	0.86
WEC	WEC	1.28

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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
8058033	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	115.78	117.19	DC	8.06

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.12
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.21
925591	AC1-034 C	6.83
925781	AC1-054 C O1	4.49

Bus #	Bus	MW Impact
926071	AC1-086 C	21.85
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.7
927141	AC1-208 C	10.09
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.15
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.33
934521	AD1-076 C	110.74
936401	AD2-051 C O1	15.92
936531	AD2-068 C	6.56
936701	AD2-089 C	9.29
937571	AD2-169 C	8.21
938171	AE1-026 C1 O	58.58
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.69
940491	AE2-034 C	16.92
940521	AE2-037 C O1	14.2
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942471	AE2-260 C O1	8.06
942711	AE2-287 C O1	7.01
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.74
CARR	CARR	0.19
CBM-S1	CBM-S1	6.01
CBM-S2	CBM-S2	7.07
CBM-W1	CBM-W1	6.25
CBM-W2	CBM-W2	39.45
CIN	CIN	2.8
CPLE	CPLE	4.02
IPL	IPL	1.76
LGEE	LGEE	0.81
MEC	MEC	6.18
MECS	MECS	2.74
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

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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
8058162	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	single	441.8	127.66	133.67	DC	26.54

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.59
315126	1ROARAP2	1.2
315128	1ROARAP4	1.15
315136	1ROSEMG1	3.99
315137	1ROSEMS1	2.47
315138	1ROSEMG2	1.87
315139	1GASTONA	4.78
315141	1GASTONB	4.78
315150	1BUGGS 1	4.52
315151	1BUGGS 2	4.52
315158	1KERR 1	0.13
315159	1KERR 2	0.55
315160	1KERR 3	0.54
315161	1KERR 4	0.54
315162	1KERR 5	0.54
315163	1KERR 6	0.54
315164	1KERR 7	0.54
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.11
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.25
923911	AB2-031 C O1	3.11
923991	AB2-040 C O1	1.24
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.5
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.36
924501	AB2-099 C	0.33
924511	AB2-100 C	21.77
925171	AB2-174 C O1	10.05
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.04
926071	AC1-086 C	44.1

Bus #	Bus	MW Impact
930861	AB1-132 C O1	3.65
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38
933991	AD1-023 C	4.49
934201	AD1-047 C	11.13
934231	AD1-050 C	3.0
934331	AD1-057 C O1	37.55
934521	AD1-076 C	16.11
936261	AD2-033 C	5.0
936361	AD2-046 C O1	4.59
936401	AD2-051 C O1	4.71
936481	AD2-063 C O1	6.38
936711	AD2-090 C O1	4.16
937571	AD2-169 C	13.44
938171	AE1-026 C1 O	10.29
938172	AE1-026 C2 O	1.49
938221	AE1-035 C	1.06
938771	AE1-103 C O1	1.63
939071	AE1-135 C O1	38.52
939181	AE1-148 C O1	4.5
939371	AE1-168 C	4.69
940241	AE2-006	0.18
940481	AE2-033 C	28.57
940521	AE2-037 C O1	4.08
940661	AE2-053	1.67
941541	AE2-151 C	0.58
942451	AE2-258	1.09
942471	AE2-260 C O1	26.54
942711	AE2-287 C O1	14.81
943171	AE2-346 C	1.0
BLUEG	BLUEG	3.44
CALDERWOOD	CALDERWOOD	0.68
CANNELTON	CANNELTON	0.23
CARR	CARR	0.0
CATAWBA	CATAWBA	0.66
CHEOAH	CHEOAH	0.64
CHILHOWEE	CHILHOWEE	0.22
COFFEEN	COFFEEN	0.4
COTTONWOOD	COTTONWOOD	2.3
DUCKCREEK	DUCKCREEK	0.82
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.41
FARMERCITY	FARMERCITY	0.29
G-007A	G-007A	0.11
GIBSON	GIBSON	0.15
HAMLET	HAMLET	1.33
NEWTON	NEWTON	1.04
PRAIRIE	PRAIRIE	2.16
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.19
SMITHLAND	SMITHLAND	0.19
TATANKA	TATANKA	0.49

Bus #	Bus	MW Impact
TILTON	TILTON	0.44
TRIMBLE	TRIMBLE	0.38
TVA	TVA	1.93
UNIONPOWER	UNIONPOWER	0.95
VFT	VFT	0.26

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8233572	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	180.88	182.5	DC	17.24

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL C	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGE CMA	8.55
315132	1EDGE CMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O1	8.41
940522	AE2-037 E O1	4.06
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942471	AE2-260 C O1	7.13
942472	AE2-260 E O1	10.11
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703234	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	156.72	181.28	DC	157.02

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315128	1ROARAP4	0.94
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918491	AA1-063AC OP	0.77
918492	AA1-063AE OP	2.96
919691	AA2-053 C	0.9
919692	AA2-053 E	3.15
920671	AA2-174 C	0.04
920672	AA2-174 E	0.36
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924021	AB2-043 C O1	0.3
924022	AB2-043 E O1	4.06
924161	AB2-060 C O1	0.86
924162	AB2-060 E O1	3.3
924301	AB2-077 C O1	0.19
924302	AB2-077 E O1	1.02
924311	AB2-078 C O1	0.19
924312	AB2-078 E O1	1.02
924321	AB2-079 C O1	0.19
924322	AB2-079 E O1	1.02
924401	AB2-089 C	1.6
924402	AB2-089 E	0.83
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.74
925172	AB2-174 E O1	16.05
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.12
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37

Bus #	Bus	MW Impact
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.05
934202	AD1-047 E	12.03
934231	AD1-050 C	3.53
934232	AD1-050 E	1.93
936361	AD2-046 C O1	6.38
936362	AD2-046 E O1	2.93
936481	AD2-063 C O1	10.79
936482	AD2-063 E O1	7.19
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.21
939072	AE1-135 E O1	62.81
939181	AE1-148 C O1	6.33
939182	AE1-148 E O1	4.22
940481	AE2-033 C	76.89
940482	AE2-033 E	51.84
940542	AE2-040 BAT	2.16
940661	AE2-053	2.36
942451	AE2-258	1.85
942471	AE2-260 C O1	64.93
942472	AE2-260 E O1	92.09
942711	AE2-287 C O1	30.27
942712	AE2-287 E O1	20.18
CARR	CARR	0.13
CBM-S1	CBM-S1	1.42
CBM-S2	CBM-S2	1.84
CBM-W1	CBM-W1	1.17
CBM-W2	CBM-W2	8.98
CIN	CIN	0.55
CPL	CPL	1.02
G-007	G-007	0.43
IPL	IPL	0.34
LGEE	LGEE	0.16
MEC	MEC	1.3
MECS	MECS	0.38
O-066	O-066	2.72
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.15

Affected Systems

12.7 Affected Systems

12.7.1 LG&E

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

12.7.2 MISO

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

12.7.3 TVA

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

12.7.4 Duke Energy Progress

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

12.7.5 NYISO

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

12.8 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END
DVP_P4-2: 205602	CONTINGENCY 'DVP_P4-2: 205602' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 941030 CKT 1 /* 8CARSON 500.00 - AE2-094 TAP 500.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P1-2: LN 2012	CONTINGENCY 'DVP_P1-2: LN 2012' OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 END
DVP_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 56-2060	CONTINGENCY 'DVP_P7-1: LN 56-2060' OPEN BRANCH FROM BUS 314259 TO BUS 314604 CKT 1 /* 3CAROL56_1 115.00 - 3SEABORD 115.00 OPEN BRANCH FROM BUS 314558 TO BUS 314587 CKT 1 /* 3BOYKINS 115.00 - 3MARGTSV 115.00 OPEN BRANCH FROM BUS 314587 TO BUS 314604 CKT 1 /* 3MARGTSV 115.00 - 3SEABORD 115.00 OPEN BUS 314587 /* ISLAND: 3MARGTSV 115.00 OPEN BUS 314604 /* ISLAND: 3SEABORD 115.00 OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P1-2: LN 594	CONTINGENCY 'DVP_P1-2: LN 594' OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 END
DVP_P4-2: 201262	CONTINGENCY 'DVP_P4-2: 201262' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2181	CONTINGENCY 'DVP_P1-2: LN 2181' OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P1-2: LN 238-B	CONTINGENCY 'DVP_P1-2: LN 238-B' OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 END
DVP_P1-2: LN 238-A	CONTINGENCY 'DVP_P1-2: LN 238-A' OPEN BRANCH FROM BUS 940480 TO BUS 314563 CKT 1 /* AE2-033 TAP 230.00 - 6CLUBHSE 230.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00 END
DVP_P1-2: LN 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 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 2056-B	CONTINGENCY 'DVP_P1-2: LN 2056-B' OPEN BRANCH FROM BUS 934330 TO BUS 314579 CKT 1 /* AD1-057 TAP 230.00 - 6HORNRTN 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

Contingency Name	Contingency Definition
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 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P4-2: 23872	CONTINGENCY 'DVP_P4-2: 23872' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 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
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 239T2141	CONTINGENCY 'DVP_P4-2: 239T2141' /* LAKEVIEW 230 KV OPEN BRANCH FROM BUS 314579 TO BUS 314583 CKT 1 /* 6HORNRTN 230.00 - 6LAKEVEW 230.00 OPEN BRANCH FROM BUS 314561 TO BUS 314583 CKT 1 /* 6CAROLNA 230.00 - 6LAKEVEW 230.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	

Contingency Name	Contingency Definition
DVP_P1-2: LN 239	CONTINGENCY 'DVP_P1-2: LN 239' OPEN BRANCH FROM BUS 314579 TO BUS 314583 CKT 1 /* 6HORNRTN 230.00 - 6LAKEVEW 230.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 2060	CONTINGENCY 'DVP_P1-2: LN 2060' OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P7-1: LN 56-2012	CONTINGENCY 'DVP_P7-1: LN 56-2012' OPEN BRANCH FROM BUS 314259 TO BUS 314604 CKT 1 /* 3CAROL56_1 115.00 - 3SEABORD 115.00 OPEN BRANCH FROM BUS 314558 TO BUS 314587 CKT 1 /* 3BOYKINS 115.00 - 3MARGTSV 115.00 OPEN BRANCH FROM BUS 314587 TO BUS 314604 CKT 1 /* 3MARGTSV 115.00 - 3SEABORD 115.00 OPEN BUS 314587 /* ISLAND: 3MARGTSV 115.00 OPEN BUS 314604 /* ISLAND: 3SEABORD 115.00 OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 END
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 230.00 END
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P4-2: 238T2002	CONTINGENCY 'DVP_P4-2: 238T2002' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 END
DVP_P4-2: SPOTS H1T594	CONTINGENCY 'DVP_P4-2: SPOTS H1T594' /* SPOTSYLVANIA 500 KV OPEN BRANCH FROM BUS 314916 TO BUS 314934 CKT 1 /* 8MORRSVL 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314755 TO BUS 314934 CKT 1 /* 3SPOTSYL 115.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 218-A	CONTINGENCY 'DVP_P1-2: LN 218-A' OPEN BRANCH FROM BUS 304451 TO BUS 936530 CKT 1 /* 6GREENVILE T230.00 - AD2-068 TAP 230.00 END

Short Circuit

12.9 Short Circuit

The following Breakers are overduty:

None

13 Network Impacts – Secondary Point of Interconnection

The Queue Project AE2-260 was evaluated as a 200.0 MW (Capacity 82.7 MW) injection tapping the Clubhouse to Thelma 230kV line in the Dominion area. Project AE2-260 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-260 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
8058731	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	single	441.8	97.62	99.71	DC	9.24
8058728	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	single	441.8	97.64	99.73	DC	9.24
8058232	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2060	single	678.68	98.91	105.92	DC	47.93
8058237	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	single	678.68	90.09	96.57	DC	44.28
8058593	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P1-2: LN 238-B	single	548.02	93.29	98.03	DC	26.19
8058077	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	single	598.78	99.26	106.59	DC	44.28
8058577	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	single	441.8	94.66	100.69	DC	26.67
8058599	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P1-2: LN 238-B	single	548.02	93.24	97.98	DC	26.19
8058099	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P1-2: LN 238-B	single	375.06	88.9	105.62	DC	62.7

13.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703568	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 562T563	breaker	541.0	97.78	101.93	DC	22.43
7703566	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 562T563	breaker	541.0	97.8	101.94	DC	22.43

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
8058007	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	145.21	147.83	DC	9.81
8058012	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 218-A	single	374.0	102.8	104.47	DC	6.24
8058250	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	129.97	132.2	DC	10.01

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058255	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 218-A	single	449.32	102.68	104.2	DC	6.82
7703266	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	174.88	176.23	DC	31.09
7703778	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 23872	breaker	658.0	102.04	111.68	DC	63.36
7703779	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 238T2002	breaker	658.0	101.85	111.49	DC	63.34
7703859	314282	6CARSON	DVP	314331	6POE	DVP	1	DVP_P4-2: 24972-4	breaker	830.0	102.93	112.77	DC	81.7
8058478	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	123.09	125.0	DC	12.8
8058559	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	119.42	121.33	DC	12.8
7703367	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P4-2: H8T217	breaker	549.0	155.7	159.58	DC	21.28
8057841	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 563	single	449.32	153.71	155.53	DC	8.13
8057842	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	single	449.32	155.59	157.55	DC	8.81
8057849	314287	6CHESTF B	DVP	314276	6BASIN	DVP	1	Base Case	single	449.32	112.22	113.62	DC	6.28
7703567	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	132.8	144.23	DC	61.82
8058290	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	139.46	140.86	DC	6.37
8058291	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 217	single	449.32	137.83	139.23	DC	6.37
8058297	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	Base Case	single	449.32	110.11	111.17	DC	4.82
14039878	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P7-1: LN 205-2003-A	tower	169.0	102.41	105.08	DC	10.05
7703565	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	132.82	144.25	DC	61.82
7703515	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 239T2141	breaker	830.0	123.72	142.17	DC	157.0
7703516	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 201262	breaker	830.0	118.3	132.31	DC	116.26
8058234	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2056-A	single	678.68	101.11	108.11	DC	48.28
8233671	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 56-2060	tower	830.0	120.07	134.3	DC	118.06
8233674	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P7-1: LN 2058-2181	tower	830.0	126.07	139.45	DC	111.03
8233537	314554	3BTLEBRO	DVP	304223	3ROCKYMT115T	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	310.87	315.03	DC	15.08
7703796	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 23872	breaker	671.0	100.76	110.21	DC	63.36
7703797	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	100.58	110.03	DC	63.34

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703293	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	145.16	169.69	DC	157.02
7703603	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	208.6	108.38	128.82	DC	42.65
8058072	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	106.48	114.41	DC	48.29
8058073	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	single	598.78	107.17	115.1	DC	48.29
8233583	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	149.91	167.35	DC	111.04
8233584	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P7-1: LN 56-2060	tower	637.0	143.04	161.58	DC	118.07
8057968	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	124.22	125.65	DC	8.16
8057969	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2131	single	571.52	123.44	124.87	DC	8.16
8058179	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 6002_FSA	single	449.32	143.65	144.68	DC	4.66
8058180	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570_FSA	single	449.32	143.65	144.68	DC	4.66
8058181	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 570	single	449.32	143.65	144.68	DC	4.66
8058184	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	single	449.32	123.39	124.68	DC	5.77
8233577	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	174.35	175.97	DC	17.38
8058021	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	117.84	119.27	DC	8.16
8058022	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2131	single	571.52	117.06	118.49	DC	8.16
8058264	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	single	441.8	121.61	127.63	DC	26.59
8058265	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-A	single	441.8	108.37	115.47	DC	31.37
8057780	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	single	375.06	134.52	148.15	DC	51.12
8057781	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 2056-A	single	375.06	139.74	146.25	DC	24.41
8058411	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	single	470.0	118.81	120.93	DC	10.01
7703799	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 23872	breaker	671.0	100.72	110.17	DC	63.36
7703800	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	100.54	109.98	DC	63.34
7703395	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	149.25	149.86	DC	45.7

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
7703330	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: 57602	breaker	3351.0	158.62	159.4	DC	56.99
7703331	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	158.62	159.39	DC	56.99
7703639	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: 57302	breaker	3351.0	122.16	122.51	DC	36.12
7703640	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	122.16	122.51	DC	36.12
7703732	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	107.13	107.59	DC	36.05
8058032	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	117.82	119.25	DC	8.16
8058033	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2131	single	571.52	117.04	118.47	DC	8.16
7703387	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 238T2002	breaker	427.0	118.23	153.74	DC	151.63
7703388	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 23872	breaker	427.0	118.21	153.72	DC	151.63
8058162	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	single	441.8	129.9	135.92	DC	26.59
8058163	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-A	single	441.8	116.87	123.97	DC	31.37
8058224	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P1-2: LN 246	single	478.0	120.13	121.34	DC	5.77
8233572	936530	AD2-068 TAP	DVP	304451	6GREENVILE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	182.89	184.53	DC	17.38
7703234	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	163.42	187.99	DC	157.02
7703237	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 205602	breaker	637.0	156.1	174.45	DC	116.81
8057915	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	single	598.78	117.24	125.22	DC	48.29
8057916	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2060	single	598.78	115.45	123.41	DC	47.94
8057920	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	single	598.78	104.67	112.02	DC	44.28
8233567	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 2058-2181	tower	637.0	166.81	184.24	DC	111.04
8233568	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P7-1: LN 56-2060	tower	637.0	158.08	176.62	DC	118.07
12436344	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	427.0	144.69	191.45	DC	199.67
12436345	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P4-2: 205602	breaker	427.0	128.97	161.89	DC	140.47
12436569	942470	AE2-260 TAP	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 238T2002	breaker	427.0	100.25	135.76	DC	151.63
12436570	942470	AE2-260 TAP	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 23872	breaker	427.0	100.23	135.74	DC	151.63

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
13863801	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-A	single	375.06	119.89	135.28	DC	58.08
13863802	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-B	single	375.06	114.11	129.5	DC	58.08
13863804	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	single	346.86	110.28	125.7	DC	53.51
14039650	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P7-1: LN 2058-2181	tower	427.0	140.8	172.11	DC	133.6

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
8058006	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	operation	374.0	177.43	180.31	DC	23.73
8058249	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	operation	449.32	157.33	159.77	DC	24.2
8058781	314225	6CHARCTY	DVP	314227	6LAKESIDE	DVP	1	DVP_P1-2: LN 557	operation	984.18	115.66	116.53	DC	18.77
8058971	314227	6LAKESIDE	DVP	314218	6ELMONT	DVP	1	DVP_P1-2: LN 557	operation	740.72	96.04	97.03	DC	16.24
8058621	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P1-2: LN 238-B	operation	559.3	119.74	131.07	DC	63.33
8058477	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	operation	559.3	138.19	143.73	DC	30.94
8058558	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	operation	559.3	134.52	140.07	DC	30.94
8057839	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P1-2: LN 217	operation	449.32	190.05	194.8	DC	21.3
8057848	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	Base Case	operation	449.32	125.68	127.21	DC	15.19
8058732	314287	6CHESTFB	DVP	314225	6CHARCTY	DVP	1	DVP_P1-2: LN 557	operation	984.18	119.36	120.23	DC	18.77

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
8058729	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P1-2: LN 563	operatio n	441.8	118.2	123.26	DC	22.34
13864737	314316	6LOCKS	DVP	940430	AE2-027 TAP	DVP	1	DVP_P1-2: LN 563	operatio n	441.8	96.72	102.19	DC	24.18
8058726	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P1-2: LN 563	operatio n	441.8	118.23	123.28	DC	22.34
8058228	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P1-2: LN 2056-A	operatio n	678.68	142.86	160.07	DC	116.76
8058231	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	Base Case	operatio n	678.68	132.34	148.12	DC	107.08
8058588	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P1-2: LN 238-B	operatio n	548.02	123.06	134.62	DC	63.33
8058067	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P1-2: LN 2056-B	operatio n	598.78	149.64	169.15	DC	116.78
8058071	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	Base Case	operatio n	598.78	142.06	159.95	DC	107.09
8058921	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P1-2: LN 238-B	operatio n	182.64	78.7	105.18	DC	48.37
8057963	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	operatio n	571.52	184.02	185.58	DC	19.73
8057972	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	Base Case	operatio n	571.52	114.44	115.73	DC	16.38
8058174	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P1-2: LN 246	operatio n	449.32	167.74	169.14	DC	13.96
8058016	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	operatio n	571.52	177.63	179.19	DC	19.73
8058025	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	Base Case	operatio n	571.52	108.03	109.33	DC	16.38
8058259	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	operatio n	441.8	144.97	159.53	DC	64.31
8058269	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	Base Case	operatio n	441.8	97.02	104.01	DC	30.82
8057775	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	operatio n	375.06	176.14	209.1	DC	123.63
8057784	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	Base Case	operatio n	351.56	112.44	123.61	DC	39.27
8058572	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	operatio n	441.8	119.72	134.32	DC	64.49
8058410	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	operatio n	470.0	144.96	147.29	DC	24.2
8058594	314599	6ROA VAL	DVP	314266	6NORTHAMPTO N	DVP	1	DVP_P1-2: LN 238-B	operatio n	548.02	123.0	134.57	DC	63.33
8058369	314902	8CARSON	DVP	314914	8MDLTHAN	DVP	1	Base Case	operatio n	3218.56	110.63	111.11	DC	38.67
8057887	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P1-2: LN 563	operatio n	2442.12	184.18	184.94	DC	42.54
8057894	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	Base Case	operatio n	2442.12	148.96	149.54	DC	31.17
8057726	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P1-2: LN 576	operatio n	2442.12	217.52	218.58	DC	56.99

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
8058344	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P1-2: LN 573	operation	2738.22	148.86	149.32	DC	35.93
8057868	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	DVP_P1-2: LN 574	operation	2442.12	187.34	187.65	DC	53.89
8057875	314914	8MDLTHAN	DVP	314918	8NO ANNA	DVP	1	Base Case	operation	2442.12	134.52	134.99	DC	41.08
8058489	314918	8NO ANNA	DVP	314934	8SPOTSYL	DVP	1	DVP_P1-2: LN 581	operation	3218.56	138.34	138.65	DC	40.04
8058846	314923	8SEPTA	DVP	314924	8SURRY	DVP	1	DVP_P1-2: LN 563	operation	2442.12	98.47	98.95	DC	26.12
8058506	314924	8SURRY	DVP	314903	8CHCKAHM	DVP	1	DVP_P1-2: LN 563	operation	2442.12	132.75	133.32	DC	34.88
8058027	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	operation	571.52	177.62	179.18	DC	19.73
8058036	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	Base Case	operation	571.52	108.03	109.33	DC	16.38
8058097	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P1-2: LN 238-B	operation	375.06	134.57	175.0	DC	151.63
8058914	925170	AB2-174 TAP	DVP	314572	3EMPORIA	DVP	1	DVP_P1-2: LN 254-A	operation	315.84	104.83	107.43	DC	18.14
8058157	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	operation	441.8	157.79	172.36	DC	64.31
8058167	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	Base Case	operation	441.8	106.68	113.67	DC	30.82
8058214	936530	AD2-068 TAP	DVP	304451	6GREENVILLE	CPL	1	DVP_P1-2: LN 246	operation	478.0	163.77	165.08	DC	13.96
13864646	940430	AE2-027 TAP	DVP	314301	6HARR205	DVP	1	DVP_P1-2: LN 563	operation	441.8	104.03	109.5	DC	24.18
8057910	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P1-2: LN 2056-A	operation	598.78	165.74	185.24	DC	116.78
8057914	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	Base Case	operation	598.78	151.86	169.75	DC	107.09
13863796	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P1-2: LN 2056-A	operation	375.06	146.51	183.98	DC	140.46
13863797	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	Base Case	operation	346.86	142.05	179.37	DC	129.4
13863970	942470	AE2-260 TAP	DVP	924510	AB2-100 TAP	DVP	1	DVP_P1-2: LN 238-B	operation	375.06	114.1	154.53	DC	151.63

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.

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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
7703567	314299	6HARROWG	DVP	314263	6TYLER1	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	132.8	144.23	DC	61.82

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.29
315126	1ROARAP2	0.93
315131	1EDGECEMA	5.88
315132	1EDGECEMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

Bus #	Bus	MW Impact
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	0.84
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O2	4.29
940522	AE2-037 E O2	2.07
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940641	AE2-051 C O2	44.63
940642	AE2-051 E O2	29.75
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O2	12.15
941602	AE2-157 E O2	8.1
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49

Bus #	Bus	MW Impact
942371	AE2-250 C O2	13.07
942372	AE2-250 E O2	6.9
942451	AE2-258	1.17
942471	AE2-260 C O2	25.56
942472	AE2-260 E O2	36.26
942711	AE2-287 C O2	14.02
942712	AE2-287 E O2	9.35
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPL	CPL	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

13.5.2 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
7703565	314331	6POE	DVP	314299	6HARROWG	DVP	1	DVP_P4-2: 24972-4	breaker	541.0	132.82	144.25	DC	61.82

Bus #	Bus	MW Impact
314539	3UNCAMP	1.22
314541	3WATKINS	0.38
314554	3BTLEBRO	0.5
314557	3BETHELC	0.48
314572	3EMPORIA	0.58
314574	6EVERETS	2.18
314578	3HORNRTN	2.96
314582	3KELFORD	2.27
314603	3SCOT NK	2.25
314617	3TUNIS	0.53
314620	6CASHIE	0.4
314623	3WITAKRS	0.88
314704	3LAWRENC	0.29
315126	1ROARAP2	0.93
315131	1EDGECEMA	5.88
315132	1EDGECEMB	5.88
315136	1ROSEMG1	1.72
315137	1ROSEMS1	1.07
315138	1ROSEMG2	0.8
315139	1GASTONA	2.54
315141	1GASTONB	2.54
900672	V4-068 E	0.19
907092	X1-038 E	3.04
917332	Z2-043 E	0.64
917342	Z2-044 E	0.38
917512	Z2-088 E OP1	2.17
918492	AA1-063AE OP	3.19
918512	AA1-065 E OP	2.44
918532	AA1-067 E	0.39
918562	AA1-072 E	0.11
919692	AA2-053 E	3.2
919701	AA2-057 C	4.86
919702	AA2-057 E	2.43
920042	AA2-088 E OP	6.77
920592	AA2-165 E	0.32
920672	AA2-174 E	0.37
923801	AB2-015 C O1	4.55
923802	AB2-015 E O1	3.74
923851	AB2-025 C	0.71
923852	AB2-025 E	2.6
923911	AB2-031 C O1	2.72

Bus #	Bus	MW Impact
923912	AB2-031 E O1	1.34
923991	AB2-040 C O1	1.09
923992	AB2-040 E O1	7.31
924022	AB2-043 E O1	2.58
924152	AB2-059 E O1	3.39
924162	AB2-060 E O1	2.1
924302	AB2-077 E O1	0.66
924312	AB2-078 E O1	0.66
924322	AB2-079 E O1	0.66
924401	AB2-089 C	1.32
924402	AB2-089 E	0.68
924491	AB2-098 C	0.3
924492	AB2-098 E	0.13
924501	AB2-099 C	0.37
924502	AB2-099 E	0.16
924511	AB2-100 C	19.94
924512	AB2-100 E	9.82
925061	AB2-161 C O1	3.56
925062	AB2-161 E O1	5.8
925171	AB2-174 C O1	8.98
925172	AB2-174 E O1	8.12
925591	AC1-034 C	4.26
925592	AC1-034 E	3.22
925781	AC1-054 C O1	4.71
925782	AC1-054 E O1	2.17
926071	AC1-086 C	23.46
926072	AC1-086 E	10.68
926201	AC1-098 C	4.34
926202	AC1-098 E	2.58
926211	AC1-099 C	1.45
926212	AC1-099 E	0.85
927021	AC1-189 C	4.75
927022	AC1-189 E	2.37
927141	AC1-208 C	6.77
927142	AC1-208 E	3.01
930402	AB1-081 E O1	2.39
930861	AB1-132 C O1	1.94
930862	AB1-132 E O1	6.83
931231	AB1-173 C	0.33
931232	AB1-173 E	1.28
931241	AB1-173AC	0.33
931242	AB1-173AE	1.28
932581	AC2-078 C O1	6.56
932582	AC2-078 E O1	10.7
932591	AC2-079 C O1	4.04
932592	AC2-079 E O1	6.59
932631	AC2-084 C	6.18
932632	AC2-084 E	3.05
934201	AD1-047 C	9.75
934202	AD1-047 E	6.5
934231	AD1-050 C	2.91
934232	AD1-050 E	1.59

Bus #	Bus	MW Impact
934331	AD1-057 C O1	8.58
934332	AD1-057 E O1	4.58
934571	AD1-082 C	8.1
934572	AD1-082 E	4.62
935211	AD1-156 C	0.84
935212	AD1-156 E	4.58
936361	AD2-046 C O1	4.87
936362	AD2-046 E O1	2.24
936401	AD2-051 C O1	5.39
936402	AD2-051 E O1	2.31
936661	AD2-085 C	2.49
936662	AD2-085 E	4.07
936701	AD2-089 C	4.3
936702	AD2-089 E	2.87
936711	AD2-090 C O1	4.17
936712	AD2-090 E O1	2.78
937571	AD2-169 C	11.48
937572	AD2-169 E	7.65
938171	AE1-026 C1 O	13.16
938172	AE1-026 C2 O	1.9
938173	AE1-026 E O1	3.98
938221	AE1-035 C	1.24
938222	AE1-035 E	0.61
938631	AE1-085 C O1	16.84
938632	AE1-085 E O1	11.23
938771	AE1-103 C O1	1.82
938772	AE1-103 E O1	2.52
939071	AE1-135 C O1	37.34
939072	AE1-135 E O1	24.89
939181	AE1-148 C O1	4.78
939182	AE1-148 E O1	3.19
939191	AE1-149 C O1	18.48
939192	AE1-149 E O1	12.32
940061	AE1-248 C O1	16.84
940062	AE1-248 E O1	11.23
940481	AE2-033 C	35.93
940482	AE2-033 E	24.22
940521	AE2-037 C O2	4.29
940522	AE2-037 E O2	2.07
940571	AE2-044 C	2.79
940572	AE2-044 E	1.2
940641	AE2-051 C O2	44.63
940642	AE2-051 E O2	29.75
940651	AE2-052	6.19
940661	AE2-053	1.78
941541	AE2-151 C	0.67
941542	AE2-151 E	0.36
941601	AE2-157 C O2	12.15
941602	AE2-157 E O2	8.1
941951	AE2-207	1.8
942341	AE2-247 C	1.08
942342	AE2-247 E	1.49

Bus #	Bus	MW Impact
942371	AE2-250 C O2	13.07
942372	AE2-250 E O2	6.9
942451	AE2-258	1.17
942471	AE2-260 C O2	25.56
942472	AE2-260 E O2	36.26
942711	AE2-287 C O2	14.02
942712	AE2-287 E O2	9.35
943171	AE2-346 C	1.1
943172	AE2-346 E	0.47
AA2-074	AA2-074	1.64
CARR	CARR	0.16
CBM-S1	CBM-S1	3.81
CBM-S2	CBM-S2	4.44
CBM-W1	CBM-W1	3.84
CBM-W2	CBM-W2	24.85
CIN	CIN	1.73
CPL	CPL	2.41
G-007	G-007	0.55
IPL	IPL	1.09
LGEE	LGEE	0.5
MEC	MEC	3.85
MECS	MECS	1.63
O-066	O-066	3.48
RENSSELAER	RENSSELAER	0.13
WEC	WEC	0.46

13.5.3 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
7703515	314435	6SAPONY	DVP	314282	6CARSON	DVP	1	DVP_P4-2: 239T2141	breaker	830.0	123.72	142.17	DC	157.0

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315128	1ROARAP4	0.94
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918491	AA1-063AC OP	0.76
918492	AA1-063AE OP	2.96
919691	AA2-053 C	0.89
919692	AA2-053 E	3.15
920671	AA2-174 C	0.04
920672	AA2-174 E	0.36
923851	AB2-025 C	1.48
923852	AB2-025 E	5.44
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924021	AB2-043 C O1	0.3
924022	AB2-043 E O1	4.05
924161	AB2-060 C O1	0.85
924162	AB2-060 E O1	3.3
924301	AB2-077 C O1	0.19
924302	AB2-077 E O1	1.02
924311	AB2-078 C O1	0.19
924312	AB2-078 E O1	1.02
924321	AB2-079 C O1	0.19
924322	AB2-079 E O1	1.02
924401	AB2-089 C	1.6
924402	AB2-089 E	0.83
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.73
925172	AB2-174 E O1	16.04
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.11
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26

Bus #	Bus	MW Impact
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.04
934202	AD1-047 E	12.03
934231	AD1-050 C	3.53
934232	AD1-050 E	1.93
936481	AD2-063 C O1	10.78
936482	AD2-063 E O1	7.19
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.2
939072	AE1-135 E O1	62.8
939181	AE1-148 C O1	6.33
939182	AE1-148 E O1	4.22
940481	AE2-033 C	76.88
940482	AE2-033 E	51.83
942371	AE2-250 C O2	29.4
942372	AE2-250 E O2	15.52
942451	AE2-258	1.84
942471	AE2-260 C O2	64.92
942472	AE2-260 E O2	92.08
942711	AE2-287 C O2	29.82
942712	AE2-287 E O2	19.88
CARR	CARR	0.13
CBM-S1	CBM-S1	1.39
CBM-S2	CBM-S2	1.82
CBM-W1	CBM-W1	1.12
CBM-W2	CBM-W2	8.8
CIN	CIN	0.53
CPL	CPL	1.02
G-007	G-007	0.44
IPL	IPL	0.33
LGEE	LGEE	0.16
MEC	MEC	1.26
MECS	MECS	0.35
O-066	O-066	2.77
RENSSELAER	RENSSELAER	0.11
WEC	WEC	0.14

13.5.4 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
7703797	314561	6CAROLNA	DVP	314599	6ROA VAL	DVP	1	DVP_P4-2: 238T2002	breaker	671.0	100.58	110.03	DC	63.34

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.44
314572	3EMPORIA	0.62
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.62
315132	1EDGECEMB	5.62
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.52
315151	1BUGGS 2	5.52
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.18
919692	AA2-053 E	3.13
919701	AA2-057 C	4.15
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.1
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.34
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.43
924512	AB2-100 E	10.55
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.07
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36

Bus #	Bus	MW Impact
925781	AC1-054 C O1	5.58
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.25
926072	AC1-086 E	19.69
927141	AC1-208 C	6.05
927142	AC1-208 E	2.68
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
934201	AD1-047 C	11.12
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.72
934332	AD1-057 E O1	6.78
936261	AD2-033 C	5.68
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.29
936482	AD2-063 E O1	4.86
937571	AD2-169 C	13.44
937572	AD2-169 E	8.96
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.09
938661	AE1-088	0.92
939071	AE1-135 C O1	37.93
939072	AE1-135 E O1	25.29
939181	AE1-148 C O1	5.3
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.13
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.98
941951	AE2-207	1.64
942371	AE2-250 C O2	13.89
942372	AE2-250 E O2	7.33
942451	AE2-258	1.25
942471	AE2-260 C O2	26.19
942472	AE2-260 E O2	37.15
942711	AE2-287 C O2	14.9
942712	AE2-287 E O2	9.93
CARR	CARR	0.09
CBM-S1	CBM-S1	1.67
CBM-S2	CBM-S2	1.86
CBM-W1	CBM-W1	1.67

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	10.82
CIN	CIN	0.76
CPLE	CPLE	0.93
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.69
MECS	MECS	0.7
O-066	O-066	1.97
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

13.5.5 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
7703293	314563	6CLUBHSE	DVP	940480	AE2-033 TAP	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	145.16	169.69	DC	157.02

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315128	1ROARAP4	0.94
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918491	AA1-063AC OP	0.77
918492	AA1-063AE OP	2.96
919691	AA2-053 C	0.9
919692	AA2-053 E	3.15
920671	AA2-174 C	0.04
920672	AA2-174 E	0.36
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924021	AB2-043 C O1	0.3
924022	AB2-043 E O1	4.06
924161	AB2-060 C O1	0.86
924162	AB2-060 E O1	3.3
924301	AB2-077 C O1	0.19
924302	AB2-077 E O1	1.02
924311	AB2-078 C O1	0.19
924312	AB2-078 E O1	1.02
924321	AB2-079 C O1	0.19
924322	AB2-079 E O1	1.02
924401	AB2-089 C	1.6
924402	AB2-089 E	0.83
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.74
925172	AB2-174 E O1	16.05
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.12
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37

Bus #	Bus	MW Impact
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.04
934202	AD1-047 E	12.03
934231	AD1-050 C	3.53
934232	AD1-050 E	1.93
936261	AD2-033 C	8.4
936262	AD2-033 E	5.6
936361	AD2-046 C O1	6.38
936362	AD2-046 E O1	2.93
936481	AD2-063 C O1	10.79
936482	AD2-063 E O1	7.19
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.21
939072	AE1-135 E O1	62.81
939181	AE1-148 C O1	6.33
939182	AE1-148 E O1	4.22
940661	AE2-053	2.36
942371	AE2-250 C O2	29.4
942372	AE2-250 E O2	15.52
942451	AE2-258	1.85
942471	AE2-260 C O2	64.93
942472	AE2-260 E O2	92.09
942711	AE2-287 C O2	29.82
942712	AE2-287 E O2	19.88
CARR	CARR	0.13
CBM-S1	CBM-S1	1.42
CBM-S2	CBM-S2	1.84
CBM-W1	CBM-W1	1.17
CBM-W2	CBM-W2	8.98
CIN	CIN	0.55
CPL	CPL	1.02
G-007	G-007	0.43
IPL	IPL	0.34
LGEE	LGEE	0.16
MEC	MEC	1.3
MECS	MECS	0.38
O-066	O-066	2.72
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.15

13.5.6 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
8058577	314583	6LAKEVEW	DVP	314579	6HORNRTN	DVP	1	DVP_P1-2: LN 238-B	single	441.8	94.66	100.69	DC	26.67

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.6
315126	1ROARAP2	1.2
315128	1ROARAP4	1.16
315139	1GASTONA	4.79
315141	1GASTONB	4.79
315150	1BUGGS 1	4.58
315151	1BUGGS 2	4.58
315158	1KERR 1	0.14
315159	1KERR 2	0.55
315160	1KERR 3	0.55
315161	1KERR 4	0.55
315162	1KERR 5	0.55
315163	1KERR 6	0.55
315164	1KERR 7	0.55
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.12
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.3
923911	AB2-031 C O1	3.12
923991	AB2-040 C O1	1.25
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.51
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.37
924501	AB2-099 C	0.34
924511	AB2-100 C	21.83
925171	AB2-174 C O1	10.09
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.08
926071	AC1-086 C	44.21
930861	AB1-132 C O1	3.66
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38

Bus #	Bus	MW Impact
933991	AD1-023 C	4.56
934201	AD1-047 C	11.18
934231	AD1-050 C	3.02
934521	AD1-076 C	16.4
936261	AD2-033 C	5.07
936361	AD2-046 C O1	4.64
936401	AD2-051 C O1	4.76
936481	AD2-063 C O1	6.46
936711	AD2-090 C O1	4.2
937571	AD2-169 C	13.49
938171	AE1-026 C1 O	10.44
938172	AE1-026 C2 O	1.51
938221	AE1-035 C	1.07
938771	AE1-103 C O1	1.65
939071	AE1-135 C O1	38.62
939181	AE1-148 C O1	4.55
939371	AE1-168 C	4.77
940241	AE2-006	0.18
940481	AE2-033 C	28.65
940661	AE2-053	1.69
941541	AE2-151 C	0.59
942371	AE2-250 C O2	14.01
942451	AE2-258	1.1
942471	AE2-260 C O2	26.67
942711	AE2-287 C O2	14.68
943171	AE2-346 C	1.01
BLUEG	BLUEG	2.99
CALDERWOOD	CALDERWOOD	0.63
CANNELTON	CANNELTON	0.2
CATAWBA	CATAWBA	0.62
CBM-N	CBM-N	0.06
CHEOAH	CHEOAH	0.59
CHILHOWEE	CHILHOWEE	0.2
COFFEEN	COFFEEN	0.35
COTTONWOOD	COTTONWOOD	2.11
DUCKCREEK	DUCKCREEK	0.72
EDWARDS	EDWARDS	0.32
ELMERSMITH	ELMERSMITH	0.36
FARMERCITY	FARMERCITY	0.26
G-007A	G-007A	0.32
GIBSON	GIBSON	0.13
HAMLET	HAMLET	1.28
NEWTON	NEWTON	0.91
NYISO	NYISO	0.27
PRAIRIE	PRAIRIE	1.92
SANTEETLA	SANTEETLA	0.18
SMITHLAND	SMITHLAND	0.17
TATANKA	TATANKA	0.43
TILTON	TILTON	0.38
TRIMBLE	TRIMBLE	0.33
TVA	TVA	1.77
UNIONPOWER	UNIONPOWER	0.88

Bus #	Bus	MW Impact
VFT	VFT	0.86

13.5.7 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
7703799	314599	6ROA VAL	DVP	314266	6NORTHAMPTON	DVP	1	DVP_P4-2: 23872	breaker	671.0	100.72	110.17	DC	63.36

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.45
314572	3EMPORIA	0.63
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.63
315132	1EDGECEMB	5.63
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.53
315151	1BUGGS 2	5.53
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.19
919692	AA2-053 E	3.14
919701	AA2-057 C	4.16
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.11
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.35
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.44
924512	AB2-100 E	10.56
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.08
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36
925781	AC1-054 C O1	5.59

Bus #	Bus	MW Impact
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.26
926072	AC1-086 E	19.69
927141	AC1-208 C	6.05
927142	AC1-208 E	2.69
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
934201	AD1-047 C	11.13
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.73
934332	AD1-057 E O1	6.79
936261	AD2-033 C	5.69
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.3
936482	AD2-063 E O1	4.87
937571	AD2-169 C	13.45
937572	AD2-169 E	8.97
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.08
938661	AE1-088	0.92
939071	AE1-135 C O1	37.95
939072	AE1-135 E O1	25.3
939181	AE1-148 C O1	5.31
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.14
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.98
941951	AE2-207	1.64
942371	AE2-250 C O2	13.9
942372	AE2-250 E O2	7.33
942451	AE2-258	1.25
942471	AE2-260 C O2	26.2
942472	AE2-260 E O2	37.16
942711	AE2-287 C O2	14.91
942712	AE2-287 E O2	9.94
CARR	CARR	0.09
CBM-S1	CBM-S1	1.68
CBM-S2	CBM-S2	1.87
CBM-W1	CBM-W1	1.68
CBM-W2	CBM-W2	10.92

Bus #	Bus	MW Impact
CIN	CIN	0.77
CPL	CPL	0.94
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.7
MECS	MECS	0.7
O-066	O-066	1.98
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

13.5.8 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
7703388	924510	AB2-100 TAP	DVP	314583	6LAKEVEW	DVP	1	DVP_P4-2: 23872	breaker	427.0	118.21	153.72	DC	151.63

Bus #	Bus	MW Impact
314572	3EMPORIA	1.1
314704	3LAWRENC	0.55
923911	AB2-031 C O1	4.0
923912	AB2-031 E O1	1.97
923991	AB2-040 C O1	1.6
923992	AB2-040 E O1	10.75
924022	AB2-043 E O1	3.03
924162	AB2-060 E O1	2.47
924302	AB2-077 E O1	0.75
924312	AB2-078 E O1	0.75
924322	AB2-079 E O1	0.75
924511	AB2-100 C	51.74
924512	AB2-100 E	25.48
925171	AB2-174 C O1	14.8
925172	AB2-174 E O1	13.39
931231	AB1-173 C	0.49
931232	AB1-173 E	1.88
931241	AB1-173AC	0.49
931242	AB1-173AE	1.88
934201	AD1-047 C	14.34
934202	AD1-047 E	9.56
936261	AD2-033 C	6.32
936262	AD2-033 E	4.21
936481	AD2-063 C O1	8.08
936482	AD2-063 E O1	5.39
937571	AD2-169 C	14.41
937572	AD2-169 E	9.61
939071	AE1-135 C O1	90.68
939072	AE1-135 E O1	60.45
940481	AE2-033 C	67.26
940482	AE2-033 E	45.34
942371	AE2-250 C O2	26.69
942372	AE2-250 E O2	14.09
942451	AE2-258	1.38
942471	AE2-260 C O2	62.7
942472	AE2-260 E O2	88.93
942711	AE2-287 C O2	26.42
942712	AE2-287 E O2	17.62
BLUEG	BLUEG	0.16
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.01
CARR	CARR	0.0

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	0.07
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.2
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02
G-007	G-007	0.0
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.06
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.14
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.09

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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
8058007	313845	6HATHAWAY	DVP	304222	6ROCKYMT230T	CPL	1	DVP_P1-2: LN 2181	single	374.0	145.21	147.83	DC	9.81

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.54
315126	1ROARAP2	0.81
315128	1ROARAP4	0.78
315131	1EDGECEMA	24.75
315132	1EDGECEMB	24.75
315136	1ROSEMG1	2.1
315137	1ROSEMS1	1.3
315138	1ROSEMG2	0.98
315139	1GASTONA	2.52
315141	1GASTONB	2.52
315292	1DOMTR78	0.58
315293	1DOMTR9	0.48
315294	1DOMTR10	0.86
901081	W1-029 C	0.25
916041	Z1-036 C	0.29
917331	Z2-043 C	0.23
917341	Z2-044 C	0.2
917511	Z2-088 C OP1	1.46
918491	AA1-063AC OP	0.79
918511	AA1-065 C OP	0.72
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.83
919701	AA2-057 C	8.14
920041	AA2-088 C OP	0.46
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.54
923801	AB2-015 C O1	3.95
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.61
923991	AB2-040 C O1	0.64
924151	AB2-059 C O1	2.06
924401	AB2-089 C	0.73
924491	AB2-098 C	0.41
924501	AB2-099 C	0.4
924511	AB2-100 C	8.39
925121	AB2-169 C	0.49
925171	AB2-174 C O1	4.93

Bus #	Bus	MW Impact
925591	AC1-034 C	10.93
925781	AC1-054 C O1	2.83
926071	AC1-086 C	23.24
926201	AC1-098 C	5.92
926211	AC1-099 C	1.98
927021	AC1-189 C	9.72
927141	AC1-208 C	9.06
930401	AB1-081 C O1	1.74
930861	AB1-132 C O1	1.92
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.44
933991	AD1-023 C	7.4
934201	AD1-047 C	5.77
934231	AD1-050 C	1.6
934331	AD1-057 C O1	19.81
934521	AD1-076 C	28.78
936401	AD2-051 C O1	6.14
936701	AD2-089 C	14.05
936711	AD2-090 C O1	3.69
937571	AD2-169 C	7.4
938171	AE1-026 C1 O	16.32
938172	AE1-026 C2 O	2.36
938221	AE1-035 C	1.48
938661	AE1-088	2.05
938771	AE1-103 C O1	1.56
939071	AE1-135 C O1	14.1
940481	AE2-033 C	7.06
940491	AE2-034 C	3.88
940521	AE2-037 C O2	5.46
940571	AE2-044 C	7.16
941501	AE2-147 C	4.64
941541	AE2-151 C	0.76
941951	AE2-207	4.63
942371	AE2-250 C O2	5.95
942471	AE2-260 C O2	9.81
942711	AE2-287 C O2	6.22
942851	AE2-304 C	0.2
943171	AE2-346 C	1.2
BLUEG	BLUEG	5.91
CALDERWOOD	CALDERWOOD	1.2
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	1.17
CBM-N	CBM-N	0.12
CHEOAH	CHEOAH	1.12
CHILHOWEE	CHILHOWEE	0.39
COFFEEN	COFFEEN	0.69
COTTONWOOD	COTTONWOOD	4.01
DUCKCREEK	DUCKCREEK	1.41
EDWARDS	EDWARDS	0.63
ELMERSMITH	ELMERSMITH	0.71
FARMERCITY	FARMERCITY	0.49

Bus #	Bus	MW Impact
G-007A	G-007A	0.65
GIBSON	GIBSON	0.25
HAMLET	HAMLET	2.3
NEWTON	NEWTON	1.79
NYISO	NYISO	0.54
PRAIRIE	PRAIRIE	3.73
SANTEETLA	SANTEETLA	0.33
SMITHLAND	SMITHLAND	0.33
TATANKA	TATANKA	0.84
TILTON	TILTON	0.75
TRIMBLE	TRIMBLE	0.65
TVA	TVA	3.37
UNIONPOWER	UNIONPOWER	1.66
VFT	VFT	1.72

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058250	313845	6HATHAWAY	DVP	314591	6NASH	DVP	1	DVP_P1-2: LN 2058	single	449.32	129.97	132.2	DC	10.01

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O2	5.57
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942371	AE2-250 C O2	6.07
942471	AE2-260 C O2	10.01
942711	AE2-287 C O2	6.34
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

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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
7703266	314218	6ELMONT	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: H2T557	breaker	1050.6	174.88	176.23	DC	31.09

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

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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
7703779	314266	6NORTHAMPTON	DVP	314569	6EARLEYS	DVP	1	DVP_P4-2: 238T2002	breaker	658.0	101.85	111.49	DC	63.34

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.44
314572	3EMPORIA	0.62
314578	3HORNRTN	3.69
314623	3WITAKRS	0.77
314704	3LAWRENC	0.3
315126	1ROARAP2	1.21
315131	1EDGECEMA	5.62
315132	1EDGECEMB	5.62
315136	1ROSEMG1	3.06
315137	1ROSEMS1	1.9
315138	1ROSEMG2	1.43
315139	1GASTONA	4.69
315141	1GASTONB	4.69
315150	1BUGGS 1	5.52
315151	1BUGGS 2	5.52
917342	Z2-044 E	0.33
918492	AA1-063AE OP	2.18
919692	AA2-053 E	3.13
919701	AA2-057 C	4.15
919702	AA2-057 E	2.08
920592	AA2-165 E	0.27
920672	AA2-174 E	0.36
923911	AB2-031 C O1	3.1
923912	AB2-031 E O1	1.53
923991	AB2-040 C O1	1.24
923992	AB2-040 E O1	8.34
924022	AB2-043 E O1	2.74
924152	AB2-059 E O1	3.09
924162	AB2-060 E O1	2.23
924302	AB2-077 E O1	0.7
924312	AB2-078 E O1	0.7
924322	AB2-079 E O1	0.7
924401	AB2-089 C	1.54
924402	AB2-089 E	0.79
924511	AB2-100 C	21.43
924512	AB2-100 E	10.55
925171	AB2-174 C O1	10.03
925172	AB2-174 E O1	9.07
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
925612	AC1-036 E	0.36

Bus #	Bus	MW Impact
925781	AC1-054 C O1	5.58
925782	AC1-054 E O1	2.57
926071	AC1-086 C	43.25
926072	AC1-086 E	19.69
927141	AC1-208 C	6.05
927142	AC1-208 E	2.68
930402	AB1-081 E O1	2.18
930861	AB1-132 C O1	3.58
930862	AB1-132 E O1	12.59
931231	AB1-173 C	0.38
931232	AB1-173 E	1.46
931241	AB1-173AC	0.38
931242	AB1-173AE	1.46
934201	AD1-047 C	11.12
934202	AD1-047 E	7.42
934231	AD1-050 C	3.39
934232	AD1-050 E	1.85
934331	AD1-057 C O1	12.72
934332	AD1-057 E O1	6.78
936261	AD2-033 C	5.68
936262	AD2-033 E	3.79
936361	AD2-046 C O1	5.42
936362	AD2-046 E O1	2.49
936481	AD2-063 C O1	7.29
936482	AD2-063 E O1	4.86
937571	AD2-169 C	13.44
937572	AD2-169 E	8.96
938174	AE1-026 CBAT	1.52
938175	AE1-026 EBAT	6.09
938661	AE1-088	0.92
939071	AE1-135 C O1	37.93
939072	AE1-135 E O1	25.29
939181	AE1-148 C O1	5.3
939182	AE1-148 E O1	3.54
940241	AE2-006	0.2
940481	AE2-033 C	28.13
940482	AE2-033 E	18.97
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
940661	AE2-053	1.98
941951	AE2-207	1.64
942371	AE2-250 C O2	13.89
942372	AE2-250 E O2	7.33
942451	AE2-258	1.25
942471	AE2-260 C O2	26.19
942472	AE2-260 E O2	37.15
942711	AE2-287 C O2	14.9
942712	AE2-287 E O2	9.93
CARR	CARR	0.09
CBM-S1	CBM-S1	1.67
CBM-S2	CBM-S2	1.86
CBM-W1	CBM-W1	1.67

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	10.82
CIN	CIN	0.76
CPLE	CPLE	0.93
G-007	G-007	0.31
IPL	IPL	0.48
LGEE	LGEE	0.22
MEC	MEC	1.69
MECS	MECS	0.7
O-066	O-066	1.97
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.2

13.5.13 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
7703859	314282	6CARSON	DVP	314331	6POE	DVP	1	DVP_P4-2: 24972-4	breaker	830.0	102.93	112.77	DC	81.7

Bus #	Bus	MW Impact
314554	3BTLEBRO	0.61
314557	3BETHELC	0.58
314572	3EMPORIA	0.75
314574	6EVERETS	2.53
314578	3HORNRTN	3.68
314582	3KELFORD	2.67
314603	3SCOT NK	2.69
314617	3TUNIS	0.58
314620	6CASHIE	0.44
314623	3WITAKRS	1.08
314704	3LAWRENC	0.37
315126	1ROARAP2	1.15
315131	1EDGECEMA	7.24
315132	1EDGECEMB	7.24
315136	1ROSEMG1	2.19
315137	1ROSEMS1	1.36
315138	1ROSEMG2	1.03
315139	1GASTONA	3.26
315141	1GASTONB	3.26
315150	1BUGGS 1	6.46
315151	1BUGGS 2	6.46
900672	V4-068 E	0.2
917332	Z2-043 E	0.76
917342	Z2-044 E	0.46
917512	Z2-088 E OP1	2.58
918492	AA1-063AE OP	3.88
918512	AA1-065 E OP	2.79
918532	AA1-067 E	0.45
918562	AA1-072 E	0.13
919692	AA2-053 E	3.92
919701	AA2-057 C	5.95
919702	AA2-057 E	2.98
920042	AA2-088 E OP	6.76
920592	AA2-165 E	0.39
920672	AA2-174 E	0.45
923851	AB2-025 C	0.94
923852	AB2-025 E	3.48
923911	AB2-031 C O1	3.5
923912	AB2-031 E O1	1.72
923991	AB2-040 C O1	1.4
923992	AB2-040 E O1	9.39

Bus #	Bus	MW Impact
924022	AB2-043 E O1	3.24
924152	AB2-059 E O1	4.16
924162	AB2-060 E O1	2.64
924302	AB2-077 E O1	0.83
924312	AB2-078 E O1	0.83
924322	AB2-079 E O1	0.83
924401	AB2-089 C	1.64
924402	AB2-089 E	0.85
924491	AB2-098 C	0.35
924492	AB2-098 E	0.15
924501	AB2-099 C	0.41
924502	AB2-099 E	0.18
924511	AB2-100 C	26.3
924512	AB2-100 E	12.96
925122	AB2-169 E	3.03
925171	AB2-174 C O1	11.6
925172	AB2-174 E O1	10.49
925591	AC1-034 C	5.23
925592	AC1-034 E	3.95
925781	AC1-054 C O1	5.85
925782	AC1-054 E O1	2.7
926071	AC1-086 C	30.05
926072	AC1-086 E	13.68
926201	AC1-098 C	5.25
926202	AC1-098 E	3.13
926211	AC1-099 C	1.76
926212	AC1-099 E	1.03
927021	AC1-189 C	5.59
927022	AC1-189 E	2.79
927141	AC1-208 C	8.29
927142	AC1-208 E	3.68
930402	AB1-081 E O1	2.94
930861	AB1-132 C O1	2.49
930862	AB1-132 E O1	8.74
931231	AB1-173 C	0.43
931232	AB1-173 E	1.64
931241	AB1-173AC	0.43
931242	AB1-173AE	1.64
932631	AC2-084 C	7.48
932632	AC2-084 E	3.69
934201	AD1-047 C	12.53
934202	AD1-047 E	8.35
934231	AD1-050 C	3.62
934232	AD1-050 E	1.98
934331	AD1-057 C O1	10.81
934332	AD1-057 E O1	5.77
936261	AD2-033 C	6.73
936262	AD2-033 E	4.49
936361	AD2-046 C O1	6.06
936362	AD2-046 E O1	2.79
936401	AD2-051 C O1	6.21
936402	AD2-051 E O1	2.67

Bus #	Bus	MW Impact
936481	AD2-063 C O1	8.62
936482	AD2-063 E O1	5.75
936701	AD2-089 C	5.19
936702	AD2-089 E	3.46
936711	AD2-090 C O1	3.71
936712	AD2-090 E O1	2.47
937571	AD2-169 C	14.66
937572	AD2-169 E	9.78
938171	AE1-026 C1 O	14.49
938172	AE1-026 C2 O	2.1
938173	AE1-026 E O1	4.38
938221	AE1-035 C	1.41
938222	AE1-035 E	0.7
938661	AE1-088	0.92
939071	AE1-135 C O1	49.36
939072	AE1-135 E O1	32.9
939181	AE1-148 C O1	5.96
939182	AE1-148 E O1	3.97
940481	AE2-033 C	48.0
940482	AE2-033 E	32.36
940521	AE2-037 C O2	4.94
940522	AE2-037 E O2	2.39
940571	AE2-044 C	3.43
940572	AE2-044 E	1.47
940641	AE2-051 C O2	60.02
940642	AE2-051 E O2	40.02
940652	AE2-052 BAT	1.4
940661	AE2-053	2.22
941532	AE2-150 EBAT	2.43
941541	AE2-151 C	0.77
941542	AE2-151 E	0.41
941951	AE2-207	2.22
942371	AE2-250 C O2	17.08
942372	AE2-250 E O2	9.01
942451	AE2-258	1.47
942471	AE2-260 C O2	33.78
942472	AE2-260 E O2	47.92
942711	AE2-287 C O2	18.19
942712	AE2-287 E O2	12.13
943171	AE2-346 C	1.24
943172	AE2-346 E	0.53
AA2-074	AA2-074	1.9
CARR	CARR	0.18
CBM-S1	CBM-S1	4.45
CBM-S2	CBM-S2	5.15
CBM-W1	CBM-W1	4.55
CBM-W2	CBM-W2	29.12
CIN	CIN	2.05
CPL	CPL	2.8
G-007	G-007	0.61
IPL	IPL	1.29
LGEE	LGEE	0.59

Bus #	Bus	MW Impact
MEC	MEC	4.54
MECS	MECS	1.95
O-066	O-066	3.89
RENSSELAER	RENSSELAER	0.14
WEC	WEC	0.55

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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
8058478	314282	6CARSON	DVP	314285	6CHRL249	DVP	1	DVP_P1-2: LN 563	single	559.3	123.09	125.0	DC	12.8

Bus #	Bus	MW Impact
314589	3MURPHYS	0.03
314704	3LAWRENC	0.16
315102	1BRUNSWICKG1	2.54
315103	1BRUNSWICKG2	2.54
315104	1BRUNSWICKG3	2.54
315105	1BRUNSWICKS1	5.29
315126	1ROARAP2	0.56
315128	1ROARAP4	0.54
315131	1EDGECEMA	4.32
315132	1EDGECEMB	4.32
315136	1ROSEMG1	0.99
315137	1ROSEMS1	0.62
315138	1ROSEMG2	0.47
315139	1GASTONA	1.44
315141	1GASTONB	1.44
315150	1BUGGS 1	4.46
315151	1BUGGS 2	4.46
315158	1KERR 1	0.11
315159	1KERR 2	0.45
315160	1KERR 3	0.44
315161	1KERR 4	0.44
315162	1KERR 5	0.44
315163	1KERR 6	0.44
315164	1KERR 7	0.44
916301	Z1-086 C	15.49
917331	Z2-043 C	0.13
917341	Z2-044 C	0.08
917511	Z2-088 C OP1	0.47
918491	AA1-063AC OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	0.56
919701	AA2-057 C	3.39
920041	AA2-088 C OP	0.32
920591	AA2-165 C	0.06
920671	AA2-174 C	0.03
923851	AB2-025 C	0.33
923911	AB2-031 C O1	1.5
923991	AB2-040 C O1	0.6
924151	AB2-059 C O1	0.59
924401	AB2-089 C	0.96
924491	AB2-098 C	0.23

Bus #	Bus	MW Impact
924501	AB2-099 C	0.25
924511	AB2-100 C	10.06
925171	AB2-174 C O1	4.9
925591	AC1-034 C	3.16
925781	AC1-054 C O1	3.33
926071	AC1-086 C	13.29
926201	AC1-098 C	2.93
926211	AC1-099 C	0.98
927021	AC1-189 C	3.64
927141	AC1-208 C	4.48
930401	AB1-081 C O1	0.5
930861	AB1-132 C O1	1.1
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932631	AC2-084 C	4.18
933991	AD1-023 C	4.74
934201	AD1-047 C	5.39
934231	AD1-050 C	2.12
934331	AD1-057 C O1	5.45
934521	AD1-076 C	18.8
934611	AD1-087 C O1	2.89
935171	AD1-152 C O1	2.87
935211	AD1-156 C	0.11
936361	AD2-046 C O1	3.75
936401	AD2-051 C O1	3.75
936481	AD2-063 C O1	5.54
936531	AD2-068 C	2.08
936701	AD2-089 C	3.22
936711	AD2-090 C O1	2.62
937481	AD2-202 C O1	0.79
937571	AD2-169 C	6.45
938171	AE1-026 C1 O	10.34
938172	AE1-026 C2 O	1.5
938221	AE1-035 C	0.91
938491	AE1-068 C O1	25.35
938501	AE1-069 C O1	19.84
938661	AE1-088	0.66
939071	AE1-135 C O1	18.66
939181	AE1-148 C O1	3.69
939411	AE1-173 C	31.68
940471	AE2-031 C O2	13.59
940481	AE2-033 C	17.11
940521	AE2-037 C O2	3.23
940571	AE2-044 C	2.07
940641	AE2-051 C O2	20.59
940661	AE2-053	1.37
941031	AE2-094 C	16.59
941541	AE2-151 C	0.46
941951	AE2-207	1.34
942211	AE2-233 C	5.42
942371	AE2-250 C O2	6.91
942451	AE2-258	0.92

Bus #	Bus	MW Impact
942471	AE2-260 C O2	12.8
942711	AE2-287 C O2	8.07
942921	AE2-311 C O2	15.84
942931	AE2-313 C	14.91
943171	AE2-346 C	0.75
AA2-074	AA2-074	2.19
CARR	CARR	0.26
CBM-S1	CBM-S1	5.47
CBM-S2	CBM-S2	6.25
CBM-W1	CBM-W1	5.43
CBM-W2	CBM-W2	35.61
CIN	CIN	2.46
CPL	CPL	3.23
IPL	IPL	1.54
LGEE	LGEE	0.71
MEC	MEC	5.49
MECS	MECS	2.26
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.66

13.5.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058559	314285	6CHRL249	DVP	314316	6LOCKS	DVP	1	DVP_P1-2: LN 563	single	559.3	119.42	121.33	DC	12.8

Bus #	Bus	MW Impact
314589	3MURPHYS	0.03
314704	3LAWRENC	0.16
315102	1BRUNSWICKG1	2.54
315103	1BRUNSWICKG2	2.54
315104	1BRUNSWICKG3	2.54
315105	1BRUNSWICKS1	5.29
315126	1ROARAP2	0.56
315128	1ROARAP4	0.54
315131	1EDGECEMA	4.32
315132	1EDGECEMB	4.32
315136	1ROSEMG1	0.99
315137	1ROSEMS1	0.62
315138	1ROSEMG2	0.47
315139	1GASTONA	1.44
315141	1GASTONB	1.44
315150	1BUGGS 1	4.46
315151	1BUGGS 2	4.46
315158	1KERR 1	0.11
315159	1KERR 2	0.45
315160	1KERR 3	0.44
315161	1KERR 4	0.44
315162	1KERR 5	0.44
315163	1KERR 6	0.44
315164	1KERR 7	0.44
916301	Z1-086 C	15.49
917331	Z2-043 C	0.13
917341	Z2-044 C	0.08
917511	Z2-088 C OP1	0.47
918491	AA1-063AC OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	0.56
919701	AA2-057 C	3.39
920041	AA2-088 C OP	0.32
920591	AA2-165 C	0.06
920671	AA2-174 C	0.03
923851	AB2-025 C	0.33
923911	AB2-031 C O1	1.5
923991	AB2-040 C O1	0.6
924151	AB2-059 C O1	0.59
924401	AB2-089 C	0.96
924491	AB2-098 C	0.23

Bus #	Bus	MW Impact
924501	AB2-099 C	0.25
924511	AB2-100 C	10.06
925171	AB2-174 C O1	4.9
925591	AC1-034 C	3.16
925781	AC1-054 C O1	3.33
926071	AC1-086 C	13.29
926201	AC1-098 C	2.93
926211	AC1-099 C	0.98
927021	AC1-189 C	3.64
927141	AC1-208 C	4.48
930401	AB1-081 C O1	0.5
930861	AB1-132 C O1	1.1
931231	AB1-173 C	0.18
931241	AB1-173AC	0.18
932631	AC2-084 C	4.18
933991	AD1-023 C	4.74
934201	AD1-047 C	5.39
934231	AD1-050 C	2.12
934331	AD1-057 C O1	5.45
934521	AD1-076 C	18.8
934611	AD1-087 C O1	2.89
935171	AD1-152 C O1	2.87
935211	AD1-156 C	0.11
936361	AD2-046 C O1	3.75
936401	AD2-051 C O1	3.75
936481	AD2-063 C O1	5.54
936531	AD2-068 C	2.08
936701	AD2-089 C	3.22
936711	AD2-090 C O1	2.62
937481	AD2-202 C O1	0.79
937571	AD2-169 C	6.45
938171	AE1-026 C1 O	10.34
938172	AE1-026 C2 O	1.5
938221	AE1-035 C	0.91
938491	AE1-068 C O1	25.35
938501	AE1-069 C O1	19.84
938661	AE1-088	0.66
939071	AE1-135 C O1	18.66
939181	AE1-148 C O1	3.69
939411	AE1-173 C	31.68
940471	AE2-031 C O2	13.59
940481	AE2-033 C	17.11
940521	AE2-037 C O2	3.23
940571	AE2-044 C	2.07
940641	AE2-051 C O2	20.59
940661	AE2-053	1.37
941031	AE2-094 C	16.59
941541	AE2-151 C	0.46
941951	AE2-207	1.34
942211	AE2-233 C	5.42
942371	AE2-250 C O2	6.91
942451	AE2-258	0.92

Bus #	Bus	MW Impact
942471	AE2-260 C O2	12.8
942711	AE2-287 C O2	8.07
942921	AE2-311 C O2	15.84
942931	AE2-313 C	14.91
943171	AE2-346 C	0.75
AA2-074	AA2-074	2.19
CARR	CARR	0.26
CBM-S1	CBM-S1	5.47
CBM-S2	CBM-S2	6.25
CBM-W1	CBM-W1	5.43
CBM-W2	CBM-W2	35.61
CIN	CIN	2.46
CPL	CPL	3.23
IPL	IPL	1.54
LGEE	LGEE	0.71
MEC	MEC	5.49
MECS	MECS	2.26
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.66

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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
7703367	314287	6CHESTFB	DVP	314276	6BASIN	DVP	1	DVP_P4-2: H8T217	breaker	549.0	155.7	159.58	DC	21.28

Bus #	Bus	MW Impact
314314	3LOCKS	0.17
314539	3UNCAMP	0.9
314541	3WATKINS	0.26
314572	3EMPORIA	0.22
314578	3HORNRTN	1.34
315065	1CHESTF6	27.21
315073	1STONECA	6.31
315074	1HOPCGN1	7.61
315075	1HOPCGN2	7.51
315076	1HOPPOLC	1.06
315077	1HOPHCF1	1.66
315078	1HOPHCF2	1.66
315079	1HOPHCF3	1.66
315080	1HOPHCF4	2.52
907092	X1-038 E	2.26
918492	AA1-063AE OP	1.56
919692	AA2-053 E	1.5
920042	AA2-088 E OP	4.03
920672	AA2-174 E	0.17
923801	AB2-015 C O1	3.23
923802	AB2-015 E O1	2.65
923851	AB2-025 C	0.22
923852	AB2-025 E	0.83
923911	AB2-031 C O1	1.07
923912	AB2-031 E O1	0.53
923992	AB2-040 E O1	2.87
924511	AB2-100 C	6.94
924512	AB2-100 E	3.42
924811	AB2-134 C O1	1.04
924812	AB2-134 E O1	8.11
925051	AB2-160 C O1	4.45
925052	AB2-160 E O1	7.26
925061	AB2-161 C O1	2.21
925062	AB2-161 E O1	3.6
925171	AB2-174 C O1	3.45
925172	AB2-174 E O1	3.12
925331	AB2-190 C	13.99
925332	AB2-190 E	5.99
925821	AC1-061	0.0
926071	AC1-086 C	9.6
926072	AC1-086 E	4.37

Bus #	Bus	MW Impact
927221	AC1-216 C O1	6.52
927222	AC1-216 E O1	5.13
930862	AB1-132 E O1	2.79
931232	AB1-173 E	0.5
931242	AB1-173AE	0.5
932581	AC2-078 C O1	3.58
932582	AC2-078 E O1	5.84
932591	AC2-079 C O1	2.93
932592	AC2-079 E O1	4.79
934011	AD1-025 C	11.2
934012	AD1-025 E	6.64
934201	AD1-047 C	3.82
934202	AD1-047 E	2.55
934571	AD1-082 C	5.03
934572	AD1-082 E	2.87
935161	AD1-151 C O1	11.24
935162	AD1-151 E O1	7.49
935211	AD1-156 C	0.31
935212	AD1-156 E	1.68
936041	AD2-007	1.19
936051	AD2-008 C	1.95
936052	AD2-008 E	4.25
936661	AD2-085 C	1.79
936662	AD2-085 E	2.92
936711	AD2-090 C O1	2.72
936712	AD2-090 E O1	1.81
937571	AD2-169 C	4.62
937572	AD2-169 E	3.08
938631	AE1-085 C O1	9.3
938632	AE1-085 E O1	6.2
938771	AE1-103 C O1	1.36
938772	AE1-103 E O1	1.87
939071	AE1-135 C O1	12.82
939072	AE1-135 E O1	8.55
939191	AE1-149 C O1	9.91
939192	AE1-149 E O1	6.61
939311	AE1-162 C	0.87
939312	AE1-162 E	0.58
940061	AE1-248 C O1	10.45
940062	AE1-248 E O1	6.97
940071	AE1-249 C	5.87
940072	AE1-249 E	4.38
940431	AE2-027 C O2	18.56
940432	AE2-027 E O2	12.37
940481	AE2-033 C	11.55
940482	AE2-033 E	7.78
940541	AE2-040	2.6
940641	AE2-051 C O2	13.72
940642	AE2-051 E O2	9.15
940651	AE2-052	3.32
940891	AE2-078 C	1.04
940892	AE2-078 E	0.53

Bus #	Bus	MW Impact
940901	AE2-079 C	1.04
940902	AE2-079 E	0.53
940911	AE2-080 C	1.04
940912	AE2-080 E	0.53
941601	AE2-157 C O2	7.34
941602	AE2-157 E O2	4.89
942001	AE2-212 C	3.22
942002	AE2-212 E	2.15
942161	AE2-228 C O2	3.76
942162	AE2-228 E O2	2.51
942341	AE2-247 C	0.78
942342	AE2-247 E	1.07
942371	AE2-250 C O2	4.78
942372	AE2-250 E O2	2.52
942471	AE2-260 C O2	8.8
942472	AE2-260 E O2	12.48
942551	AE2-270	18.74
942711	AE2-287 C O2	5.41
942712	AE2-287 E O2	3.61
CARR	CARR	0.27
CBM-S1	CBM-S1	2.45
CBM-S2	CBM-S2	3.57
CBM-W1	CBM-W1	1.56
CBM-W2	CBM-W2	15.09
CIN	CIN	0.76
CPL	CPL	1.94
G-007	G-007	0.85
IPL	IPL	0.46
LGEE	LGEE	0.22
MEC	MEC	1.99
MECS	MECS	0.29
O-066	O-066	5.43
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.2

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058290	314303	6HOPEWLL	DVP	314286	6CHESTF A	DVP	1	DVP_P1-2: LN 259	single	449.32	139.46	140.86	DC	6.37

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

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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
14039878	314314	3LOCKS	DVP	314298	3HARROWG	DVP	1	DVP_P7-1: LN 205-2003-A	tower	169.0	102.41	105.08	DC	10.05

Bus #	Bus	MW Impact
314314	3LOCKS	0.45
923852	AB2-025 E	0.4
925051	AB2-160 C O1	11.47
925052	AB2-160 E O1	18.72
925061	AB2-161 C O1	1.17
925062	AB2-161 E O1	1.91
925821	AC1-061	0.01
932581	AC2-078 C O1	2.11
932582	AC2-078 E O1	3.45
934571	AD1-082 C	2.66
934572	AD1-082 E	1.52
935212	AD1-156 E	0.65
938631	AE1-085 C O1	5.44
938632	AE1-085 E O1	3.63
939071	AE1-135 C O1	6.06
939072	AE1-135 E O1	4.04
939191	AE1-149 C O1	5.94
939192	AE1-149 E O1	3.96
940061	AE1-248 C O1	5.54
940062	AE1-248 E O1	3.69
940071	AE1-249 C	15.14
940072	AE1-249 E	11.29
940431	AE2-027 C O2	9.73
940432	AE2-027 E O2	6.49
940481	AE2-033 C	5.59
940482	AE2-033 E	3.77
940541	AE2-040	6.7
940641	AE2-051 C O2	6.76
940642	AE2-051 E O2	4.5
940651	AE2-052	1.99
941601	AE2-157 C O2	3.98
941602	AE2-157 E O2	2.65
942471	AE2-260 C O2	4.15
942472	AE2-260 E O2	5.89
CARR	CARR	0.06
CBM-S1	CBM-S1	1.4
CBM-S2	CBM-S2	1.64
CBM-W1	CBM-W1	1.37
CBM-W2	CBM-W2	9.08
CIN	CIN	0.62
CPL	CPL	0.86

Bus #	Bus	MW Impact
G-007	G-007	0.22
IPL	IPL	0.39
LGEE	LGEE	0.18
MEC	MEC	1.39
MECS	MECS	0.56
O-066	O-066	1.39
RENSSELAER	RENSSELAER	0.05
WEC	WEC	0.17

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8233537	314554	3BTLEBRO	DVP	304223	3ROCKYMT11ST	CPL	1	DVP_P7-1: LN 2058-2181	tower	164.0	310.87	315.03	DC	15.08

Bus #	Bus	MW Impact
314541	3WATKINS	0.25
314554	3BTLEBRO	1.96
314557	3BETHEL	0.86
314572	3EMPORIA	0.2
314574	6EVERETS	1.77
314578	3HORNRTN	2.52
314582	3KELFORD	2.87
314603	3SCOT NK	3.65
314617	3TUNIS	0.43
314620	6CASHIE	0.32
314623	3WITAKRS	2.92
315131	1EDGECEMA	13.53
315132	1EDGECEMB	13.53
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315139	1GASTONA	1.55
315141	1GASTONB	1.55
900672	V4-068 E	0.15
917331	Z2-043 C	0.23
917332	Z2-043 E	0.82
917341	Z2-044 C	0.36
917342	Z2-044 E	1.25
917511	Z2-088 C OP1	0.83
917512	Z2-088 E OP1	2.91
918492	AA1-063AE OP	2.41
918512	AA1-065 E OP	1.91
918532	AA1-067 E	0.31
918561	AA1-072 C	0.03
918562	AA1-072 E	0.14
919692	AA2-053 E	2.32
919701	AA2-057 C	13.32
919702	AA2-057 E	6.66
920042	AA2-088 E OP	4.75
920591	AA2-165 C	0.22
920592	AA2-165 E	0.88
920672	AA2-174 E	0.27
923801	AB2-015 C O1	2.99
923802	AB2-015 E O1	2.45
923911	AB2-031 C O1	1.2
923912	AB2-031 E O1	0.59

Bus #	Bus	MW Impact
923992	AB2-040 E O1	3.22
924151	AB2-059 C O1	2.89
924152	AB2-059 E O1	12.22
924491	AB2-098 C	0.24
924492	AB2-098 E	0.1
924501	AB2-099 C	0.31
924502	AB2-099 E	0.13
924511	AB2-100 C	5.31
924512	AB2-100 E	2.62
925122	AB2-169 E	2.21
925171	AB2-174 C O1	3.6
925172	AB2-174 E O1	3.26
925591	AC1-034 C	15.36
925592	AC1-034 E	11.59
926071	AC1-086 C	14.34
926072	AC1-086 E	6.53
926201	AC1-098 C	7.95
926202	AC1-098 E	4.74
926211	AC1-099 C	2.66
926212	AC1-099 E	1.56
927021	AC1-189 C	5.57
927022	AC1-189 E	2.77
927141	AC1-208 C	12.51
927142	AC1-208 E	5.56
930401	AB1-081 C O1	2.45
930402	AB1-081 E O1	8.62
930861	AB1-132 C O1	1.19
930862	AB1-132 E O1	4.17
931232	AB1-173 E	0.56
931242	AB1-173AE	0.56
932631	AC2-084 C	11.33
932632	AC2-084 E	5.58
933991	AD1-023 C	4.78
933992	AD1-023 E	2.6
934201	AD1-047 C	4.3
934202	AD1-047 E	2.86
934331	AD1-057 C O1	11.18
934332	AD1-057 E O1	5.96
936401	AD2-051 C O1	4.79
936402	AD2-051 E O1	2.06
936701	AD2-089 C	7.78
936702	AD2-089 E	5.19
936711	AD2-090 C O1	2.83
936712	AD2-090 E O1	1.89
937571	AD2-169 C	5.61
937572	AD2-169 E	3.74
938171	AE1-026 C1 O	10.58
938172	AE1-026 C2 O	1.53
938173	AE1-026 E O1	3.19
938221	AE1-035 C	0.97
938222	AE1-035 E	0.48
938661	AE1-088	0.67

Bus #	Bus	MW Impact
939071	AE1-135 C O1	8.96
939072	AE1-135 E O1	5.98
940521	AE2-037 C O2	3.42
940522	AE2-037 E O2	1.65
940571	AE2-044 C	10.06
940572	AE2-044 E	4.31
941541	AE2-151 C	0.59
941542	AE2-151 E	0.32
941951	AE2-207	6.5
942371	AE2-250 C O2	4.11
942372	AE2-250 E O2	2.17
942471	AE2-260 C O2	6.23
942472	AE2-260 E O2	8.84
943171	AE2-346 C	0.94
943172	AE2-346 E	0.4
BLUEG	BLUEG	3.99
CALDERWOOD	CALDERWOOD	0.81
CANNELTON	CANNELTON	0.27
CATAWBA	CATAWBA	0.79
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.76
CHILHOWEE	CHILHOWEE	0.26
COFFEEN	COFFEEN	0.46
COTTONWOOD	COTTONWOOD	2.71
DUCKCREEK	DUCKCREEK	0.95
EDWARDS	EDWARDS	0.43
ELMERSMITH	ELMERSMITH	0.48
FARMERCITY	FARMERCITY	0.33
G-007A	G-007A	0.39
GIBSON	GIBSON	0.17
HAMLET	HAMLET	1.57
NEWTON	NEWTON	1.21
NYISO	NYISO	0.3
PRAIRIE	PRAIRIE	2.52
SANTEETLA	SANTEETLA	0.22
SMITHLAND	SMITHLAND	0.22
TATANKA	TATANKA	0.57
TILTON	TILTON	0.5
TRIMBLE	TRIMBLE	0.44
TVA	TVA	2.27
UNIONPOWER	UNIONPOWER	1.13
VFT	VFT	1.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703603	314563	6CLUBHSE	DVP	314562	3CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	208.6	108.38	128.82	DC	42.65

Bus #	Bus	MW Impact
315139	1GASTONA	2.86
315141	1GASTONB	2.86
923851	AB2-025 C	0.2
923852	AB2-025 E	0.75
924511	AB2-100 C	14.29
924512	AB2-100 E	7.04
926071	AC1-086 C	26.38
926072	AC1-086 E	12.01
930861	AB1-132 C O1	2.18
930862	AB1-132 E O1	7.68
934233	AD1-050 BAT	5.54
939071	AE1-135 C O1	25.59
939072	AE1-135 E O1	17.06
940481	AE2-033 C	11.96
940482	AE2-033 E	8.07
940662	AE2-053 BAT	2.38
942471	AE2-260 C O2	17.64
942472	AE2-260 E O2	25.01
BLUEG	BLUEG	1.94
CALDERWOOD	CALDERWOOD	0.41
CANNELTON	CANNELTON	0.13
CATAWBA	CATAWBA	0.4
CBM-N	CBM-N	0.15
CHEOAH	CHEOAH	0.39
CHILHOWEE	CHILHOWEE	0.13
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	1.37
DUCKCREEK	DUCKCREEK	0.46
EDWARDS	EDWARDS	0.21
ELMERSMITH	ELMERSMITH	0.24
FARMERCITY	FARMERCITY	0.16
G-007A	G-007A	0.58
GIBSON	GIBSON	0.08
HAMLET	HAMLET	0.78
NEWTON	NEWTON	0.59
NYISO	NYISO	0.63
PRAIRIE	PRAIRIE	1.25
SANTEETLA	SANTEETLA	0.11
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.28
TILTON	TILTON	0.24

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.21
TVA	TVA	1.15
UNIONPOWER	UNIONPOWER	0.57
VFT	VFT	1.54

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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
8057968	314569	6EARLEYS	DVP	314575	6NUCO TP	DVP	1	DVP_P1-2: LN 2092	single	571.52	124.22	125.65	DC	8.16

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPL	CPL	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

13.5.22 Index 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
8233577	314574	6EVERETS	DVP	936530	AD2-068 TAP	DVP	1	DVP_P7-1: LN 2058-2181	tower	485.0	174.35	175.97	DC	17.38

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL C	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGE CMA	8.55
315132	1EDGE CMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O2	12.8
940522	AE2-037 E O2	6.19
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942371	AE2-250 C O2	4.5
942372	AE2-250 E O2	2.37
942471	AE2-260 C O2	7.19
942472	AE2-260 E O2	10.19
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

13.5.23 Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058021	314575	6NUCO TP	DVP	919140	AA1-138 TAP	DVP	1	DVP_P1-2: LN 2092	single	571.52	117.84	119.27	DC	8.16

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPL	CPL	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

13.5.24 Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058264	314579	6HORNRTN	DVP	934330	AD1-057 TAP	DVP	1	DVP_P1-2: LN 238-B	single	441.8	121.61	127.63	DC	26.59

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.59
315126	1ROARAP2	1.2
315128	1ROARAP4	1.15
315136	1ROSEMG1	3.99
315137	1ROSEMS1	2.47
315138	1ROSEMG2	1.87
315139	1GASTONA	4.78
315141	1GASTONB	4.78
315150	1BUGGS 1	4.52
315151	1BUGGS 2	4.52
315158	1KERR 1	0.13
315159	1KERR 2	0.55
315160	1KERR 3	0.54
315161	1KERR 4	0.54
315162	1KERR 5	0.54
315163	1KERR 6	0.54
315164	1KERR 7	0.54
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.11
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.25
923911	AB2-031 C O1	3.11
923991	AB2-040 C O1	1.24
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.5
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.36
924501	AB2-099 C	0.33
924511	AB2-100 C	21.77
925171	AB2-174 C O1	10.05
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.04
926071	AC1-086 C	44.1

Bus #	Bus	MW Impact
930861	AB1-132 C O1	3.65
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38
933991	AD1-023 C	4.49
934201	AD1-047 C	11.13
934231	AD1-050 C	3.0
934521	AD1-076 C	16.11
936261	AD2-033 C	5.0
936361	AD2-046 C O1	4.59
936401	AD2-051 C O1	4.71
936481	AD2-063 C O1	6.38
936711	AD2-090 C O1	4.16
937571	AD2-169 C	13.44
938171	AE1-026 C1 O	10.29
938172	AE1-026 C2 O	1.49
938221	AE1-035 C	1.06
938771	AE1-103 C O1	1.63
939071	AE1-135 C O1	38.52
939181	AE1-148 C O1	4.5
939371	AE1-168 C	4.69
940241	AE2-006	0.18
940481	AE2-033 C	28.57
940661	AE2-053	1.68
941541	AE2-151 C	0.58
942371	AE2-250 C O2	13.96
942451	AE2-258	1.09
942471	AE2-260 C O2	26.59
942711	AE2-287 C O2	14.61
943171	AE2-346 C	1.0
BLUEG	BLUEG	3.44
CALDERWOOD	CALDERWOOD	0.68
CANNELTON	CANNELTON	0.23
CARR	CARR	0.0
CATAWBA	CATAWBA	0.66
CHEOAH	CHEOAH	0.64
CHILHOWEE	CHILHOWEE	0.22
COFFEEN	COFFEEN	0.4
COTTONWOOD	COTTONWOOD	2.3
DUCKCREEK	DUCKCREEK	0.82
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.41
FARMERCITY	FARMERCITY	0.29
G-007A	G-007A	0.11
GIBSON	GIBSON	0.15
HAMLET	HAMLET	1.33
NEWTON	NEWTON	1.04
PRAIRIE	PRAIRIE	2.16
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.19
SMITHLAND	SMITHLAND	0.19
TATANKA	TATANKA	0.49
TILTON	TILTON	0.44

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.38
TVA	TVA	1.93
UNIONPOWER	UNIONPOWER	0.95
VFT	VFT	0.27

13.5.25 Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8057780	314583	6LAKEVEW	DVP	314561	6CAROLNA	DVP	1	DVP_P1-2: LN 238-A	single	375.06	134.52	148.15	DC	51.12

Bus #	Bus	MW Impact
315131	1EDGECEMA	10.32
315132	1EDGECEMB	10.32
315136	1ROSEMG1	5.41
315137	1ROSEMS1	3.36
315138	1ROSEMG2	2.53
315139	1GASTONA	8.29
315141	1GASTONB	8.29
917341	Z2-044 C	0.08
924151	AB2-059 C O1	1.09
924511	AB2-100 C	41.41
925591	AC1-034 C	5.77
926071	AC1-086 C	76.46
930401	AB1-081 C O1	0.92
930861	AB1-132 C O1	6.33
934233	AD1-050 BAT	4.08
934331	AD1-057 C O1	22.7
936701	AD2-089 C	4.8
938174	AE1-026 CBAT	1.68
939071	AE1-135 C O1	74.18
940571	AE2-044 C	3.78
941951	AE2-207	2.44
942471	AE2-260 C O2	51.12
CARR	CARR	0.09
CBM-S1	CBM-S1	2.39
CBM-S2	CBM-S2	2.9
CBM-W1	CBM-W1	2.35
CBM-W2	CBM-W2	15.56
CIN	CIN	1.06
CPLE	CPLE	1.59
IPL	IPL	0.66
LGEE	LGEE	0.3
MEC	MEC	2.38
MECS	MECS	0.98
RENSSELAER	RENSSELAER	0.07
WEC	WEC	0.28

13.5.26 Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058411	314591	6NASH	DVP	304226	6PA-RMOUNT#4	CPL	1	DVP_P1-2: LN 2058	single	470.0	118.81	120.93	DC	10.01

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.13
315115	1S HAMPT1	0.55
315126	1ROARAP2	0.82
315128	1ROARAP4	0.79
315131	1EDGECEMA	25.25
315132	1EDGECEMB	25.25
315136	1ROSEMG1	2.14
315137	1ROSEMS1	1.33
315138	1ROSEMG2	1.0
315139	1GASTONA	2.57
315141	1GASTONB	2.57
315292	1DOMTR78	0.6
315293	1DOMTR9	0.49
315294	1DOMTR10	0.88
901081	W1-029 C	0.25
916041	Z1-036 C	0.3
917331	Z2-043 C	0.23
917341	Z2-044 C	0.21
917511	Z2-088 C OP1	1.49
918491	AA1-063AC OP	0.8
918511	AA1-065 C OP	0.74
918531	AA1-067 C	0.15
918561	AA1-072 C	0.03
919691	AA2-053 C	0.84
919701	AA2-057 C	8.3
920041	AA2-088 C OP	0.47
920591	AA2-165 C	0.14
920671	AA2-174 C	0.04
920691	AA2-178 C	0.55
923801	AB2-015 C O1	4.03
923851	AB2-025 C	0.12
923911	AB2-031 C O1	1.64
923991	AB2-040 C O1	0.66
924151	AB2-059 C O1	2.1
924401	AB2-089 C	0.74
924491	AB2-098 C	0.41
924501	AB2-099 C	0.41
924511	AB2-100 C	8.56
925121	AB2-169 C	0.5
925171	AB2-174 C O1	5.03

Bus #	Bus	MW Impact
925591	AC1-034 C	11.15
925781	AC1-054 C O1	2.89
926071	AC1-086 C	23.71
926201	AC1-098 C	6.04
926211	AC1-099 C	2.02
927021	AC1-189 C	9.92
927141	AC1-208 C	9.24
930401	AB1-081 C O1	1.78
930861	AB1-132 C O1	1.96
931231	AB1-173 C	0.2
931241	AB1-173AC	0.2
932631	AC2-084 C	8.61
933991	AD1-023 C	7.55
934201	AD1-047 C	5.89
934231	AD1-050 C	1.64
934331	AD1-057 C O1	20.2
934521	AD1-076 C	29.35
936401	AD2-051 C O1	6.26
936701	AD2-089 C	14.33
936711	AD2-090 C O1	3.77
937571	AD2-169 C	7.54
938171	AE1-026 C1 O	16.65
938172	AE1-026 C2 O	2.41
938221	AE1-035 C	1.51
938661	AE1-088	2.09
938771	AE1-103 C O1	1.59
939071	AE1-135 C O1	14.38
940481	AE2-033 C	7.2
940491	AE2-034 C	3.96
940521	AE2-037 C O2	5.57
940571	AE2-044 C	7.3
941501	AE2-147 C	4.73
941541	AE2-151 C	0.78
941951	AE2-207	4.72
942371	AE2-250 C O2	6.07
942471	AE2-260 C O2	10.01
942711	AE2-287 C O2	6.34
942851	AE2-304 C	0.21
943171	AE2-346 C	1.23
BLUEG	BLUEG	6.03
CALDERWOOD	CALDERWOOD	1.22
CANNELTON	CANNELTON	0.41
CATAWBA	CATAWBA	1.19
CBM-N	CBM-N	0.13
CHEOAH	CHEOAH	1.14
CHILHOWEE	CHILHOWEE	0.4
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	4.09
DUCKCREEK	DUCKCREEK	1.44
EDWARDS	EDWARDS	0.64
ELMERSMITH	ELMERSMITH	0.72
FARMERCITY	FARMERCITY	0.5

Bus #	Bus	MW Impact
G-007A	G-007A	0.66
GIBSON	GIBSON	0.26
HAMLET	HAMLET	2.34
NEWTON	NEWTON	1.82
NYISO	NYISO	0.55
PRAIRIE	PRAIRIE	3.81
SANTEETLA	SANTEETLA	0.34
SMITHLAND	SMITHLAND	0.34
TATANKA	TATANKA	0.86
TILTON	TILTON	0.76
TRIMBLE	TRIMBLE	0.66
TVA	TVA	3.43
UNIONPOWER	UNIONPOWER	1.7
VFT	VFT	1.75

13.5.27 Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703395	314903	8CHCKAHM	DVP	314908	8ELMONT	DVP	1	DVP_P4-2: 563T576	breaker	3144.0	149.25	149.86	DC	45.7

Bus #	Bus	MW Impact
314189	6PAPERMILL	10.92
314421	6WINCHST	0.2
314539	3UNCAMP	3.89
314541	3WATKINS	1.08
314557	3BETHELC	1.07
314566	3CRESWEL	3.91
314572	3EMPORIA	0.55
314574	6EVERETS	5.91
314578	3HORNRTN	4.47
314582	3KELFORD	5.02
314594	6PLYMOTH	1.35
314603	3SCOT NK	4.59
314617	3TUNIS	1.25
314620	6CASHIE	1.31
314623	3WITAKRS	1.75
314648	6SUNBURY	1.55
314651	6WINFALL	3.05
315073	1STONECA	8.69
315074	1HOPCGN1	10.48
315075	1HOPCGN2	10.35
315090	1YORKTN1	53.4
315091	1YORKTN2	55.41
315092	1YORKTN3	32.37
315110	1ELIZAR3	4.4
315233	1SURRY 2	39.04
900672	V4-068 E	0.45
901082	W1-029 E	79.86
907092	X1-038 E	9.73
913392	Y1-086 E	3.88
916042	Z1-036 E	77.45
916192	Z1-068 E	3.41
916302	Z1-086 E	13.6
917122	Z2-027 E	1.86
917332	Z2-043 E	1.43
917342	Z2-044 E	0.75
917512	Z2-088 E OP1	5.36
918492	AA1-063AE OP	5.6
918512	AA1-065 E OP	6.64
918532	AA1-067 E	1.04
918562	AA1-072 E	0.24
919152	AA1-139 E	11.54

Bus #	Bus	MW Impact
919692	AA2-053 E	5.16
919701	AA2-057 C	9.37
919702	AA2-057 E	4.68
920042	AA2-088 E OP	15.93
920592	AA2-165 E	0.62
920672	AA2-174 E	0.6
920692	AA2-178 E	6.7
923801	AB2-015 C O1	13.7
923802	AB2-015 E O1	11.23
923832	AB2-022 E	2.19
923842	AB2-024 E	1.84
923852	AB2-025 E	1.44
923911	AB2-031 C O1	2.98
923912	AB2-031 E O1	1.47
923992	AB2-040 E O1	8.0
924241	AB2-068 O1	618.92
924491	AB2-098 C	0.81
924492	AB2-098 E	0.35
924501	AB2-099 C	0.87
924502	AB2-099 E	0.37
924511	AB2-100 C	15.3
924512	AB2-100 E	7.54
924812	AB2-134 E O1	18.08
925061	AB2-161 C O1	5.11
925062	AB2-161 E O1	8.34
925122	AB2-169 E	8.78
925171	AB2-174 C O1	9.31
925172	AB2-174 E O1	8.42
925331	AB2-190 C	29.13
925332	AB2-190 E	12.48
925522	AC1-027 E	2.08
925861	AC1-065 C	5.36
925862	AC1-065 E	8.74
926071	AC1-086 C	28.08
926072	AC1-086 E	12.78
926201	AC1-098 C	8.43
926202	AC1-098 E	5.02
926211	AC1-099 C	2.82
926212	AC1-099 E	1.66
926291	AC1-107 O1	934.22
926662	AC1-147 E	2.4
926751	AC1-161 C O1	59.4
926752	AC1-161 E O1	25.36
926781	AC1-164 C	67.85
926782	AC1-164 E	30.48
927021	AC1-189 C	12.06
927022	AC1-189 E	6.01
927141	AC1-208 C	12.15
927142	AC1-208 E	5.4
927221	AC1-216 C O1	14.53
927222	AC1-216 E O1	11.43
930862	AB1-132 E O1	8.17

Bus #	Bus	MW Impact
931232	AB1-173 E	1.4
931242	AB1-173AE	1.4
932041	AC2-012 C	18.52
932042	AC2-012 E	30.22
932532	AC2-073 E	1.95
932581	AC2-078 C O1	5.5
932582	AC2-078 E O1	8.98
932591	AC2-079 C O1	9.24
932592	AC2-079 E O1	15.07
932631	AC2-084 C	12.01
932632	AC2-084 E	5.92
932831	AC2-110 C	2.14
932832	AC2-110 E	3.5
933061	AC2-130	3.09
933262	AC2-137 E	1.87
933291	AC2-141 C	59.4
933292	AC2-141 E	25.36
933732	AC2-196 E	2.17
933991	AD1-023 C	20.53
933992	AD1-023 E	11.18
934011	AD1-025 C	24.98
934012	AD1-025 E	14.8
934061	AD1-033 C	13.67
934062	AD1-033 E	9.11
934141	AD1-041 C	8.47
934142	AD1-041 E	5.65
934201	AD1-047 C	10.67
934202	AD1-047 E	7.11
934331	AD1-057 C O1	13.14
934332	AD1-057 E O1	7.01
934392	AD1-063 E	1.75
934521	AD1-076 C	86.19
934522	AD1-076 E	43.89
934571	AD1-082 C	11.65
934572	AD1-082 E	6.64
935112	AD1-144 E	1.67
935161	AD1-151 C O1	23.41
935162	AD1-151 E O1	15.6
935212	AD1-156 E	1.72
936041	AD2-007	2.65
936051	AD2-008 C	4.35
936052	AD2-008 E	9.47
936151	AD2-021	0.33
936241	AD2-030 C	3.71
936242	AD2-030 E	1.9
936301	AD2-039 C	2.14
936302	AD2-039 E	3.5
936391	AD2-049 C	3.25
936392	AD2-049 E	3.25
936401	AD2-051 C O1	12.9
936402	AD2-051 E O1	5.54
936531	AD2-068 C	6.81

Bus #	Bus	MW Impact
936532	AD2-068 E	3.51
936591	AD2-074 C	7.44
936592	AD2-074 E	12.13
936661	AD2-085 C	5.52
936662	AD2-085 E	9.01
936701	AD2-089 C	9.66
936702	AD2-089 E	6.44
936711	AD2-090 C O1	11.18
936712	AD2-090 E O1	7.45
937221	AD2-160 C O1	10.56
937222	AD2-160 E O1	5.54
937251	AD2-164	8.85
937541	AD2-215 C	3.08
937542	AD2-215 E	1.64
937571	AD2-169 C	13.36
937572	AD2-169 E	8.91
938031	AE1-004 C	2.14
938032	AE1-004 E	3.5
938171	AE1-026 C1 O	43.41
938172	AE1-026 C2 O	6.28
938173	AE1-026 E O1	13.11
938181	AE1-027 C	4.25
938182	AE1-027 E	2.24
938191	AE1-028 C	2.46
938192	AE1-028 E	1.43
938221	AE1-035 C	3.37
938222	AE1-035 E	1.66
938491	AE1-068 C O1	86.81
938492	AE1-068 E O1	47.95
938501	AE1-069 C O1	67.88
938502	AE1-069 E O1	38.81
938531	AE1-072 C O1	31.48
938532	AE1-072 E O1	16.41
938631	AE1-085 C O1	14.98
938632	AE1-085 E O1	9.99
938661	AE1-088	2.66
938771	AE1-103 C O1	5.84
938772	AE1-103 E O1	8.06
939071	AE1-135 C O1	27.43
939072	AE1-135 E O1	18.28
939191	AE1-149 C O1	14.15
939192	AE1-149 E O1	9.43
939241	AE1-155 C	19.7
939242	AE1-155 E	13.14
939311	AE1-162 C	3.67
939312	AE1-162 E	2.45
939411	AE1-173 C	146.7
939412	AE1-173 E	97.8
939421	AE1-174 C	0.66
939422	AE1-174 E	1.0
939431	AE1-175 C	4.42
939432	AE1-175 E	2.19

Bus #	Bus	MW Impact
939611	AE1-191 C	16.95
939612	AE1-191 E	11.3
940061	AE1-248 C O1	24.21
940062	AE1-248 E O1	16.14
940071	AE1-249 C	2.83
940072	AE1-249 E	2.11
940231	AE2-005 C	2.14
940232	AE2-005 E	3.5
940251	AE2-007	315.17
940471	AE2-031 C O2	46.6
940472	AE2-031 E O2	31.06
940481	AE2-033 C	20.66
940482	AE2-033 E	13.93
940491	AE2-034 C	13.67
940492	AE2-034 E	5.86
940521	AE2-037 C O2	11.64
940522	AE2-037 E O2	5.63
940541	AE2-040	3.65
940551	AE2-041	11.68
940641	AE2-051 C O2	21.21
940642	AE2-051 E O2	14.14
940651	AE2-052	4.74
940891	AE2-078 C	3.95
940892	AE2-078 E	2.04
940901	AE2-079 C	3.95
940902	AE2-079 E	2.04
940911	AE2-080 C	3.95
940912	AE2-080 E	2.04
941031	AE2-094 C	56.92
941032	AE2-094 E	25.5
941101	AE2-104 C O2	6.23
941102	AE2-104 E O2	9.89
941281	AE2-122 C O2	51.65
941282	AE2-122 E O2	208.43
941291	AE2-123 C O2	53.08
941292	AE2-123 E O2	207.0
941301	AE2-124 C O2	48.27
941302	AE2-124 E O2	211.81
941501	AE2-147 C	27.54
941502	AE2-147 E	18.36
941541	AE2-151 C	1.6
941542	AE2-151 E	0.86
941591	AE2-156	32.42
941601	AE2-157 C O2	15.89
941602	AE2-157 E O2	10.59
942131	AE2-225 C	3.79
942132	AE2-225 E	2.53
942171	AE2-229 C	3.79
942172	AE2-229 E	2.53
942211	AE2-233 C	18.6
942212	AE2-233 E	7.23
942341	AE2-247 C	2.39

Bus #	Bus	MW Impact
942342	AE2-247 E	3.31
942371	AE2-250 C O2	11.9
942372	AE2-250 E O2	6.28
942401	AE2-253 C	11.11
942402	AE2-253 E	4.99
942471	AE2-260 C O2	18.9
942472	AE2-260 E O2	26.81
942531	AE2-268 C	2.8
942532	AE2-268 E	1.57
942551	AE2-270	39.04
942851	AE2-304 C	1.08
942852	AE2-304 E	0.42
942921	AE2-311 C O2	73.35
942922	AE2-311 E O2	48.9
942931	AE2-313 C	51.18
942932	AE2-313 E	34.12
943171	AE2-346 C	2.6
943172	AE2-346 E	1.11
AA2-074	AA2-074	6.77
CARR	CARR	1.34
CBM-S1	CBM-S1	13.6
CBM-S2	CBM-S2	18.72
CBM-W1	CBM-W1	9.58
CBM-W2	CBM-W2	84.63
CIN	CIN	4.59
CPL	CPL	9.95
G-007	G-007	4.29
IPL	IPL	2.81
LGEE	LGEE	1.34
MEC	MEC	11.54
MECS	MECS	2.37
O-066	O-066	27.32
RENSSELAER	RENSSELAER	1.06
WEC	WEC	1.21

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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
7703331	314908	8ELMONT	DVP	314911	8LADYSMITH	DVP	1	DVP_P4-2: WT576	breaker	3351.0	158.62	159.39	DC	56.99

Bus #	Bus	MW Impact
314189	6PAPERMILL	12.1
314229	6MT RD221	0.17
314236	6NRTHEST	0.26
314309	6IRON208	0.62
314539	3UNCAMP	4.19
314541	3WATKINS	1.18
314566	3CRESWEL	4.12
314572	3EMPORIA	0.68
314594	6PLYMOTH	1.44
314617	3TUNIS	1.39
314620	6CASHIE	1.42
314648	6SUNBURY	1.57
314651	6WINFALL	3.1
315053	1BELMED1	31.49
315054	1BELMED2	31.49
315055	1BELMED3	26.13
315058	1CHESTF3	33.44
315059	1CHESTF4	54.21
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	3.59
315070	1DARBY 4	3.6
315073	1STONECA	12.79
315074	1HOPCGN1	15.42
315075	1HOPCGN2	15.22
315083	1SPRUNCA	19.06
315084	1SPRUNCB	19.06
315085	1SPRUNCC	14.13
315086	1SPRUNCD	14.13
315090	1YORKTN1	53.17
315091	1YORKTN2	55.18
315233	1SURRY 2	34.93
900672	V4-068 E	0.5
901082	W1-029 E	81.18
907092	X1-038 E	10.47
913392	Y1-086 E	3.91

Bus #	Bus	MW Impact
916042	Z1-036 E	79.67
916192	Z1-068 E	3.39
916302	Z1-086 E	14.62
917122	Z2-027 E	1.88
918512	AA1-065 E OP	7.32
919152	AA1-139 E	11.5
920042	AA2-088 E OP	17.7
920692	AA2-178 E	7.05
923801	AB2-015 C O1	14.82
923802	AB2-015 E O1	12.16
923832	AB2-022 E	2.2
923842	AB2-024 E	2.04
923852	AB2-025 E	1.86
924241	AB2-068 O1	427.46
924501	AB2-099 C	0.97
924502	AB2-099 E	0.41
924511	AB2-100 C	19.0
924512	AB2-100 E	9.36
924812	AB2-134 E O1	22.53
925051	AB2-160 C O1	9.87
925052	AB2-160 E O1	16.11
925061	AB2-161 C O1	6.05
925062	AB2-161 E O1	9.87
925122	AB2-169 E	9.62
925331	AB2-190 C	37.04
925332	AB2-190 E	15.88
925522	AC1-027 E	2.07
925861	AC1-065 C	6.02
925862	AC1-065 E	9.82
926291	AC1-107 O1	645.22
926411	AC1-112 C	0.47
926412	AC1-112 E	2.15
926662	AC1-147 E	2.4
926751	AC1-161 C O1	55.45
926752	AC1-161 E O1	23.67
926781	AC1-164 C	77.55
926782	AC1-164 E	34.84
927041	AC1-191 C O1	17.0
927042	AC1-191 E O1	8.47
927221	AC1-216 C O1	18.1
927222	AC1-216 E O1	14.24
930121	AB1-027 C	0.6
930122	AB1-027 E	2.11
932041	AC2-012 C	18.45
932042	AC2-012 E	30.11
932501	AC2-070 C	0.39
932502	AC2-070 E	1.34
932532	AC2-073 E	2.15
932581	AC2-078 C O1	7.31
932582	AC2-078 E O1	11.92
932591	AC2-079 C O1	10.25
932592	AC2-079 E O1	16.72

Bus #	Bus	MW Impact
932831	AC2-110 C	2.41
932832	AC2-110 E	3.93
933061	AC2-130	4.5
933261	AC2-137 C	0.48
933262	AC2-137 E	2.58
933291	AC2-141 C	55.45
933292	AC2-141 E	23.67
933732	AC2-196 E	2.15
933991	AD1-023 C	22.13
933992	AD1-023 E	12.05
934011	AD1-025 C	31.12
934012	AD1-025 E	18.43
934061	AD1-033 C	13.54
934062	AD1-033 E	9.02
934141	AD1-041 C	9.39
934142	AD1-041 E	6.26
934211	AD1-048 C	0.56
934212	AD1-048 E	2.32
934392	AD1-063 E	1.93
934521	AD1-076 C	92.19
934522	AD1-076 E	46.94
934571	AD1-082 C	13.79
934572	AD1-082 E	7.87
935112	AD1-144 E	1.7
935161	AD1-151 C O1	29.77
935162	AD1-151 E O1	19.84
935212	AD1-156 E	2.52
936041	AD2-007	3.3
936051	AD2-008 C	5.42
936052	AD2-008 E	11.79
936151	AD2-021	0.45
936241	AD2-030 C	4.04
936242	AD2-030 E	2.06
936301	AD2-039 C	2.41
936302	AD2-039 E	3.93
936391	AD2-049 C	3.3
936392	AD2-049 E	3.3
936401	AD2-051 C O1	14.41
936402	AD2-051 E O1	6.19
936661	AD2-085 C	6.15
936662	AD2-085 E	10.04
936711	AD2-090 C O1	12.24
936712	AD2-090 E O1	8.16
937221	AD2-160 C O1	10.5
937222	AD2-160 E O1	5.51
937251	AD2-164	8.88
937541	AD2-215 C	3.15
937542	AD2-215 E	1.67
938031	AE1-004 C	2.41
938032	AE1-004 E	3.93
938171	AE1-026 C1 O	47.0
938172	AE1-026 C2 O	6.8

Bus #	Bus	MW Impact
938173	AE1-026 E O1	14.19
938181	AE1-027 C	4.21
938182	AE1-027 E	2.22
938191	AE1-028 C	2.44
938192	AE1-028 E	1.41
938221	AE1-035 C	3.72
938222	AE1-035 E	1.83
938491	AE1-068 C O1	93.04
938492	AE1-068 E O1	51.38
938501	AE1-069 C O1	72.97
938502	AE1-069 E O1	41.72
938531	AE1-072 C O1	31.41
938532	AE1-072 E O1	16.37
938551	AE1-074 C	4.27
938552	AE1-074 E	2.15
938631	AE1-085 C O1	19.6
938632	AE1-085 E O1	13.06
938661	AE1-088	2.91
938771	AE1-103 C O1	6.28
938772	AE1-103 E O1	8.67
939071	AE1-135 C O1	34.22
939072	AE1-135 E O1	22.82
939191	AE1-149 C O1	19.25
939192	AE1-149 E O1	12.83
939311	AE1-162 C	3.92
939312	AE1-162 E	2.61
939411	AE1-173 C	149.08
939412	AE1-173 E	99.39
939421	AE1-174 C	0.68
939422	AE1-174 E	1.02
939431	AE1-175 C	4.54
939432	AE1-175 E	2.25
939611	AE1-191 C	18.78
939612	AE1-191 E	12.52
939751	AE1-206 C O1	50.17
939752	AE1-206 E O1	33.45
940061	AE1-248 C O1	28.67
940062	AE1-248 E O1	19.11
940071	AE1-249 C	13.02
940072	AE1-249 E	9.71
940231	AE2-005 C	2.41
940232	AE2-005 E	3.93
940251	AE2-007	313.3
940431	AE2-027 C O2	23.31
940432	AE2-027 E O2	15.54
940471	AE2-031 C O2	50.13
940472	AE2-031 E O2	33.42
940481	AE2-033 C	26.48
940482	AE2-033 E	17.85
940491	AE2-034 C	14.4
940492	AE2-034 E	6.17
940541	AE2-040	5.76

Bus #	Bus	MW Impact
940551	AE2-041	12.87
940641	AE2-051 C O2	27.88
940642	AE2-051 E O2	18.58
940651	AE2-052	6.45
940891	AE2-078 C	4.35
940892	AE2-078 E	2.24
940901	AE2-079 C	4.35
940902	AE2-079 E	2.24
940911	AE2-080 C	4.35
940912	AE2-080 E	2.24
941031	AE2-094 C	60.67
941032	AE2-094 E	27.17
941101	AE2-104 C O2	6.27
941102	AE2-104 E O2	9.97
941281	AE2-122 C O2	51.27
941282	AE2-122 E O2	206.9
941291	AE2-123 C O2	52.69
941292	AE2-123 E O2	205.48
941301	AE2-124 C O2	47.93
941302	AE2-124 E O2	210.32
941501	AE2-147 C	27.99
941502	AE2-147 E	18.66
941541	AE2-151 C	1.79
941542	AE2-151 E	0.96
941581	AE2-155 C	1.23
941582	AE2-155 E	0.53
941591	AE2-156	32.43
941601	AE2-157 C O2	19.13
941602	AE2-157 E O2	12.75
942001	AE2-212 C	3.9
942002	AE2-212 E	2.6
942131	AE2-225 C	3.82
942132	AE2-225 E	2.55
942151	AE2-227 C O2	4.07
942152	AE2-227 E O2	2.71
942161	AE2-228 C O2	3.94
942162	AE2-228 E O2	2.63
942171	AE2-229 C	3.82
942172	AE2-229 E	2.55
942211	AE2-233 C	19.82
942212	AE2-233 E	7.7
942341	AE2-247 C	2.67
942342	AE2-247 E	3.68
942371	AE2-250 C O2	14.77
942372	AE2-250 E O2	7.79
942401	AE2-253 C	11.05
942402	AE2-253 E	4.96
942471	AE2-260 C O2	23.57
942472	AE2-260 E O2	33.43
942531	AE2-268 C	3.08
942532	AE2-268 E	1.73
942551	AE2-270	49.64

Bus #	Bus	MW Impact
942851	AE2-304 C	1.11
942852	AE2-304 E	0.43
942921	AE2-311 C O2	74.54
942922	AE2-311 E O2	49.69
942931	AE2-313 C	54.81
942932	AE2-313 E	36.54
943171	AE2-346 C	2.9
943172	AE2-346 E	1.24
AA2-074	AA2-074	8.66
CARR	CARR	2.6
CBM-S1	CBM-S1	26.71
CBM-S2	CBM-S2	26.05
CBM-W1	CBM-W1	27.99
CBM-W2	CBM-W2	174.33
CIN	CIN	13.06
CPLE	CPLE	12.73
G-007	G-007	8.75
IPL	IPL	8.23
LGEE	LGEE	3.85
MEC	MEC	27.8
MECS	MECS	11.67
O-066	O-066	55.56
RENSSELAER	RENSSELAER	2.06
WEC	WEC	3.43
Z1-043	Z1-043	13.49

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703640	314911	8LADYSMITH	DVP	314905	8CHANCE	DVP	1	DVP_P4-2: XT573	breaker	3351.0	122.16	122.51	DC	36.12

Bus #	Bus	MW Impact
314189	6PAPERMILL	7.58
314229	6MT RD221	0.11
314250	6ROCKVILLE	0.29
314539	3UNCAMP	2.61
314541	3WATKINS	0.73
314566	3CRESWEL	2.56
314594	6PLYMOTH	0.9
314648	6SUNBURY	0.97
314651	6WINFALL	1.92
315039	1LDYSMT3	4.15
315040	1LDYSMT4	4.16
315041	1LDYSMT5	4.17
315043	1FOUR RIVERA	3.1
315044	1FOUR RIVERB	2.4
315045	1FOUR RIVERC	3.1
315046	1FOUR RIVERD	2.4
315047	1FOUR RIVERE	2.4
315048	1FOUR RIVERF	3.09
315053	1BELMED1	19.91
315054	1BELMED2	19.91
315055	1BELMED3	16.52
315058	1CHESTF3	20.9
315059	1CHESTF4	33.89
315073	1STONECA	7.95
315074	1HOPCGN1	9.58
315075	1HOPCGN2	9.46
315083	1SPRUNCA	12.19
315084	1SPRUNCB	12.19
315085	1SPRUNCC	9.03
315086	1SPRUNCD	9.03
315090	1YORKTN1	32.52
315091	1YORKTN2	33.75
315225	1N ANNA1	31.8
315226	1N ANNA2	31.87
901082	W1-029 E	50.4
907092	X1-038 E	6.52
913392	Y1-086 E	2.42
916042	Z1-036 E	49.47
916192	Z1-068 E	2.1
916302	Z1-086 E	9.57
917122	Z2-027 E	1.17
919152	AA1-139 E	7.13

Bus #	Bus	MW Impact
919211	AA1-145	8.95
920692	AA2-178 E	4.38
923801	AB2-015 C O1	9.24
923802	AB2-015 E O1	7.58
923832	AB2-022 E	1.37
923842	AB2-024 E	1.27
923852	AB2-025 E	1.19
924061	AB2-050	0.53
924241	AB2-068 O1	231.57
924511	AB2-100 C	12.03
924512	AB2-100 E	5.93
924812	AB2-134 E O1	13.97
925051	AB2-160 C O1	6.22
925052	AB2-160 E O1	10.15
925061	AB2-161 C O1	3.79
925062	AB2-161 E O1	6.18
925331	AB2-190 C	22.97
925332	AB2-190 E	9.84
925522	AC1-027 E	1.28
925861	AC1-065 C	3.85
925862	AC1-065 E	6.28
926291	AC1-107 O1	349.54
926411	AC1-112 C	0.28
926412	AC1-112 E	1.3
926551	AC1-134	1.32
926662	AC1-147 E	1.49
926751	AC1-161 C O1	34.17
926752	AC1-161 E O1	14.59
926781	AC1-164 C	46.54
926782	AC1-164 E	20.91
927041	AC1-191 C O1	11.02
927042	AC1-191 E O1	5.49
927221	AC1-216 C O1	11.22
927222	AC1-216 E O1	8.83
930121	AB1-027 C	0.36
930122	AB1-027 E	1.28
932041	AC2-012 C	11.44
932042	AC2-012 E	18.66
932501	AC2-070 C	0.24
932502	AC2-070 E	0.81
932532	AC2-073 E	1.36
932581	AC2-078 C O1	4.59
932582	AC2-078 E O1	7.49
932591	AC2-079 C O1	6.39
932592	AC2-079 E O1	10.43
932831	AC2-110 C	1.54
932832	AC2-110 E	2.51
933011	AC2-125	3.18
933021	AC2-126	3.2
933061	AC2-130	2.77
933262	AC2-137 E	1.56
933291	AC2-141 C	34.17

Bus #	Bus	MW Impact
933292	AC2-141 E	14.59
933732	AC2-196 E	1.33
934011	AD1-025 C	19.29
934012	AD1-025 E	11.43
934061	AD1-033 C	8.39
934062	AD1-033 E	5.6
934141	AD1-041 C	6.05
934142	AD1-041 E	4.03
934212	AD1-048 E	1.42
934392	AD1-063 E	1.22
934521	AD1-076 C	43.23
934522	AD1-076 E	22.01
934571	AD1-082 C	8.63
934572	AD1-082 E	4.92
935112	AD1-144 E	1.06
935161	AD1-151 C O1	18.46
935162	AD1-151 E O1	12.3
935212	AD1-156 E	1.6
936041	AD2-007	2.05
936051	AD2-008 C	3.36
936052	AD2-008 E	7.31
936151	AD2-021	0.27
936241	AD2-030 C	2.62
936242	AD2-030 E	1.34
936301	AD2-039 C	1.54
936302	AD2-039 E	2.51
936391	AD2-049 C	2.03
936392	AD2-049 E	2.03
936591	AD2-074 C	6.08
936592	AD2-074 E	9.91
936661	AD2-085 C	3.84
936662	AD2-085 E	6.26
936711	AD2-090 C O1	7.64
936712	AD2-090 E O1	5.09
937221	AD2-160 C O1	6.51
937222	AD2-160 E O1	3.42
937251	AD2-164	5.44
937541	AD2-215 C	1.95
937542	AD2-215 E	1.04
938031	AE1-004 C	1.54
938032	AE1-004 E	2.51
938181	AE1-027 C	2.61
938182	AE1-027 E	1.38
938191	AE1-028 C	1.51
938192	AE1-028 E	0.88
938491	AE1-068 C O1	60.97
938492	AE1-068 E O1	33.68
938501	AE1-069 C O1	47.78
938502	AE1-069 E O1	27.32
938531	AE1-072 C O1	19.48
938532	AE1-072 E O1	10.16
938551	AE1-074 C	2.8

Bus #	Bus	MW Impact
938552	AE1-074 E	1.41
938631	AE1-085 C O1	12.31
938632	AE1-085 E O1	8.21
938771	AE1-103 C O1	3.91
938772	AE1-103 E O1	5.4
939071	AE1-135 C O1	21.69
939072	AE1-135 E O1	14.46
939191	AE1-149 C O1	12.11
939192	AE1-149 E O1	8.08
939241	AE1-155 C	16.46
939242	AE1-155 E	10.97
939261	AE1-157 C O1	16.65
939262	AE1-157 E O1	9.03
939271	AE1-158 C O1	16.99
939272	AE1-158 E O1	8.69
939311	AE1-162 C	2.43
939312	AE1-162 E	1.62
939411	AE1-173 C	95.79
939412	AE1-173 E	63.86
939421	AE1-174 C	0.22
939422	AE1-174 E	0.33
939431	AE1-175 C	2.75
939432	AE1-175 E	1.37
939611	AE1-191 C	12.09
939612	AE1-191 E	8.06
939751	AE1-206 C O1	38.93
939752	AE1-206 E O1	25.95
940061	AE1-248 C O1	17.94
940062	AE1-248 E O1	11.96
940071	AE1-249 C	8.21
940072	AE1-249 E	6.12
940231	AE2-005 C	1.54
940232	AE2-005 E	2.51
940251	AE2-007	194.21
940431	AE2-027 C O2	14.72
940432	AE2-027 E O2	9.82
940471	AE2-031 C O2	32.87
940472	AE2-031 E O2	21.91
940481	AE2-033 C	16.88
940482	AE2-033 E	11.38
940491	AE2-034 C	8.95
940492	AE2-034 E	3.84
940541	AE2-040	3.63
940551	AE2-041	8.15
940641	AE2-051 C O2	17.86
940642	AE2-051 E O2	11.91
940651	AE2-052	4.06
940891	AE2-078 C	2.68
940892	AE2-078 E	1.38
940901	AE2-079 C	2.68
940902	AE2-079 E	1.38
940911	AE2-080 C	2.68

Bus #	Bus	MW Impact
940912	AE2-080 E	1.38
941031	AE2-094 C	39.83
941032	AE2-094 E	17.84
941101	AE2-104 C O2	3.89
941102	AE2-104 E O2	6.19
941281	AE2-122 C O2	31.79
941282	AE2-122 E O2	128.28
941291	AE2-123 C O2	32.67
941292	AE2-123 E O2	127.4
941301	AE2-124 C O2	29.72
941302	AE2-124 E O2	130.4
941501	AE2-147 C	17.38
941502	AE2-147 E	11.59
941581	AE2-155 C	0.75
941582	AE2-155 E	0.32
941591	AE2-156	20.1
941601	AE2-157 C O2	11.98
941602	AE2-157 E O2	7.98
942001	AE2-212 C	2.46
942002	AE2-212 E	1.64
942131	AE2-225 C	2.37
942132	AE2-225 E	1.58
942151	AE2-227 C O2	2.53
942152	AE2-227 E O2	1.69
942161	AE2-228 C O2	2.48
942162	AE2-228 E O2	1.65
942171	AE2-229 C	2.37
942172	AE2-229 E	1.58
942191	AE2-231 C O2	6.43
942192	AE2-231 E O2	4.29
942211	AE2-233 C	13.01
942212	AE2-233 E	5.06
942341	AE2-247 C	1.66
942342	AE2-247 E	2.3
942401	AE2-253 C	6.85
942402	AE2-253 E	3.08
942471	AE2-260 C O2	14.93
942472	AE2-260 E O2	21.18
942531	AE2-268 C	1.95
942532	AE2-268 E	1.1
942551	AE2-270	30.78
942851	AE2-304 C	0.69
942852	AE2-304 E	0.27
942921	AE2-311 C O2	47.9
942922	AE2-311 E O2	31.93
942931	AE2-313 C	35.97
942932	AE2-313 E	23.98
AA2-074	AA2-074	5.25
CARR	CARR	1.69
CBM-S1	CBM-S1	12.55
CBM-S2	CBM-S2	15.18
CBM-W1	CBM-W1	8.93

Bus #	Bus	MW Impact
CBM-W2	CBM-W2	77.44
CIN	CIN	4.54
CPLE	CPLE	7.71
G-007	G-007	5.32
IPL	IPL	2.8
LGEE	LGEE	1.37
MEC	MEC	10.8
MECS	MECS	1.94
O-066	O-066	33.94
RENSSELAER	RENSSELAER	1.34
WEC	WEC	1.16

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703732	314924	8SURREY	DVP	314903	8CHCKAHM	DVP	1	DVP_P4-2: 563TS76	breaker	3144.0	107.13	107.59	DC	36.05

Bus #	Bus	MW Impact
314507	3THOMPSON	0.4
314539	3UNCAMP	3.39
314541	3WATKINS	0.94
314554	3BTLEBRO	0.89
314557	3BETHEL	0.94
314566	3CRESWEL	3.49
314572	3EMPORIA	0.45
314574	6EVERETS	5.18
314578	3HORNRTN	3.79
314582	3KELFORD	4.36
314594	6PLYMOTH	1.2
314603	3SCOT NK	3.97
314617	3TUNIS	1.08
314620	6CASHIE	1.16
314623	3WITAKRS	1.52
314648	6SUNBURY	1.39
314651	6WINFALL	2.75
315090	1YORKTN1	39.16
315091	1YORKTN2	40.64
315098	1CHESPKA	0.53
315099	1CHESPKB	1.33
315108	1ELIZAR1	3.95
315109	1ELIZAR2	3.88
315110	1ELIZAR3	4.0
315131	1EDGECEMA	10.3
315132	1EDGECEMB	10.3
315150	1BUGGS 1	10.46
315151	1BUGGS 2	10.46
315233	1SURREY 2	39.31
315260	1GOSPORTA	0.43
315261	1GOSPORTB	0.54
315262	1GOSPORTC	0.46
900672	V4-068 E	0.39
901082	W1-029 E	72.03
907092	X1-038 E	8.47
913392	Y1-086 E	3.53
916042	Z1-036 E	69.67
916191	Z1-068 C	0.05
916192	Z1-068 E	3.11
916302	Z1-086 E	12.39
917122	Z2-027 E	1.69

Bus #	Bus	MW Impact
917332	Z2-043 E	1.24
917342	Z2-044 E	0.65
917512	Z2-088 E OP1	4.68
918492	AA1-063AE OP	4.79
918512	AA1-065 E OP	5.82
918532	AA1-067 E	0.91
918562	AA1-072 E	0.21
919151	AA1-139 C	3.0
919152	AA1-139 E	10.55
919692	AA2-053 E	4.39
919701	AA2-057 C	8.08
919702	AA2-057 E	4.04
920042	AA2-088 E OP	13.76
920592	AA2-165 E	0.53
920672	AA2-174 E	0.51
920692	AA2-178 E	5.98
923801	AB2-015 C O1	11.91
923802	AB2-015 E O1	9.76
923832	AB2-022 E	1.99
923852	AB2-025 E	1.08
923911	AB2-031 C O1	2.45
923912	AB2-031 E O1	1.21
923992	AB2-040 E O1	6.59
924152	AB2-059 E O1	6.03
924401	AB2-089 C	2.14
924402	AB2-089 E	1.1
924491	AB2-098 C	0.71
924492	AB2-098 E	0.3
924501	AB2-099 C	0.75
924502	AB2-099 E	0.32
924511	AB2-100 C	12.14
924512	AB2-100 E	5.98
924812	AB2-134 E O1	10.98
925061	AB2-161 C O1	3.93
925062	AB2-161 E O1	6.41
925122	AB2-169 E	7.76
925171	AB2-174 C O1	7.63
925172	AB2-174 E O1	6.91
925331	AB2-190 C	16.95
925332	AB2-190 E	7.26
925521	AC1-027 C	0.4
925522	AC1-027 E	1.89
925591	AC1-034 C	7.58
925592	AC1-034 E	5.72
925781	AC1-054 C O1	7.33
925782	AC1-054 E O1	3.38
926071	AC1-086 C	23.43
926072	AC1-086 E	10.66
926201	AC1-098 C	7.27
926202	AC1-098 E	4.33
926211	AC1-099 C	2.44
926212	AC1-099 E	1.43

Bus #	Bus	MW Impact
926661	AC1-147 C	0.45
926662	AC1-147 E	2.18
926751	AC1-161 C O1	58.17
926752	AC1-161 E O1	24.83
927021	AC1-189 C	10.56
927022	AC1-189 E	5.26
927141	AC1-208 C	10.43
927142	AC1-208 E	4.63
927221	AC1-216 C O1	8.82
927222	AC1-216 E O1	6.94
930402	AB1-081 E O1	4.26
930862	AB1-132 E O1	6.82
931232	AB1-173 E	1.15
931242	AB1-173AE	1.15
932041	AC2-012 C	16.77
932042	AC2-012 E	27.37
932581	AC2-078 C O1	3.64
932582	AC2-078 E O1	5.95
932591	AC2-079 C O1	7.62
932592	AC2-079 E O1	12.43
932631	AC2-084 C	10.36
932632	AC2-084 E	5.1
933291	AC2-141 C	58.17
933292	AC2-141 E	24.83
933731	AC2-196 C	0.36
933732	AC2-196 E	1.99
933991	AD1-023 C	18.16
933992	AD1-023 E	9.89
934011	AD1-025 C	15.16
934012	AD1-025 E	8.98
934061	AD1-033 C	12.53
934062	AD1-033 E	8.35
934201	AD1-047 C	8.79
934202	AD1-047 E	5.86
934231	AD1-050 C	4.71
934232	AD1-050 E	2.57
934331	AD1-057 C O1	11.2
934332	AD1-057 E O1	5.97
934521	AD1-076 C	76.5
934522	AD1-076 E	38.96
934571	AD1-082 C	8.96
934572	AD1-082 E	5.11
934611	AD1-087 C O1	8.56
934612	AD1-087 E O1	4.02
934621	AD1-088 C	11.73
934622	AD1-088 E	5.51
935112	AD1-144 E	1.43
935161	AD1-151 C O1	13.62
935162	AD1-151 E O1	9.08
935171	AD1-152 C O1	8.51
935172	AD1-152 E O1	5.67
936041	AD2-007	1.61

Bus #	Bus	MW Impact
936051	AD2-008 C	2.64
936052	AD2-008 E	5.75
936361	AD2-046 C O1	8.49
936362	AD2-046 E O1	3.91
936391	AD2-049 C	2.5
936392	AD2-049 E	2.5
936401	AD2-051 C O1	11.23
936402	AD2-051 E O1	4.82
936531	AD2-068 C	6.0
936532	AD2-068 E	3.09
936661	AD2-085 C	4.54
936662	AD2-085 E	7.41
936701	AD2-089 C	8.42
936702	AD2-089 E	5.61
936711	AD2-090 C O1	9.69
936712	AD2-090 E O1	6.46
937221	AD2-160 C O1	9.67
937222	AD2-160 E O1	5.07
937251	AD2-164	6.6
937481	AD2-202 C O1	2.36
937482	AD2-202 E O1	1.19
937541	AD2-215 C	2.65
937542	AD2-215 E	1.41
937571	AD2-169 C	11.08
937572	AD2-169 E	7.39
938171	AE1-026 C1 O	38.33
938172	AE1-026 C2 O	5.54
938173	AE1-026 E O1	11.58
938181	AE1-027 C	3.89
938182	AE1-027 E	2.05
938191	AE1-028 C	2.26
938192	AE1-028 E	1.31
938221	AE1-035 C	2.95
938222	AE1-035 E	1.45
938491	AE1-068 C O1	79.1
938492	AE1-068 E O1	43.69
938501	AE1-069 C O1	61.83
938502	AE1-069 E O1	35.35
938531	AE1-072 C O1	28.74
938532	AE1-072 E O1	14.98
938631	AE1-085 C O1	10.14
938632	AE1-085 E O1	6.76
938661	AE1-088	2.35
938771	AE1-103 C O1	5.08
938772	AE1-103 E O1	7.01
939071	AE1-135 C O1	21.61
939072	AE1-135 E O1	14.41
939181	AE1-148 C O1	8.34
939182	AE1-148 E O1	5.56
939311	AE1-162 C	2.95
939312	AE1-162 E	1.96
939411	AE1-173 C	135.83

Bus #	Bus	MW Impact
939412	AE1-173 E	90.55
939421	AE1-174 C	0.18
939422	AE1-174 E	0.27
939431	AE1-175 C	2.22
939432	AE1-175 E	1.1
940061	AE1-248 C O1	18.62
940062	AE1-248 E O1	12.41
940251	AE2-007	286.38
940471	AE2-031 C O2	42.41
940472	AE2-031 E O2	28.28
940481	AE2-033 C	15.61
940482	AE2-033 E	10.53
940491	AE2-034 C	12.2
940492	AE2-034 E	5.23
940521	AE2-037 C O2	10.21
940522	AE2-037 E O2	4.93
940571	AE2-044 C	4.97
940572	AE2-044 E	2.13
940641	AE2-051 C O2	15.37
940642	AE2-051 E O2	10.25
940661	AE2-053	3.11
940891	AE2-078 C	2.89
940892	AE2-078 E	1.49
940901	AE2-079 C	2.89
940902	AE2-079 E	1.49
940911	AE2-080 C	2.89
940912	AE2-080 E	1.49
941031	AE2-094 C	51.91
941032	AE2-094 E	23.25
941101	AE2-104 C O2	5.59
941102	AE2-104 E O2	8.88
941281	AE2-122 C O2	47.13
941282	AE2-122 E O2	190.19
941291	AE2-123 C O2	48.44
941292	AE2-123 E O2	188.89
941301	AE2-124 C O2	44.02
941302	AE2-124 E O2	193.13
941501	AE2-147 C	24.84
941502	AE2-147 E	16.56
941541	AE2-151 C	1.39
941542	AE2-151 E	0.75
941591	AE2-156	29.17
941601	AE2-157 C O2	11.98
941602	AE2-157 E O2	7.99
941791	AE2-182 C	2.12
941792	AE2-182 E	1.0
941951	AE2-207	3.21
942131	AE2-225 C	3.4
942132	AE2-225 E	2.27
942171	AE2-229 C	3.4
942172	AE2-229 E	2.27
942211	AE2-233 C	16.96

Bus #	Bus	MW Impact
942212	AE2-233 E	6.59
942341	AE2-247 C	1.97
942342	AE2-247 E	2.72
942371	AE2-250 C O2	9.62
942372	AE2-250 E O2	5.08
942401	AE2-253 C	10.17
942402	AE2-253 E	4.57
942471	AE2-260 C O2	14.91
942472	AE2-260 E O2	21.14
942551	AE2-270	22.71
942711	AE2-287 C O2	12.93
942712	AE2-287 E O2	8.62
942851	AE2-304 C	0.98
942852	AE2-304 E	0.38
942921	AE2-311 C O2	67.92
942922	AE2-311 E O2	45.28
942931	AE2-313 C	46.62
942932	AE2-313 E	31.08
943171	AE2-346 C	2.26
943172	AE2-346 E	0.97
AA2-074	AA2-074	6.07
CARR	CARR	1.09
CBM-S1	CBM-S1	13.0
CBM-S2	CBM-S2	16.95
CBM-W1	CBM-W1	10.29
CBM-W2	CBM-W2	81.99
CIN	CIN	4.83
CPL	CPL	8.92
G-007	G-007	3.52
IPL	IPL	2.98
LGEE	LGEE	1.4
MEC	MEC	11.64
MECS	MECS	3.21
O-066	O-066	22.38
RENSSELAER	RENSSELAER	0.86
WEC	WEC	1.28

13.5.31 Index 31

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058032	919140	AA1-138 TAP	DVP	314537	6SUFFOLK	DVP	1	DVP_P1-2: LN 2092	single	571.52	117.82	119.25	DC	8.16

Bus #	Bus	MW Impact
314589	3MURPHYS	0.07
314704	3LAWRENC	0.14
315126	1ROARAP2	0.96
315128	1ROARAP4	0.92
315131	1EDGECEMA	9.42
315132	1EDGECEMB	9.42
315136	1ROSEMG1	1.68
315137	1ROSEMS1	1.04
315138	1ROSEMG2	0.79
315139	1GASTONA	2.37
315141	1GASTONB	2.37
315159	1KERR 2	0.53
315163	1KERR 6	0.52
315164	1KERR 7	0.52
315292	1DOMTR78	2.01
315293	1DOMTR9	1.64
315294	1DOMTR10	2.98
916041	Z1-036 C	1.64
917331	Z2-043 C	0.46
917341	Z2-044 C	0.17
917511	Z2-088 C OP1	1.67
918491	AA1-063AC OP	1.35
918511	AA1-065 C OP	2.38
918531	AA1-067 C	0.36
918561	AA1-072 C	0.07
919691	AA2-053 C	1.22
919701	AA2-057 C	7.67
920041	AA2-088 C OP	0.49
920591	AA2-165 C	0.13
920671	AA2-174 C	0.06
920691	AA2-178 C	2.36
923911	AB2-031 C O1	1.74
923991	AB2-040 C O1	0.7
924151	AB2-059 C O1	1.28
924401	AB2-089 C	1.24
924491	AB2-098 C	0.99
924501	AB2-099 C	0.95
924511	AB2-100 C	7.11
925121	AB2-169 C	1.5
925171	AB2-174 C O1	5.2
925591	AC1-034 C	6.83

Bus #	Bus	MW Impact
925781	AC1-054 C O1	4.49
926071	AC1-086 C	21.84
926201	AC1-098 C	7.82
926211	AC1-099 C	2.62
927021	AC1-189 C	13.69
927141	AC1-208 C	10.08
930401	AB1-081 C O1	1.09
930861	AB1-132 C O1	1.81
931231	AB1-173 C	0.21
931241	AB1-173AC	0.21
932631	AC2-084 C	11.14
933991	AD1-023 C	27.21
934201	AD1-047 C	6.24
934231	AD1-050 C	2.73
934331	AD1-057 C O1	10.32
934521	AD1-076 C	110.71
936401	AD2-051 C O1	15.91
936531	AD2-068 C	6.55
936701	AD2-089 C	9.29
937571	AD2-169 C	8.2
938171	AE1-026 C1 O	58.56
938172	AE1-026 C2 O	8.47
938221	AE1-035 C	4.88
938661	AE1-088	6.3
939071	AE1-135 C O1	11.68
940491	AE2-034 C	16.91
940521	AE2-037 C O2	15.57
940571	AE2-044 C	4.47
941541	AE2-151 C	1.97
941951	AE2-207	2.89
942371	AE2-250 C O2	5.81
942471	AE2-260 C O2	8.16
942711	AE2-287 C O2	6.95
943171	AE2-346 C	2.85
AA2-074	AA2-074	2.73
CARR	CARR	0.19
CBM-S1	CBM-S1	5.98
CBM-S2	CBM-S2	7.05
CBM-W1	CBM-W1	6.2
CBM-W2	CBM-W2	39.24
CIN	CIN	2.78
CPL	CPL	4.02
IPL	IPL	1.74
LGEE	LGEE	0.8
MEC	MEC	6.14
MECS	MECS	2.71
RENSSELAER	RENSSELAER	0.15
WEC	WEC	0.75

13.5.32 Index 32

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8058162	934330	AD1-057 TAP	DVP	313845	6HATHAWAY	DVP	1	DVP_P1-2: LN 238-B	single	441.8	129.9	135.92	DC	26.59

Bus #	Bus	MW Impact
314589	3MURPHYS	0.04
314704	3LAWRENC	0.3
315115	1S HAMPT1	0.59
315126	1ROARAP2	1.2
315128	1ROARAP4	1.15
315136	1ROSEMG1	3.99
315137	1ROSEMS1	2.47
315138	1ROSEMG2	1.87
315139	1GASTONA	4.78
315141	1GASTONB	4.78
315150	1BUGGS 1	4.52
315151	1BUGGS 2	4.52
315158	1KERR 1	0.13
315159	1KERR 2	0.55
315160	1KERR 3	0.54
315161	1KERR 4	0.54
315162	1KERR 5	0.54
315163	1KERR 6	0.54
315164	1KERR 7	0.54
917331	Z2-043 C	0.12
918491	AA1-063AC OP	0.96
918511	AA1-065 C OP	0.52
918561	AA1-072 C	0.02
919691	AA2-053 C	1.11
920041	AA2-088 C OP	0.54
920671	AA2-174 C	0.05
923801	AB2-015 C O1	4.25
923911	AB2-031 C O1	3.11
923991	AB2-040 C O1	1.24
924021	AB2-043 C O1	0.18
924161	AB2-060 C O1	0.5
924301	AB2-077 C O1	0.11
924311	AB2-078 C O1	0.11
924321	AB2-079 C O1	0.11
924401	AB2-089 C	1.36
924501	AB2-099 C	0.33
924511	AB2-100 C	21.77
925171	AB2-174 C O1	10.05
925611	AC1-036 C	0.04
925781	AC1-054 C O1	5.04
926071	AC1-086 C	44.1

Bus #	Bus	MW Impact
930861	AB1-132 C O1	3.65
931231	AB1-173 C	0.38
931241	AB1-173AC	0.38
933991	AD1-023 C	4.49
934201	AD1-047 C	11.13
934231	AD1-050 C	3.0
934331	AD1-057 C O1	37.55
934521	AD1-076 C	16.11
936261	AD2-033 C	5.0
936361	AD2-046 C O1	4.59
936401	AD2-051 C O1	4.71
936481	AD2-063 C O1	6.38
936711	AD2-090 C O1	4.16
937571	AD2-169 C	13.44
938171	AE1-026 C1 O	10.29
938172	AE1-026 C2 O	1.49
938221	AE1-035 C	1.06
938771	AE1-103 C O1	1.63
939071	AE1-135 C O1	38.52
939181	AE1-148 C O1	4.5
939371	AE1-168 C	4.69
940241	AE2-006	0.18
940481	AE2-033 C	28.57
940661	AE2-053	1.68
941541	AE2-151 C	0.58
942371	AE2-250 C O2	13.96
942451	AE2-258	1.09
942471	AE2-260 C O2	26.59
942711	AE2-287 C O2	14.61
943171	AE2-346 C	1.0
BLUEG	BLUEG	3.44
CALDERWOOD	CALDERWOOD	0.68
CANNELTON	CANNELTON	0.23
CARR	CARR	0.0
CATAWBA	CATAWBA	0.66
CHEOAH	CHEOAH	0.64
CHILHOWEE	CHILHOWEE	0.22
COFFEEN	COFFEEN	0.4
COTTONWOOD	COTTONWOOD	2.3
DUCKCREEK	DUCKCREEK	0.82
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.41
FARMERCITY	FARMERCITY	0.29
G-007A	G-007A	0.11
GIBSON	GIBSON	0.15
HAMLET	HAMLET	1.33
NEWTON	NEWTON	1.04
PRAIRIE	PRAIRIE	2.16
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.19
SMITHLAND	SMITHLAND	0.19
TATANKA	TATANKA	0.49

Bus #	Bus	MW Impact
TILTON	TILTON	0.44
TRIMBLE	TRIMBLE	0.38
TVA	TVA	1.93
UNIONPOWER	UNIONPOWER	0.95
VFT	VFT	0.27

13.5.33 Index 33

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8233572	936530	AD2-068 TAP	DVP	304451	6GREENVILLE T	CPL	1	DVP_P7-1: LN 2058-2181	tower	478.0	182.89	184.53	DC	17.38

Bus #	Bus	MW Impact
314539	3UNCAMP	1.27
314541	3WATKINS	0.39
314554	3BTLEBRO	0.38
314557	3BETHEL C	1.06
314566	3CRESWEL	2.23
314572	3EMPORIA	0.22
314574	6EVERETS	8.22
314578	3HORNRTN	2.14
314582	3KELFORD	3.33
314589	3MURPHYS	0.05
314594	6PLYMOTH	0.9
314603	3SCOT NK	2.69
314617	3TUNIS	0.77
314620	6CASHIE	0.97
314623	3WITAKRS	0.71
314648	6SUNBURY	0.41
314651	6WINFALL	0.99
315131	1EDGE CMA	8.55
315132	1EDGE CMB	8.55
315136	1ROSEMG1	1.26
315137	1ROSEMS1	0.78
315138	1ROSEMG2	0.59
315292	1DOMTR78	1.31
315293	1DOMTR9	1.07
315294	1DOMTR10	1.95
900672	V4-068 E	0.24
901082	W1-029 E	24.69
907092	X1-038 E	3.17
913392	Y1-086 E	1.0
916042	Z1-036 E	30.83
917122	Z2-027 E	0.52
917331	Z2-043 C	0.27
917332	Z2-043 E	0.95
917342	Z2-044 E	0.31
917511	Z2-088 C OP1	1.82
917512	Z2-088 E OP1	6.41
918491	AA1-063AC OP	0.85
918492	AA1-063AE OP	3.28
918511	AA1-065 C OP	1.36
918512	AA1-065 E OP	5.52
918531	AA1-067 C	0.41

Bus #	Bus	MW Impact
918532	AA1-067 E	1.45
918561	AA1-072 C	0.04
918562	AA1-072 E	0.16
919692	AA2-053 E	2.78
919701	AA2-057 C	4.11
919702	AA2-057 E	2.06
920042	AA2-088 E OP	6.79
920592	AA2-165 E	0.27
920672	AA2-174 E	0.32
920691	AA2-178 C	1.09
920692	AA2-178 E	3.82
923801	AB2-015 C O1	4.7
923802	AB2-015 E O1	3.86
923832	AB2-022 E	0.57
923911	AB2-031 C O1	1.26
923912	AB2-031 E O1	0.62
923992	AB2-040 E O1	3.38
924152	AB2-059 E O1	3.09
924491	AB2-098 C	1.13
924492	AB2-098 E	0.48
924501	AB2-099 C	0.59
924502	AB2-099 E	0.25
924511	AB2-100 C	6.09
924512	AB2-100 E	3.0
925121	AB2-169 C	1.19
925122	AB2-169 E	8.74
925171	AB2-174 C O1	3.82
925172	AB2-174 E O1	3.46
925591	AC1-034 C	3.88
925592	AC1-034 E	2.93
926071	AC1-086 C	15.84
926072	AC1-086 E	7.21
926201	AC1-098 C	4.51
926202	AC1-098 E	2.69
926211	AC1-099 C	1.51
926212	AC1-099 E	0.89
927021	AC1-189 C	15.22
927022	AC1-189 E	7.58
927141	AC1-208 C	5.86
927142	AC1-208 E	2.6
930402	AB1-081 E O1	2.18
930862	AB1-132 E O1	4.61
931232	AB1-173 E	0.59
931242	AB1-173AE	0.59
932631	AC2-084 C	6.43
932632	AC2-084 E	3.17
933991	AD1-023 C	14.76
933992	AD1-023 E	8.04
934201	AD1-047 C	4.51
934202	AD1-047 E	3.01
934331	AD1-057 C O1	8.5
934332	AD1-057 E O1	4.53

Bus #	Bus	MW Impact
934521	AD1-076 C	58.79
934522	AD1-076 E	29.94
936401	AD2-051 C O1	9.44
936402	AD2-051 E O1	4.05
936531	AD2-068 C	19.17
936532	AD2-068 E	9.88
936701	AD2-089 C	9.53
936702	AD2-089 E	6.35
936711	AD2-090 C O1	4.25
936712	AD2-090 E O1	2.83
937571	AD2-169 C	5.82
937572	AD2-169 E	3.88
938171	AE1-026 C1 O	32.16
938172	AE1-026 C2 O	4.65
938173	AE1-026 E O1	9.71
938221	AE1-035 C	2.8
938222	AE1-035 E	1.38
938661	AE1-088	5.0
938771	AE1-103 C O1	1.9
938772	AE1-103 E O1	2.62
939071	AE1-135 C O1	10.35
939072	AE1-135 E O1	6.9
940491	AE2-034 C	7.79
940492	AE2-034 E	3.34
940521	AE2-037 C O2	12.8
940522	AE2-037 E O2	6.19
940571	AE2-044 C	2.54
940572	AE2-044 E	1.09
941501	AE2-147 C	8.51
941502	AE2-147 E	5.67
941541	AE2-151 C	1.17
941542	AE2-151 E	0.63
941951	AE2-207	1.64
942371	AE2-250 C O2	4.5
942372	AE2-250 E O2	2.37
942471	AE2-260 C O2	7.19
942472	AE2-260 E O2	10.19
942851	AE2-304 C	0.38
942852	AE2-304 E	0.15
943171	AE2-346 C	1.77
943172	AE2-346 E	0.76
AC1-131	AC1-131	6.18
BLUEG	BLUEG	7.82
CALDERWOOD	CALDERWOOD	1.67
CANNELTON	CANNELTON	0.54
CATAWBA	CATAWBA	1.63
CBM-N	CBM-N	0.21
CHEOAH	CHEOAH	1.56
CHILHOWEE	CHILHOWEE	0.54
COFFEEN	COFFEEN	0.93
COTTONWOOD	COTTONWOOD	5.63
DUCKCREEK	DUCKCREEK	1.89

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.84
ELMERSMITH	ELMERSMITH	0.95
FARMERCITY	FARMERCITY	0.67
G-007A	G-007A	1.0
GIBSON	GIBSON	0.34
HAMLET	HAMLET	3.48
NEWTON	NEWTON	2.4
NYISO	NYISO	0.9
PRAIRIE	PRAIRIE	5.09
SANTEETLA	SANTEETLA	0.46
SMITHLAND	SMITHLAND	0.46
TATANKA	TATANKA	1.14
TILTON	TILTON	0.99
TRIMBLE	TRIMBLE	0.86
TVA	TVA	4.7
UNIONPOWER	UNIONPOWER	2.33
VFT	VFT	2.64

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
7703234	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P4-2: 239T2141	breaker	637.0	163.42	187.99	DC	157.02

Bus #	Bus	MW Impact
314572	3EMPORIA	1.24
314578	3HORNRTN	3.01
314704	3LAWRENC	0.62
315126	1ROARAP2	0.97
315128	1ROARAP4	0.94
315139	1GASTONA	10.52
315141	1GASTONB	10.52
918491	AA1-063AC OP	0.77
918492	AA1-063AE OP	2.96
919691	AA2-053 C	0.9
919692	AA2-053 E	3.15
920671	AA2-174 C	0.04
920672	AA2-174 E	0.36
923911	AB2-031 C O1	5.04
923912	AB2-031 E O1	2.48
923991	AB2-040 C O1	2.02
923992	AB2-040 E O1	13.53
924021	AB2-043 C O1	0.3
924022	AB2-043 E O1	4.06
924161	AB2-060 C O1	0.86
924162	AB2-060 E O1	3.3
924301	AB2-077 C O1	0.19
924302	AB2-077 E O1	1.02
924311	AB2-078 C O1	0.19
924312	AB2-078 E O1	1.02
924321	AB2-079 C O1	0.19
924322	AB2-079 E O1	1.02
924401	AB2-089 C	1.6
924402	AB2-089 E	0.83
924511	AB2-100 C	52.6
924512	AB2-100 E	25.91
925171	AB2-174 C O1	17.74
925172	AB2-174 E O1	16.05
925781	AC1-054 C O1	5.59
925782	AC1-054 E O1	2.58
926071	AC1-086 C	97.12
926072	AC1-086 E	44.2
930861	AB1-132 C O1	8.04
930862	AB1-132 E O1	28.26
931231	AB1-173 C	0.62
931232	AB1-173 E	2.37

Bus #	Bus	MW Impact
931241	AB1-173AC	0.62
931242	AB1-173AE	2.37
934201	AD1-047 C	18.04
934202	AD1-047 E	12.03
934231	AD1-050 C	3.53
934232	AD1-050 E	1.93
936361	AD2-046 C O1	6.38
936362	AD2-046 E O1	2.93
936481	AD2-063 C O1	10.79
936482	AD2-063 E O1	7.19
937571	AD2-169 C	19.53
937572	AD2-169 E	13.02
939071	AE1-135 C O1	94.21
939072	AE1-135 E O1	62.81
939181	AE1-148 C O1	6.33
939182	AE1-148 E O1	4.22
940481	AE2-033 C	76.89
940482	AE2-033 E	51.84
940661	AE2-053	2.36
942371	AE2-250 C O2	29.4
942372	AE2-250 E O2	15.52
942451	AE2-258	1.85
942471	AE2-260 C O2	64.93
942472	AE2-260 E O2	92.09
942711	AE2-287 C O2	29.82
942712	AE2-287 E O2	19.88
CARR	CARR	0.13
CBM-S1	CBM-S1	1.42
CBM-S2	CBM-S2	1.84
CBM-W1	CBM-W1	1.17
CBM-W2	CBM-W2	8.98
CIN	CIN	0.55
CPL	CPL	1.02
G-007	G-007	0.43
IPL	IPL	0.34
LGEE	LGEE	0.16
MEC	MEC	1.3
MECS	MECS	0.38
O-066	O-066	2.72
RENSSELAER	RENSSELAER	0.1
WEC	WEC	0.15

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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
12436344	942470	AE2-260 TAP	DVP	314563	6CLUBHSE	DVP	1	DVP_P4-2: 239T2141	breaker	427.0	144.69	191.45	DC	199.67

Bus #	Bus	MW Impact
315139	1GASTONA	13.38
315141	1GASTONB	13.38
924511	AB2-100 C	66.89
924512	AB2-100 E	32.95
926071	AC1-086 C	123.5
926072	AC1-086 E	56.21
930861	AB1-132 C O1	10.22
930862	AB1-132 E O1	35.94
942471	AE2-260 C O2	82.56
942472	AE2-260 E O2	117.11
BLUEG	BLUEG	0.84
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.05
CARR	CARR	0.06
CATAWBA	CATAWBA	0.06
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.09
COTTONWOOD	COTTONWOOD	0.35
DUCKCREEK	DUCKCREEK	0.19
EDWARDS	EDWARDS	0.09
ELMERSMITH	ELMERSMITH	0.09
FARMERCITY	FARMERCITY	0.06
G-007	G-007	0.18
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.23
O-066	O-066	1.12
PRAIRIE	PRAIRIE	0.43
RENSSELAER	RENSSELAER	0.05
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.11
TILTON	TILTON	0.11
TRIMBLE	TRIMBLE	0.09
TVA	TVA	0.29
UNIONPOWER	UNIONPOWER	0.13

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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
12436570	942470	AE2-260 TAP	DVP	924510	AB2-100 TAP	DVP	1	DVP_P4-2: 23872	breaker	427.0	100.23	135.74	DC	151.63

Bus #	Bus	MW Impact
314572	3EMPORIA	1.1
314704	3LAWRENC	0.55
923911	AB2-031 C O1	4.0
923912	AB2-031 E O1	1.97
923991	AB2-040 C O1	1.6
923992	AB2-040 E O1	10.75
924022	AB2-043 E O1	3.03
924162	AB2-060 E O1	2.47
924302	AB2-077 E O1	0.75
924312	AB2-078 E O1	0.75
924322	AB2-079 E O1	0.75
925171	AB2-174 C O1	14.8
925172	AB2-174 E O1	13.39
925612	AC1-036 E	0.4
931231	AB1-173 C	0.49
931232	AB1-173 E	1.88
931241	AB1-173AC	0.49
931242	AB1-173AE	1.88
934201	AD1-047 C	14.34
934202	AD1-047 E	9.56
936261	AD2-033 C	6.32
936262	AD2-033 E	4.21
936481	AD2-063 C O1	8.08
936482	AD2-063 E O1	5.39
937571	AD2-169 C	14.41
937572	AD2-169 E	9.61
939071	AE1-135 C O1	90.68
939072	AE1-135 E O1	60.45
940241	AE2-006	0.22
940481	AE2-033 C	67.26
940482	AE2-033 E	45.34
942371	AE2-250 C O2	26.69
942372	AE2-250 E O2	14.09
942451	AE2-258	1.38
942471	AE2-260 C O2	62.7
942472	AE2-260 E O2	88.93
942711	AE2-287 C O2	26.42
942712	AE2-287 E O2	17.62
BLUEG	BLUEG	0.16
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.01
CARR	CARR	0.0

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	0.07
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.2
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02
G-007	G-007	0.0
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.06
O-066	O-066	0.01
PRAIRIE	PRAIRIE	0.14
RENSSELAER	RENSSELAER	0.0
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.09

Affected Systems

13.6 Affected Systems

13.6.1 LG&E

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

13.6.2 MISO

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

13.6.3 TVA

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

13.6.4 Duke Energy Progress

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

13.6.5 NYISO

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

13.7 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 563	CONTINGENCY 'DVP_P1-2: LN 563' OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P4-2: XT573	CONTINGENCY 'DVP_P4-2: XT573' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 57302	CONTINGENCY 'DVP_P4-2: 57302' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 246	CONTINGENCY 'DVP_P1-2: LN 246' OPEN BRANCH FROM BUS 314537 TO BUS 919140 CKT 1 /* 6SUFFOLK 230.00 - AA1-138 TAP 230.00 OPEN BRANCH FROM BUS 314569 TO BUS 314575 CKT 1 /* 6EARLEYS 230.00 - 6NUCO TP 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 314590 CKT 1 /* 6NUCO TP 230.00 - 6NUCOR 230.00 OPEN BRANCH FROM BUS 314575 TO BUS 919140 CKT 1 /* 6NUCO TP 230.00 - AA1-138 TAP 230.00 OPEN BUS 314575 /* ISLAND: 6NUCO TP 230.00 OPEN BUS 314590 /* ISLAND: 6NUCOR 230.00 OPEN BUS 919140 /* ISLAND: AA1-138 TAP 230.00 END
DVP_P4-2: 205602	CONTINGENCY 'DVP_P4-2: 205602' /* HATHAWAY 230 KV OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE1 BUILD OPEN BRANCH FROM BUS 313844 TO BUS 313845 CKT 1 /* 3HATHAWAY 115.00 - 6HATHAWAY 230.00 END
DVP_P4-2: 562T563	CONTINGENCY 'DVP_P4-2: 562T563' /* CARSON 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 941030 CKT 1 /* 8CARSON 500.00 - AE2-094 TAP 500.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 END
DVP_P7-1: LN 205-2003-A	CONTINGENCY 'DVP_P7-1: LN 205-2003-A' OPEN BRANCH FROM BUS 314287 TO BUS 314346 CKT 1 /* 6CHESTF B 230.00 - 6TYLER 230.00 OPEN BRANCH FROM BUS 314301 TO BUS 940430 CKT 1 /* 6HARR205 230.00 - AE2-027 TAP 230.00 OPEN BRANCH FROM BUS 314301 TO BUS 314346 CKT 1 /* 6HARR205 230.00 - 6TYLER 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 1 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314301 /* ISLAND: 6HARR205 230.00 OPEN BUS 314346 /* ISLAND: 6TYLER 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314287 CKT 1 /* 6TYLER1 230.00 - 6CHESTF B 230.00 OPEN BRANCH FROM BUS 314263 TO BUS 314299 CKT 1 /* 6TYLER1 230.00 - 6HARROWG 230.00 OPEN BRANCH FROM BUS 314299 TO BUS 314331 CKT 1 /* 6HARROWG 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 2 /* 3POE 115.00 - 6POE 230.00 OPEN BUS 314263 /* ISLAND: 6TYLER1 230.00 OPEN BUS 314299 /* ISLAND: 6HARROWG 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2131	CONTINGENCY 'DVP_P1-2: LN 2131' OPEN BRANCH FROM BUS 313714 TO BUS 313885 CKT 1 /* 6PERQUIMANS 230.00 - 6WALBMRL 230.00 OPEN BRANCH FROM BUS 313885 TO BUS 314637 CKT 1 /* 6WALBMRL 230.00 - 6EDENTON 230.00 OPEN BRANCH FROM BUS 314203 TO BUS 314637 CKT 1 /* 6MACKEYS 230.00 - 6EDENTON 230.00 OPEN BUS 313885 /* ISLAND: 6WALBMRL 230.00 OPEN BUS 314637 /* ISLAND: 6EDENTON 230.00 END
DVP_P1-2: LN 574	CONTINGENCY 'DVP_P1-2: LN 574' OPEN BRANCH FROM BUS 314908 TO BUS 314911 CKT 1 /* 8ELMONT 500.00 - 8LADYSMITH 500.00 END
DVP_P7-1: LN 2058-2181	CONTINGENCY 'DVP_P7-1: LN 2058-2181' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P4-2: WT576	CONTINGENCY 'DVP_P4-2: WT576' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 2 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
DVP_P7-1: LN 56-2060	CONTINGENCY 'DVP_P7-1: LN 56-2060' OPEN BRANCH FROM BUS 314259 TO BUS 314604 CKT 1 /* 3CAROL56_1 115.00 - 3SEABORD 115.00 OPEN BRANCH FROM BUS 314558 TO BUS 314587 CKT 1 /* 3BOYKINS 115.00 - 3MARGTSV 115.00 OPEN BRANCH FROM BUS 314587 TO BUS 314604 CKT 1 /* 3MARGTSV 115.00 - 3SEABORD 115.00 OPEN BUS 314587 /* ISLAND: 3MARGTSV 115.00 OPEN BUS 314604 /* ISLAND: 3SEABORD 115.00 OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P4-2: 201262	CONTINGENCY 'DVP_P4-2: 201262' /* EARLEYS 230 KV OPEN BRANCH FROM BUS 314266 TO BUS 314569 CKT 1 /* 6NORTHAMPTON230.00 - 6EARLEYS 230.00 OPEN BRANCH FROM BUS 314266 TO BUS 314599 CKT 1 /* 6NORTHAMPTON230.00 - 6ROA VAL 230.00 OPEN BUS 314266 /* ISLAND: 6NORTHAMPTON230.00 OPEN BRANCH FROM BUS 314568 TO BUS 314569 CKT 1 /* 3EARLEYS 115.00 - 6EARLEYS 230.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 2181	CONTINGENCY 'DVP_P1-2: LN 2181' OPEN BUS 304226 /* ISLAND: 6PA-RMOUNT#4115.00 OPEN BRANCH FROM BUS 304226 TO BUS 314591 CKT 1 /* 6PA-RMOUNT#4230.00 - 6NASH 230.00 OPEN BRANCH FROM BUS 313845 TO BUS 314591 CKT 1 /* 6HATHAWAY 230.00 - 6NASH 230.00 OPEN BUS 314591 /* ISLAND: 6NASH 230.00 END
DVP_P1-2: LN 238-B	CONTINGENCY 'DVP_P1-2: LN 238-B' OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 END
DVP_P1-2: LN 238-A	CONTINGENCY 'DVP_P1-2: LN 238-A' OPEN BRANCH FROM BUS 940480 TO BUS 314563 CKT 1 /* AE2-033 TAP 230.00 - 6CLUBHSE 230.00 OPEN BRANCH FROM BUS 314562 TO BUS 314563 CKT 1 /* 3CLUBHSE 115.00 - 6CLUBHSE 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 918500 CKT 1 /* 8WAKE 500 TT500.00 - AA1-064 TAP 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 918500 CKT 1 /* 8HERITAGE 500.00 - AA1-064 TAP 500.00 OPEN BUS 918500 /* ISLAND: AA1-064 TAP 500.00 END
DVP_P1-2: LN 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 2056-A	CONTINGENCY 'DVP_P1-2: LN 2056-A' OPEN BRANCH FROM BUS 313845 TO BUS 934330 CKT 1 /* 6HATHAWAY 230.00 - AD1-057 TAP 230.00 END
DVP_P1-2: LN 2056-B	CONTINGENCY 'DVP_P1-2: LN 2056-B' OPEN BRANCH FROM BUS 934330 TO BUS 314579 CKT 1 /* AD1-057 TAP 230.00 - 6HORNRTN 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

Contingency Name	Contingency Definition
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 217	CONTINGENCY 'DVP_P1-2: LN 217' OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 END
DVP_P4-2: 23872	CONTINGENCY 'DVP_P4-2: 23872' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P1-2: LN 573	CONTINGENCY 'DVP_P1-2: LN 573' OPEN BRANCH FROM BUS 314918 TO BUS 314934 CKT 1 /* 8NO ANNA 500.00 - 8SPOTSYL 500.00 END
DVP_P1-2: LN 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
DVP_P1-2: LN 576	CONTINGENCY 'DVP_P1-2: LN 576' OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P4-2: 239T2141	CONTINGENCY 'DVP_P4-2: 239T2141' /* LAKEVIEW 230 KV OPEN BRANCH FROM BUS 314579 TO BUS 314583 CKT 1 /* 6HORNRTN 230.00 - 6LAKEVEW 230.00 OPEN BRANCH FROM BUS 314561 TO BUS 314583 CKT 1 /* 6CAROLNA 230.00 - 6LAKEVEW 230.00 END
DVP_P4-2: 57602	CONTINGENCY 'DVP_P4-2: 57602' /* NORTH ANNA 500 KV OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 OPEN BRANCH FROM BUS 314232 TO BUS 314918 CKT 1 /* 6NO ANNA 230.00 - 8NO ANNA 500.00 END
Base Case	

Contingency Name	Contingency Definition
DVP_P4-2: H8T217	CONTINGENCY 'DVP_P4-2: H8T217' /* LAKESIDE 230 KV OPEN BRANCH FROM BUS 314225 TO BUS 314227 CKT 1 /* 6CHARCTY 230.00 - 6LAKESIDE 230.00 OPEN BRANCH FROM BUS 314225 TO BUS 314287 CKT 1 /* 6CHARCTY 230.00 - 6CHESTF B 230.00 OPEN BUS 314225 /* ISLAND: 6CHARCTY 230.00 OPEN BRANCH FROM BUS 314226 TO BUS 314227 CKT 1 /* 3LAKESIDE 115.00 - 6LAKESIDE 230.00 END
DVP_P4-2: 563T576	CONTINGENCY 'DVP_P4-2: 563T576' /* MIDLOTHIAN 500 500 KV OPEN BRANCH FROM BUS 314902 TO BUS 314914 CKT 1 /* 8CARSON 500.00 - 8MDLTHAN 500.00 OPEN BRANCH FROM BUS 314914 TO BUS 314918 CKT 1 /* 8MDLTHAN 500.00 - 8NO ANNA 500.00 END
DVP_P1-2: LN 2060	CONTINGENCY 'DVP_P1-2: LN 2060' OPEN BRANCH FROM BUS 314561 TO BUS 314599 CKT 1 /* 6CAROLNA 230.00 - 6ROA VAL 230.00 END
DVP_P4-2: H2T557	CONTINGENCY 'DVP_P4-2: H2T557' /* ELMONT 500 KV OPEN BRANCH FROM BUS 314214 TO BUS 314903 CKT 1 /* 6CHCKAHM 230.00 - 8CHCKAHM 500.00 OPEN BRANCH FROM BUS 314903 TO BUS 314908 CKT 1 /* 8CHCKAHM 500.00 - 8ELMONT 500.00 OPEN BRANCH FROM BUS 314218 TO BUS 314908 CKT 2 /* 6ELMONT 230.00 - 8ELMONT 500.00 END
DVP_P1-2: LN 581	CONTINGENCY 'DVP_P1-2: LN 581' OPEN BRANCH FROM BUS 314135 TO BUS 314905 CKT 2 /* 3CHANCE 115.00 - 8CHANCE 500.00 OPEN BRANCH FROM BUS 314905 TO BUS 314911 CKT 1 /* 8CHANCE 500.00 - 8LADYSMITH 500.00 END
DVP_P1-2: LN 254-A	CONTINGENCY 'DVP_P1-2: LN 254-A' OPEN BRANCH FROM BUS 314563 TO BUS 942470 CKT 1 /* 6CLUBHSE 230.00 - AE2-260 TAP 230.00 END
DVP_P1-2: LN 2058	CONTINGENCY 'DVP_P1-2: LN 2058' OPEN BRANCH FROM BUS 304222 TO BUS 313845 CKT 1 /* 6ROCKYMT230T230.00 - 6HATHAWAY 230.00 END
DVP_P1-2: LN 2092	CONTINGENCY 'DVP_P1-2: LN 2092' OPEN BRANCH FROM BUS 313714 TO BUS 314662 CKT 1 /* 6PERQUIMANS 230.00 - 6S HERTFORD 230.00 OPEN BRANCH FROM BUS 314651 TO BUS 314662 CKT 1 /* 6WINFALL 230.00 - 6S HERTFORD 230.00 OPEN BUS 314662 /* ISLAND: 6S HERTFORD 230.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 24972-4	CONTINGENCY 'DVP_P4-2: 24972-4' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314285 CKT 1 /* 6CARSON 230.00 - 6CHRL249 230.00 OPEN BRANCH FROM BUS 314285 TO BUS 314316 CKT 1 /* 6CHRL249 230.00 - 6LOCKS 230.00 OPEN BRANCH FROM BUS 314314 TO BUS 314316 CKT 2 /* 3LOCKS 115.00 - 6LOCKS 230.00 OPEN BUS 314285 /* ISLAND: 6CHRL249 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314902 CKT 1 /* 6CARSON 230.00 - 8CARSON 500.00 OPEN BUS 314455 /* 6CARSO_1 230.00 KV END
DVP_P4-2: 238T2002	CONTINGENCY 'DVP_P4-2: 238T2002' /* CARSON 230 KV OPEN BRANCH FROM BUS 314282 TO BUS 314435 CKT 1 /* 6CARSON 230.00 - 6SAPONY 230.00 OPEN BRANCH FROM BUS 314435 TO BUS 940480 CKT 1 /* 6SAPONY 230.00 - AE2-033 TAP 230.00 /* CONTINGENCY LINE ADDED FOR AE2 BUILD OPEN BUS 314435 /* ISLAND: 6SAPONY 230.00 OPEN BRANCH FROM BUS 314282 TO BUS 314331 CKT 1 /* 6CARSON 230.00 - 6POE 230.00 OPEN BRANCH FROM BUS 314329 TO BUS 314331 CKT 1 /* 3POE 115.00 - 6POE 230.00 END
DVP_P1-2: LN 218-A	CONTINGENCY 'DVP_P1-2: LN 218-A' OPEN BRANCH FROM BUS 304451 TO BUS 936530 CKT 1 /* 6GREENVILE T230.00 - AD2-068 TAP 230.00 END

Short Circuit

13.8 Short Circuit

The following Breakers are overduty:

None

Attachment 1: One Line Diagram

