



**Generation Interconnection
Feasibility Study Report
for
Queue Project AE2-024
LARRABEE 230 KV I
155.23 MW Capacity / 882 MW Energy**

July, 2019

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1 Introduction

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

2 Preface

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

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

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

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

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models

which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a \$10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

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

3 General

The Interconnection Customer (IC), has proposed an Offshore Wind generating facility located off the coast of New Jersey. The installed facilities will have a total capability of **882 MW** with **155.23 MW** of this output being recognized by PJM as Capacity. The proposed in-service date for this project is **December 1, 2025**. **This study does not imply a Jersey Central Power & Light Company (JCPL) commitment to this in-service date.**

Queue Number	AE2-024
Project Name	LARRABEE 230 KV I
Interconnection Customer	
State	New Jersey Coast
County	Ocean
Transmission Owner	JCPL
MFO	882
MWE	882
MWC	155.23
Fuel	Offshore Wind
Basecase Study Year	2022

4 Point of Interconnection

4.1 Secondary POI

The interconnection of the project at the Primary POI will be accomplished by constructing a new direct connection to the Larrabee 230 kV substation. The offshore windfarm will have one-hundred and five 8.4 MW offshore wind turbines. The wind turbine transformers will step up the voltage to 66 kV. A 66 kV collector cable network will then connect all the turbines to an offshore substation, where the voltage is stepped up to 230 kV with two plant transformers. Two cable circuits of 230 kV will then run from the offshore substation to the point of interconnection substation. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The project will also require direct and non-direct connection upgrades at the Larrabee 230 kV substation.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AE2-024 generation project to connect to the FirstEnergy (“FE”) transmission system. Attachment 2 provides the proposed location for the point of interconnection. IC will be responsible for constructing all of the facilities on its side of the POI, including the attachment facilities which connect the generator to the FE transmission system’s direct connection facilities.

4.2 Secondary POI

The interconnection of the project at a Secondary POI can be accomplished by constructing a new direct connection to the Oyster Creek 230 kV substation. A full scope of work or estimated cost is not provided for the proposed Secondary POI. Only network impacts were provided for the Secondary POI found in the “Network Impacts – Secondary Point of Interconnection” section of this report.

5 Cost Summary

The AE2-024 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 860,080
Direct Connection Network Upgrade	\$ 1,290,120
Non Direct Connection Network Upgrades	\$ 621,300
Total Costs	\$ 2,771,500

In addition, the AE2-024 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$ 86,190,000

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

The costs provided above exclude the Contribution in Aid of Construction (“CIAC”) Federal Income Tax Gross Up charge. If, at a future date, it is determined that the CIAC Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

The required Attachment Facilities and Direct and Non-Direct Connection work for the interconnection of the AE2-024 generation project to the FE Transmission System is detailed in the following sections. The associated one-line with the generation project Attachment Facilities and the Primary Direct and Non-Direct Connection facilities are shown in Attachment 1.

6 Transmission Owner Scope of Work

The interconnection of the project at the Primary POI will be accomplished by constructing a new direct connection to the Larrabee 230 kV substation. The offshore windfarm will have one-hundred and five 8.4 MW offshore wind turbines. The wind turbine transformers will step up the voltage to 66 kV. A 66 kV collector cable network will then connect all the turbines to an offshore substation, where the voltage is stepped up to 230 kV with two plant transformers. Two cable circuits of 230 kV will then run from the offshore substation to the point of interconnection substation. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The project will also require direct and non-direct connection upgrades at the Larrabee 230 kV substation.

7 Attachment Facilities

To accommodate the proposed AE2-024 Project, JCPL will install a new line exit take off structure, foundations, disconnect switch, and associated equipment. The IC will be responsible for acquiring all easements, properties and permits that may be required to construct the associated facilities.

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
Install line exit take-off structure, foundations, disconnect switch and associated equipment.	\$860,080
Total Attachment Facility Costs	\$860,080

8 Direct Connection Cost Estimate

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
Add (1) new 230 kV 4000 A breaker to existing string @ Larrabee SS	\$1,290,120
Total Direct Connection Facility Costs	\$1,290,120

The total Direct Connection cost estimate for the AE2-024 project is approximately \$1,290,120.

A new 230 kV 4000 amp breaker will need to be installed at Larrabee Substation to facilitate the interconnection of the new generation.

9 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
Relocate the line exit for the D2004 (Larrabee-Smithburg No.1) 230kV circuit at Larrabee Substation. @ D2004 (Larrabee-Smithburg No.1) 230kV	\$621,300
Total Non-Direct Connection Facility Costs	\$621,300

The total Non-Direct Connection cost estimate for the AE2-024 project is approximately \$621,300.

A line exit for the Larrabee – Smithburg D2004 No. 1 230 kV circuit will need to be relocated at the Larrabee Substation to facilitate the interconnection of the new generation.

10 System Reinforcements Cost Estimate

Facility	Upgrade Description	Cost
28OYSTER C 230.0 kV - CEDAR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-010A (556) : Reconductor existing 795 ACSR 26/7 with 1590 ACSR 45/7. Project Type : FAC Cost : \$585,000 Time Estimate : 24.0 Months	\$585,000
28RAR RVR 230.0 kV - KILMER_I 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-011B (561) : Reconductor existing section of 1590 ACSR 45/7 SubConductor Circular (SCCIR) with 1590 ACSS 45/7. Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$195,000 Time Estimate : 12.0 Months <u>PSEG</u> r_PS_AE2_FES_RarRvrKilmerI (696) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months	\$195,000

Facility	Upgrade Description	Cost
28RAR RVR 230.0 kV - KILMER_W 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-012B (563) : Reconductor existing section of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7. Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$23,400,000 Time Estimate : 30.0 Months <u>PSEG</u> r_PS_AE2_FES_RarRvrKilmerW (697) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months	\$23,400,000
28R11RINGB 230.0 kV - 28RED OAKB 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-021A (615) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$130,000 Time Estimate : 12.0 Months	\$130,000
28RED OAKB 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-016A (574) : Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$3,900,000 Time Estimate : 30.0 Months	\$3,900,000

Facility	Upgrade Description	Cost
28LARRABEE 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-005A (523) : Reconductor existing section of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7. Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Replace Generic 2000 Amp Wave Trap. All new terminal equipment should be rated above 993 MVA (Rate B). Project Type : FAC Cost : \$46,800,000 Time Estimate : 36.0 Months	\$46,800,000
28RED OAKA 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-015A (571) : Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$11,050,000 Time Estimate : 30.0 Months	\$11,050,000
28R11RINGA 230.0 kV - 28RED OAKA 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-022A (617) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$130,000 Time Estimate : 12.0 Months	\$130,000
	TOTAL COST	\$86,190,000

11 Schedule

Based on the scope of work for the Attachment Facilities and the Direct and Non-Direct Connection facilities, it is expected to take a minimum of **twelve (12)** months after the signing of an Interconnection Construction Service Agreement to complete the installation. This includes the requirement for the IC to make a preliminary payment that compensates FE for the first three months of the engineering design work that is related to the attachment facility and direct connection work. Full initial deposit will be required for non-direct connection work and network upgrade reinforcements. This assumes that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined direct connection and network upgrades, and that all transmission system outages will be allowed when requested.

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.

12 Transmission Owner Analysis

12.1 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 FE. At the Primary POI, the AE2-024 project contributes to overloads on the FE transmission system as shown in the “Network Impacts – Primary Point of Interconnection” section of this report. The estimated cost of system reinforcements necessary to mitigate these overloads are also provided. Additionally, FE performed an analysis of its underlying transmission <100 kV system. At the Primary POI, the AE2-024 project did not contribute to overloads on the FE transmission <100 kV system.

At the proposed Secondary POI, the AE2-024 project contributes to overloads on the FE transmission system as shown in the “Network Impacts – Secondary Point of Interconnection” section of this report. Additionally, the AE2-024 project contributes to overloads on the FE transmission <100 kV system as shown below. Cost estimates are not provided for the secondary POI.

Contingency Description	Overloaded Element	Rating (MVA)	% Loading After AE2-024	Final % Loading	AE2-024 MW Contrib.	FE Comments/Reinforcements
CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES & OYSTER GEN DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 DISCONNECT BRANCH FROM BUS 206302 TO BUS 206325 CKT 1 END	206278 28OYSTER C 34.5 207135 28BAMBR LK 34.5 1	52	120.78	120.78	56.29	N.A.
	207135 28BAMBR LK 34.5 206281 28WHITINGS 34.5 1	53	116.54	116.54	56.29	

12.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by FE. The connection of AE2-024 project to the system does not result in any newly overdutied circuit breakers on the FE transmission system and does not have a significant fault current contribution to existing overdutied circuit breakers.

12.3 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 FE. Should stability concerns be identified in PJM’s study, FE will develop appropriate system reinforcement(s) and included the estimated cost of any reinforcement(s) in FE’s System Impact Study report.

13 Interconnection Customer Requirements

13.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in FE's "Requirements for Transmission Connected Facilities" document located at: <http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>. 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.

The IC has requested a non-standard GSU transformer winding configuration. Further evaluation and review of the non-standard GSU transformer configuration will be part of the System Impact Study.

13.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with FE's "Requirements for Transmission Connected Facilities" document located at: <http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated 230 kV circuit breaker to protect the AE2-024 generator lead line. A single circuit breaker must be used to protect this line; if the project has several GSU transformers, the individual GSU transformer breakers cannot be used to protect this line.
2. The purchase and installation of the minimum required FE generation interconnection relaying and control facilities. 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 FE Transmission System Control Center.
4. Compliance with the FE and PJM generator power factor and voltage control requirements.
5. The execution of a back-up service agreement to serve the customer load supplied from the AE2-024 generation project metering point when the units are out-of-service. This assumes the intent of the IC is to net the generation with the load.

The IC will also be required to meet all PJM, ReliabilityFirst, 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 ReliabilityFirst 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 FE system.

13.3 Power Factor Requirements

The IC shall design its wind powered 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 FE transmission system.

14 Revenue Metering and SCADA Requirements

14.1 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.

14.2 JCPL Requirements

The IC will be required to comply with all FE revenue metering requirements for generation interconnection customers which can be found in FE's "Requirements for Transmission Connected Facilities" document located at: <http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>.

15 Network Impacts – Primary Point of Interconnection

The Queue Project AE2-024 was evaluated as a 882.0 MW (Capacity 155.2 MW) injection at the Larrabee 230 kV substation in the JCPL area. Project AE2-024 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-024 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

15.1 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
8281132	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE	single	813.0	99.71	103.27	DC	28.76
8281139	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	206410 28R11RINGB - 206411 28R11RINGA CKT 1	single	869.0	95.72	97.57	DC	16.07
8281140	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-027	single	869.0	87.47	90.82	DC	29.15
8281118	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-028	single	869.0	91.49	94.82	DC	29.0
8281154	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	single	805.0	94.53	98.13	DC	28.76
8281155	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE_LT	single	805.0	93.17	96.77	DC	28.76
8281163	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	single	679.0	96.76	99.97	DC	21.63
8281164	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE_LT	single	679.0	95.97	99.18	DC	21.63

15.2 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
8281506	206286	28ATLANTIC	JCP&L	206310	28NEWPROSP	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	45.61	71.23	DC	208.13
8281563	206287	28COOKSTOW	JCP&L	219218	LUMBRN_2	PSE&G	1	JC-P7-1-JCC-230-7A	tower	869.0	28.36	51.19	DC	210.56
1980387	206294	28LARRABEE	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-11A	tower	869.0	45.85	66.2	DC	176.81
8280693	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	81.62	121.6	DC	326.53
8280851	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P2-3-JCC-230-13E	breaker	805.0	55.93	77.14	DC	170.68
8280852	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P2-3-JCC-230-13C	breaker	805.0	57.67	76.05	DC	147.88
8280858	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P2-3-JCC-230-13J	breaker	956.0	61.07	80.52	DC	185.87
8280859	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P2-3-JCC-230-13K	breaker	956.0	61.21	80.62	DC	185.41
8281410	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	71.06	102.93	DC	304.64
8281499	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-8A	tower	805.0	71.84	89.9	DC	145.27
8281500	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	805.0	46.51	70.66	DC	194.18
8280793	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P2-3-JCC-230-32A	breaker	564.0	70.15	91.18	DC	118.62
8281390	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-7A	tower	564.0	74.58	99.35	DC	139.67
8281391	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	PS_P7-1_1LINE+2LINE	tower	564.0	82.9	101.28	DC	103.69
8281494	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	AE_P7-1 AE3TOWER-A	tower	1394.0	58.54	80.63	DC	307.86
8281495	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	JC-P7-1-JCC-230-18T	tower	1394.0	43.8	69.23	DC	353.84

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
8281522	206310	28NEWPROSP	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	41.7	67.31	DC	208.13
8281523	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	797.0	35.82	61.7	DC	206.14
8280798	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	90.44	109.7	DC	167.17
8280799	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	77.38	96.72	DC	167.83
8280789	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	94.39	113.71	DC	167.69
8280790	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	80.72	100.12	DC	168.35
8280927	206411	28R11RINGA	JCP&L	206410	28R11RINGB	JCP&L	1	JC-P2-3-JCC-230-85	breaker	999.0	67.19	80.08	DC	128.56

15.3 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
1979909	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	134.7	142.94	DC	79.03
1979910	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47C	breaker	432.0	131.55	139.78	DC	78.95
8280816	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	112.96	122.28	DC	163.41
8280854	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	102.62	109.57	DC	122.59
8281130	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	single	813.0	100.55	104.11	DC	28.76
1979923	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	133.18	141.91	DC	165.98
1979924	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	119.32	128.09	DC	166.65
1979916	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	137.01	145.71	DC	165.14
1979917	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	123.2	131.93	DC	165.8

15.4 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
8281018	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P1-2-JCC-230-017	operation	813.0	75.61	115.74	DC	326.23
8281020	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	Base Case	operation	678.0	59.24	90.7	DC	213.28
8281044	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P1-2-JCC-230-018	operation	817.0	69.01	105.78	DC	300.32
8281046	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	Base Case	operation	650.0	61.8	94.61	DC	213.28
8281238	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P1-2-JCC-230-034	operation	956.0	57.99	77.29	DC	184.36
8281260	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P1-2-JCC-230-002	operation	805.0	56.52	74.84	DC	147.44
8281113	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P1-2-JCC-230-004	operation	432.0	122.09	130.29	DC	78.71
8281115	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	Y	JC-P1-2-JCC-230-003	operation	432.0	122.09	130.29	DC	78.71
8281168	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P1-2-JCC-230-009	operation	564.0	60.51	80.15	DC	110.8
8281172	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	Base Case	operation	464.0	66.25	74.73	DC	87.18
8281125	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	operation	813.0	112.36	121.68	DC	163.41
8281131	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	Base Case	operation	678.0	86.91	95.24	DC	121.76
8281243	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P1-2_#1LINE_LT	operation	817.0	98.82	105.79	DC	122.92
8281247	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	Base Case	operation	650.0	83.79	88.81	DC	70.6
8281252	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	JC-P1-3-JCC-500-002T	operation	1394.0	30.14	57.86	DC	388.48
8281253	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	PJM_P1_59A	operation	1394.0	30.14	57.86	DC	388.48
8281257	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	Base Case	operation	1245.0	29.98	52.82	DC	284.15
8281136	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-027	operation	869.0	114.17	122.89	DC	165.64
8281138	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	Base Case	operation	709.0	86.06	91.79	DC	88.69
8281117	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-028	operation	869.0	118.11	126.79	DC	164.78
8281143	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PJM_P1_68	operation	813.0	85.31	102.57	DC	140.22
8281145	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	Base Case	operation	678.0	79.56	97.52	DC	121.68
8281285	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	AE_P1-2 CARD-CEDAR-A	operation	797.0	54.62	72.37	DC	141.5
8281120	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PJM_P1_68	operation	869.0	94.38	109.82	DC	134.06
8281122	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	Base Case	operation	706.0	88.88	105.13	DC	114.63
8281191	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P1-2-JCC-230-028	operation	869.0	73.11	92.33	DC	166.81
8281173	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P1-2-JCC-230-027	operation	869.0	76.78	96.07	DC	167.33
8281148	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	operation	805.0	106.46	115.87	DC	163.41
8281153	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	Base Case	operation	650.0	83.01	91.69	DC	121.76
8281158	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	operation	679.0	109.73	118.11	DC	122.92
8281162	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	Base Case	operation	523.0	94.57	100.81	DC	70.6
8281321	218522	MIDDLESEX_W	PSE&G	218313	GREENBK_W	PSE&G	1	PS_P1-2_#1LINE	operation	872.0	83.08	89.61	DC	122.92
8281186	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	PJM_P1_68	operation	805.0	74.81	92.24	DC	140.22
8281188	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	Base Case	operation	650.0	68.92	87.66	DC	121.68
1980093	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	Base Case	operation	650.0	164.41	169.13	DC	77.92

15.5 System Reinforcements¹

ID	Index	Facility	Upgrade Description	Cost
8280793,8281391,8281390	12	28OYSTER C 230.0 kV - CEDAR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-010A (556) : Reconductor existing 795 ACSR 26/7 with 1590 ACSR 45/7. Project Type : FAC Cost : \$585,000 Time Estimate : 24.0 Months <u>ACE</u> No Violation: MVA of Limiting Equipment is greater than post queue loading.	\$585,000
8280816,8281132,8281130	1	28RAR RVR 230.0 kV - KILMER_I 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-011B (561) : Reconductor existing section of 1590 ACSR 45/7 SubConductor Circular (SCCIR) with 1590 ACSS 45/7. Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$195,000 Time Estimate : 12.0 Months <u>PSEG</u> r_PS_AE2_FES_RarRvrKilmerI (696) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months	\$195,000

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
8280854	20	28RAR RVR 230.0 kV - KILMER_W 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-012B (563) : Reconductor existing section of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7. Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$23,400,000 Time Estimate : 30.0 Months <u>PSEG</u> r_PS_AE2_FES_RarRvrKilmerW (697) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : \$0 Time Estimate : 0.0 Months	\$23,400,000
8281563	7	28COOKSTOW 230.0 kV - LUMBRTN_2 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%. <u>PSEG</u> No Violation. The post queue loading is less than 100%.	\$0
8280799,8280798	16	28R11RINGB 230.0 kV - 28RED OAKB 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-021A (615) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$130,000 Time Estimate : 12.0 Months	\$130,000
8281522	14	28NEWPROSP 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	<u>JCPL</u> No Reinforcement Needed. Not a valid violation	\$0
8281154,8281155	4	KILMER_I 230.0 kV - LNELSN_I 230.0 kV Ckt 1	<u>PSEG</u> No Violation. The post queue loading is less than 100%.	\$0
8281164,8281163	5	KILMER_W 230.0 kV - LNELSN_W 230.0 kV Ckt 1	<u>PSEG</u> No Violation. The post queue loading is less than 100%.	\$0
8280852,8280851,8281499,8281500	10	28LARRABEE 230.0 kV - 28OCEANVW 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0
8280927	18	28R11RINGA 230.0 kV - 28R11RINGB 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0
8281495,8281494	13	28SMITHBRG 230.0 kV - 28E WINDSR 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0

ID	Index	Facility	Upgrade Description	Cost
1979917,8281118,1979916	3	28RED OAKB 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-016A (574) : Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$3,900,000 Time Estimate : 30.0 Months	\$3,900,000
8280858,8280859,8281410	11	28LARRABEE 230.0 kV - 28ATLANTIC 230.0 kV Ckt 1	<u>JCPL</u> No Violation. Line rating updated to 913/1147/1318 MVA (Rate A/ Rate B/ Rate C). No reinforcements required.	\$0
8280693	9	28LARRABEE 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-005A (523) : Reconductor existing section of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7. Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Replace Generic 2000 Amp Wave Trap. All new terminal equipment should be rated above 993 MVA (Rate B). Project Type : FAC Cost : \$46,800,000 Time Estimate : 36.0 Months	\$46,800,000
1979909,1979910	19	28OCEANVW 230.0 kV - 28ATLANTIC 230.0 kV Ckt X	<u>JCPL</u> No Violation. Line rating updated to 709/869/985 MVA (Rate A/ Rate B/ Rate C). No reinforcements required.	\$0
1980387	8	28LARRABEE 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0
1979923,8281140,1979924,8281139	2	28RED OAKA 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-015A (571) : Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$11,050,000 Time Estimate : 30.0 Months	\$11,050,000
8281506	6	28ATLANTIC 230.0 kV - 28NEWPROSP 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0
8281523	15	28VANHISVL 230.0 kV - 28COOKSTOW 230.0 kV Ckt 1	<u>JCPL</u> No Violation. The post queue loading is less than 100%.	\$0

ID	Index	Facility	Upgrade Description	Cost
8280790,8280789	17	28R11RINGA 230.0 kV - 28RED OAKA 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-022A (617) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$130,000 Time Estimate : 12.0 Months	\$130,000
			TOTAL COST	\$86,190,000

15.6 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.

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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
8280816	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	112.96	122.28	DC	163.41

Bus #	Bus	MW Impact
206325	28O C GEN	94.67
206329	28S RIV G3	5.78
206350	28RRCT1&2	4.34
206351	28RRCT3&4	4.06
206362	28RDOAKCT1	10.55
206363	28RDOAKCT2	10.53
206364	28RDOAKCT3	10.53
206365	28RDOAKST1	14.79
206403	28W4-009	45.72
206412	28R11	212.9
901032	W1-024E OP1	0.46
901112	W1-032 E OP1	0.28
901422	W1-113 E	0.85
901912	W1-112E OP1	0.83
901982	W1-119 E	1.46
901991	W1-120C	1.0
901992	W1-120E	1.62
902032	W1-124E	3.45
902082	W1-129E	0.39
902322	W2-019 E	0.47
902912	W2-078 E	1.05
902952	W2-082 E OP1	1.34
903982	W3-079 E	0.86
905252	W4-025 E	0.56
905502	W4-060 E OP1	2.39
907082	X1-037 E	2.45
907272	X1-085 E	0.41
912102	X4-015 E	0.39
912182	X4-031 E	0.5
914092	Y2-051 E	0.6
917612	Z2-102 E	1.07
917682	Z2-109 E	9.68
918452	AA1-060 E	2.56
919662	AA2-048 E	1.37
919672	AA2-049 E	0.83
920732	AA2-184 E	5.61
924852	AB2-139 E	0.08
925541	AC1-029	9.68
927132	AC1-207 E	1.67
930891	AB1-138 C	0.61
930892	AB1-138 E	1.02

Bus #	Bus	MW Impact
931122	AB1-163 E	0.84
934841	AD1-113	18.11
937261	AD2-165	19.35
939121	AE1-142 C O1	1.37
939122	AE1-142 E O1	1.97
939981	AE1-238 C	61.0
939982	AE1-238 E	160.23
940161	AE2-000 C O1	35.26
940162	AE2-000 E O1	90.21
940311	AE2-015 C O1	0.42
940312	AE2-015 E O1	0.21
940401	AE2-024 C O1	28.76
940402	AE2-024 E O1	134.65
940411	AE2-025 C O1	14.52
940412	AE2-025 E O1	67.96
940691	AE2-056 C	0.37
940692	AE2-056 E	0.33
940701	AE2-057 C	0.12
940702	AE2-057 E	0.12
940921	AE2-081 C	0.4
940922	AE2-081 E	0.41
940931	AE2-082 C	0.69
940932	AE2-082 E	0.73
941091	AE2-103 C	0.18
941092	AE2-103 E	0.24
942201	AE2-232 C O1	17.28
942202	AE2-232 E O1	44.22
942381	AE2-251 C O1	62.47
942382	AE2-251 E O1	159.85
BLUEG	BLUEG	3.5
CALDERWOOD	CALDERWOOD	0.37
CANNELTON	CANNELTON	0.21
CARR	CARR	1.14
CATAWBA	CATAWBA	0.23
CHEOAH	CHEOAH	0.34
CHILHOWEE	CHILHOWEE	0.12
COFFEEN	COFFEEN	0.37
COTTONWOOD	COTTONWOOD	1.43
DUCKCREEK	DUCKCREEK	0.81
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.36
FARMERCITY	FARMERCITY	0.24
G-007A	G-007A	124.05
GIBSON	GIBSON	0.14
HAMLET	HAMLET	0.37
NEWTON	NEWTON	0.96
O-066	O-066	33.76
PRAIRIE	PRAIRIE	1.79
RENSSELAER	RENSSELAER	0.9
SANTEETLA	SANTEETLA	0.1
SMITHLAND	SMITHLAND	0.14
TATANKA	TATANKA	0.44

Bus #	Bus	MW Impact
TILTON	TILTON	0.44
TRIMBLE	TRIMBLE	0.39
TVA	TVA	1.19
UNIONPOWER	UNIONPOWER	0.53

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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
1979923	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	133.18	141.91	DC	165.98

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.25
206325	28O C GEN	96.31
206327	28S RIV G1	4.6
206328	28S RIV G2	4.6
206329	28S RIV G3	7.33
206358	28PARLN1&2	3.0
206359	28PARLN3&4	4.0
206363	28RDOAKCT2	13.58
206364	28RDOAKCT3	13.58
206412	28R11	269.95
207144	28HOW_X1-037	0.16
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.76
901982	W1-119 E	1.41
901991	W1-120C	0.96
901992	W1-120E	1.57
902032	W1-124E	3.66
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.28
903981	W3-079 C	0.06
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.16
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.04
917682	Z2-109 E	12.27
918452	AA1-060 E	2.13
919662	AA2-048 E	1.39
919672	AA2-049 E	0.89
920732	AA2-184 E	5.92
925541	AC1-029	12.27
930891	AB1-138 C	0.62
930892	AB1-138 E	1.03
931122	AB1-163 E	0.84
937261	AD2-165	24.54
939121	AE1-142 C O1	1.39

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.0
939981	AE1-238 C	67.34
939982	AE1-238 E	176.89
940161	AE2-000 C O1	35.87
940162	AE2-000 E O1	91.77
940311	AE2-015 C O1	0.4
940312	AE2-015 E O1	0.2
940401	AE2-024 C O1	29.21
940402	AE2-024 E O1	136.77
940411	AE2-025 C O1	14.75
940412	AE2-025 E O1	69.04
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
942201	AE2-232 C O1	17.58
942202	AE2-232 E O1	44.99
942381	AE2-251 C O1	63.46
942382	AE2-251 E O1	162.37
BLUEG	BLUEG	1.46
CALDERWOOD	CALDERWOOD	0.15
CANNELTON	CANNELTON	0.09
CARR	CARR	1.04
CATAWBA	CATAWBA	0.09
CHEOAH	CHEOAH	0.13
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.15
COTTONWOOD	COTTONWOOD	0.58
DUCKCREEK	DUCKCREEK	0.34
EDWARDS	EDWARDS	0.15
ELMERSMITH	ELMERSMITH	0.15
FARMERCITY	FARMERCITY	0.1
G-007	G-007	30.11
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.14
NEWTON	NEWTON	0.4
O-066	O-066	34.01
PRAIRIE	PRAIRIE	0.74
RENSSELAER	RENSSELAER	0.82
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.18
TILTON	TILTON	0.19
TRIMBLE	TRIMBLE	0.16
TVA	TVA	0.48
UNIONPOWER	UNIONPOWER	0.21

15.9 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1979916	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	137.01	145.71	DC	165.14

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.25
206325	28O C GEN	95.79
206327	28S RIV G1	4.51
206328	28S RIV G2	4.51
206329	28S RIV G3	7.17
206358	28PARLN1&2	3.05
206359	28PARLN3&4	4.06
206362	28RDOAKCT1	13.61
206365	28RDOAKST1	19.07
206412	28R11	264.34
207144	28HOW_X1-037	0.16
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.76
901982	W1-119 E	1.41
901991	W1-120C	0.96
901992	W1-120E	1.56
902032	W1-124E	3.65
902082	W1-129E	0.38
902322	W2-019 E	0.44
902952	W2-082 E OP1	1.28
903981	W3-079 C	0.06
903982	W3-079 E	0.87
905252	W4-025 E	0.53
907082	X1-037 E	2.15
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.03
917682	Z2-109 E	12.02
918452	AA1-060 E	2.12
919662	AA2-048 E	1.39
919672	AA2-049 E	0.88
920732	AA2-184 E	5.9
925541	AC1-029	12.02
930891	AB1-138 C	0.62
930892	AB1-138 E	1.03
931122	AB1-163 E	0.83
937261	AD2-165	24.03
939121	AE1-142 C O1	1.38

Bus #	Bus	MW Impact
939122	AE1-142 E O1	1.99
939981	AE1-238 C	67.02
939982	AE1-238 E	176.04
940161	AE2-000 C O1	35.67
940162	AE2-000 E O1	91.28
940311	AE2-015 C O1	0.4
940312	AE2-015 E O1	0.2
940401	AE2-024 C O1	29.06
940402	AE2-024 E O1	136.07
940411	AE2-025 C O1	14.67
940412	AE2-025 E O1	68.68
940691	AE2-056 C	0.33
940692	AE2-056 E	0.28
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.23
942201	AE2-232 C O1	17.49
942202	AE2-232 E O1	44.74
942381	AE2-251 C O1	63.13
942382	AE2-251 E O1	161.54
BLUEG	BLUEG	1.58
CALDERWOOD	CALDERWOOD	0.16
CANNELTON	CANNELTON	0.1
CARR	CARR	1.04
CATAWBA	CATAWBA	0.1
CHEOAH	CHEOAH	0.15
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.17
COTTONWOOD	COTTONWOOD	0.63
DUCKCREEK	DUCKCREEK	0.36
EDWARDS	EDWARDS	0.17
ELMERSMITH	ELMERSMITH	0.16
FARMERCITY	FARMERCITY	0.11
G-007	G-007	30.02
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.15
NEWTON	NEWTON	0.44
O-066	O-066	34.05
PRAIRIE	PRAIRIE	0.8
RENSSELAER	RENSSELAER	0.82
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.2
TILTON	TILTON	0.2
TRIMBLE	TRIMBLE	0.18
TVA	TVA	0.52
UNIONPOWER	UNIONPOWER	0.23

15.10 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
8281154	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	single	805.0	94.53	98.13	DC	28.76

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.06
206271	28MCRC/REC	0.24
206280	28LAKEHURS	0.29
206306	28LKWD G1	1.82
206308	28LKWD G2	1.82
206312	28LKWD G3	1.12
206325	28O C GEN	94.67
206327	28S RIV G1	3.63
206328	28S RIV G2	3.63
206329	28S RIV G3	5.78
206350	28RRCT1&2	4.34
206351	28RRCT3&4	4.06
206358	28PARLN1&2	2.43
206359	28PARLN3&4	3.24
206362	28RDOAKCT1	10.55
206363	28RDOAKCT2	10.53
206364	28RDOAKCT3	10.53
206365	28RDOAKST1	14.79
206366	28LKWD CT1	3.44
206367	28LKWD CT2	3.44
206368	28MDLSEXCO	0.98
206403	28W4-009	45.72
206412	28R11	212.9
207144	28HOW_X1-037	0.18
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.06
207205	28MAN_W1-024	0.03
207206	28TIN_W1-124	0.26
901421	W1-113 C	0.06
902911	W2-078 C	0.08
903981	W3-079 C	0.06
905501	W4-060 C OP1	0.18
925541	AC1-029	9.68
927131	AC1-207 C	0.12
930891	AB1-138 C	0.61
934351	AD1-059	0.32
934841	AD1-113	18.11
937261	AD2-165	19.35
939121	AE1-142 C O1	1.37
939981	AE1-238 C	61.0
940161	AE2-000 C O1	35.26
940311	AE2-015 C O1	0.42

Bus #	Bus	MW Impact
940401	AE2-024 C O1	28.76
940411	AE2-025 C O1	14.52
940691	AE2-056 C	0.37
940701	AE2-057 C	0.12
940921	AE2-081 C	0.4
940931	AE2-082 C	0.69
941091	AE2-103 C	0.18
942201	AE2-232 C O1	17.28
942381	AE2-251 C O1	62.47
BLUEG	BLUEG	3.5
CALDERWOOD	CALDERWOOD	0.37
CANNELTON	CANNELTON	0.21
CARR	CARR	1.14
CATAWBA	CATAWBA	0.23
CHEOAH	CHEOAH	0.34
CHILHOWEE	CHILHOWEE	0.12
COFFEEN	COFFEEN	0.37
COTTONWOOD	COTTONWOOD	1.43
DUCKCREEK	DUCKCREEK	0.81
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.36
FARMERCITY	FARMERCITY	0.24
G-007A	G-007A	124.05
GIBSON	GIBSON	0.14
HAMLET	HAMLET	0.37
NEWTON	NEWTON	0.96
PRAIRIE	PRAIRIE	1.79
RENSSELAER	RENSSELAER	0.9
SANTEETLA	SANTEETLA	0.1
SMITHLAND	SMITHLAND	0.14
TATANKA	TATANKA	0.44
TILTON	TILTON	0.44
TRIMBLE	TRIMBLE	0.39
TVA	TVA	1.19
UNIONPOWER	UNIONPOWER	0.53

15.11 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
8281164	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE_LT	single	679.0	95.97	99.18	DC	21.63

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.04
206271	28MCRC/REC	0.18
206280	28LAKEHURS	0.22
206306	28LKWD G1	1.37
206308	28LKWD G2	1.37
206312	28LKWD G3	0.84
206325	28O C GEN	71.56
206327	28S RIV G1	2.68
206328	28S RIV G2	2.68
206329	28S RIV G3	4.26
206350	28RRCT1&2	3.19
206351	28RRCT3&4	2.99
206358	28PARLN1&2	1.79
206359	28PARLN3&4	2.39
206362	28RDOAKCT1	7.78
206363	28RDOAKCT2	7.76
206364	28RDOAKCT3	7.76
206365	28RDOAKST1	10.9
206366	28LKWD CT1	2.59
206367	28LKWD CT2	2.59
206368	28MDLSEXCO	0.73
206403	28W4-009	33.67
206412	28R11	156.91
207144	28HOW_X1-037	0.14
207145	28FRN_Y2-051	0.03
207204	28HOL_W1-112	0.05
207205	28MAN_W1-024	0.03
207206	28TIN_W1-124	0.19
901421	W1-113 C	0.05
902911	W2-078 C	0.06
903981	W3-079 C	0.05
905501	W4-060 C OP1	0.13
925541	AC1-029	7.13
927131	AC1-207 C	0.09
930891	AB1-138 C	0.46
934351	AD1-059	0.24
934841	AD1-113	13.34
937261	AD2-165	14.26
939121	AE1-142 C O1	1.03
939981	AE1-238 C	45.42
940161	AE2-000 C O1	26.65
940311	AE2-015 C O1	0.32

Bus #	Bus	MW Impact
940401	AE2-024 C O1	21.63
940411	AE2-025 C O1	10.92
940691	AE2-056 C	0.28
940701	AE2-057 C	0.09
940921	AE2-081 C	0.3
940931	AE2-082 C	0.52
941091	AE2-103 C	0.13
942201	AE2-232 C O1	13.06
942381	AE2-251 C O1	47.0
BLUEG	BLUEG	2.19
CALDERWOOD	CALDERWOOD	0.23
CANNELTON	CANNELTON	0.13
CARR	CARR	1.18
CATAWBA	CATAWBA	0.14
CHEOAH	CHEOAH	0.21
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	0.89
DUCKCREEK	DUCKCREEK	0.51
EDWARDS	EDWARDS	0.23
ELMERSMITH	ELMERSMITH	0.23
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	91.35
GIBSON	GIBSON	0.09
HAMLET	HAMLET	0.22
NEWTON	NEWTON	0.6
PRAIRIE	PRAIRIE	1.12
RENSSELAER	RENSSELAER	0.93
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.09
TATANKA	TATANKA	0.27
TILTON	TILTON	0.28
TRIMBLE	TRIMBLE	0.24
TVA	TVA	0.74
UNIONPOWER	UNIONPOWER	0.33

15.12 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
8281506	206286	28ATLANTIC	JCP&L	206310	28NEWPROSP	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	45.61	71.23	DC	208.13

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.23
206280	28LAKEHURS	0.36
206306	28LKWD G1	2.3
206308	28LKWD G2	2.3
206312	28LKWD G3	1.42
206325	28O C GEN	117.34
206360	28O CRK C1	0.79
206361	28O CRK C2	0.44
206366	28LKWD CT1	4.36
206367	28LKWD CT2	4.36
206412	28R11	65.35
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.04
207206	28TIN_W1-124	0.25
901912	W1-112E OP1	0.59
901982	W1-119 E	1.56
901991	W1-120C	1.07
901992	W1-120E	1.74
902032	W1-124E	3.37
902082	W1-129E	0.41
902322	W2-019 E	0.48
902952	W2-082 E OP1	1.39
903981	W3-079 C	0.07
903982	W3-079 E	1.01
905252	W4-025 E	0.58
905502	W4-060 E OP1	0.97
907082	X1-037 E	1.58
912102	X4-015 E	0.41
912182	X4-031 E	0.47
914092	Y2-051 E	0.71
917612	Z2-102 E	1.15
917682	Z2-109 E	2.97
918452	AA1-060 E	1.86
919662	AA2-048 E	1.61
919672	AA2-049 E	0.81
920732	AA2-184 E	5.39
925541	AC1-029	2.97
930891	AB1-138 C	0.75
930892	AB1-138 E	1.24
931122	AB1-163 E	0.97
934351	AD1-059	0.41

Bus #	Bus	MW Impact
934841	AD1-113	4.34
937261	AD2-165	5.94
939121	AE1-142 C O1	1.71
939122	AE1-142 E O1	2.46
939981	AE1-238 C	65.24
939982	AE1-238 E	171.37
940161	AE2-000 C O1	43.7
940162	AE2-000 E O1	111.81
940311	AE2-015 C O1	0.44
940312	AE2-015 E O1	0.21
940361	AE2-020 C O1	10.39
940362	AE2-020 E O1	48.63
940371	AE2-021 C O1	10.39
940372	AE2-021 E O1	48.63
940381	AE2-022 C O1	6.06
940382	AE2-022 E O1	28.37
940401	AE2-024 C O1	36.63
940402	AE2-024 E O1	171.5
940411	AE2-025 C O1	18.49
940412	AE2-025 E O1	86.56
940691	AE2-056 C	0.24
940692	AE2-056 E	0.21
940701	AE2-057 C	0.05
940702	AE2-057 E	0.05
940921	AE2-081 C	0.25
940922	AE2-081 E	0.26
941091	AE2-103 C	0.19
941092	AE2-103 E	0.26
942201	AE2-232 C O1	21.42
942202	AE2-232 E O1	54.81
942381	AE2-251 C O1	79.57
942382	AE2-251 E O1	203.59
BLUEG	BLUEG	1.79
CALDERWOOD	CALDERWOOD	0.19
CANNELTON	CANNELTON	0.11
CARR	CARR	0.08
CATAWBA	CATAWBA	0.12
CHEOAH	CHEOAH	0.18
CHILHOWEE	CHILHOWEE	0.06
COFFEEN	COFFEEN	0.19
COTTONWOOD	COTTONWOOD	0.75
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.19
ELMERSMITH	ELMERSMITH	0.19
FARMERCITY	FARMERCITY	0.12
G-007A	G-007A	29.73
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.2
NEWTON	NEWTON	0.49
PRAIRIE	PRAIRIE	0.92
RENSSELAER	RENSSELAER	0.06
SANTEETLA	SANTEETLA	0.05

Bus #	Bus	MW Impact
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.22
TILTON	TILTON	0.23
TRIMBLE	TRIMBLE	0.2
TVA	TVA	0.62
UNIONPOWER	UNIONPOWER	0.28

15.13 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
8281563	206287	28COOKSTOW	JCP&L	219218	LUMBRN_2	PSE&G	1	JC-P7-1-JCC-230-7A	tower	869.0	28.36	51.19	DC	210.56

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.03
206271	28MCRC/REC	0.14
206280	28LAKEHURS	0.45
206306	28LKWD G1	2.41
206308	28LKWD G2	2.41
206312	28LKWD G3	1.48
206325	28O C GEN	129.34
206360	28O CRK C1	0.87
206361	28O CRK C2	0.49
206366	28LKWD CT1	4.57
206367	28LKWD CT2	4.57
206412	28R11	42.55
207144	28HOW_X1-037	0.12
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.03
207206	28TIN_W1-124	0.15
207207	28JCB_W1-129	0.11
207208	28JCB_W4-025	0.14
901912	W1-112E OP1	0.35
901981	W1-119 C	0.36
901982	W1-119 E	4.85
901991	W1-120C	3.3
901992	W1-120E	5.39
902032	W1-124E	2.03
902082	W1-129E	1.41
902321	W2-019 C	0.13
902322	W2-019 E	1.71
902951	W2-082 C OP1	0.36
902952	W2-082 E OP1	4.8
903981	W3-079 C	0.08
903982	W3-079 E	1.04
905252	W4-025 E	2.0
905501	W4-060 C OP1	0.05
905502	W4-060 E OP1	0.69
907082	X1-037 E	1.64
907271	X1-085 C	0.06
907272	X1-085 E	0.76
912101	X4-015 C	0.11
912102	X4-015 E	1.41
912182	X4-031 E	0.36
914092	Y2-051 E	0.71

Bus #	Bus	MW Impact
917611	Z2-102 C	0.26
917612	Z2-102 E	3.44
917682	Z2-109 E	1.93
918452	AA1-060 E	7.69
919662	AA2-048 E	1.65
919672	AA2-049 E	0.49
920732	AA2-184 E	3.24
925541	AC1-029	1.93
930891	AB1-138 C	0.95
930892	AB1-138 E	1.58
931122	AB1-163 E	1.53
934351	AD1-059	0.43
934841	AD1-113	3.03
937261	AD2-165	3.87
939121	AE1-142 C O1	1.96
939122	AE1-142 E O1	2.82
939981	AE1-238 C	37.8
939982	AE1-238 E	99.28
940161	AE2-000 C O1	48.17
940162	AE2-000 E O1	123.25
940311	AE2-015 C O1	1.55
940312	AE2-015 E O1	0.76
940361	AE2-020 C O1	8.96
940362	AE2-020 E O1	41.94
940371	AE2-021 C O1	8.96
940372	AE2-021 E O1	41.94
940381	AE2-022 C O1	5.22
940382	AE2-022 E O1	24.46
940401	AE2-024 C O1	37.06
940402	AE2-024 E O1	173.5
940411	AE2-025 C O1	18.71
940412	AE2-025 E O1	87.58
940691	AE2-056 C	0.25
940692	AE2-056 E	0.22
940701	AE2-057 C	0.07
940702	AE2-057 E	0.07
940921	AE2-081 C	0.26
940922	AE2-081 E	0.27
940952	AE2-085 E	0.13
941091	AE2-103 C	0.52
941092	AE2-103 E	0.72
942201	AE2-232 C O1	23.61
942202	AE2-232 E O1	60.42
942381	AE2-251 C O1	80.5
942382	AE2-251 E O1	205.98
BLUEG	BLUEG	0.78
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.05
CATAWBA	CATAWBA	0.07
CBM-N	CBM-N	1.11
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03

Bus #	Bus	MW Impact
COFFEEN	COFFEEN	0.08
COTTONWOOD	COTTONWOOD	0.35
DUCKCREEK	DUCKCREEK	0.18
EDWARDS	EDWARDS	0.08
ELMERSMITH	ELMERSMITH	0.08
FARMERCITY	FARMERCITY	0.06
G-007A	G-007A	20.73
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.22
NYISO	NYISO	4.82
PRAIRIE	PRAIRIE	0.41
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.1
TILTON	TILTON	0.1
TRIMBLE	TRIMBLE	0.09
TVA	TVA	0.29
UNIONPOWER	UNIONPOWER	0.13
VFT	VFT	14.42

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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
1980387	206294	28LARRABEE	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-11A	tower	869.0	45.85	66.2	DC	176.81

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.03
206271	28MCRC/REC	0.12
206306	28LKWD G1	2.04
206308	28LKWD G2	2.04
206312	28LKWD G3	1.25
206359	28PARLN3&4	0.72
206366	28LKWD CT1	3.86
206367	28LKWD CT2	3.86
206368	28MDLSEXCO	0.26
206412	28R11	44.56
207144	28HOW_X1-037	0.1
207145	28FRN_Y2-051	0.02
207204	28HOL_W1-112	0.02
207205	28MAN_W1-024	0.02
207206	28TIN_W1-124	0.13
901032	W1-024E OP1	0.28
901111	W1-032 C OP1	0.02
901112	W1-032 E OP1	0.22
901912	W1-112E OP1	0.34
902032	W1-124E	1.79
902912	W2-078 E	0.47
903981	W3-079 C	0.04
903982	W3-079 E	0.48
905501	W4-060 C OP1	0.05
905502	W4-060 E OP1	0.72
907082	X1-037 E	1.33
912182	X4-031 E	0.26
914092	Y2-051 E	0.33
917682	Z2-109 E	2.03
918452	AA1-060 E	4.86
919662	AA2-048 E	0.77
919672	AA2-049 E	0.43
920732	AA2-184 E	2.86
924852	AB2-139 E	0.04
925541	AC1-029	2.03
927131	AC1-207 C	0.06
927132	AC1-207 E	0.89
934351	AD1-059	0.36
934841	AD1-113	3.26
937261	AD2-165	4.05

Bus #	Bus	MW Impact
938421	AE1-061 C	0.24
938422	AE1-061 E	0.24
939301	AE1-161 C	0.83
939302	AE1-161 E	1.24
939981	AE1-238 C	35.23
939982	AE1-238 E	92.54
940401	AE2-024 C O1	31.12
940402	AE2-024 E O1	145.7
940411	AE2-025 C O1	15.71
940412	AE2-025 E O1	73.54
940691	AE2-056 C	0.2
940692	AE2-056 E	0.18
940701	AE2-057 C	0.06
940702	AE2-057 E	0.06
940921	AE2-081 C	0.21
940922	AE2-081 E	0.22
940931	AE2-082 C	0.36
940932	AE2-082 E	0.38
940952	AE2-085 E	0.13
942381	AE2-251 C O1	67.6
942382	AE2-251 E O1	172.97
BLUEG	BLUEG	0.06
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.0
CATAWBA	CATAWBA	0.02
CBM-N	CBM-N	1.84
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.01
COTTONWOOD	COTTONWOOD	0.07
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.01
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	22.31
GIBSON	GIBSON	0.0
HAMLET	HAMLET	0.04
MECS	MECS	0.04
NEWTON	NEWTON	0.02
NYISO	NYISO	7.96
PRAIRIE	PRAIRIE	0.05
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.0
TATANKA	TATANKA	0.01
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.01
TVA	TVA	0.06
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	23.13

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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
8280693	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	81.62	121.6	DC	326.53

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.16
206280	28LAKEHURS	0.54
206306	28LKWD G1	3.61
206308	28LKWD G2	3.61
206312	28LKWD G3	2.22
206325	28O C GEN	184.69
206360	28O CRK C1	1.24
206361	28O CRK C2	0.7
206366	28LKWD CT1	6.84
206367	28LKWD CT2	6.84
206412	28R11	36.51
207144	28HOW_X1-037	0.11
207145	28FRN_Y2-051	0.07
207204	28HOL_W1-112	0.03
207206	28TIN_W1-124	0.18
207207	28JCB_W1-129	0.05
207208	28JCB_W4-025	0.07
227801	ONTC&DCT	3.53
227843	MARINGEN E	0.37
227928	V4-067E	0.15
293404	V3-036	0.5
901912	W1-112E OP1	0.36
901981	W1-119 C	0.18
901982	W1-119 E	2.46
901991	W1-120C	1.68
901992	W1-120E	2.73
902032	W1-124E	2.36
902082	W1-129E	0.65
902321	W2-019 C	0.06
902322	W2-019 E	0.76
902432	W2-030 E	0.56
902951	W2-082 C OP1	0.16
902952	W2-082 E OP1	2.2
903981	W3-079 C	0.1
903982	W3-079 E	1.39
905252	W4-025 E	0.92
905502	W4-060 E OP1	0.54
907082	X1-037 E	1.51
912101	X4-015 C	0.05
912102	X4-015 E	0.65

Bus #	Bus	MW Impact
912182	X4-031 E	0.42
914092	Y2-051 E	0.97
915022	Y3-012 E	0.69
917611	Z2-102 C	0.14
917612	Z2-102 E	1.81
917682	Z2-109 E	1.66
918452	AA1-060 E	3.05
919662	AA2-048 E	2.21
919672	AA2-049 E	0.57
920732	AA2-184 E	3.73
924701	AB2-122 C	0.07
924702	AB2-122 E	0.11
925541	AC1-029	1.66
930002	AB1-001 E	0.13
930891	AB1-138 C	1.13
930892	AB1-138 E	1.88
931122	AB1-163 E	1.44
933962	AD1-019 E	0.69
934351	AD1-059	0.64
937261	AD2-165	3.32
938781	AE1-104 C O1	10.76
938782	AE1-104 E O1	27.54
939121	AE1-142 C O1	2.67
939122	AE1-142 E O1	3.84
939981	AE1-238 C	46.09
939982	AE1-238 E	121.06
940161	AE2-000 C O1	68.78
940162	AE2-000 E O1	175.99
940311	AE2-015 C O1	0.69
940312	AE2-015 E O1	0.34
940361	AE2-020 C O1	16.83
940362	AE2-020 E O1	78.78
940371	AE2-021 C O1	16.83
940372	AE2-021 E O1	78.78
940381	AE2-022 C O1	9.82
940382	AE2-022 E O1	45.96
940391	AE2-023 C O1	6.05
940392	AE2-023 E O1	28.33
940401	AE2-024 C O1	57.47
940402	AE2-024 E O1	269.06
940411	AE2-025 C O1	29.01
940412	AE2-025 E O1	135.81
940691	AE2-056 C	0.23
940692	AE2-056 E	0.2
940701	AE2-057 C	0.04
940702	AE2-057 E	0.04
940921	AE2-081 C	0.24
940922	AE2-081 E	0.25
941091	AE2-103 C	0.29
941092	AE2-103 E	0.4
942101	AE2-222 C O1	7.81
942102	AE2-222 E O1	19.62

Bus #	Bus	MW Impact
942201	AE2-232 C O1	33.72
942202	AE2-232 E O1	86.27
942381	AE2-251 C O1	124.83
942382	AE2-251 E O1	319.42
942941	AE2-314 C	4.27
942942	AE2-314 E	2.85
BLUEG	BLUEG	1.79
CALDERWOOD	CALDERWOOD	0.19
CANNELTON	CANNELTON	0.11
CARR	CARR	0.37
CATAWBA	CATAWBA	0.12
CHEOAH	CHEOAH	0.17
CHILHOWEE	CHILHOWEE	0.06
COFFEEN	COFFEEN	0.19
COTTONWOOD	COTTONWOOD	0.73
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.19
ELMERSMITH	ELMERSMITH	0.19
FARMERCITY	FARMERCITY	0.12
G-007A	G-007A	15.95
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.49
O-066	O-066	5.81
PRAIRIE	PRAIRIE	0.92
RENSSELAER	RENSSELAER	0.29
SANTEETLA	SANTEETLA	0.05
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.22
TILTON	TILTON	0.23
TRIMBLE	TRIMBLE	0.2
TVA	TVA	0.61
UNIONPOWER	UNIONPOWER	0.27

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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
8281499	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-8A	tower	805.0	71.84	89.9	DC	145.27

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.22
206306	28LKWD G1	1.61
206308	28LKWD G2	1.61
206312	28LKWD G3	0.99
206325	28O C GEN	83.54
206360	28O CRK C1	0.56
206361	28O CRK C2	0.32
206366	28LKWD CT1	3.04
206367	28LKWD CT2	3.04
901112	W1-032 E OP1	0.12
901981	W1-119 C	0.08
901982	W1-119 E	1.12
901991	W1-120C	0.77
901992	W1-120E	1.25
902082	W1-129E	0.3
902322	W2-019 E	0.35
902952	W2-082 E OP1	1.01
903982	W3-079 E	0.33
905252	W4-025 E	0.42
912102	X4-015 E	0.3
914092	Y2-051 E	0.29
917611	Z2-102 C	0.06
917612	Z2-102 E	0.82
917682	Z2-109 E	4.47
918452	AA1-060 E	1.59
919662	AA2-048 E	0.52
919672	AA2-049 E	1.05
930891	AB1-138 C	0.47
930892	AB1-138 E	0.78
931122	AB1-163 E	0.52
934351	AD1-059	0.29
939121	AE1-142 C O1	1.19
939122	AE1-142 E O1	1.71
940161	AE2-000 C O1	31.11
940162	AE2-000 E O1	79.6
940311	AE2-015 C O1	0.32
940312	AE2-015 E O1	0.16
940361	AE2-020 C O1	8.43
940362	AE2-020 E O1	39.49
940371	AE2-021 C O1	8.43
940372	AE2-021 E O1	39.49

Bus #	Bus	MW Impact
940381	AE2-022 C O1	4.92
940382	AE2-022 E O1	23.03
940401	AE2-024 C O1	25.57
940402	AE2-024 E O1	119.71
940411	AE2-025 C O1	12.91
940412	AE2-025 E O1	60.42
941091	AE2-103 C	0.12
941092	AE2-103 E	0.17
942201	AE2-232 C O1	15.25
942202	AE2-232 E O1	39.02
942381	AE2-251 C O1	55.54
942382	AE2-251 E O1	142.11
CARR	CARR	0.6
CBM-S1	CBM-S1	0.65
CBM-S2	CBM-S2	0.37
CBM-W1	CBM-W1	1.09
CBM-W2	CBM-W2	4.69
CIN	CIN	0.47
CPL	CPL	0.16
G-007	G-007	20.23
IPL	IPL	0.3
LGEE	LGEE	0.14
MEC	MEC	0.9
MECS	MECS	0.62
O-066	O-066	21.46
RENSSELAER	RENSSELAER	0.47
WEC	WEC	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
8281410	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	71.06	102.93	DC	304.64

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.5
206306	28LKWD G1	3.37
206308	28LKWD G2	3.37
206312	28LKWD G3	2.07
206325	28O C GEN	173.39
206360	28O CRK C1	1.17
206361	28O CRK C2	0.66
206366	28LKWD CT1	6.39
206367	28LKWD CT2	6.39
207145	28FRN_Y2-051	0.06
207207	28JCB_W1-129	0.05
207208	28JCB_W4-025	0.06
227801	ONTC&DCT	3.61
227843	MARINGEN E	0.37
227928	V4-067E	0.15
293404	V3-036	0.51
901981	W1-119 C	0.17
901982	W1-119 E	2.33
901991	W1-120C	1.58
901992	W1-120E	2.59
902082	W1-129E	0.61
902321	W2-019 C	0.05
902322	W2-019 E	0.72
902432	W2-030 E	0.57
902951	W2-082 C OP1	0.16
902952	W2-082 E OP1	2.08
903981	W3-079 C	0.08
903982	W3-079 E	1.14
905252	W4-025 E	0.87
912101	X4-015 C	0.05
912102	X4-015 E	0.61
914092	Y2-051 E	0.86
915022	Y3-012 E	0.7
917611	Z2-102 C	0.13
917612	Z2-102 E	1.71
917682	Z2-109 E	1.97
918452	AA1-060 E	3.03
919662	AA2-048 E	1.81
919672	AA2-049 E	0.29
924701	AB2-122 C	0.07
924702	AB2-122 E	0.11

Bus #	Bus	MW Impact
930002	AB1-001 E	0.13
930891	AB1-138 C	1.04
930892	AB1-138 E	1.74
931122	AB1-163 E	1.29
933962	AD1-019 E	0.71
934351	AD1-059	0.6
938781	AE1-104 C O1	11.24
938782	AE1-104 E O1	28.75
939121	AE1-142 C O1	2.5
939122	AE1-142 E O1	3.59
940161	AE2-000 C O1	64.58
940162	AE2-000 E O1	165.23
940311	AE2-015 C O1	0.65
940312	AE2-015 E O1	0.32
940361	AE2-020 C O1	16.35
940362	AE2-020 E O1	76.56
940371	AE2-021 C O1	16.35
940372	AE2-021 E O1	76.56
940381	AE2-022 C O1	9.54
940382	AE2-022 E O1	44.66
940391	AE2-023 C O1	6.32
940392	AE2-023 E O1	29.57
940401	AE2-024 C O1	53.62
940402	AE2-024 E O1	251.03
940411	AE2-025 C O1	27.07
940412	AE2-025 E O1	126.71
941091	AE2-103 C	0.27
941092	AE2-103 E	0.37
942101	AE2-222 C O1	7.98
942102	AE2-222 E O1	20.05
942201	AE2-232 C O1	31.65
942202	AE2-232 E O1	80.99
942381	AE2-251 C O1	116.47
942382	AE2-251 E O1	298.01
942941	AE2-314 C	4.33
942942	AE2-314 E	2.89
BLUEG	BLUEG	0.49
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.03
CARR	CARR	0.64
CATAWBA	CATAWBA	0.02
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.18
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007	G-007	9.23
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.03

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.13
O-066	O-066	18.16
PRAIRIE	PRAIRIE	0.24
RENSSELAER	RENSSELAER	0.51
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.15
UNIONPOWER	UNIONPOWER	0.06

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281391	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	PS_P7-1_1LINE+2LINE	tower	564.0	82.9	101.28	DC	103.69

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.09
206280	28LAKEHURS	0.26
206306	28LKWD G1	1.45
206308	28LKWD G2	1.45
206312	28LKWD G3	0.89
206325	28O C GEN	160.81
206360	28O CRK C1	1.08
206361	28O CRK C2	0.61
206366	28LKWD CT1	2.75
206367	28LKWD CT2	2.75
206412	28R11	44.4
207145	28FRN_Y2-051	0.03
207206	28TIN_W1-124	0.1
901032	W1-024E OP1	0.2
901112	W1-032 E OP1	0.14
901422	W1-113 E	0.33
901912	W1-112E OP1	0.26
901982	W1-119 E	1.01
901991	W1-120C	0.69
901992	W1-120E	1.12
902032	W1-124E	1.31
902082	W1-129E	0.25
902322	W2-019 E	0.29
902912	W2-078 E	0.4
902952	W2-082 E OP1	0.85
903981	W3-079 C	0.04
903982	W3-079 E	0.52
905252	W4-025 E	0.36
905502	W4-060 E OP1	0.61
907082	X1-037 E	1.07
907272	X1-085 E	0.21
912102	X4-015 E	0.25
912182	X4-031 E	0.22
914092	Y2-051 E	0.37
917612	Z2-102 E	0.76
917682	Z2-109 E	2.02
918452	AA1-060 E	1.49
919662	AA2-048 E	0.82
919672	AA2-049 E	0.32
920732	AA2-184 E	2.11
924852	AB2-139 E	0.03
925541	AC1-029	2.02

Bus #	Bus	MW Impact
927132	AC1-207 E	0.65
930891	AB1-138 C	0.54
930892	AB1-138 E	0.91
931122	AB1-163 E	0.6
934351	AD1-059	0.26
934841	AD1-113	3.51
937261	AD2-165	4.04
938421	AE1-061 C	0.28
938422	AE1-061 E	0.53
939121	AE1-142 C O1	1.51
939122	AE1-142 E O1	2.18
939301	AE1-161 C	0.8
939302	AE1-161 E	1.2
939981	AE1-238 C	23.92
939982	AE1-238 E	62.84
940161	AE2-000 C O1	59.89
940162	AE2-000 E O1	153.23
940311	AE2-015 C O1	0.26
940312	AE2-015 E O1	0.13
940401	AE2-024 C O1	18.25
940402	AE2-024 E O1	85.44
940411	AE2-025 C O1	9.21
940412	AE2-025 E O1	43.13
940691	AE2-056 C	0.16
940692	AE2-056 E	0.14
940701	AE2-057 C	0.05
940702	AE2-057 E	0.05
940921	AE2-081 C	0.17
940922	AE2-081 E	0.18
940931	AE2-082 C	0.26
940932	AE2-082 E	0.28
940963	AE2-087 BAT	0.05
940973	AE2-088 BAT	0.03
941091	AE2-103 C	0.11
941092	AE2-103 E	0.16
941123	AE2-106 BAT	0.05
942201	AE2-232 C O1	29.36
942202	AE2-232 E O1	75.12
942381	AE2-251 C O1	39.64
942382	AE2-251 E O1	101.43
BLUEG	BLUEG	0.3
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.03
CBM-N	CBM-N	0.77
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.03
COTTONWOOD	COTTONWOOD	0.14
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.03

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.02
G-007A	G-007A	24.04
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.05
NEWTON	NEWTON	0.08
NYISO	NYISO	3.35
PRAIRIE	PRAIRIE	0.16
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.04
TILTON	TILTON	0.04
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.12
UNIONPOWER	UNIONPOWER	0.06
VFT	VFT	9.93

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281494	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	AE_P7-1 AE3TOWER-A	tower	1394.0	58.54	80.63	DC	307.86

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.08
206271	28MCRC/REC	0.26
206280	28LAKEHURS	0.55
206306	28LKWD G1	3.48
206308	28LKWD G2	3.48
206312	28LKWD G3	2.14
206325	28O C GEN	199.97
206360	28O CRK C1	1.35
206361	28O CRK C2	0.76
206366	28LKWD CT1	6.6
206367	28LKWD CT2	6.6
206412	28R11	83.97
207144	28HOW_X1-037	0.26
207145	28FRN_Y2-051	0.08
207204	28HOL_W1-112	0.05
207205	28MAN_W1-024	0.07
207206	28TIN_W1-124	0.28
901032	W1-024E OP1	0.9
901111	W1-032 C OP1	0.06
901112	W1-032 E OP1	0.79
901912	W1-112E OP1	0.69
901982	W1-119 E	2.33
901991	W1-120C	1.58
901992	W1-120E	2.58
902032	W1-124E	3.8
902082	W1-129E	0.6
902322	W2-019 E	0.71
902912	W2-078 E	0.8
902952	W2-082 E OP1	2.05
903981	W3-079 C	0.11
903982	W3-079 E	1.46
905252	W4-025 E	0.86
905501	W4-060 C OP1	0.11
905502	W4-060 E OP1	1.51
907082	X1-037 E	3.43
912102	X4-015 E	0.6
912182	X4-031 E	0.63
914092	Y2-051 E	1.05
917612	Z2-102 E	1.72
917682	Z2-109 E	3.82
918452	AA1-060 E	2.85

Bus #	Bus	MW Impact
919662	AA2-048 E	2.33
919672	AA2-049 E	0.92
920732	AA2-184 E	6.11
924852	AB2-139 E	0.1
925541	AC1-029	3.82
927131	AC1-207 C	0.19
927132	AC1-207 E	2.63
930891	AB1-138 C	1.14
930892	AB1-138 E	1.9
931122	AB1-163 E	1.45
934351	AD1-059	0.62
934841	AD1-113	6.0
937261	AD2-165	7.63
939121	AE1-142 C O1	2.69
939122	AE1-142 E O1	3.88
939981	AE1-238 C	70.24
939982	AE1-238 E	184.5
940161	AE2-000 C O1	74.47
940162	AE2-000 E O1	190.55
940311	AE2-015 C O1	0.64
940312	AE2-015 E O1	0.32
940361	AE2-020 C O1	33.13
940362	AE2-020 E O1	155.13
940371	AE2-021 C O1	33.13
940372	AE2-021 E O1	155.13
940381	AE2-022 C O1	19.33
940382	AE2-022 E O1	90.49
940401	AE2-024 C O1	54.18
940402	AE2-024 E O1	253.68
940411	AE2-025 C O1	27.35
940412	AE2-025 E O1	128.05
940691	AE2-056 C	0.52
940692	AE2-056 E	0.46
940701	AE2-057 C	0.16
940702	AE2-057 E	0.16
940921	AE2-081 C	0.56
940922	AE2-081 E	0.57
940931	AE2-082 C	1.01
940932	AE2-082 E	1.07
941091	AE2-103 C	0.28
941092	AE2-103 E	0.39
942201	AE2-232 C O1	36.51
942202	AE2-232 E O1	93.41
942381	AE2-251 C O1	117.7
942382	AE2-251 E O1	301.16
BLUEG	BLUEG	2.05
CALDERWOOD	CALDERWOOD	0.23
CANNELTON	CANNELTON	0.12
CATAWBA	CATAWBA	0.15
CBM-N	CBM-N	0.64
CHEOAH	CHEOAH	0.21
CHILHOWEE	CHILHOWEE	0.07

Bus #	Bus	MW Impact
COFFEEN	COFFEEN	0.22
COTTONWOOD	COTTONWOOD	0.87
DUCKCREEK	DUCKCREEK	0.47
EDWARDS	EDWARDS	0.21
ELMERSMITH	ELMERSMITH	0.22
FARMERCITY	FARMERCITY	0.14
G-007A	G-007A	41.09
GIBSON	GIBSON	0.08
HAMLET	HAMLET	0.25
NEWTON	NEWTON	0.57
NYISO	NYISO	2.78
PRAIRIE	PRAIRIE	1.06
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.09
TATANKA	TATANKA	0.26
TILTON	TILTON	0.26
TRIMBLE	TRIMBLE	0.23
TVA	TVA	0.73
UNIONPOWER	UNIONPOWER	0.33
VFT	VFT	8.08

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281522	206310	28NEWPROSP	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	41.7	67.31	DC	208.13

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.23
206280	28LAKEHURS	0.36
206306	28LKWD G1	2.3
206308	28LKWD G2	2.3
206312	28LKWD G3	1.42
206325	28O C GEN	117.34
206360	28O CRK C1	0.79
206361	28O CRK C2	0.44
206366	28LKWD CT1	4.36
206367	28LKWD CT2	4.36
206412	28R11	65.35
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.04
207206	28TIN_W1-124	0.25
901912	W1-112E OP1	0.59
901982	W1-119 E	1.56
901991	W1-120C	1.07
901992	W1-120E	1.74
902032	W1-124E	3.37
902082	W1-129E	0.41
902322	W2-019 E	0.48
902952	W2-082 E OP1	1.39
903981	W3-079 C	0.07
903982	W3-079 E	1.01
905252	W4-025 E	0.58
905502	W4-060 E OP1	0.97
907082	X1-037 E	1.58
912102	X4-015 E	0.41
912182	X4-031 E	0.47
914092	Y2-051 E	0.71
917612	Z2-102 E	1.15
917682	Z2-109 E	2.97
918452	AA1-060 E	1.86
919662	AA2-048 E	1.61
919672	AA2-049 E	0.81
920732	AA2-184 E	5.39
925541	AC1-029	2.97
930891	AB1-138 C	0.75
930892	AB1-138 E	1.24
931122	AB1-163 E	0.97
934351	AD1-059	0.41

Bus #	Bus	MW Impact
934841	AD1-113	4.34
937261	AD2-165	5.94
939121	AE1-142 C O1	1.71
939122	AE1-142 E O1	2.46
939981	AE1-238 C	65.24
939982	AE1-238 E	171.37
940161	AE2-000 C O1	43.7
940162	AE2-000 E O1	111.81
940311	AE2-015 C O1	0.44
940312	AE2-015 E O1	0.21
940361	AE2-020 C O1	10.39
940362	AE2-020 E O1	48.63
940371	AE2-021 C O1	10.39
940372	AE2-021 E O1	48.63
940381	AE2-022 C O1	6.06
940382	AE2-022 E O1	28.37
940401	AE2-024 C O1	36.63
940402	AE2-024 E O1	171.5
940411	AE2-025 C O1	18.49
940412	AE2-025 E O1	86.56
940691	AE2-056 C	0.24
940692	AE2-056 E	0.21
940701	AE2-057 C	0.05
940702	AE2-057 E	0.05
940921	AE2-081 C	0.25
940922	AE2-081 E	0.26
941091	AE2-103 C	0.19
941092	AE2-103 E	0.26
942201	AE2-232 C O1	21.42
942202	AE2-232 E O1	54.81
942381	AE2-251 C O1	79.57
942382	AE2-251 E O1	203.59
BLUEG	BLUEG	1.79
CALDERWOOD	CALDERWOOD	0.19
CANNELTON	CANNELTON	0.11
CARR	CARR	0.08
CATAWBA	CATAWBA	0.12
CHEOAH	CHEOAH	0.18
CHILHOWEE	CHILHOWEE	0.06
COFFEEN	COFFEEN	0.19
COTTONWOOD	COTTONWOOD	0.75
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.19
ELMERSMITH	ELMERSMITH	0.19
FARMERCITY	FARMERCITY	0.12
G-007A	G-007A	29.73
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.2
NEWTON	NEWTON	0.49
PRAIRIE	PRAIRIE	0.92
RENSSELAER	RENSSELAER	0.06
SANTEETLA	SANTEETLA	0.05

Bus #	Bus	MW Impact
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.22
TILTON	TILTON	0.23
TRIMBLE	TRIMBLE	0.2
TVA	TVA	0.62
UNIONPOWER	UNIONPOWER	0.28

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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
8281523	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	797.0	35.82	61.7	DC	206.14

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.03
206271	28MCRC/REC	0.13
206280	28LAKEHURS	0.31
206306	28LKWD G1	2.35
206308	28LKWD G2	2.35
206312	28LKWD G3	1.45
206325	28O C GEN	125.38
206360	28O CRK C1	0.84
206361	28O CRK C2	0.47
206366	28LKWD CT1	4.46
206367	28LKWD CT2	4.46
206412	28R11	40.49
207144	28HOW_X1-037	0.11
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.02
207206	28TIN_W1-124	0.14
901912	W1-112E OP1	0.33
902032	W1-124E	1.91
903981	W3-079 C	0.06
903982	W3-079 E	0.85
905501	W4-060 C OP1	0.05
905502	W4-060 E OP1	0.65
907082	X1-037 E	1.47
912182	X4-031 E	0.32
914092	Y2-051 E	0.65
917682	Z2-109 E	1.84
918452	AA1-060 E	4.32
919662	AA2-048 E	1.35
919672	AA2-049 E	0.46
920732	AA2-184 E	3.05
925541	AC1-029	1.84
930891	AB1-138 C	0.64
930892	AB1-138 E	1.07
931122	AB1-163 E	0.34
934351	AD1-059	0.42
934841	AD1-113	2.87
937261	AD2-165	3.68
939121	AE1-142 C O1	1.82
939122	AE1-142 E O1	2.62
939981	AE1-238 C	36.54
939982	AE1-238 E	95.97

Bus #	Bus	MW Impact
940161	AE2-000 C O1	46.69
940162	AE2-000 E O1	119.48
940361	AE2-020 C O1	8.8
940362	AE2-020 E O1	41.22
940371	AE2-021 C O1	8.8
940372	AE2-021 E O1	41.22
940381	AE2-022 C O1	5.14
940382	AE2-022 E O1	24.04
940401	AE2-024 C O1	36.28
940402	AE2-024 E O1	169.86
940411	AE2-025 C O1	18.31
940412	AE2-025 E O1	85.74
940691	AE2-056 C	0.22
940692	AE2-056 E	0.2
940701	AE2-057 C	0.06
940702	AE2-057 E	0.06
940921	AE2-081 C	0.24
940922	AE2-081 E	0.24
940952	AE2-085 E	0.12
942201	AE2-232 C O1	22.89
942202	AE2-232 E O1	58.57
942381	AE2-251 C O1	78.81
942382	AE2-251 E O1	201.65
BLUEG	BLUEG	0.72
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.04
CATAWBA	CATAWBA	0.06
CBM-N	CBM-N	1.02
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.08
COTTONWOOD	COTTONWOOD	0.32
DUCKCREEK	DUCKCREEK	0.16
EDWARDS	EDWARDS	0.07
ELMERSMITH	ELMERSMITH	0.08
FARMERCITY	FARMERCITY	0.05
G-007A	G-007A	19.65
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.1
NEWTON	NEWTON	0.2
NYISO	NYISO	4.41
PRAIRIE	PRAIRIE	0.38
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.09
TILTON	TILTON	0.09
TRIMBLE	TRIMBLE	0.08
TVA	TVA	0.27
UNIONPOWER	UNIONPOWER	0.12
VFT	VFT	13.22

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280798	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	90.44	109.7	DC	167.17

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.05
206271	28MCRC/REC	0.25
206325	28O C GEN	97.21
206327	28S RIV G1	4.52
206328	28S RIV G2	4.52
206329	28S RIV G3	7.2
206358	28PARLN1&2	3.06
206359	28PARLN3&4	4.07
206412	28R11	265.36
207144	28HOW_X1-037	0.16
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.77
901982	W1-119 E	1.43
901991	W1-120C	0.98
901992	W1-120E	1.59
902032	W1-124E	3.68
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.3
903981	W3-079 C	0.07
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.18
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.05
917682	Z2-109 E	12.06
918452	AA1-060 E	2.17
919662	AA2-048 E	1.4
919672	AA2-049 E	0.89
920732	AA2-184 E	5.95
925541	AC1-029	12.06
930891	AB1-138 C	0.62
930892	AB1-138 E	1.04
931122	AB1-163 E	0.84
937261	AD2-165	24.12
939121	AE1-142 C O1	1.4

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.01
939981	AE1-238 C	67.54
939982	AE1-238 E	177.41
940161	AE2-000 C O1	36.2
940162	AE2-000 E O1	92.63
940311	AE2-015 C O1	0.41
940312	AE2-015 E O1	0.2
940401	AE2-024 C O1	29.42
940402	AE2-024 E O1	137.75
940411	AE2-025 C O1	14.85
940412	AE2-025 E O1	69.53
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
942201	AE2-232 C O1	17.75
942202	AE2-232 E O1	45.41
942381	AE2-251 C O1	63.91
942382	AE2-251 E O1	163.54
BLUEG	BLUEG	0.41
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.02
CARR	CARR	0.95
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.14
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.04
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007	G-007	29.77
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.11
O-066	O-066	32.48
PRAIRIE	PRAIRIE	0.2
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.05
TILTON	TILTON	0.05
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.11
UNIONPOWER	UNIONPOWER	0.05

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280789	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	94.39	113.71	DC	167.69

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.05
206271	28MCRC/REC	0.25
206325	28O C GEN	97.5
206327	28S RIV G1	4.62
206328	28S RIV G2	4.62
206329	28S RIV G3	7.35
206358	28PARLN1&2	3.01
206359	28PARLN3&4	4.02
206412	28R11	270.79
207144	28HOW_X1-037	0.16
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.28
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.77
901982	W1-119 E	1.44
901991	W1-120C	0.98
901992	W1-120E	1.6
902032	W1-124E	3.68
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.3
903981	W3-079 C	0.07
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.18
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.62
917612	Z2-102 E	1.05
917682	Z2-109 E	12.31
918452	AA1-060 E	2.17
919662	AA2-048 E	1.41
919672	AA2-049 E	0.89
920732	AA2-184 E	5.96
925541	AC1-029	12.31
930891	AB1-138 C	0.63
930892	AB1-138 E	1.04
931122	AB1-163 E	0.85
937261	AD2-165	24.62
939121	AE1-142 C O1	1.4

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.02
939981	AE1-238 C	67.77
939982	AE1-238 E	178.02
940161	AE2-000 C O1	36.31
940162	AE2-000 E O1	92.9
940311	AE2-015 C O1	0.41
940312	AE2-015 E O1	0.2
940401	AE2-024 C O1	29.51
940402	AE2-024 E O1	138.17
940411	AE2-025 C O1	14.9
940412	AE2-025 E O1	69.74
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
942201	AE2-232 C O1	17.8
942202	AE2-232 E O1	45.54
942381	AE2-251 C O1	64.11
942382	AE2-251 E O1	164.04
BLUEG	BLUEG	0.49
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.03
CARR	CARR	0.96
CATAWBA	CATAWBA	0.02
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.17
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007	G-007	29.9
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.13
O-066	O-066	32.7
PRAIRIE	PRAIRIE	0.24
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.14
UNIONPOWER	UNIONPOWER	0.06

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280927	206411	28R11RINGA	JCP&L	206410	28R11RINGB	JCP&L	1	JC-P2-3-JCC-230-85	breaker	999.0	67.19	80.08	DC	128.56

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.18
206325	28O C GEN	74.78
206327	28S RIV G1	5.18
206328	28S RIV G2	5.18
206329	28S RIV G3	8.24
206358	28PARLN1&2	1.2
206359	28PARLN3&4	1.59
206412	28R11	303.64
207144	28HOW_X1-037	0.12
207145	28FRN_Y2-051	0.04
207204	28HOL_W1-112	0.04
207206	28TIN_W1-124	0.2
901912	W1-112E OP1	0.48
901982	W1-119 E	1.1
901991	W1-120C	0.75
901992	W1-120E	1.22
902032	W1-124E	2.73
902082	W1-129E	0.29
902322	W2-019 E	0.35
902952	W2-082 E OP1	1.0
903981	W3-079 C	0.05
903982	W3-079 E	0.67
905252	W4-025 E	0.42
907082	X1-037 E	1.55
912102	X4-015 E	0.29
912182	X4-031 E	0.38
914092	Y2-051 E	0.47
917612	Z2-102 E	0.8
917682	Z2-109 E	13.8
919662	AA2-048 E	1.07
919672	AA2-049 E	0.66
920732	AA2-184 E	4.39
925541	AC1-029	13.8
930891	AB1-138 C	0.48
930892	AB1-138 E	0.8
931122	AB1-163 E	0.65
937261	AD2-165	27.6
939121	AE1-142 C O1	1.08
939122	AE1-142 E O1	1.55
939981	AE1-238 C	52.29
939982	AE1-238 E	137.35

Bus #	Bus	MW Impact
940161	AE2-000 C O1	27.85
940162	AE2-000 E O1	71.26
940311	AE2-015 C O1	0.31
940312	AE2-015 E O1	0.15
940401	AE2-024 C O1	22.63
940402	AE2-024 E O1	105.93
940411	AE2-025 C O1	11.42
940412	AE2-025 E O1	53.47
940691	AE2-056 C	0.23
940692	AE2-056 E	0.2
940701	AE2-057 C	0.07
940702	AE2-057 E	0.07
940921	AE2-081 C	0.25
940922	AE2-081 E	0.26
941091	AE2-103 C	0.13
941092	AE2-103 E	0.18
942201	AE2-232 C O1	13.65
942202	AE2-232 E O1	34.93
942381	AE2-251 C O1	49.15
942382	AE2-251 E O1	125.76
BLUEG	BLUEG	0.03
CANNELTON	CANNELTON	0.0
CARR	CARR	0.7
CBM-S1	CBM-S1	0.02
CBM-S2	CBM-S2	0.05
CBM-W2	CBM-W2	0.05
COFFEEN	COFFEEN	0.0
CPL	CPL	0.03
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.0
FARMERCITY	FARMERCITY	0.0
G-007	G-007	22.46
GIBSON	GIBSON	0.0
NEWTON	NEWTON	0.01
O-066	O-066	24.22
PRAIRIE	PRAIRIE	0.0
RENSSELAER	RENSSELAER	0.56
TATANKA	TATANKA	0.0
TILTON	TILTON	0.0
TRIMBLE	TRIMBLE	0.0

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1979909	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	134.7	142.94	DC	79.03

Bus #	Bus	MW Impact
206325	280 C GEN	45.51
901982	W1-119 E	0.63
901991	W1-120C	0.43
901992	W1-120E	0.7
902082	W1-129E	0.17
902322	W2-019 E	0.2
902952	W2-082 E OP1	0.57
903982	W3-079 E	0.35
905252	W4-025 E	0.24
912102	X4-015 E	0.17
914092	Y2-051 E	0.26
917612	Z2-102 E	0.46
917682	Z2-109 E	1.64
919662	AA2-048 E	0.56
930891	AB1-138 C	0.28
930892	AB1-138 E	0.47
931122	AB1-163 E	0.36
939121	AE1-142 C O1	0.65
939122	AE1-142 E O1	0.94
939981	AE1-238 C	151.6
939982	AE1-238 E	398.21
940161	AE2-000 C O1	16.95
940162	AE2-000 E O1	43.37
940311	AE2-015 C O1	0.18
940312	AE2-015 E O1	0.09
940401	AE2-024 C O1	13.91
940402	AE2-024 E O1	65.12
940411	AE2-025 C O1	7.02
940412	AE2-025 E O1	32.87
941091	AE2-103 C	0.07
941092	AE2-103 E	0.1
942201	AE2-232 C O1	8.31
942202	AE2-232 E O1	21.26
942381	AE2-251 C O1	30.21
942382	AE2-251 E O1	77.31
CARR	CARR	0.26
CBM-S1	CBM-S1	0.18
CBM-S2	CBM-S2	0.11
CBM-W1	CBM-W1	0.28
CBM-W2	CBM-W2	1.25

Bus #	Bus	MW Impact
CIN	CIN	0.12
CPL	CPL	0.05
G-007	G-007	7.46
IPL	IPL	0.08
LGEE	LGEE	0.04
MEC	MEC	0.24
MECS	MECS	0.15
O-066	O-066	8.84
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280854	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	102.62	109.57	DC	122.59

Bus #	Bus	MW Impact
206325	28O C GEN	71.42
206329	28S RIV G3	4.23
206350	28RRCT1&2	3.17
206351	28RRCT3&4	2.97
206362	28RDOAKCT1	7.73
206363	28RDOAKCT2	7.71
206364	28RDOAKCT3	7.71
206365	28RDOAKST1	10.83
206403	28W4-009	33.45
206412	28R11	155.93
901032	W1-024E OP1	0.35
901112	W1-032 E OP1	0.21
901422	W1-113 E	0.64
901912	W1-112E OP1	0.62
901982	W1-119 E	1.11
901991	W1-120C	0.76
901992	W1-120E	1.23
902032	W1-124E	2.56
902082	W1-129E	0.3
902322	W2-019 E	0.35
902912	W2-078 E	0.79
902952	W2-082 E OP1	1.02
903982	W3-079 E	0.65
905252	W4-025 E	0.43
905502	W4-060 E OP1	1.76
907082	X1-037 E	1.82
907272	X1-085 E	0.31
912102	X4-015 E	0.3
912182	X4-031 E	0.37
914092	Y2-051 E	0.45
917612	Z2-102 E	0.81
917682	Z2-109 E	7.09
918452	AA1-060 E	1.95
919662	AA2-048 E	1.03
919672	AA2-049 E	0.62
920732	AA2-184 E	4.15
924852	AB2-139 E	0.06
925541	AC1-029	7.09
927132	AC1-207 E	1.25
930891	AB1-138 C	0.46
930892	AB1-138 E	0.77

Bus #	Bus	MW Impact
931122	AB1-163 E	0.63
934841	AD1-113	13.25
937261	AD2-165	14.18
937512	AD2-210 E	0.18
939121	AE1-142 C O1	1.03
939122	AE1-142 E O1	1.48
939981	AE1-238 C	45.21
939982	AE1-238 E	118.76
940161	AE2-000 C O1	26.6
940162	AE2-000 E O1	68.06
940311	AE2-015 C O1	0.32
940312	AE2-015 E O1	0.16
940401	AE2-024 C O1	21.58
940402	AE2-024 E O1	101.01
940411	AE2-025 C O1	10.89
940412	AE2-025 E O1	50.99
940691	AE2-056 C	0.28
940692	AE2-056 E	0.24
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.29
940922	AE2-081 E	0.3
940931	AE2-082 C	0.51
940932	AE2-082 E	0.54
941091	AE2-103 C	0.13
941092	AE2-103 E	0.18
942201	AE2-232 C O1	13.04
942202	AE2-232 E O1	33.36
942381	AE2-251 C O1	46.87
942382	AE2-251 E O1	119.92
BLUEG	BLUEG	2.11
CALDERWOOD	CALDERWOOD	0.22
CANNELTON	CANNELTON	0.13
CARR	CARR	1.23
CATAWBA	CATAWBA	0.13
CHEOAH	CHEOAH	0.2
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.22
COTTONWOOD	COTTONWOOD	0.85
DUCKCREEK	DUCKCREEK	0.49
EDWARDS	EDWARDS	0.22
ELMERSMITH	ELMERSMITH	0.22
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	90.77
GIBSON	GIBSON	0.09
HAMLET	HAMLET	0.21
NEWTON	NEWTON	0.58
O-066	O-066	43.2
PRAIRIE	PRAIRIE	1.07
RENSSELAER	RENSSELAER	0.98
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.09

Bus #	Bus	MW Impact
TATANKA	TATANKA	0.26
TILTON	TILTON	0.27
TRIMBLE	TRIMBLE	0.23
TVA	TVA	0.71
UNIONPOWER	UNIONPOWER	0.31

Affected Systems

15.27 Affected Systems

15.27.1 LG&E

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

15.27.2 MISO

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

15.27.3 TVA

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

15.27.4 Duke Energy Progress

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

15.27.5 NYISO

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

15.28 Contingency Descriptions

Contingency Name	Contingency Definition
AE_P1-2 CARD-CEDAR-A	CONTINGENCY 'AE_P1-2 CARD-CEDAR-A' OPEN LINE FROM BUS 227900 TO BUS 940360 CIRCUIT 1 / END
JC-P7-1-JCC-230-7A	CONTINGENCY 'JC-P7-1-JCC-230-7A' /* SMITHBURG - LARRABEE 230 LINES DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 1 DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 END
PS_P1-2_#1LINE	CONTINGENCY 'PS_P1-2_#1LINE' /* LAKE NELSON TO RARITAN RIVER DISCONNECT BUS 218331 /* KILMER #1 END
PS_P2-3_LNEPS_P1-2_1_LT	CONTINGENCY 'PS_P2-3_LNEPS_P1-2_1_LT' /* STUCK BREAKER ON LAKE NELSON I LINE DISCONNECT BUS 218312 /* GREEN BROOK STATION DISCONNECT BUS 218301 /* MIDDLE LOSS OF BUS DISCONNECT BUS 218333 /* LAKE NELSON BUS I DISCONNECT BUS 218331 /* REMOVE KILMER LINE #1 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 CLOSE LINE FROM BUS 218388 TO BUS 218389 CKT Z /* LAKE NELSON MOVE 8 MW LOAD FROM BUS 218389 TO BUS 218384 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T2 MOVE 8 MW LOAD FROM BUS 218388 TO BUS 218385 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T4 CLOSE LINE FROM BUS 218382 TO BUS 218383 CKT Z /* GREENBROOK MOVE 8 MW LOAD FROM BUS 218382 TO BUS 218406 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO SOMRVILLE T2 MOVE 8 MW LOAD FROM BUS 218382 TO BUS 218386 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO KILMER T1 MOVE 8 MW LOAD FROM BUS 218383 TO BUS 218395 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO SOUTH SECOND ST.(METUCHEN 26KV IM) END
JC-P2-3-JCC-230-85	CONTINGENCY 'JC-P2-3-JCC-230-85' /* SOUTH RIVER JUNCTION PARLIN-G1047 RARITAN RIVER LINES STUCK BREAKER DISCONNECT BRANCH FROM BUS 206410 TO BUS 206322 CKT 1 /* SOUTH RIVER JUNCTION - PARLIN 230 LINE DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 END

Contingency Name	Contingency Definition
JC-P1-2-JCC-230-018	CONTINGENCY 'JC-P1-2-JCC-230-018' /* LARRABEE - SMITHBURG (H2008) 230 KV DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 DISCONNECT BRANCH FROM BUS 200017 TO BUS 206309 CKT 4 /* SMITHBURG SMITHBURG 500 230 END
JC-P1-2-JCC-230-017	CONTINGENCY 'JC-P1-2-JCC-230-017' /* FUTURE BREAKERS LARRABEE - SMITHBURG (D2004) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 1 END
PS_P1-2_#2LINE_LT	CONTINGENCY 'PS_P1-2_#2LINE_LT' /* LAKE NELSON TO RARITIAN RIVER DISCONNECT BUS 218332 /* REMOVE KILMER CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
JC-P2-3-JCC-230-13G	CONTINGENCY 'JC-P2-3-JCC-230-13G' /* LARRABEE NW BUS & LARRABEE-SMITHBURG (D2004) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* 28LARRABEE 230 28SMITHBGR 230 REMOVE LOAD 7 FROM BUS 206294 /* 28LARRABEE 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* 28LARRABEE 230 28LARR CD 35 END
JC-P2-3-JCC-230-13E	CONTINGENCY 'JC-P2-3-JCC-230-13E' /* LARRABEE-ATLANTIC & LARRABEE-VAN HISEVILLE (B1042) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206286 CKT 1 /* 28LARRABEE 230 28ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206318 CKT 1 /* 28LARRABEE 230 28VANHISVL 230 DISCONNECT BRANCH FROM BUS 206318 TO BUS 206287 CKT 1 /* 28VANHISVL 230 28COOKSTOW 230 DISCONNECT BRANCH FROM BUS 206318 TO BUS 206720 CKT 1 /* 28VANHISVL 230 28MANCHSTR 230 DISCONNECT BRANCH FROM BUS 206720 TO BUS 206319 CKT 1 /* 28MANCHSTR 230 28WHITINGS 230 DISCONNECT BRANCH FROM BUS 206287 TO BUS 206279 CKT 1 /* 28COOKSTOW 230 28COOKSTOW 35 DISCONNECT BRANCH FROM BUS 206319 TO BUS 206281 CKT 5 /* 28WHITINGS 230 28WHITINGS 35 DISCONNECT BUS 206720 /* 28MANCHSTR 230 DISCONNECT BUS 206318 /* 28VANHISVL 230 END

Contingency Name	Contingency Definition
JC-P2-3-JCC-230-13C	CONTINGENCY 'JC-P2-3-JCC-230-13C' /* LARRABEE-ATLANTIC (R1032) 230 KV & LARRABEE SE BUS DISCONNECT BRANCH FROM BUS 206294 TO BUS 206286 CKT 1 /* 28LARRABEE 230 28ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 4 /* 28LARRABEE 230 28LARR AB 35 REMOVE SWSHUNT FROM BUS 206294 BLOCK 1 STEP 1 END
JC-P2-3-JCC-230-32A	CONTINGENCY 'JC-P2-3-JCC-230-32A' /* SMITHBURG-E.WINDSOR & SMITHBURG- LARRABEE (D2004) 230 KV DISCONNECT BRANCH FROM BUS 206309 TO BUS 206326 CKT 1 DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 1 END
JC-P2-3-JCC-230-13K	CONTINGENCY 'JC-P2-3-JCC-230-13K' /* LARRABEE - OCEANVIEW 230 KV AND LARRABEE NW BUS DISCONNECT BRANCH FROM BUS 206294 TO BUS 206300 CKT 1 /* 28LARRABEE 230 28OCEANVW 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 3 /* 28LARRABEE 230 28LARR AB 35 REMOVE LOAD 7 FROM BUS 206294 /* 28LARRABEE 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* 28LARRABEE 230 28LARR CD 35 END
JC-P2-3-JCC-230-13J	CONTINGENCY 'JC-P2-3-JCC-230-13J' /* LARRABEE - OCEANVIEW 230 KV AND LARRABEE SE BUS DISCONNECT BRANCH FROM BUS 206294 TO BUS 206300 CKT 1 /* 28LARRABEE 230 28OCEANVW 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 3 /* 28LARRABEE 230 28LARR AB 35 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 4 /* 28LARRABEE 230 28LARR AB 35 REDUCE BUS 206294 SHUNT BY 100 PERCENT /* 28LARRABEE 230 END
JC-P2-3-JCC-230-47D	CONTINGENCY 'JC-P2-3-JCC-230-47D' /* LARRABEE-ATLANTIC (Y2025) AND OCEANVIEW BANK 2 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206286 CKT Y /* 28OCEANVW 230 ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* 28OCEANVW 230 OCEANVIE 230 END
JC-P2-3-JCC-230-47C	CONTINGENCY 'JC-P2-3-JCC-230-47C' /* LARRABEE-ATLANTIC (Y2025) AND OCEANVIEW BANK 1 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206286 CKT Y /* 28OCEANVW 230 ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 1 /* 28OCEANVW 230 OCEANVIE 230 END

Contingency Name	Contingency Definition
PS_P2-3_LNEPS_P1-2_2_LT	CONTINGENCY 'PS_P2-3_LNEPS_P1-2_2_LT' /* LAKE NELSON LINE #2 STUCK BREAKER DISCONNECT BUS 218334 /* LAKE NELSON LOSS OF BUS W SIDE DISCONNECT BUS 218522 /* REMOVE MIDDLESEX DISCONNECT BUS 218332 /* REMOVE KILMER CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 CLOSE LINE FROM BUS 218388 TO BUS 218389 CKT Z /* LAKE NELSON MOVE 8 MW LOAD FROM BUS 218389 TO BUS 218384 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T2 MOVE 8 MW LOAD FROM BUS 218388 TO BUS 218385 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T4 END
JC-P2-3-JCC-230-26D	CONTINGENCY 'JC-P2-3-JCC-230-26D' /* RARITAN RIVER B146 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
JC-P2-3-JCC-230-26B	CONTINGENCY 'JC-P2-3-JCC-230-26B' /* RARITAN RIVER B144 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
PS_P7-1_1LINE+2LINE	CONTINGENCY 'PS_P7-1_1LINE+2LINE' /* LAKE NELSON - RARITIAN X2 DISCONNECT BUS 218331 /* REMOVE KILMER 1 DISCONNECT BUS 218332 /* REMOVE KILMER 2 MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END

Contingency Name	Contingency Definition
JC-P7-1-JCC-230-18T	CONTINGENCY 'JC-P7-1-JCC-230-18T' /* LAKE NELSON - GREEN BROCK - GILLETTE I1023 & W1037 DISCONNECT BUS 218301 /* MIDDLESEX SWITCH POINT I 230 KV DISCONNECT BUS 218522 /* MIDDLESEX SWITCH POINT W 230 KV DISCONNECT BRANCH FROM BUS 218333 TO BUS 218388 CKT 1 /* LNELSN_I 230 LNELSON_L2 34.5 DISCONNECT BRANCH FROM BUS 218334 TO BUS 218389 CKT 1 /* LNELSN_W 230 LNELSON_L1 34.5 DISCONNECT BUS 218312 /* GREEN BROCK I 230 KV DISCONNECT BUS 218313 /* GREEN BROCK W 230 KV DISCONNECT BRANCH FROM BUS 206239 TO BUS 206213 CKT 2 /* 28GILLET W 230 28GILLETTE 34.5 END
PS_P1-2_#2LINE	CONTINGENCY 'PS_P1-2_#2LINE' /* LAKE NELSON TO RARITAN RIVER DISCONNECT BUS 218332 /* KILMER LINE #2 END
JC-P1-2-JCC-230-027	CONTINGENCY 'JC-P1-2-JCC-230-027' /* RARITAN RIVER - RED OAK - R11 (G1047) 230 KV LINE DISCONNECT BRANCH FROM BUS 206305 TO BUS 206315 CKT 1 DISCONNECT BRANCH FROM BUS 206315 TO BUS 206410 CKT 1 DISCONNECT BUS 206315 DISCONNECT BUS 206362 DISCONNECT BUS 206365 END
206410 28R11RINGB - 206411 28R11RINGA CKT 1	CONTINGENCY '206410 28R11RINGB - 206411 28R11RINGA CKT 1' /MISSING SINGLE DISCONNECT BRANCH FROM BUS 206410 TO BUS 206411 CKT 1 END
Base Case	
JC-P1-2-JCC-230-003	CONTINGENCY 'JC-P1-2-JCC-230-003' /* FUTURE ATLANTIC - OCEANVIEW (X2024) 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT X /* ATLANTIC 230.00 OCEANV 230.00 END
JC-P1-2-JCC-230-002	CONTINGENCY 'JC-P1-2-JCC-230-002' /* ATLANTIC - LARRABEE (R1032) 230 KV & ATL BK 1 LAR BK 8 12 DISCONNECT BRANCH FROM BUS 206286 TO BUS 206294 CKT 1 END
JC-P1-2-JCC-230-004	CONTINGENCY 'JC-P1-2-JCC-230-004' /* FUTURE ATLANTIC - OCEANVIEW (Y2025) 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT Y /* ATLANTIC 230.00 OCEANV 230.00 END

Contingency Name	Contingency Definition
JC-P1-2-JCC-230-028	CONTINGENCY 'JC-P1-2-JCC-230-028' /* RARITAN RIVER - RED OAK - SOUTH RIVER JCT(T1034) 230 KV DISCONNECT BRANCH FROM BUS 206305 TO BUS 206314 CKT 1 /* 28RAR RVR 230.00 28RED OAKA 230.00 DISCONNECT BRANCH FROM BUS 206314 TO BUS 206411 CKT 1 /* 28RED OAKA 230.00 28R11RINGA 230.00 . DISCONNECT BUS 206314 /* 28RED OAKA 230.00 DISCONNECT BUS 206363 /* 28RDOAKCT2 18.00 DISCONNECT BUS 206364 /* 28RDOAKCT3 18.00 END
JC-P1-2-JCC-230-034	CONTINGENCY 'JC-P1-2-JCC-230-034' /* FUTURE LARRABEE - OCEANVIEW (NEW) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206300 CKT 1 /* 28LARRABEE 230.00 28OCEANVW 230.00 END
PJM_P1_68	CONTINGENCY 'PJM_P1_68' /* NOT VALID FROM 2009 DISCONNECT BRANCH FROM BUS 200028 TO BUS 200006 CKT 1 /* WINDSOR DEANS 500 500 DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 2 /* DEANS DEANS 500 230 END
JC-P7-1-JCC-230-11A	CONTINGENCY 'JC-P7-1-JCC-230-11A' /* LAKEWOOD - LEISURE V 230 KV LINES DISCONNECT BRANCH FROM BUS 206323 TO BUS 206295 CKT 1 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206296 CKT 1 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206282 CKT 6 DISCONNECT BRANCH FROM BUS 206282 TO BUS 206999 CKT 1 SET BUS 206295 LOAD TO 0 MW DISCONNECT BUS 206999 DISCONNECT BUS 207110 DISCONNECT BUS 207010 DISCONNECT BUS 207111 END
AE_P7-1 AE3TOWER-A	CONTINGENCY 'AE_P7-1 AE3TOWER-A' DISCONNECT BRANCH FROM BUS 227900 TO BUS 940360 CKT 1 /* CARDIFF TO AE2-020 TAP 230 KV DISCONNECT BRANCH FROM BUS 227913 TO BUS 227902 CKT 1 /* CARDIFF TO LEWIS 138 KV END
JC-P1-3-JCC-500-002T	CONTINGENCY 'JC-P1-3-JCC-500-002T' /* SMITHBURG 500/230 KV #4 BANK DISCONNECT BRANCH FROM BUS 200017 TO BUS 206309 CKT 4 /* SMITHBRG 500 28SMITHBRG 230 END
JC-P7-1-JCC-230-8A	CONTINGENCY 'JC-P7-1-JCC-230-8A' /* ATLANTIC-SMITHBURG & ATLANTIC-LARRABEE 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206310 CKT 1 /* ATLANTIC-NEWPROSPECT DISCONNECT BRANCH FROM BUS 206310 TO BUS 206309 CKT 1 /* NEWPROSPECT-SMITHBURG DISCONNECT BRANCH FROM BUS 206309 TO BUS 206285 CKT 2 /* SMITHBURG 2 DISCONNECT BRANCH FROM BUS 206286 TO BUS 206294 CKT 1 /* ATLANTIC-LARRABEE DISCONNECT BUS 206310 END

Contingency Name	Contingency Definition
PS_P1-2_#1LINE_LT	CONTINGENCY 'PS_P1-2_#1LINE_LT' /* LAKE NELSON TO RARITAN RIVER DISCONNECT BUS 218331 /* KILMER LINE #1 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
JC-P2-3-JCC-230-026A	CONTINGENCY 'JC-P2-3-JCC-230-026A' /* RARITAN RIVER B143 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END
JC-P2-3-JCC-230-026C	CONTINGENCY 'JC-P2-3-JCC-230-026C' /* RARITAN RIVER B145 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END
PJM_P1_59A	CONTINGENCY 'PJM_P1_59A' /* VALID FROM 2009 DISCONNECT BRANCH FROM BUS 200006 TO BUS 200017 CKT 1 /* DEANS SMITHBURG 500 DISCONNECT BRANCH FROM BUS 200017 TO BUS 206309 CKT 4 /* SMITHBURG SMITHBURG 500 230 END
JC-P1-2-JCC-230-009	CONTINGENCY 'JC-P1-2-JCC-230-009' /* EAST WINDSOR - SMITHBRG (E2005) 230 KV DISCONNECT BRANCH FROM BUS 206326 TO BUS 206309 CKT 1 END

Short Circuit

15.29 Short Circuit

The following Breakers are overduty:

None

16 Network Impacts – Secondary Point of Interconnection

The Queue Project AE2-024 was evaluated as a 882.0 MW (Capacity 155.2 MW) injection at the Oyster Creek 230 kV substation in the JCPL area. Project AE2-024 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-024 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

16.1 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
8280983	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	85.35	98.47	DC	107.17
8281005	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	80.26	92.59	DC	107.19
8281163	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	single	679.0	99.74	100.95	DC	18.04
8281164	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE_LT	single	679.0	98.95	100.16	DC	18.04

16.2 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
8280693	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	67.33	99.8	DC	264.57
8281410	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	68.07	94.06	DC	248.39
8281399	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	82.34	137.2	DC	448.02
8281400	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	72.16	130.34	DC	475.31
8281389	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	9.74	134.84	DC	815.44
8281391	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	PS_P7-1_1LINE+2LINE	tower	564.0	62.14	102.98	DC	230.36
8281451	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	83.96	121.63	DC	327.22
8281452	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	76.28	116.09	DC	345.91
8281428	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	67.04	118.65	DC	448.36
8281429	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	56.18	110.22	DC	469.62
8280708	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	92.52	149.0	DC	461.25
8280790	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	91.97	99.27	DC	140.33
8281441	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	65.31	116.92	DC	448.36
8281442	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	54.44	108.49	DC	469.62
14087015	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE7	breaker	906.0	78.25	82.45	DC	101.67
14087016	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE6	breaker	906.0	78.24	82.44	DC	101.66
8281535	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	76.89	95.23	DC	83.48
14087806	227955	CEDAR	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	27.85	81.67	DC	729.48

16.3 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
1979909	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	136.03	142.83	DC	65.2
1979910	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47C	breaker	432.0	132.88	139.68	DC	65.17
8280816	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	114.44	122.19	DC	135.62
8280854	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	103.69	109.5	DC	102.31
8281130	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	single	813.0	103.86	105.2	DC	23.87
8281132	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE	single	813.0	103.03	104.37	DC	23.87
1979923	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	134.55	141.82	DC	137.96
1979924	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	120.69	128.0	DC	138.63
1979916	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	138.38	145.62	DC	137.22
1979917	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	124.57	131.84	DC	137.88
8280798	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	101.61	108.86	DC	139.26
8280789	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	105.6	112.86	DC	139.66
1980370	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	153.76	162.03	DC	126.95
8281394	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	118.85	168.92	DC	346.47
8281383	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	163.68	176.83	DC	83.46
8281409	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	154.06	166.15	DC	83.48

16.4 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
8281018	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P1-2-JCC-230-017	operation	813.0	65.29	97.92	DC	264.59
8281044	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P1-2-JCC-230-018	operation	817.0	59.61	89.47	DC	243.24
8281182	206295	28LEISUR D	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-020	operation	869.0	41.19	91.46	DC	436.82
8281107	206296	28LEISUR U	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	52.99	106.21	DC	434.76

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281072	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	65.65	119.67	DC	441.3
8281078	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	65.01	119.03	DC	441.29
8281113	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P1-2-JCC-230-004	operation	432.0	123.4	130.19	DC	65.08
8281115	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	Y	JC-P1-2-JCC-230-003	operation	432.0	123.4	130.19	DC	65.08
8280978	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	operation	817.0	122.65	197.19	DC	608.94
8280980	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	Base Case	operation	650.0	82.8	133.36	DC	328.67
8281000	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	operation	869.0	115.33	185.42	DC	609.06
8281002	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	Base Case	operation	709.0	75.99	122.41	DC	329.08
8281125	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	operation	813.0	113.85	121.6	DC	135.62
8281243	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P1-2_#1LINE_LT	operation	817.0	99.91	105.73	DC	102.51
8281136	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-027	operation	869.0	115.56	122.82	DC	137.79
8281117	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-028	operation	869.0	119.47	126.7	DC	137.05
8281143	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PJM_P1_68	operation	813.0	86.47	101.19	DC	119.41
8281023	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P1-2-JCC-230-014	operation	817.0	92.11	148.61	DC	461.44
8281025	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	Base Case	operation	650.0	52.52	91.53	DC	252.3
8281055	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P1-2-JCC-230-013	operation	869.0	87.77	140.9	DC	461.49
8281057	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	Base Case	operation	709.0	48.29	84.14	DC	252.98
8281120	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PJM_P1_68	operation	869.0	95.18	108.32	DC	113.94
8281122	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	Base Case	operation	706.0	86.14	99.25	DC	92.52
8281148	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	operation	805.0	107.96	115.79	DC	135.62
8281158	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	operation	679.0	111.04	118.05	DC	102.51
8281162	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	Base Case	operation	523.0	95.51	100.75	DC	59.25
8281186	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	PJM_P1_68	operation	805.0	75.98	90.84	DC	119.41
8281103	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	Base Case	operation	650.0	106.94	113.02	DC	87.84
14087369	227900	CARDIFF	AE	228002	ORCHARD	AE	1	PS_P1-2_2310A	operation	906.0	77.78	81.95	DC	100.91
14087372	227900	CARDIFF	AE	228002	ORCHARD	AE	1	Base Case	operation	748.0	62.22	65.18	DC	68.01

16.5 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.

16.6 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
8280983	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	85.35	98.47	DC	107.17

Bus #	Bus	MW Impact
206325	28O C GEN	425.09
206360	28O CRK C1	2.86
206361	28O CRK C2	1.61
227801	ONTC&DCT	7.33
227842	MARINGEN	0.09
227927	V4-067C	0.02
228014	PVILLEG	0.09
228201	CARL#2CT	0.24
228202	CUMB CT	0.69
228203	P06	0.73
228206	SHRMN CT	0.63
228251	CARLLS#4	0.03
228260	V4-054C	0.07
228702	WEST CT	0.28
228711	V2-041C	0.02
228717	S121	0.38
228727	W2-039G	0.69
292062	V1-021 C	0.03
902091	W1-130C	0.05
902431	W2-030 C	0.09
913341	Y1-077	8.57
924531	AB2-102 C	23.48
924701	AB2-122 C	0.14
930001	AB1-001 C	0.02
931191	AB1-169A	55.59
938311	AE1-046 C	0.2
938421	AE1-061 C	0.5
938781	AE1-104 C O1	21.94
939501	AE1-179 C O1	3.06
940001	AE1-240 C O1	2.55
940361	AE2-020 C O2	22.11
940371	AE2-021 C O2	22.11
940381	AE2-022 C O2	12.9
940391	AE2-023 C O2	14.39
940401	AE2-024 C O2	107.17
940411	AE2-025 C O2	42.2
940961	AE2-087 C	0.12
940963	AE2-087 BAT	0.08
941001	AE2-091 C O2	1.9
941121	AE2-106 C	0.13
941123	AE2-106 BAT	0.08

Bus #	Bus	MW Impact
941931	AE2-205 C O2	5.03
942101	AE2-222 C O2	16.22
942201	AE2-232 C O2	23.35
942381	AE2-251 C O2	70.06
942941	AE2-314 C	8.98
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.01
CARR	CARR	0.48
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.06
CPL	CPL	0.0
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.0
NEWTON	NEWTON	0.05
PRAIRIE	PRAIRIE	0.09
RENSSELAER	RENSSELAER	0.38
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.05
UNIONPOWER	UNIONPOWER	0.02

16.7 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
8281005	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	80.26	92.59	DC	107.19

Bus #	Bus	MW Impact
206325	28O C GEN	425.17
206360	28O CRK C1	2.86
206361	28O CRK C2	1.61
227801	ONTC&DCT	7.33
227842	MARINGEN	0.09
227927	V4-067C	0.02
228014	PVILLEG	0.09
228201	CARL#2CT	0.24
228202	CUMB CT	0.69
228203	P06	0.73
228206	SHRMN CT	0.63
228251	CARLLS#4	0.03
228260	V4-054C	0.07
228702	WEST CT	0.28
228711	V2-041C	0.02
228717	S121	0.38
228727	W2-039G	0.69
292062	V1-021 C	0.03
902091	W1-130C	0.05
902431	W2-030 C	0.09
913341	Y1-077	8.57
924531	AB2-102 C	23.49
924701	AB2-122 C	0.14
930001	AB1-001 C	0.02
931191	AB1-169A	55.6
938311	AE1-046 C	0.2
938421	AE1-061 C	0.5
938781	AE1-104 C O1	21.94
939501	AE1-179 C O1	3.07
940001	AE1-240 C O1	2.55
940361	AE2-020 C O2	22.12
940371	AE2-021 C O2	22.12
940381	AE2-022 C O2	12.9
940391	AE2-023 C O2	14.39
940401	AE2-024 C O2	107.19
940411	AE2-025 C O2	42.2
940961	AE2-087 C	0.12
940963	AE2-087 BAT	0.08
941001	AE2-091 C O2	1.9
941121	AE2-106 C	0.13
941123	AE2-106 BAT	0.08

Bus #	Bus	MW Impact
941931	AE2-205 C O2	5.03
942101	AE2-222 C O2	16.22
942201	AE2-232 C O2	23.36
942381	AE2-251 C O2	70.07
942941	AE2-314 C	8.98
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.01
CARR	CARR	0.48
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.06
CPL	CPL	0.0
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.0
NEWTON	NEWTON	0.05
PRAIRIE	PRAIRIE	0.09
RENSSELAER	RENSSELAER	0.38
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.05
UNIONPOWER	UNIONPOWER	0.02

16.8 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
8281164	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE_LT	single	679.0	98.95	100.16	DC	18.04

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.04
206271	28MCR/REC	0.18
206280	28LAKEHURS	0.22
206306	28LKWD G1	1.37
206308	28LKWD G2	1.37
206312	28LKWD G3	0.84
206325	28O C GEN	71.56
206327	28S RIV G1	2.68
206328	28S RIV G2	2.68
206329	28S RIV G3	4.26
206350	28RRCT1&2	3.19
206351	28RRCT3&4	2.99
206358	28PARLN1&2	1.79
206359	28PARLN3&4	2.39
206362	28RDOAKCT1	7.78
206363	28RDOAKCT2	7.76
206364	28RDOAKCT3	7.76
206365	28RDOAKST1	10.9
206366	28LKWD CT1	2.59
206367	28LKWD CT2	2.59
206368	28MDLSEXCO	0.73
206403	28W4-009	33.67
206412	28R11	156.91
207144	28HOW_X1-037	0.14
207145	28FRN_Y2-051	0.03
207204	28HOL_W1-112	0.05
207205	28MAN_W1-024	0.03
207206	28TIN_W1-124	0.19
901421	W1-113 C	0.05
902911	W2-078 C	0.06
903981	W3-079 C	0.05
905501	W4-060 C OP1	0.13
925541	AC1-029	7.13
927131	AC1-207 C	0.09
930891	AB1-138 C	0.46
934351	AD1-059	0.24
934841	AD1-113	13.34
937261	AD2-165	14.26
939121	AE1-142 C O1	1.03
939981	AE1-238 C	45.42
940161	AE2-000 C O2	31.96
940311	AE2-015 C O2	0.32

Bus #	Bus	MW Impact
940401	AE2-024 C O2	18.04
940411	AE2-025 C O2	7.42
940691	AE2-056 C	0.28
940701	AE2-057 C	0.09
940921	AE2-081 C	0.3
940931	AE2-082 C	0.52
941091	AE2-103 C	0.13
BLUEG	BLUEG	2.19
CALDERWOOD	CALDERWOOD	0.23
CANNELTON	CANNELTON	0.13
CARR	CARR	1.18
CATAWBA	CATAWBA	0.14
CHEOAH	CHEOAH	0.21
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.23
COTTONWOOD	COTTONWOOD	0.89
DUCKCREEK	DUCKCREEK	0.51
EDWARDS	EDWARDS	0.23
ELMERSMITH	ELMERSMITH	0.23
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	91.35
GIBSON	GIBSON	0.09
HAMLET	HAMLET	0.22
NEWTON	NEWTON	0.6
PRAIRIE	PRAIRIE	1.12
RENSSELAER	RENSSELAER	0.93
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.09
TATANKA	TATANKA	0.27
TILTON	TILTON	0.28
TRIMBLE	TRIMBLE	0.24
TVA	TVA	0.74
UNIONPOWER	UNIONPOWER	0.33

16.9 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
8280693	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	67.33	99.8	DC	264.57

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.16
206280	28LAKEHURS	0.54
206306	28LKWD G1	3.61
206308	28LKWD G2	3.61
206312	28LKWD G3	2.22
206325	28O C GEN	184.69
206360	28O CRK C1	1.24
206361	28O CRK C2	0.7
206366	28LKWD CT1	6.84
206367	28LKWD CT2	6.84
206412	28R11	36.51
207144	28HOW_X1-037	0.11
207145	28FRN_Y2-051	0.07
207204	28HOL_W1-112	0.03
207206	28TIN_W1-124	0.18
207207	28JCB_W1-129	0.05
207208	28JCB_W4-025	0.07
227801	ONTC&DCT	3.53
227843	MARINGEN E	0.37
227928	V4-067E	0.15
293404	V3-036	0.5
901912	W1-112E OP1	0.36
901981	W1-119 C	0.18
901982	W1-119 E	2.46
901991	W1-120C	1.68
901992	W1-120E	2.73
902032	W1-124E	2.36
902082	W1-129E	0.65
902321	W2-019 C	0.06
902322	W2-019 E	0.76
902432	W2-030 E	0.56
902951	W2-082 C OP1	0.16
902952	W2-082 E OP1	2.2
903981	W3-079 C	0.1
903982	W3-079 E	1.39
905252	W4-025 E	0.92
905502	W4-060 E OP1	0.54
907082	X1-037 E	1.51
912101	X4-015 C	0.05
912102	X4-015 E	0.65

Bus #	Bus	MW Impact
912182	X4-031 E	0.42
914092	Y2-051 E	0.97
915022	Y3-012 E	0.69
917611	Z2-102 C	0.14
917612	Z2-102 E	1.81
917682	Z2-109 E	1.66
918452	AA1-060 E	3.05
919662	AA2-048 E	2.21
919672	AA2-049 E	0.57
920732	AA2-184 E	3.73
924701	AB2-122 C	0.07
924702	AB2-122 E	0.11
925541	AC1-029	1.66
930002	AB1-001 E	0.13
930891	AB1-138 C	1.13
930892	AB1-138 E	1.88
931122	AB1-163 E	1.44
933962	AD1-019 E	0.69
934351	AD1-059	0.64
937261	AD2-165	3.32
938781	AE1-104 C O1	10.76
938782	AE1-104 E O1	27.54
939121	AE1-142 C O1	2.67
939122	AE1-142 E O1	3.84
939981	AE1-238 C	46.09
939982	AE1-238 E	121.06
940161	AE2-000 C O2	84.89
940162	AE2-000 E O2	217.2
940311	AE2-015 C O2	0.7
940312	AE2-015 E O2	0.34
940361	AE2-020 C O2	10.53
940362	AE2-020 E O2	49.3
940371	AE2-021 C O2	10.53
940372	AE2-021 E O2	49.3
940381	AE2-022 C O2	6.14
940382	AE2-022 E O2	28.76
940391	AE2-023 C O2	6.96
940392	AE2-023 E O2	32.57
940401	AE2-024 C O2	46.56
940402	AE2-024 E O2	218.01
940411	AE2-025 C O2	18.55
940412	AE2-025 E O2	86.83
940691	AE2-056 C	0.23
940692	AE2-056 E	0.2
940701	AE2-057 C	0.04
940702	AE2-057 E	0.04
940921	AE2-081 C	0.24
940922	AE2-081 E	0.25
941091	AE2-103 C	0.29
941092	AE2-103 E	0.4
942101	AE2-222 C O2	7.81
942102	AE2-222 E O2	19.61

Bus #	Bus	MW Impact
942201	AE2-232 C O2	11.12
942202	AE2-232 E O2	28.45
942381	AE2-251 C O2	33.36
942382	AE2-251 E O2	85.35
942941	AE2-314 C	4.27
942942	AE2-314 E	2.85
BLUEG	BLUEG	1.79
CALDERWOOD	CALDERWOOD	0.19
CANNELTON	CANNELTON	0.11
CARR	CARR	0.37
CATAWBA	CATAWBA	0.12
CHEOAH	CHEOAH	0.17
CHILHOWEE	CHILHOWEE	0.06
COFFEEN	COFFEEN	0.19
COTTONWOOD	COTTONWOOD	0.73
DUCKCREEK	DUCKCREEK	0.41
EDWARDS	EDWARDS	0.19
ELMERSMITH	ELMERSMITH	0.19
FARMERCITY	FARMERCITY	0.12
G-007A	G-007A	15.95
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.19
NEWTON	NEWTON	0.49
O-066	O-066	5.81
PRAIRIE	PRAIRIE	0.92
RENSSELAER	RENSSELAER	0.29
SANTEETLA	SANTEETLA	0.05
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.22
TILTON	TILTON	0.23
TRIMBLE	TRIMBLE	0.2
TVA	TVA	0.61
UNIONPOWER	UNIONPOWER	0.27

16.10 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
8281410	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	68.07	94.06	DC	248.39

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.5
206306	28LKWD G1	3.37
206308	28LKWD G2	3.37
206312	28LKWD G3	2.07
206325	28O C GEN	173.39
206360	28O CRK C1	1.17
206361	28O CRK C2	0.66
206366	28LKWD CT1	6.39
206367	28LKWD CT2	6.39
207145	28FRN_Y2-051	0.06
207207	28JCB_W1-129	0.05
207208	28JCB_W4-025	0.06
227801	ONTC&DCT	3.61
227843	MARINGEN E	0.37
227928	V4-067E	0.15
292063	V1-021 E	0.02
293404	V3-036	0.51
901981	W1-119 C	0.17
901982	W1-119 E	2.33
901991	W1-120C	1.58
901992	W1-120E	2.59
902082	W1-129E	0.61
902321	W2-019 C	0.05
902322	W2-019 E	0.72
902432	W2-030 E	0.57
902951	W2-082 C OP1	0.16
902952	W2-082 E OP1	2.08
903981	W3-079 C	0.08
903982	W3-079 E	1.14
904432	W3-124 E	0.13
905252	W4-025 E	0.87
905792	W4-103 E	0.32
907272	X1-085 E	0.23
912101	X4-015 C	0.05
912102	X4-015 E	0.61
914092	Y2-051 E	0.86
915022	Y3-012 E	0.7
917611	Z2-102 C	0.13
917612	Z2-102 E	1.71
917682	Z2-109 E	1.97
918452	AA1-060 E	3.03

Bus #	Bus	MW Impact
919662	AA2-048 E	1.81
919672	AA2-049 E	0.29
924701	AB2-122 C	0.07
924702	AB2-122 E	0.11
930002	AB1-001 E	0.13
930891	AB1-138 C	1.04
930892	AB1-138 E	1.74
931122	AB1-163 E	1.29
933962	AD1-019 E	0.71
934351	AD1-059	0.6
938781	AE1-104 C O1	11.24
938782	AE1-104 E O1	28.75
939121	AE1-142 C O1	2.5
939122	AE1-142 E O1	3.59
940161	AE2-000 C O2	79.2
940162	AE2-000 E O2	202.65
940311	AE2-015 C O2	0.66
940312	AE2-015 E O2	0.33
940361	AE2-020 C O2	10.67
940362	AE2-020 E O2	49.97
940371	AE2-021 C O2	10.67
940372	AE2-021 E O2	49.97
940381	AE2-022 C O2	6.23
940382	AE2-022 E O2	29.15
940391	AE2-023 C O2	7.14
940392	AE2-023 E O2	33.4
940401	AE2-024 C O2	43.72
940402	AE2-024 E O2	204.67
940411	AE2-025 C O2	17.59
940412	AE2-025 E O2	82.37
941091	AE2-103 C	0.27
941092	AE2-103 E	0.37
942101	AE2-222 C O2	7.98
942102	AE2-222 E O2	20.04
942201	AE2-232 C O2	11.27
942202	AE2-232 E O2	28.83
942381	AE2-251 C O2	33.81
942382	AE2-251 E O2	86.5
942941	AE2-314 C	4.33
942942	AE2-314 E	2.89
BLUEG	BLUEG	0.49
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.03
CARR	CARR	0.64
CATAWBA	CATAWBA	0.02
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.18
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.03
G-007	G-007	9.23
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.13
O-066	O-066	18.16
PRAIRIE	PRAIRIE	0.24
RENSSELAER	RENSSELAER	0.51
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.15
UNIONPOWER	UNIONPOWER	0.06

16.11 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
8281399	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	82.34	137.2	DC	448.02

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.25
206306	28LKWD G1	5.65
206308	28LKWD G2	5.65
206312	28LKWD G3	3.48
206325	28O C GEN	312.75
206360	28O CRK C1	2.1
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.71
206367	28LKWD CT2	10.71
227801	ONTC&DCT	5.25
227842	MARINGEN	0.06
227843	MARINGEN E	0.54
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83
915022	Y3-012 E	1.02
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	0.52
930892	AB1-138 E	0.87
933962	AD1-019 E	1.03
934351	AD1-059	1.01
938781	AE1-104 C O1	15.62
938782	AE1-104 E O1	39.95
939121	AE1-142 C O1	3.93
939122	AE1-142 E O1	5.66
940361	AE2-020 C O2	15.9
940362	AE2-020 E O2	74.44
940371	AE2-021 C O2	15.9
940372	AE2-021 E O2	74.44
940381	AE2-022 C O2	9.28
940382	AE2-022 E O2	43.43
940391	AE2-023 C O2	10.3
940392	AE2-023 E O2	48.24
940401	AE2-024 C O2	78.85

Bus #	Bus	MW Impact
940402	AE2-024 E O2	369.17
940411	AE2-025 C O2	30.96
940412	AE2-025 E O2	144.94
942101	AE2-222 C O2	11.62
942102	AE2-222 E O2	29.2
942201	AE2-232 C O2	16.79
942202	AE2-232 E O2	42.96
942381	AE2-251 C O2	50.37
942382	AE2-251 E O2	128.89
942941	AE2-314 C	6.45
942942	AE2-314 E	4.3
BLUEG	BLUEG	1.2
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.38
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.11
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.12
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.14
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.12
NEWTON	NEWTON	0.33
O-066	O-066	9.67
PRAIRIE	PRAIRIE	0.61
RENSSELAER	RENSSELAER	0.3
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	0.18

16.12 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
8281389	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	9.74	134.84	DC	815.44

Bus #	Bus	MW Impact
206360	28O CRK C1	3.83
206361	28O CRK C2	2.15
940401	AE2-024 C O2	143.52
940402	AE2-024 E O2	671.93
BLUEG	BLUEG	0.16
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.01
CBM-N	CBM-N	0.08
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.07
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	1.03
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.04
NYISO	NYISO	0.33
PRAIRIE	PRAIRIE	0.08
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.06
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	1.05

16.13 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
8281451	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	83.96	121.63	DC	327.22

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.47
206306	28LKWD G1	4.04
206308	28LKWD G2	4.04
206312	28LKWD G3	2.49
206325	28O C GEN	228.42
206360	28O CRK C1	1.54
206361	28O CRK C2	0.86
206366	28LKWD CT1	7.66
206367	28LKWD CT2	7.66
207207	28JCB_W1-129	0.07
207208	28JCB_W4-025	0.1
227801	ONTC&DCT	5.04
227842	MARINGEN	0.06
227843	MARINGEN E	0.52
227927	V4-067C	0.02
227928	V4-067E	0.22
228014	PVILLEG	0.06
292063	V1-021 E	0.03
292099	V1-030 E3	0.1
293404	V3-036	0.72
901981	W1-119 C	0.28
901982	W1-119 E	3.71
901991	W1-120C	2.53
901992	W1-120E	4.12
902082	W1-129E	1.0
902321	W2-019 C	0.09
902322	W2-019 E	1.18
902432	W2-030 E	0.8
902691	W2-056 C	0.07
902692	W2-056 E	0.89
902842	W2-071E	0.18
902951	W2-082 C OP1	0.25
902952	W2-082 E OP1	3.39
903152	W2-102 E	0.55
904042	V4-005 E	0.23
904431	W3-124 C	0.02
904432	W3-124 E	0.24
905252	W4-025 E	1.42
905791	W4-103 C	0.04
905792	W4-103 E	0.6

Bus #	Bus	MW Impact
907272	X1-085 E	0.34
912101	X4-015 C	0.07
912102	X4-015 E	1.0
913332	Y1-075 E	0.21
915022	Y3-012 E	0.98
917611	Z2-102 C	0.2
917612	Z2-102 E	2.71
917682	Z2-109 E	2.06
918452	AA1-060 E	4.89
919672	AA2-049 E	0.43
924701	AB2-122 C	0.09
924702	AB2-122 E	0.16
930001	AB1-001 C	0.01
930002	AB1-001 E	0.19
930102	AB1-025 E	0.54
930891	AB1-138 C	0.98
930892	AB1-138 E	1.63
931122	AB1-163 E	0.82
932361	AC2-050 C O1	0.42
932362	AC2-050 E O1	0.68
933962	AD1-019 E	0.99
934351	AD1-059	0.72
936541	AD2-069 C	0.21
936542	AD2-069 E	0.1
938781	AE1-104 C O1	15.87
938782	AE1-104 E O1	40.58
939121	AE1-142 C O1	3.22
939122	AE1-142 E O1	4.63
940311	AE2-015 C O2	1.08
940312	AE2-015 E O2	0.53
940361	AE2-020 C O2	14.83
940362	AE2-020 E O2	69.45
940371	AE2-021 C O2	14.83
940372	AE2-021 E O2	69.45
940381	AE2-022 C O2	8.65
940382	AE2-022 E O2	40.51
940391	AE2-023 C O2	9.99
940392	AE2-023 E O2	46.79
940401	AE2-024 C O2	57.59
940402	AE2-024 E O2	269.63
940411	AE2-025 C O2	23.36
940412	AE2-025 E O2	109.35
940951	AE2-085 C	0.23
940952	AE2-085 E	0.22
941091	AE2-103 C	0.32
941092	AE2-103 E	0.45
941441	AE2-141 C	0.13
941442	AE2-141 E	0.2
942101	AE2-222 C O2	11.15
942102	AE2-222 E O2	28.01
942201	AE2-232 C O2	15.66
942202	AE2-232 E O2	40.08

Bus #	Bus	MW Impact
942381	AE2-251 C O2	46.99
942382	AE2-251 E O2	120.24
942941	AE2-314 C	6.02
942942	AE2-314 E	4.01
BLUEG	BLUEG	0.91
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.05
CARR	CARR	0.96
CATAWBA	CATAWBA	0.04
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.1
COTTONWOOD	COTTONWOOD	0.34
DUCKCREEK	DUCKCREEK	0.21
EDWARDS	EDWARDS	0.1
ELMERSMITH	ELMERSMITH	0.09
FARMERCITY	FARMERCITY	0.06
G-007	G-007	9.97
GIBSON	GIBSON	0.04
HAMLET	HAMLET	0.07
NEWTON	NEWTON	0.25
O-066	O-066	25.98
PRAIRIE	PRAIRIE	0.45
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.04
TATANKA	TATANKA	0.11
TILTON	TILTON	0.12
TRIMBLE	TRIMBLE	0.1
TVA	TVA	0.28
UNIONPOWER	UNIONPOWER	0.12

16.14 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281428	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	67.04	118.65	DC	448.36

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.64
206306	28LKWD G1	5.61
206308	28LKWD G2	5.61
206312	28LKWD G3	3.45
206325	28O C GEN	312.99
206360	28O CRK C1	2.11
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.63
206367	28LKWD CT2	10.63
227801	ONTC&DCT	5.26
227842	MARINGEN	0.06
227843	MARINGEN E	0.55
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83
915022	Y3-012 E	1.02
917612	Z2-102 E	0.76
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	1.34
930892	AB1-138 E	2.24
931122	AB1-163 E	0.78
933962	AD1-019 E	1.04
934351	AD1-059	1.0
938781	AE1-104 C O1	15.65
938782	AE1-104 E O1	40.02
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.39
940361	AE2-020 C O2	15.93
940362	AE2-020 E O2	74.56
940371	AE2-021 C O2	15.93
940372	AE2-021 E O2	74.56
940381	AE2-022 C O2	9.29
940382	AE2-022 E O2	43.5
940391	AE2-023 C O2	10.32

Bus #	Bus	MW Impact
940392	AE2-023 E O2	48.32
940401	AE2-024 C O2	78.91
940402	AE2-024 E O2	369.45
940411	AE2-025 C O2	30.99
940412	AE2-025 E O2	145.06
942101	AE2-222 C O2	11.64
942102	AE2-222 E O2	29.25
942201	AE2-232 C O2	16.82
942202	AE2-232 E O2	43.03
942381	AE2-251 C O2	50.45
942382	AE2-251 E O2	129.09
942941	AE2-314 C	6.46
942942	AE2-314 E	4.31
BLUEG	BLUEG	1.21
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.39
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.17
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.13
NEWTON	NEWTON	0.33
O-066	O-066	9.77
PRAIRIE	PRAIRIE	0.62
RENSSELAER	RENSSELAER	0.31
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	0.18

16.15 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280708	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	92.52	149.0	DC	461.25

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.57
206306	28LKWD G1	7.36
206308	28LKWD G2	7.36
206312	28LKWD G3	4.53
206325	28O C GEN	321.99
206360	28O CRK C1	2.17
206361	28O CRK C2	1.22
206366	28LKWD CT1	13.94
206367	28LKWD CT2	13.94
227801	ONTC&DCT	5.69
227842	MARINGEN	0.07
227843	MARINGEN E	0.59
227927	V4-067C	0.02
227928	V4-067E	0.24
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.81
901982	W1-119 E	1.2
901991	W1-120C	0.82
901992	W1-120E	1.33
902432	W2-030 E	0.9
915022	Y3-012 E	1.11
917612	Z2-102 E	0.97
924701	AB2-122 C	0.11
924702	AB2-122 E	0.18
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
930891	AB1-138 C	1.19
930892	AB1-138 E	1.99
931122	AB1-163 E	0.72
933962	AD1-019 E	1.12
934351	AD1-059	1.31
938781	AE1-104 C O1	17.12
938782	AE1-104 E O1	43.8
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.38
940361	AE2-020 C O2	17.13
940362	AE2-020 E O2	80.19
940371	AE2-021 C O2	17.13
940372	AE2-021 E O2	80.19

Bus #	Bus	MW Impact
940381	AE2-022 C O2	9.99
940382	AE2-022 E O2	46.78
940391	AE2-023 C O2	11.19
940392	AE2-023 E O2	52.38
940401	AE2-024 C O2	81.18
940402	AE2-024 E O2	380.07
940411	AE2-025 C O2	32.05
940412	AE2-025 E O2	150.04
942101	AE2-222 C O2	12.59
942102	AE2-222 E O2	31.63
942201	AE2-232 C O2	18.09
942202	AE2-232 E O2	46.28
942381	AE2-251 C O2	54.26
942382	AE2-251 E O2	138.83
942941	AE2-314 C	6.95
942942	AE2-314 E	4.63
BLUEG	BLUEG	1.5
CALDERWOOD	CALDERWOOD	0.15
CANNELTON	CANNELTON	0.09
CARR	CARR	0.58
CATAWBA	CATAWBA	0.09
CHEOAH	CHEOAH	0.14
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.16
COTTONWOOD	COTTONWOOD	0.61
DUCKCREEK	DUCKCREEK	0.35
EDWARDS	EDWARDS	0.16
ELMERSMITH	ELMERSMITH	0.16
FARMERCITY	FARMERCITY	0.1
G-007	G-007	5.18
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.15
NEWTON	NEWTON	0.41
O-066	O-066	14.98
PRAIRIE	PRAIRIE	0.76
RENSSELAER	RENSSELAER	0.46
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.19
TILTON	TILTON	0.19
TRIMBLE	TRIMBLE	0.17
TVA	TVA	0.5
UNIONPOWER	UNIONPOWER	0.22

16.16 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280789	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	105.6	112.86	DC	139.66

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.05
206271	28MCRC/REC	0.25
206325	28O C GEN	97.5
206327	28S RIV G1	4.62
206328	28S RIV G2	4.62
206329	28S RIV G3	7.35
206358	28PARLN1&2	3.01
206359	28PARLN3&4	4.02
206412	28R11	270.79
207144	28HOW_X1-037	0.16
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.28
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.77
901982	W1-119 E	1.44
901991	W1-120C	0.98
901992	W1-120E	1.6
902032	W1-124E	3.68
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.3
903981	W3-079 C	0.07
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.18
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.62
917612	Z2-102 E	1.05
917682	Z2-109 E	12.31
918452	AA1-060 E	2.17
919662	AA2-048 E	1.41
919672	AA2-049 E	0.89
920732	AA2-184 E	5.96
925541	AC1-029	12.31
930891	AB1-138 C	0.63
930892	AB1-138 E	1.04
931122	AB1-163 E	0.85
937261	AD2-165	24.62
939121	AE1-142 C O1	1.4

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.02
939981	AE1-238 C	67.77
939982	AE1-238 E	178.02
940161	AE2-000 C O2	43.59
940162	AE2-000 E O2	111.54
940311	AE2-015 C O2	0.41
940312	AE2-015 E O2	0.2
940401	AE2-024 C O2	24.58
940402	AE2-024 E O2	115.08
940411	AE2-025 C O2	10.11
940412	AE2-025 E O2	47.33
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
BLUEG	BLUEG	0.49
CALDERWOOD	CALDERWOOD	0.04
CANNELTON	CANNELTON	0.03
CARR	CARR	0.96
CATAWBA	CATAWBA	0.02
CHEOAH	CHEOAH	0.04
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.17
DUCKCREEK	DUCKCREEK	0.11
EDWARDS	EDWARDS	0.05
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007	G-007	29.9
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.13
O-066	O-066	32.7
PRAIRIE	PRAIRIE	0.24
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.06
TILTON	TILTON	0.06
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.14
UNIONPOWER	UNIONPOWER	0.06

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281441	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	65.31	116.92	DC	448.36

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.64
206306	28LKWD G1	5.61
206308	28LKWD G2	5.61
206312	28LKWD G3	3.45
206325	28O C GEN	312.99
206360	28O CRK C1	2.11
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.63
206367	28LKWD CT2	10.63
227801	ONTC&DCT	5.26
227842	MARINGEN	0.06
227843	MARINGEN E	0.55
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83
915022	Y3-012 E	1.02
917612	Z2-102 E	0.76
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	1.34
930892	AB1-138 E	2.24
931122	AB1-163 E	0.78
933962	AD1-019 E	1.04
934351	AD1-059	1.0
938781	AE1-104 C O1	15.65
938782	AE1-104 E O1	40.02
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.39
940361	AE2-020 C O2	15.93
940362	AE2-020 E O2	74.56
940371	AE2-021 C O2	15.93
940372	AE2-021 E O2	74.56
940381	AE2-022 C O2	9.29
940382	AE2-022 E O2	43.5
940391	AE2-023 C O2	10.32

Bus #	Bus	MW Impact
940392	AE2-023 E O2	48.32
940401	AE2-024 C O2	78.91
940402	AE2-024 E O2	369.45
940411	AE2-025 C O2	30.99
940412	AE2-025 E O2	145.06
942101	AE2-222 C O2	11.64
942102	AE2-222 E O2	29.25
942201	AE2-232 C O2	16.82
942202	AE2-232 E O2	43.03
942381	AE2-251 C O2	50.45
942382	AE2-251 E O2	129.09
942941	AE2-314 C	6.46
942942	AE2-314 E	4.31
BLUEG	BLUEG	1.21
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.39
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.17
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.13
NEWTON	NEWTON	0.33
O-066	O-066	9.77
PRAIRIE	PRAIRIE	0.62
RENSSELAER	RENSSELAER	0.31
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	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
14087016	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE6	breaker	906.0	78.24	82.44	DC	101.66

Bus #	Bus	MW Impact
206325	280 C GEN	70.97
206360	280 CRK C1	0.48
227801	ONTC&DCT	9.88
227842	MARINGEN	0.12
227843	MARINGEN E	1.02
227927	V4-067C	0.03
227928	V4-067E	0.46
228014	PVILLEG	0.13
292063	V1-021 E	0.03
293404	V3-036	1.41
902092	W1-130E	0.62
902431	W2-030 C	0.12
902432	W2-030 E	1.56
913341	Y1-077	9.7
915022	Y3-012 E	1.92
924701	AB2-122 C	0.2
924702	AB2-122 E	0.34
930001	AB1-001 C	0.03
930002	AB1-001 E	0.37
930891	AB1-138 C	0.23
930892	AB1-138 E	0.38
931191	AB1-169A	55.81
933962	AD1-019 E	1.95
938311	AE1-046 C	0.2
938312	AE1-046 E	0.1
938421	AE1-061 C	0.26
938422	AE1-061 E	0.26
938781	AE1-104 C O1	24.83
938782	AE1-104 E O1	63.51
939121	AE1-142 C O1	0.65
939122	AE1-142 E O1	0.94
940361	AE2-020 C O2	39.54
940362	AE2-020 E O2	185.13
940371	AE2-021 C O2	39.54
940372	AE2-021 E O2	185.13
940381	AE2-022 C O2	23.06
940382	AE2-022 E O2	107.99
940391	AE2-023 C O2	20.64
940392	AE2-023 E O2	96.63
940401	AE2-024 C O2	17.89
940402	AE2-024 E O2	83.77
940411	AE2-025 C O2	15.05

Bus #	Bus	MW Impact
940412	AE2-025 E O2	70.45
942101	AE2-222 C O2	21.87
942102	AE2-222 E O2	54.95
942201	AE2-232 C O2	41.75
942202	AE2-232 E O2	106.83
942381	AE2-251 C O2	125.26
942382	AE2-251 E O2	320.5
942941	AE2-314 C	16.05
942942	AE2-314 E	10.7
BLUEG	BLUEG	0.43
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CATAWBA	CATAWBA	0.04
CBM-N	CBM-N	0.49
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.05
COTTONWOOD	COTTONWOOD	0.19
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.04
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.03
G-007A	G-007A	5.57
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.06
NEWTON	NEWTON	0.12
NYISO	NYISO	2.12
PRAIRIE	PRAIRIE	0.22
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.05
TILTON	TILTON	0.05
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.16
UNIONPOWER	UNIONPOWER	0.07
VFT	VFT	6.42

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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
8281535	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	76.89	95.23	DC	83.48

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.49
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.19
228014	PVILLEG	0.07
228712	V2-041E	0.14
292063	V1-021 E	0.03
293404	V3-036	0.78
902431	W2-030 C	0.06
902432	W2-030 E	0.83
915022	Y3-012 E	1.07
924531	AB2-102 C	12.54
924532	AB2-102 E	0.28
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
933962	AD1-019 E	1.08
938421	AE1-061 C	1.79
938422	AE1-061 E	1.79
938781	AE1-104 C O1	16.6
938782	AE1-104 E O1	42.47
939301	AE1-161 C	3.92
939302	AE1-161 E	5.89
940361	AE2-020 C O2	10.11
940362	AE2-020 E O2	47.35
940371	AE2-021 C O2	10.11
940372	AE2-021 E O2	47.35
940381	AE2-022 C O2	5.9
940382	AE2-022 E O2	27.62
940391	AE2-023 C O2	12.35
940392	AE2-023 E O2	57.81
940401	AE2-024 C O2	14.69
940402	AE2-024 E O2	68.79
940411	AE2-025 C O2	7.55
940412	AE2-025 E O2	35.35
940973	AE2-088 BAT	0.11
941931	AE2-205 C O2	2.8
941932	AE2-205 E O2	1.87
942101	AE2-222 C O2	12.14
942102	AE2-222 E O2	30.49

Bus #	Bus	MW Impact
942201	AE2-232 C O2	10.68
942202	AE2-232 E O2	27.32
942381	AE2-251 C O2	32.04
942382	AE2-251 E O2	81.97
942941	AE2-314 C	4.1
942942	AE2-314 E	2.74
BLUEG	BLUEG	0.19
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CARR	CARR	0.02
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.08
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007	G-007	0.04
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.05
O-066	O-066	0.4
PRAIRIE	PRAIRIE	0.1
RENSSELAER	RENSSELAER	0.02
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.06
UNIONPOWER	UNIONPOWER	0.03

16.20 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
14087806	227955	CEDAR	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	27.85	81.67	DC	729.48

Bus #	Bus	MW Impact
206360	28O CRK C1	3.43
206361	28O CRK C2	1.93
940401	AE2-024 C O2	128.39
940402	AE2-024 E O2	601.1
940411	AE2-025 C O2	65.97
940412	AE2-025 E O2	308.84
BLUEG	BLUEG	0.18
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.01
CBM-N	CBM-N	0.06
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.08
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	0.91
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.05
NYISO	NYISO	0.27
PRAIRIE	PRAIRIE	0.09
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.06
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	0.9

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1979909	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	136.03	142.83	DC	65.2

Bus #	Bus	MW Impact
206325	280 C GEN	45.51
901982	W1-119 E	0.63
901991	W1-120C	0.43
901992	W1-120E	0.7
902082	W1-129E	0.17
902322	W2-019 E	0.2
902952	W2-082 E OP1	0.57
903982	W3-079 E	0.35
905252	W4-025 E	0.24
912102	X4-015 E	0.17
914092	Y2-051 E	0.26
917612	Z2-102 E	0.46
917682	Z2-109 E	1.64
919662	AA2-048 E	0.56
930891	AB1-138 C	0.28
930892	AB1-138 E	0.47
931122	AB1-163 E	0.36
939121	AE1-142 C O1	0.65
939122	AE1-142 E O1	0.94
939981	AE1-238 C	151.6
939982	AE1-238 E	398.21
940161	AE2-000 C O2	20.55
940162	AE2-000 E O2	52.57
940311	AE2-015 C O2	0.18
940312	AE2-015 E O2	0.09
940401	AE2-024 C O2	11.47
940402	AE2-024 E O2	53.72
940411	AE2-025 C O2	4.68
940412	AE2-025 E O2	21.89
941091	AE2-103 C	0.07
941092	AE2-103 E	0.1
CARR	CARR	0.26
CBM-S1	CBM-S1	0.18
CBM-S2	CBM-S2	0.11
CBM-W1	CBM-W1	0.28
CBM-W2	CBM-W2	1.25
CIN	CIN	0.12
CPLE	CPLE	0.05
G-007	G-007	7.46
IPL	IPL	0.08

Bus #	Bus	MW Impact
LGEE	LGEE	0.04
MEC	MEC	0.24
MECS	MECS	0.15
O-066	O-066	8.84
RENSSELAER	RENSSELAER	0.21
WEC	WEC	0.03

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8280816	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	114.44	122.19	DC	135.62

Bus #	Bus	MW Impact
206325	28O C GEN	94.67
206329	28S RIV G3	5.78
206350	28RRCT1&2	4.34
206351	28RRCT3&4	4.06
206362	28RDOAKCT1	10.55
206363	28RDOAKCT2	10.53
206364	28RDOAKCT3	10.53
206365	28RDOAKST1	14.79
206403	28W4-009	45.72
206412	28R11	212.9
901032	W1-024E OP1	0.46
901112	W1-032 E OP1	0.28
901422	W1-113 E	0.85
901912	W1-112E OP1	0.83
901982	W1-119 E	1.46
901991	W1-120C	1.0
901992	W1-120E	1.62
902032	W1-124E	3.45
902082	W1-129E	0.39
902322	W2-019 E	0.47
902912	W2-078 E	1.05
902952	W2-082 E OP1	1.34
903982	W3-079 E	0.86
905252	W4-025 E	0.56
905502	W4-060 E OP1	2.39
907082	X1-037 E	2.45
907272	X1-085 E	0.41
912102	X4-015 E	0.39
912182	X4-031 E	0.5
914092	Y2-051 E	0.6
917612	Z2-102 E	1.07
917682	Z2-109 E	9.68
918452	AA1-060 E	2.56
919662	AA2-048 E	1.37
919672	AA2-049 E	0.83
920732	AA2-184 E	5.61
924852	AB2-139 E	0.08
925541	AC1-029	9.68
927132	AC1-207 E	1.67
930891	AB1-138 C	0.61
930892	AB1-138 E	1.02

Bus #	Bus	MW Impact
931122	AB1-163 E	0.84
934841	AD1-113	18.11
937261	AD2-165	19.35
939121	AE1-142 C O1	1.37
939122	AE1-142 E O1	1.97
939981	AE1-238 C	61.0
939982	AE1-238 E	160.23
940161	AE2-000 C O2	42.48
940162	AE2-000 E O2	108.7
940311	AE2-015 C O2	0.43
940312	AE2-015 E O2	0.21
940401	AE2-024 C O2	23.87
940402	AE2-024 E O2	111.75
940411	AE2-025 C O2	9.76
940412	AE2-025 E O2	45.68
940691	AE2-056 C	0.37
940692	AE2-056 E	0.33
940701	AE2-057 C	0.12
940702	AE2-057 E	0.12
940921	AE2-081 C	0.4
940922	AE2-081 E	0.41
940931	AE2-082 C	0.69
940932	AE2-082 E	0.73
941091	AE2-103 C	0.18
941092	AE2-103 E	0.24
BLUEG	BLUEG	3.5
CALDERWOOD	CALDERWOOD	0.37
CANNELTON	CANNELTON	0.21
CARR	CARR	1.14
CATAWBA	CATAWBA	0.23
CHEOAH	CHEOAH	0.34
CHILHOWEE	CHILHOWEE	0.12
COFFEEN	COFFEEN	0.37
COTTONWOOD	COTTONWOOD	1.43
DUCKCREEK	DUCKCREEK	0.81
EDWARDS	EDWARDS	0.37
ELMERSMITH	ELMERSMITH	0.36
FARMERCITY	FARMERCITY	0.24
G-007A	G-007A	124.05
GIBSON	GIBSON	0.14
HAMLET	HAMLET	0.37
NEWTON	NEWTON	0.96
O-066	O-066	33.76
PRAIRIE	PRAIRIE	1.79
RENSSELAER	RENSSELAER	0.9
SANTEETLA	SANTEETLA	0.1
SMITHLAND	SMITHLAND	0.14
TATANKA	TATANKA	0.44
TILTON	TILTON	0.44
TRIMBLE	TRIMBLE	0.39
TVA	TVA	1.19
UNIONPOWER	UNIONPOWER	0.53

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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
8280854	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	103.69	109.5	DC	102.31

Bus #	Bus	MW Impact
206325	28O C GEN	71.42
206329	28S RIV G3	4.23
206350	28RRCT1&2	3.17
206351	28RRCT3&4	2.97
206362	28RDOAKCT1	7.73
206363	28RDOAKCT2	7.71
206364	28RDOAKCT3	7.71
206365	28RDOAKST1	10.83
206403	28W4-009	33.45
206412	28R11	155.93
901032	W1-024E OP1	0.35
901112	W1-032 E OP1	0.21
901422	W1-113 E	0.64
901912	W1-112E OP1	0.62
901982	W1-119 E	1.11
901991	W1-120C	0.76
901992	W1-120E	1.23
902032	W1-124E	2.56
902082	W1-129E	0.3
902322	W2-019 E	0.35
902912	W2-078 E	0.79
902952	W2-082 E OP1	1.02
903982	W3-079 E	0.65
905252	W4-025 E	0.43
905502	W4-060 E OP1	1.76
907082	X1-037 E	1.82
907272	X1-085 E	0.31
912102	X4-015 E	0.3
912182	X4-031 E	0.37
914092	Y2-051 E	0.45
917612	Z2-102 E	0.81
917682	Z2-109 E	7.09
918452	AA1-060 E	1.95
919662	AA2-048 E	1.03
919672	AA2-049 E	0.62
920732	AA2-184 E	4.15
924852	AB2-139 E	0.06
925541	AC1-029	7.09
927132	AC1-207 E	1.25
930891	AB1-138 C	0.46
930892	AB1-138 E	0.77

Bus #	Bus	MW Impact
931122	AB1-163 E	0.63
934841	AD1-113	13.25
937261	AD2-165	14.18
937512	AD2-210 E	0.18
939121	AE1-142 C O1	1.03
939122	AE1-142 E O1	1.48
939981	AE1-238 C	45.21
939982	AE1-238 E	118.76
940161	AE2-000 C O2	31.87
940162	AE2-000 E O2	81.55
940311	AE2-015 C O2	0.32
940312	AE2-015 E O2	0.16
940401	AE2-024 C O2	18.01
940402	AE2-024 E O2	84.31
940411	AE2-025 C O2	7.42
940412	AE2-025 E O2	34.73
940691	AE2-056 C	0.28
940692	AE2-056 E	0.24
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.29
940922	AE2-081 E	0.3
940931	AE2-082 C	0.51
940932	AE2-082 E	0.54
941091	AE2-103 C	0.13
941092	AE2-103 E	0.18
BLUEG	BLUEG	2.11
CALDERWOOD	CALDERWOOD	0.22
CANNELTON	CANNELTON	0.13
CARR	CARR	1.23
CATAWBA	CATAWBA	0.13
CHEOAH	CHEOAH	0.2
CHILHOWEE	CHILHOWEE	0.07
COFFEEN	COFFEEN	0.22
COTTONWOOD	COTTONWOOD	0.85
DUCKCREEK	DUCKCREEK	0.49
EDWARDS	EDWARDS	0.22
ELMERSMITH	ELMERSMITH	0.22
FARMERCITY	FARMERCITY	0.15
G-007A	G-007A	90.77
GIBSON	GIBSON	0.09
HAMLET	HAMLET	0.21
NEWTON	NEWTON	0.58
O-066	O-066	43.2
PRAIRIE	PRAIRIE	1.07
RENSSELAER	RENSSELAER	0.98
SANTEETLA	SANTEETLA	0.06
SMITHLAND	SMITHLAND	0.09
TATANKA	TATANKA	0.26
TILTON	TILTON	0.27
TRIMBLE	TRIMBLE	0.23
TVA	TVA	0.71

Bus #	Bus	MW Impact
UNIONPOWER	UNIONPOWER	0.31

16.24 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
1979923	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	134.55	141.82	DC	137.96

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.25
206325	28O C GEN	96.31
206327	28S RIV G1	4.6
206328	28S RIV G2	4.6
206329	28S RIV G3	7.33
206358	28PARLN1&2	3.0
206359	28PARLN3&4	4.0
206363	28RDOAKCT2	13.58
206364	28RDOAKCT3	13.58
206412	28R11	269.95
207144	28HOW_X1-037	0.16
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.76
901982	W1-119 E	1.41
901991	W1-120C	0.96
901992	W1-120E	1.57
902032	W1-124E	3.66
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.28
903981	W3-079 C	0.06
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.16
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.04
917682	Z2-109 E	12.27
918452	AA1-060 E	2.13
919662	AA2-048 E	1.39
919672	AA2-049 E	0.89
920732	AA2-184 E	5.92
925541	AC1-029	12.27
930891	AB1-138 C	0.62
930892	AB1-138 E	1.03
931122	AB1-163 E	0.84
937261	AD2-165	24.54
939121	AE1-142 C O1	1.39

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.0
939981	AE1-238 C	67.34
939982	AE1-238 E	176.89
940161	AE2-000 C O2	43.15
940162	AE2-000 E O2	110.41
940311	AE2-015 C O2	0.41
940312	AE2-015 E O2	0.2
940401	AE2-024 C O2	24.28
940402	AE2-024 E O2	113.68
940411	AE2-025 C O2	9.96
940412	AE2-025 E O2	46.62
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
BLUEG	BLUEG	1.46
CALDERWOOD	CALDERWOOD	0.15
CANNELTON	CANNELTON	0.09
CARR	CARR	1.04
CATAWBA	CATAWBA	0.09
CHEOAH	CHEOAH	0.13
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.15
COTTONWOOD	COTTONWOOD	0.58
DUCKCREEK	DUCKCREEK	0.34
EDWARDS	EDWARDS	0.15
ELMERSMITH	ELMERSMITH	0.15
FARMERCITY	FARMERCITY	0.1
G-007	G-007	30.11
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.14
NEWTON	NEWTON	0.4
O-066	O-066	34.01
PRAIRIE	PRAIRIE	0.74
RENSSELAER	RENSSELAER	0.82
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.18
TILTON	TILTON	0.19
TRIMBLE	TRIMBLE	0.16
TVA	TVA	0.48
UNIONPOWER	UNIONPOWER	0.21

16.25 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
1979916	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	138.38	145.62	DC	137.22

Bus #	Bus	MW Impact
206271	28MCRC/REC	0.25
206325	28O C GEN	95.79
206327	28S RIV G1	4.51
206328	28S RIV G2	4.51
206329	28S RIV G3	7.17
206358	28PARLN1&2	3.05
206359	28PARLN3&4	4.06
206362	28RDOAKCT1	13.61
206365	28RDOAKST1	19.07
206412	28R11	264.34
207144	28HOW_X1-037	0.16
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.76
901982	W1-119 E	1.41
901991	W1-120C	0.96
901992	W1-120E	1.56
902032	W1-124E	3.65
902082	W1-129E	0.38
902322	W2-019 E	0.44
902952	W2-082 E OP1	1.28
903981	W3-079 C	0.06
903982	W3-079 E	0.87
905252	W4-025 E	0.53
907082	X1-037 E	2.15
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.03
917682	Z2-109 E	12.02
918452	AA1-060 E	2.12
919662	AA2-048 E	1.39
919672	AA2-049 E	0.88
920732	AA2-184 E	5.9
925541	AC1-029	12.02
930891	AB1-138 C	0.62
930892	AB1-138 E	1.03
931122	AB1-163 E	0.83
937261	AD2-165	24.03
939121	AE1-142 C O1	1.38

Bus #	Bus	MW Impact
939122	AE1-142 E O1	1.99
939981	AE1-238 C	67.02
939982	AE1-238 E	176.04
940161	AE2-000 C O2	42.93
940162	AE2-000 E O2	109.85
940311	AE2-015 C O2	0.41
940312	AE2-015 E O2	0.2
940401	AE2-024 C O2	24.15
940402	AE2-024 E O2	113.07
940411	AE2-025 C O2	9.9
940412	AE2-025 E O2	46.35
940691	AE2-056 C	0.33
940692	AE2-056 E	0.28
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.23
BLUEG	BLUEG	1.58
CALDERWOOD	CALDERWOOD	0.16
CANNELTON	CANNELTON	0.1
CARR	CARR	1.04
CATAWBA	CATAWBA	0.1
CHEOAH	CHEOAH	0.15
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.17
COTTONWOOD	COTTONWOOD	0.63
DUCKCREEK	DUCKCREEK	0.36
EDWARDS	EDWARDS	0.17
ELMERSMITH	ELMERSMITH	0.16
FARMERCITY	FARMERCITY	0.11
G-007	G-007	30.02
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.15
NEWTON	NEWTON	0.44
O-066	O-066	34.05
PRAIRIE	PRAIRIE	0.8
RENSSELAER	RENSSELAER	0.82
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.2
TILTON	TILTON	0.2
TRIMBLE	TRIMBLE	0.18
TVA	TVA	0.52
UNIONPOWER	UNIONPOWER	0.23

16.26 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
8280798	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	101.61	108.86	DC	139.26

Bus #	Bus	MW Impact
206201	28JERSVGEN	0.05
206271	28MCRC/REC	0.25
206325	28O C GEN	97.21
206327	28S RIV G1	4.52
206328	28S RIV G2	4.52
206329	28S RIV G3	7.2
206358	28PARLN1&2	3.06
206359	28PARLN3&4	4.07
206412	28R11	265.36
207144	28HOW_X1-037	0.16
207145	28FRN_Y2-051	0.05
207204	28HOL_W1-112	0.06
207206	28TIN_W1-124	0.27
901112	W1-032 E OP1	0.2
901912	W1-112E OP1	0.77
901982	W1-119 E	1.43
901991	W1-120C	0.98
901992	W1-120E	1.59
902032	W1-124E	3.68
902082	W1-129E	0.38
902322	W2-019 E	0.45
902952	W2-082 E OP1	1.3
903981	W3-079 C	0.07
903982	W3-079 E	0.88
905252	W4-025 E	0.54
907082	X1-037 E	2.18
912102	X4-015 E	0.38
912182	X4-031 E	0.51
914092	Y2-051 E	0.61
917612	Z2-102 E	1.05
917682	Z2-109 E	12.06
918452	AA1-060 E	2.17
919662	AA2-048 E	1.4
919672	AA2-049 E	0.89
920732	AA2-184 E	5.95
925541	AC1-029	12.06
930891	AB1-138 C	0.62
930892	AB1-138 E	1.04
931122	AB1-163 E	0.84
937261	AD2-165	24.12
939121	AE1-142 C O1	1.4

Bus #	Bus	MW Impact
939122	AE1-142 E O1	2.01
939981	AE1-238 C	67.54
939982	AE1-238 E	177.41
940161	AE2-000 C O2	43.46
940162	AE2-000 E O2	111.2
940311	AE2-015 C O2	0.41
940312	AE2-015 E O2	0.2
940401	AE2-024 C O2	24.51
940402	AE2-024 E O2	114.75
940411	AE2-025 C O2	10.08
940412	AE2-025 E O2	47.2
940691	AE2-056 C	0.33
940692	AE2-056 E	0.29
940701	AE2-057 C	0.09
940702	AE2-057 E	0.09
940921	AE2-081 C	0.35
940922	AE2-081 E	0.36
941091	AE2-103 C	0.17
941092	AE2-103 E	0.24
BLUEG	BLUEG	0.41
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.02
CARR	CARR	0.95
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.04
COTTONWOOD	COTTONWOOD	0.14
DUCKCREEK	DUCKCREEK	0.1
EDWARDS	EDWARDS	0.04
ELMERSMITH	ELMERSMITH	0.04
FARMERCITY	FARMERCITY	0.03
G-007	G-007	29.77
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.11
O-066	O-066	32.48
PRAIRIE	PRAIRIE	0.2
RENSSELAER	RENSSELAER	0.76
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.05
TILTON	TILTON	0.05
TRIMBLE	TRIMBLE	0.05
TVA	TVA	0.11
UNIONPOWER	UNIONPOWER	0.05

16.27 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
8281394	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	118.85	168.92	DC	346.47

Bus #	Bus	MW Impact
206360	280 CRK C1	1.63
206361	280 CRK C2	0.91
227801	ONTC&DCT	13.18
227842	MARINGEN	0.16
227843	MARINGEN E	1.37
227927	V4-067C	0.04
227928	V4-067E	0.61
228261	V4-054E	0.69
228712	V2-041E	0.42
292063	V1-021 E	0.07
293404	V3-036	1.88
902092	W1-130E	0.94
902431	W2-030 C	0.16
902432	W2-030 E	2.12
915022	Y3-012 E	2.56
924531	AB2-102 C	38.92
924532	AB2-102 E	0.86
924701	AB2-122 C	0.26
924702	AB2-122 E	0.45
930002	AB1-001 E	0.49
931191	AB1-169A	84.08
933962	AD1-019 E	2.6
938311	AE1-046 C	0.31
938312	AE1-046 E	0.15
938421	AE1-061 C	0.4
938422	AE1-061 E	0.4
938781	AE1-104 C O1	39.83
938782	AE1-104 E O1	101.88
939301	AE1-161 C	0.93
939302	AE1-161 E	1.39
939501	AE1-179 C O1	4.6
939502	AE1-179 E O1	3.24
940001	AE1-240 C O1	3.83
940002	AE1-240 E O1	2.74
940361	AE2-020 C O2	45.13
940362	AE2-020 E O2	211.29
940371	AE2-021 C O2	45.13
940372	AE2-021 E O2	211.29
940381	AE2-022 C O2	26.32
940382	AE2-022 E O2	123.26
940391	AE2-023 C O2	26.77

Bus #	Bus	MW Impact
940392	AE2-023 E O2	125.31
940401	AE2-024 C O2	60.98
940402	AE2-024 E O2	285.49
940411	AE2-025 C O2	31.34
940412	AE2-025 E O2	146.73
940961	AE2-087 C	0.16
940962	AE2-087 E	0.23
940963	AE2-087 BAT	0.06
941001	AE2-091 C O2	2.78
941002	AE2-091 E O2	1.45
941121	AE2-106 C	0.18
941122	AE2-106 E	0.25
941123	AE2-106 BAT	0.06
941931	AE2-205 C O2	8.33
941932	AE2-205 E O2	5.55
942101	AE2-222 C O2	29.17
942102	AE2-222 E O2	73.28
942201	AE2-232 C O2	47.66
942202	AE2-232 E O2	121.94
942381	AE2-251 C O2	142.97
942382	AE2-251 E O2	365.81
942941	AE2-314 C	18.32
942942	AE2-314 E	12.21
BLUEG	BLUEG	0.75
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.05
CARR	CARR	0.1
CATAWBA	CATAWBA	0.05
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.08
COTTONWOOD	COTTONWOOD	0.31
DUCKCREEK	DUCKCREEK	0.17
EDWARDS	EDWARDS	0.08
ELMERSMITH	ELMERSMITH	0.08
FARMERCITY	FARMERCITY	0.05
G-007	G-007	0.31
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.08
NEWTON	NEWTON	0.21
O-066	O-066	2.17
PRAIRIE	PRAIRIE	0.38
RENSSELAER	RENSSELAER	0.08
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.09
TILTON	TILTON	0.09
TRIMBLE	TRIMBLE	0.08
TVA	TVA	0.26
UNIONPOWER	UNIONPOWER	0.12

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8281383	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	163.68	176.83	DC	83.46

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.48
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.19
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.78
902091	W1-130C	0.3
902092	W1-130E	3.98
902431	W2-030 C	0.06
902432	W2-030 E	0.83
915022	Y3-012 E	1.07
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
931191	AB1-169A	350.48
933962	AD1-019 E	1.08
938311	AE1-046 C	1.27
938312	AE1-046 E	0.64
938421	AE1-061 C	3.21
938422	AE1-061 E	3.21
938781	AE1-104 C O1	16.6
938782	AE1-104 E O1	42.46
939301	AE1-161 C	3.92
939302	AE1-161 E	5.89
940361	AE2-020 C O2	10.11
940362	AE2-020 E O2	47.34
940371	AE2-021 C O2	10.11
940372	AE2-021 E O2	47.34
940381	AE2-022 C O2	5.9
940382	AE2-022 E O2	27.61
940391	AE2-023 C O2	12.35
940392	AE2-023 E O2	57.81
940401	AE2-024 C O2	14.69
940402	AE2-024 E O2	68.77
940411	AE2-025 C O2	7.55
940412	AE2-025 E O2	35.34
940973	AE2-088 BAT	0.11
942101	AE2-222 C O2	12.14
942102	AE2-222 E O2	30.49

Bus #	Bus	MW Impact
942201	AE2-232 C O2	10.68
942202	AE2-232 E O2	27.32
942381	AE2-251 C O2	32.03
942382	AE2-251 E O2	81.96
942941	AE2-314 C	4.1
942942	AE2-314 E	2.74
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CARR	CARR	0.02
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.08
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007	G-007	0.04
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.05
O-066	O-066	0.42
PRAIRIE	PRAIRIE	0.1
RENSSELAER	RENSSELAER	0.02
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.07
UNIONPOWER	UNIONPOWER	0.03

16.29 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
8281409	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	154.06	166.15	DC	83.48

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.49
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.19
228014	PVILLEG	0.07
228712	V2-041E	0.14
292063	V1-021 E	0.03
293404	V3-036	0.78
902431	W2-030 C	0.06
902432	W2-030 E	0.83
915022	Y3-012 E	1.07
924531	AB2-102 C	12.54
924532	AB2-102 E	0.28
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
931191	AB1-169A	350.49
933962	AD1-019 E	1.08
938311	AE1-046 C	1.27
938312	AE1-046 E	0.64
938421	AE1-061 C	1.79
938422	AE1-061 E	1.79
938781	AE1-104 C O1	16.6
938782	AE1-104 E O1	42.47
939301	AE1-161 C	3.92
939302	AE1-161 E	5.89
940361	AE2-020 C O2	10.11
940362	AE2-020 E O2	47.35
940371	AE2-021 C O2	10.11
940372	AE2-021 E O2	47.35
940381	AE2-022 C O2	5.9
940382	AE2-022 E O2	27.62
940391	AE2-023 C O2	12.35
940392	AE2-023 E O2	57.81
940401	AE2-024 C O2	14.69
940402	AE2-024 E O2	68.79
940411	AE2-025 C O2	7.55
940412	AE2-025 E O2	35.35
940973	AE2-088 BAT	0.11
941931	AE2-205 C O2	2.8

Bus #	Bus	MW Impact
941932	AE2-205 E O2	1.87
942101	AE2-222 C O2	12.14
942102	AE2-222 E O2	30.49
942201	AE2-232 C O2	10.68
942202	AE2-232 E O2	27.32
942381	AE2-251 C O2	32.04
942382	AE2-251 E O2	81.97
942941	AE2-314 C	4.1
942942	AE2-314 E	2.74
BLUEG	BLUEG	0.19
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CARR	CARR	0.02
CATAWBA	CATAWBA	0.01
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.08
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007	G-007	0.04
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.05
O-066	O-066	0.4
PRAIRIE	PRAIRIE	0.1
RENSSELAER	RENSSELAER	0.02
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.06
UNIONPOWER	UNIONPOWER	0.03

Affected Systems

16.30 Affected Systems

16.30.1 LG&E

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

16.30.2 MISO

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

16.30.3 TVA

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

16.30.4 Duke Energy Progress

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

16.30.5 NYISO

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

16.31 Contingency Descriptions

Contingency Name	Contingency Definition
JC-P7-1-JCC-230-7A	CONTINGENCY 'JC-P7-1-JCC-230-7A' /* SMITHBURG - LARRABEE 230 LINES DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 1 DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 END
PS_P1-2_#1LINE	CONTINGENCY 'PS_P1-2_#1LINE' /* LAKE NELSON TO RARITIAN RIVER DISCONNECT BUS 218331 /* KILMER #1 END
PS_P2-3_LNEPS_P1-2_1_LT	CONTINGENCY 'PS_P2-3_LNEPS_P1-2_1_LT' /* STUCK BREAKER ON LAKE NELSON I LINE DISCONNECT BUS 218312 /* GREEN BROOK STATION DISCONNECT BUS 218301 /* MIDDLE LOSS OF BUS DISCONNECT BUS 218333 /* LAKE NELSON BUS I DISCONNECT BUS 218331 /* REMOVE KILMER LINE #1 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 CLOSE LINE FROM BUS 218388 TO BUS 218389 CKT Z /* LAKE NELSON MOVE 8 MW LOAD FROM BUS 218389 TO BUS 218384 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T2 MOVE 8 MW LOAD FROM BUS 218388 TO BUS 218385 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T4 CLOSE LINE FROM BUS 218382 TO BUS 218383 CKT Z /* GREENBROOK MOVE 8 MW LOAD FROM BUS 218382 TO BUS 218406 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO SOMRVLL T2 MOVE 8 MW LOAD FROM BUS 218382 TO BUS 218386 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO KILMER T1 MOVE 8 MW LOAD FROM BUS 218383 TO BUS 218395 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO SOUTH SECOND ST.(METUCHEN 26KV IM) END
PS_P1-2_2310A	CONTINGENCY 'PS_P1-2_2310A' /* NEW FREEDOM TO CARDIFF TIELINE TRIP LINE FROM BUS 219100 TO BUS 227900 CKT 1 /* NEW FREEDOM TO CARDIFF END
JC-P1-2-JCC-230-018	CONTINGENCY 'JC-P1-2-JCC-230-018' /* LARRABEE - SMITHBURG (H2008) 230 KV DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 DISCONNECT BRANCH FROM BUS 200017 TO BUS 206309 CKT 4 /* SMITHBURG SMITHBURG 500 230 END
JC-P1-2-JCC-230-019	CONTINGENCY 'JC-P1-2-JCC-230-019' /* LEISURE VILLAGE - MANITOU (A2027) 230 KV DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 END

Contingency Name	Contingency Definition
JC-P1-2-JCC-230-017	CONTINGENCY 'JC-P1-2-JCC-230-017' /* FUTURE BREAKERS LARRABEE - SMITHBURG (D2004) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 1 END
PS_P1-2_#2LINE_LT	CONTINGENCY 'PS_P1-2_#2LINE_LT' /* LAKE NELSON TO RARITIAN RIVER DISCONNECT BUS 218332 /* REMOVE KILMER CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
JC-P1-2-JCC-230-014	CONTINGENCY 'JC-P1-2-JCC-230-014' /* FUTURE BREAKERS LAKEWOOD - LARRABEE (Z2026) 230 KV & LAR BK 8 & 12 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206294 CKT 1 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 12 SET BUS 206294 LOAD TO 38 MW END
JC-P2-3-JCC-230-13G	CONTINGENCY 'JC-P2-3-JCC-230-13G' /* LARRABEE NW BUS & LARRABEE-SMITHBURG (D2004) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* 28LARRABEE 230 28SMITHBRG 230 REMOVE LOAD 7 FROM BUS 206294 /* 28LARRABEE 230 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* 28LARRABEE 230 28LARR CD 35 END
JC-P2-3-JCC-230-13D	CONTINGENCY 'JC-P2-3-JCC-230-13D' /* LARRABEE SE BUS & LARRABEE-LAKEWOOD (K2011) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 4 /* 28LARRABEE 230 28LARR AB 35 REMOVE SWSHUNT FROM BUS 206294 BLOCK 1 STEP 1 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 1 /* 28LARRABEE 230 28LAKEWOOD 230 END
JC-P7-1-JCC-230-10A	CONTINGENCY 'JC-P7-1-JCC-230-10A' /* LAKEWOOD - LARRABEE 230 KV LINES DISCONNECT BRANCH FROM BUS 206323 TO BUS 206294 CKT 2 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206294 CKT 1 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 3 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 12 /* LARRABEE 12 FUTURE BREAKER AND A HALF SET BUS 206294 LOAD TO 38 MW /* LARRABEE 8 FUTURE BREAKER AND A HALF END
AE_P7-1 AE13TOWER	CONTINGENCY 'AE_P7-1 AE13TOWER' DISCONNECT BRANCH FROM BUS 228500 TO BUS 228502 CKT 1 /* LANDIS TO MINO 138 KV DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* ORCH TO CARD 230 KV END

Contingency Name	Contingency Definition
JC-P1-2-JCC-230-013	CONTINGENCY 'JC-P1-2-JCC-230-013' /* LAKEWOOD - LARRABEE (K2011) 230 KV DISCONNECT BRANCH FROM BUS 206323 TO BUS 206294 CKT 2 END
JC-P2-3-JCC-230-47D	CONTINGENCY 'JC-P2-3-JCC-230-47D' /* LARRABEE-ATLANTIC (Y2025) AND OCEANVIEW BANK 2 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206286 CKT Y /* 28OCEANVW 230 ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* 28OCEANVW 230 OCEANVIE 230 END
JC-P2-3-JCC-230-47C	CONTINGENCY 'JC-P2-3-JCC-230-47C' /* LARRABEE-ATLANTIC (Y2025) AND OCEANVIEW BANK 1 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206286 CKT Y /* 28OCEANVW 230 ATLANTIC 230 DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 1 /* 28OCEANVW 230 OCEANVIE 230 END
JC-P2-3-JCC-230-26D	CONTINGENCY 'JC-P2-3-JCC-230-26D' /* RARITAN RIVER B146 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
JC-P2-3-JCC-230-26B	CONTINGENCY 'JC-P2-3-JCC-230-26B' /* RARITAN RIVER B144 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
JC-P7-1-JCC-230-12	CONTINGENCY 'JC-P7-1-JCC-230-12' /* LEISURE VILLAGE-MANITOU A2027 & C2029 DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
JC-P7-1-JCC-230-13	CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES & OYSTER GEN DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 DISCONNECT BRANCH FROM BUS 206302 TO BUS 206325 CKT 1 END

Contingency Name	Contingency Definition
PS_P7-1_1LINE+2LINE	CONTINGENCY 'PS_P7-1_1LINE+2LINE' /* LAKE NELSON - RARITIAN X2 DISCONNECT BUS 218331 /* REMOVE KILMER 1 DISCONNECT BUS 218332 /* REMOVE KILMER 2 MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
PS_P2-3_LNEPS_P1-2_2_LT	CONTINGENCY 'PS_P2-3_LNEPS_P1-2_2_LT' /* LAKE NELSON LINE #2 STUCK BREAKER DISCONNECT BUS 218334 /* LAKE NELSON LOSS OF BUS W SIDE DISCONNECT BUS 218522 /* REMOVE MIDDLESEX DISCONNECT BUS 218332 /* REMOVE KILMER CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 CLOSE LINE FROM BUS 218388 TO BUS 218389 CKT Z /* LAKE NELSON MOVE 8 MW LOAD FROM BUS 218389 TO BUS 218384 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T2 MOVE 8 MW LOAD FROM BUS 218388 TO BUS 218385 /* INTERSTATION TIE TRANSFER LOAD FROM LNELSN TO KILMER T4 END
PS_P1-2_#2LINE	CONTINGENCY 'PS_P1-2_#2LINE' /* LAKE NELSON TO RARITIAN RIVER DISCONNECT BUS 218332 /* KILMER LINE #2 END
JC-P1-2-JCC-230-027	CONTINGENCY 'JC-P1-2-JCC-230-027' /* RARITAN RIVER - RED OAK - R11 (G1047) 230 KV LINE DISCONNECT BRANCH FROM BUS 206305 TO BUS 206315 CKT 1 DISCONNECT BRANCH FROM BUS 206315 TO BUS 206410 CKT 1 DISCONNECT BUS 206315 DISCONNECT BUS 206362 DISCONNECT BUS 206365 END
JC-P1-2-JCC-230-022	CONTINGENCY 'JC-P1-2-JCC-230-022' /* MANITOU - OYSTER CREEK (O1019) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 END
JC-P1-2-JCC-230-021	CONTINGENCY 'JC-P1-2-JCC-230-021' /* MANITOU - OYSTER CREEK (N1028) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 END

Contingency Name	Contingency Definition
JC-P1-2-JCC-230-020	CONTINGENCY 'JC-P1-2-JCC-230-020' /* LEISURE VILLAGE - MANITOU (C2029) 230 KV DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
Base Case	
JC-P1-2-JCC-230-003	CONTINGENCY 'JC-P1-2-JCC-230-003' /* FUTURE ATLANTIC - OCEANVIEW (X2024) 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT X /* ATLANTIC 230.00 OCEANV 230.00 END
JC-P1-2-JCC-230-004	CONTINGENCY 'JC-P1-2-JCC-230-004' /* FUTURE ATLANTIC - OCEANVIEW (Y2025) 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT Y /* ATLANTIC 230.00 OCEANV 230.00 END
JC-P1-2-JCC-230-028	CONTINGENCY 'JC-P1-2-JCC-230-028' /* RARITAN RIVER - RED OAK - SOUTH RIVER JCT(T1034) 230 KV DISCONNECT BRANCH FROM BUS 206305 TO BUS 206314 CKT 1 /* 28RAR RVR 230.00 28RED OAKA 230.00 DISCONNECT BRANCH FROM BUS 206314 TO BUS 206411 CKT 1 /* 28RED OAKA 230.00 28R11RINGA 230.00 . DISCONNECT BUS 206314 /* 28RED OAKA 230.00 DISCONNECT BUS 206363 /* 28RDOAKCT2 18.00 DISCONNECT BUS 206364 /* 28RDOAKCT3 18.00 END
AE_P4-2 AE7	CONTINGENCY 'AE_P4-2 AE7' /*CARDIFF TO NEW FREEDOM BREAKER V DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227910 CKT 1 /*CARDIFF CARDIFF 230 69 T1 END
AE_P4-2 AE6	CONTINGENCY 'AE_P4-2 AE6' /*CARDIFF TO NEW FREEDOM BREAKER W DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227911 CKT 1 /*CARDIFF CARDIFF 230 69 T2 END
PJM_P1_68	CONTINGENCY 'PJM_P1_68' /* NOT VALID FROM 2009 DISCONNECT BRANCH FROM BUS 200028 TO BUS 200006 CKT 1 /* WINDSOR DEANS 500 500 DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 2 /* DEANS DEANS 500 230 END

Contingency Name	Contingency Definition
PS_P1-2_#1LINE_LT	CONTINGENCY 'PS_P1-2_#1LINE_LT' /* LAKE NELSON TO RARITAN RIVER DISCONNECT BUS 218331 /* KILMER LINE #1 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
JC-P2-3-JCC-230-026A	CONTINGENCY 'JC-P2-3-JCC-230-026A' /* RARITAN RIVER B143 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END
JC-P2-3-JCC-230-026C	CONTINGENCY 'JC-P2-3-JCC-230-026C' /* RARITAN RIVER B145 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END

Short Circuit

16.32 Short Circuit

The following Breakers are overduty:

None

17 Attachment 1: One Line

18 Attachment 2: Project Location