Generation Interconnection

Feasibility Study Report

for

Queue Project AE2-232

OYSTER CREEK 230 KV II

112.4 MW Capacity / 400 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 **400 MW** with **112.4 MW** of this output being recognized by PJM as Capacity. The proposed in-service date for this project is **June 1, 2023**. **This study does not imply a Jersey Central Power & Light Company (JCPL) commitment to this in-service date.**

Queue Number	**AE2-232**
Project Name	OYSTER CREEK 230 KV II
Interconnection Customer	
State	New Jersey
County	Ocean
Transmission Owner	JCPL
MFO	400
MWE	400
MWC	112.4
Fuel	Offshore Wind
Basecase Study Year	2022

4 Point of Interconnection (POI)

4.1 Primary POI

The interconnection of the project at the Primary POI will be accomplished by constructing a new direct connection to the existing Oyster Creek 230 kV substation. This offshore windfarm in the northern part of Orsted's offshore lease area OCS-A-0498 consisting of fifty Siemens Gamesa Renewable Energy 8.0 MW wind turbines. The wind turbines are interconnected with fifty 66 kV array cables to an offshore substation which up the voltage to 275 kV for transmission to onshore. The offshore substation is equipped with two 275/66 kV transformers and one 275 kV shunt reactor. There is one 275 kV three core AC cable which interconnects the facility to the onshore substation. The onshore substation transforms voltage from 275 kV to 230 kV for interconnection at the POI. Within the onshore substation, there is one 275/230 kV transformer, two 275 kV shunt reactors, one 275 kV harmonic filter, and one 230 kV STATCOM. 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.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AE2-232 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 Atlantic Electric Company (ACE) Cardiff 230 kV substation. A full scope of work or estimated cost is not provided for the proposed Secondary POI.

5 Cost Summary

The AE2-232 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	$ 0
Total Costs	$2,150,200

In addition, the AE2-232 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	$489,288,698

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 AE2-232 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 Oyster Creek 230 kV substation. This offshore windfarm in the northern part of Orsted's offshore lease area OCS-A-0498 consisting of fifty Siemens Gamesa Renewable Energy 8.0 MW wind turbines. The wind turbines are interconnected with fifty 66 kV array cables to an offshore substation which up the voltage to 275 kV for transmission to onshore. The offshore substation is equipped with two 275/66 kV transformers and one 275 kV shunt reactor. There is one 275 kV three core AC cable which interconnects the facility to the onshore substation. The onshore substation transforms voltage from 275 kV to 230 kV for interconnection at the POI. Within the onshore substation, there is one 275/230 kV transformer, two 275 kV shunt reactors, one 275 kV harmonic filter, and one 230 kV STATCOM. 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.

7 Attachment Facilities

To accommodate the proposed AE2-232 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 at newly reconfigured substation	$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 @ Oyster Creek SS	$1,290,120
Total Direct Connection Facility Costs	$1,290,120

The total Direct Connection cost estimate for the AE2-232 project is approximately $1,290,120.

An additional 230 kV 4000 A breaker at Oyster Creek will be added to facilitate the interconnection of the new generation.

9 Non-Direct Connection Cost Estimate

There is no non-Direct Connection scope of work required for this project.

10 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 **nineteen (19)** 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 construction of the interconnection facilities. 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. Full initial deposit will be required for the System Reinforcements identified.

11 Transmission Owner Analysis

11.1 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 AE2-232 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 AE2-232 project contributes to overloads on the FE transmission system as shown in the "Network Impacts – Secondary Point of Interconnection" section of this report. AE2-232 did not contribute to any overloads on the FE transmission <100 kV system at the proposed secondary POI.

11.2 Short Circuit Analysis

PJM performed a short circuit analysis and the results were verified by FE. The connection of AE2-232 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

11.3 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.

12 Interconnection Customer Requirements

12.1 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.

12.2 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 230kV circuit breaker to protect the [QUEUE] 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 [QUEUE] 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.

12.3 Power Factor Requirements

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

13 Revenue Metering and SCADA Requirements

13.1 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.

13.2 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.

14 Network Impacts: Primary Point of Interconnection

The Queue Project AE2-232 was evaluated as a 400.0 MW (Capacity 112.4 MW) injection at Oyster Creek 230kV substation in the JCPL area. Project AE2-232 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-232 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Load Flow

14.1 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
8466615	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	206410 28R11RINGB - 206411 28R11RINGA CKT 1	single	869.0	98.56	99.67	DC	9.66
8466616	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-027	single	869.0	93.23	95.25	DC	17.56
8466594	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-028	single	869.0	97.22	99.23	DC	17.46
8466631	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE_LT	single	805.0	98.8	99.77	DC	17.28

14.2 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
8466982	206286	28ATLANTIC	JCP&L	206310	28NEWPROSP	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	84.24	93.62	DC	76.23
8467039	206287	28COOKSTOW	JCP&L	219218	LUMBRTN_2	PSE&G	1	JC-P7-1-JCC-230-7A	tower	869.0	62.99	72.11	DC	84.03
8466327	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P2-3-JCC-230-13E	breaker	805.0	88.71	96.55	DC	63.02
8466328	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P2-3-JCC-230-13C	breaker	805.0	86.19	93.01	DC	54.92
8466334	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P2-3-JCC-230-13J	breaker	956.0	91.27	98.47	DC	68.84
8466335	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P2-3-JCC-230-13K	breaker	956.0	91.34	98.53	DC	68.66
8466975	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-8A	tower	805.0	99.03	105.78	DC	54.27
8466976	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	805.0	83.9	92.82	DC	71.77
8466970	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	AE_P7-1 AE3TOWER-A	tower	1394.0	92.12	101.44	DC	129.92
8466971	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	JC-P7-1-JCC-230-18T	tower	1394.0	82.39	86.58	DC	129.48
8466998	206310	28NEWPROSP	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	80.33	89.71	DC	76.23
8466999	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	797.0	74.92	85.15	DC	81.46
8466403	206411	28R11RINGA	JCP&L	206410	28R11RINGB	JCP&L	1	JC-P2-3-JCC-230-85	breaker	999.0	86.71	88.9	DC	48.58
8467011	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	93.32	101.64	DC	37.86

14.3 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
8466169	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	143.49	158.18	DC	119.99
8466886	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	120.41	132.2	DC	112.65
8466875	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	157.81	182.68	DC	203.18
8466876	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	152.29	178.67	DC	215.56
8466241	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	147.12	150.2	DC	29.57
8466242	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47C	breaker	432.0	143.96	147.04	DC	29.56
8466269	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P2-3-JCC-230-32A	breaker	564.0	102.02	121.47	DC	109.71
8466459	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	112.12	121.62	DC	77.6
8466481	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	105.44	114.38	DC	77.62
8466865	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	130.43	189.6	DC	369.82
8466866	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-7A	tower	564.0	112.04	132.89	DC	117.56
8466292	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	127.18	130.69	DC	61.5
8466330	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	113.22	115.85	DC	46.4
8466606	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	single	813.0	106.11	107.08	DC	17.28
8466608	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE	single	813.0	105.28	106.24	DC	17.28
8466236	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	146.5	149.79	DC	62.57
8466237	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	132.7	136.0	DC	62.87
8466218	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	150.28	153.56	DC	62.23
8466219	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	136.53	139.82	DC	62.53
8466927	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	132.93	150.02	DC	148.4
8466928	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	131.0	149.05	DC	156.88
8466904	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	138.05	161.45	DC	203.34
8466905	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	130.82	155.33	DC	212.98
8466184	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	170.09	195.7	DC	209.18
8466274	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	119.62	122.9	DC	63.16
8466275	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	106.68	109.97	DC	63.46
8466265	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	123.66	126.95	DC	63.34
8466266	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	110.11	113.41	DC	63.64
8466917	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	136.31	159.72	DC	203.34
8466918	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	129.08	153.59	DC	212.98
8466630	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	single	805.0	100.15	101.13	DC	17.28
8466639	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	single	679.0	101.78	102.65	DC	13.06

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466640	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE_LT	single	679.0	100.98	101.85	DC	13.06
8466870	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	157.17	179.88	DC	157.13
8466871	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	151.05	154.8	DC	57.57
8466859	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	174.77	180.74	DC	37.85
8466885	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	164.89	170.37	DC	37.86
8466825	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	241.14	274.67	DC	330.83

14.4 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
8466494	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P1-2-JCC-230-017	operation	813.0	137.73	152.49	DC	120.0
8466496	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	Base Case	operation	678.0	107.89	119.46	DC	78.45
8466520	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P1-2-JCC-230-018	operation	817.0	125.88	139.38	DC	110.31
8466522	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	Base Case	operation	650.0	112.54	124.61	DC	78.45
8466714	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P1-2-JCC-230-034	operation	956.0	87.96	95.14	DC	68.59
8466736	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P1-2-JCC-230-002	operation	805.0	84.95	91.77	DC	54.84
8466658	206295	28LEISUR D	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-020	operation	869.0	110.12	132.92	DC	198.1
8466583	206296	28LEISUR U	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	126.16	150.29	DC	197.17
8466548	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	140.15	164.65	DC	200.14
8466553	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	Base Case	operation	650.0	94.17	112.08	DC	116.44
8466554	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	139.51	164.01	DC	200.13
8466559	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	Base Case	operation	650.0	94.95	112.88	DC	116.52
8466589	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P1-2-JCC-230-004	operation	432.0	134.46	137.53	DC	29.52
8466591	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	Y	JC-P1-2-JCC-230-003	operation	432.0	134.46	137.53	DC	29.52
8466454	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	operation	817.0	225.71	259.51	DC	276.16
8466456	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	Base Case	operation	650.0	152.6	175.53	DC	149.06
8466476	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	operation	869.0	212.25	244.04	DC	276.22
8466478	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	Base Case	operation	709.0	140.08	161.14	DC	149.24

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
8466644	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P1-2-JCC-230-009	operation	564.0	90.22	109.16	DC	106.82
8466648	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	Base Case	operation	464.0	79.11	100.32	DC	98.25
8466601	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P1-2_#2LINE_LT	operation	813.0	126.58	130.09	DC	61.5
8466607	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	Base Case	operation	678.0	99.62	102.74	DC	45.65
8466719	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P1-2_#1LINE_LT	operation	817.0	109.46	112.09	DC	46.49
8466723	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	Base Case	operation	650.0	91.45	93.36	DC	26.87
8466728	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	JC-P1-3-JCC-500-002T	operation	1394.0	72.31	82.45	DC	142.09
8466729	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	PJM_P1_59A	operation	1394.0	72.31	82.45	DC	142.09
8466733	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	Base Case	operation	1245.0	64.71	73.01	DC	103.17
8466612	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-027	operation	869.0	127.47	130.76	DC	62.49
8466614	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	Base Case	operation	709.0	94.75	96.91	DC	33.41
8466593	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P1-2-JCC-230-028	operation	869.0	131.36	134.63	DC	62.15
8466619	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PJM_P1_68	operation	813.0	111.66	118.32	DC	54.15
8466621	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	Base Case	operation	678.0	106.98	113.6	DC	44.88
8466761	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	AE_P1-2 CARD-CEDAR-A	operation	797.0	81.49	90.21	DC	69.45
8466499	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P1-2-JCC-230-014	operation	817.0	169.71	195.33	DC	209.27
8466501	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	Base Case	operation	650.0	115.43	133.05	DC	114.42
8466531	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P1-2-JCC-230-013	operation	869.0	160.73	184.83	DC	209.29
8466533	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	Base Case	operation	709.0	106.1	122.29	DC	114.73
8466596	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PJM_P1_68	operation	869.0	118.79	124.74	DC	51.67
8466598	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	Base Case	operation	706.0	113.48	119.42	DC	41.96
8466667	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P1-2-JCC-230-028	operation	869.0	102.23	105.5	DC	63.07
8466649	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P1-2-JCC-230-027	operation	869.0	105.99	109.28	DC	63.26
8466624	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	operation	805.0	120.82	124.36	DC	61.5
8466629	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	Base Case	operation	650.0	96.27	99.52	DC	45.65
8466634	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	operation	679.0	122.53	125.7	DC	46.49
8466638	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	Base Case	operation	523.0	104.09	106.47	DC	26.87
8466797	218522	MIDDLESEX_W	PSE&G	218313	GREENBK_W	PSE&G	1	PS_P1-2_#1LINE	operation	872.0	93.05	95.51	DC	46.49
8466662	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	PJM_P1_68	operation	805.0	101.41	108.14	DC	54.15
8466664	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	Base Case	operation	650.0	97.52	104.43	DC	44.88
8466579	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	Base Case	operation	650.0	105.78	108.54	DC	39.84
8466511	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	Base Case	operation	650.0	171.56	183.37	DC	87.87

14.5 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
8466292,8466608,8466606	19	28RAR RVR 230.0 kV - KILMER_I 230.0 kV Ckt 1	JCPL JCP&L-011B (594) : Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : $195,000 Time Estimate : 12.0 Months PSEG r_PS_AE2_FES_RarRvrKilmerI (817) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : $0 Time Estimate : 0.0 Months	$195,000
8466330	20	28RAR RVR 230.0 kV - KILMER_W 230.0 kV Ckt 1	JCPL JCP&L-012B (681) : 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 PSEG r_PS_AE2_FES_RarRvrKilmerW (818) : No Violation. No PSEG Facilities, Tie line is owned by JCPL. Project Type : FAC Cost : $0 Time Estimate : 0.0 Months	$23,400,000
8466327,8466975,8466328,8466976	6	28LARRABEE 230.0 kV - 28OCEANVW 230.0 kV Ckt 1	JCPL Line rating updated to 709/869/985 MVA (Rate A/ Rate B/ Rate C). No reinforcements required.[1]	$0

[1] 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.

ID	Index	Facility	Upgrade Description	Cost
8466639,8466640	27	KILMER_W 230.0 kV - LNELSN_W 230.0 kV Ckt 1	JCPL r_JCPL_AE2_FES_KilmerW_LNelsnW (820) : Reconductor 2.0 miles from Lake Nelson to Kilmer with 1590 ACSS, replacing existing 1590 ACSR conductor Project Type : FAC Cost : $5,527,700 Time Estimate : 24.0 Months	$5,527,700
8466630,8466631	3	KILMER_I 230.0 kV - LNELSN_I 230.0 kV Ckt 1	JCPL r_JCPL_AE2_FES_KilmerI_LNelsnI (737) : Reconductor 2.0 miles from Lake Nelson to Kilmer with 1590 ACSS, replacing existing 1590 ACSR conductor Project Type : FAC Cost : $5,527,700 Time Estimate : 24.0 Months	$5,527,700
8466169	13	28LARRABEE 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	JCPL JCP&L-005D (644) : 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. Replace Generic 2000 Amp Disconnect Switch. All new terminal equipment should be rated above 1293 MVA (Rate B). Project Type : FAC Cost : $46,995,000 Time Estimate : 36.0 Months	$46,995,000
8466998	9	28NEWPROSP 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	JCPL No Violation. The post queue loading is less than 100%.[2]	$0

[2] 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.

ID	Index	Facility	Upgrade Description	Cost
8466982	4	**28ATLANTIC 230.0 kV - 28NEWPROSP 230.0 kV Ckt 1**	**JCPL** **No Violation. The post queue loading is less than 100%.[2]**	$0
8466403	11	**28R11RINGA 230.0 kV - 28R11RINGB 230.0 kV Ckt 1**	**JCPL** **No Violation. The post queue loading is less than 100%.[2]**	$0
8466971,8466970	8	**28SMITHBRG 230.0 kV - 28E WINDSR 230.0 kV Ckt 1**	**JCPL** **JCP&L-013A (683) :** **Replace Miscellaneous GIB SF-6 equipment.** **All new terminal equipment should be rated above 1415 MVA (Rate B).** **Project Type : FAC** **Cost : $650,000** **Time Estimate : 18.0 Months**	$650,000

ID	Index	Facility	Upgrade Description	Cost
8466870,8466871	28	CARDIFF 230.0 kV - NEWFRDM 230.0 kV Ckt 1	**AEC** **at2310r0001 (42) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require increasing the emergency rating of the Cardiff to New Freedom 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor.** **Project Type : FAC** **Cost : $63,200,000** **Time Estimate : 36-60 Months** **as2310r0001 (43) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements are required at Cardiff.** **Project Type : FAC** **Cost : $400,000** **Time Estimate : 24-36 Months** **as2310r0002 (44) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements at Cardiff.** **Project Type : FAC** **Cost : $600,000** **Time Estimate : 24-36 Months** **as2310r0003 (45) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements at Cardiff.** **Project Type : FAC** **Cost : $600,000** **Time Estimate : 24-36 Months** **PSEG** **r_PS_AE2_FES_09_Nfreed (836) : Replace Line Drops** **Project Type : FAC** **Cost : $88,298** **Time Estimate : 1.0 Months**	$64,888,298

ID	Index	Facility	Upgrade Description	Cost
8466859	29	**MNOTLA 1 138.0 kV - LANDIS 138.0 kV Ckt 1**	**AEC** **at1409r0001 (54) : To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload will include rebuilding the Minotola to Landis 138 kV transmission line. Also, upgrades to the terminals at Minotola and Landis Substation will be required.** **Project Type : FAC** **Cost : $12,800,000** **Time Estimate : 36-48 Months**	$12,800,000
8467039	5	**28COOKSTOW 230.0 kV - LUMBRTN_2 230.0 kV Ckt 1**	**JCPL** **No Violation. The post queue loading is less than 100%.[2]** **PSEG** **No Violation. The post queue loading is less than 100%.[2]**	$0
8466885	30	**MNOTLA 2 138.0 kV - MNOTLA 1 138.0 kV Ckt 1**	**AEC** **asminotolar0001 (17) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require substation reinforcements at Minotola Substation.** **Project Type : FAC** **Cost : $1,300,000** **Time Estimate : 18.0 Months**	$1,300,000
8466999	10	**28VANHISVL 230.0 kV - 28COOKSTOW 230.0 kV Ckt 1**	**JCPL** **No Violation. The post queue loading is less than 100%.[2]**	$0

ID	Index	Facility	Upgrade Description	Cost
8466865,8466866,8466269	16	28OYSTER C 230.0 kV - CEDAR 230.0 kV Ckt 1	**AEC** **at2318r0001 (27) : To mitigate the (ACE) Cedar Oyster Creek 230 kV line (from bus 227955 to bus 206302 ckt 1) overload, it will require increasing the emergency rating of the Cedar to Oyster Creek 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. In addition, various terminal reinforcements are required at Cedar.** **Project Type : FAC** **Cost : $27,000,000** **Time Estimate : 36-60 Months** **JCPL** **JCP&L-010C (676) :** **Reconductor existing 795 ACSR 26/7 with 1590 ACSS 45/7.** **Additionally, AEP would need to replace their section of the limiting conductor and provide estimates for their replacement.** **Project Type : FAC** **Cost : $1,430,000** **Time Estimate : 24.0 Months**	$28,430,000
8467011	12	LEWIS #3 138.0 kV - DOROTHY 138.0 kV Ckt 1	**AEC** **No Issue: PJM to update limiting rating.**[1]	$0

ID	Index	Facility	Upgrade Description	Cost
8466459	17	**28OYSTER C 230.0 kV - 28MANITOU 230.0 kV Ckt 1**	**JCPL** **JCP&L-008C (667) :** **Reconductor existing sections 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 10 Amp DFR (Older) (2 total), KD-10 (0.7), KD-4 (0.73) (3 total), IRQ, and KD-41 (0.7) Relays.** **Replace 10 Amp Meters.** **All new terminal equipment should be rated above 995 MVA (Rate B).** **Project Type : FAC** **Cost : $43,875,000** **Time Estimate : 36.0 Months**	$43,875,000
8466481	18	**28OYSTER C 230.0 kV - 28MANITOU 230.0 kV Ckt 2**	**JCPL** **JCP&L-009B (671) :** **Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7.** **Replace Generic 2000 Amp Wave Traps.** **Replace 10 Amp Meters.** **Replace 10 Amp KD-10 (0.7), DFR (Older) (2 Total), KD-4 (0.73) (3 Total), and KD-41 (0.7) Relays.** **Replace Generic 2000 Amp Disconnect Switch.** **All new terminal equipment should be rated above 995 MVA (Rate B).** **Project Type : FAC** **Cost : $44,005,000** **Time Estimate : 36.0 Months**	$44,005,000

ID	Index	Facility	Upgrade Description	Cost
8466594,8466218,8466219	2	28RED OAKB 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	JCPL JCP&L-016B (693) : Reconductor existing sections of 1590 ACSR 45/7 with conductor rated above 1335 MVA (Rate B). Project Type : FAC Cost : $5,850,000 Time Estimate : 30.0 Months	$5,850,000
8466886,8466335,8466334	7	28LARRABEE 230.0 kV - 28ATLANTIC 230.0 kV Ckt 1	JCPL JCP&L-003C (635) : Replace Generic 2000 Amp Disconnect Switch. All new terminal equipment should be rated above 1263 MVA (Rate B). Project Type : FAC Cost : $130,000 Time Estimate : 12.0 Months	$130,000
8466241,8466242	15	28OCEANVW 230.0 kV - 28ATLANTIC 230.0 kV Ckt X	JCPL Line rating updated to 709/869/985 MVA (Rate A/ Rate B/ Rate C). No reinforcements required.[1]	$0
8466616,8466615,8466236,8466237	1	28RED OAKA 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	JCPL JCP&L-015A (689) : 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

ID	Index	Facility	Upgrade Description	Cost
8466184	23	**28LAKEWOOD 230.0 kV - 28LARRABEE 230.0 kV Ckt 2**	**JCPL** **JCP&L-020G (730) :** **Reconductor existing sections of 1590 ACSR 45/7 Miscellaneous TDL (MTDL).** **Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7.** **Replace 1600 Amp Generic Z2026 LN and 2000 Amp CL Price V2-CA Z2026_LB Disconnect Switches.** **Replace 2000 Amp Generic Wave Trap.** **Replace 10 Amp Bitronics ZA-50C C, DFR B12 A, and Meter B12 A Meters.** **All new terminal equipment and conductors should be rated above 1599 MVA (Rate B).** **Project Type : FAC** **Cost : $20,280,000** **Time Estimate : 24.0 Months**	$20,280,000
8466266,8466265	25	**28R11RINGA 230.0 kV - 28RED OAKA 230.0 kV Ckt 1**	**JCPL** **JCP&L-022A (735) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7.** **Project Type : FAC** **Cost : $130,000** **Time Estimate : 12.0 Months**	$130,000
8466274,8466275	24	**28R11RINGB 230.0 kV - 28RED OAKB 230.0 kV Ckt 1**	**JCPL** **JCP&L-021A (733) : Reconductor existing 1590 ACSR 45/7 with 1590 ACSS 45/7.** **Project Type : FAC** **Cost : $130,000** **Time Estimate : 12.0 Months**	$130,000

ID	Index	Facility	Upgrade Description	Cost
8466825	31	**AE2-020 TAP 230.0 kV - CARDIFF 230.0 kV Ckt 1**	**AEC** **as2317r0003 (36) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227955 ckt 1) overload, various terminal reinforcements are required at Cardiff.** **Project Type : FAC** **Cost : $200,000** **Time Estimate : 24-36 Months** **as2317r0005 (39) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227955 ckt 1) overload, various terminal reinforcements are required at Cardiff.** **Project Type : FAC** **Cost : $1,500,000** **Time Estimate : 24-36 Months** **at2317r0003 (40) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227900 ckt 1) overload, it will require increasing the emergency rating of the AE2-020 TAP to Cardiff 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. In Addtion, terminal reinforcement is required at Cardiff.** **Project Type : FAC** **Cost : $33,000,000** **Time Estimate : 48-60 Months**	$34,700,000

ID	Index	Facility	Upgrade Description	Cost
8466876,8466875	14	**28MANITOU 230.0 kV - 28WHITINGS 230.0 kV Ckt 1**	**JCPL** **JCP&L-007N (662) :** **Reconductor existing sections of 1590 ACSR 45/7 Miscellaneous TDL (MTDL).** **Reconductor existing sections of 1590 ACSR 45/7.** **Replace 2000 Amp Generic Wave Trap.** **Replace 10 Amp DFR (Older) VN a Relay.** **Replace 10 Amp BV B Meter.** **Replace Generic 2000 Amp Circuit Breaker.** **Replace Generic 2000 Amp Disconnect Switches.** **Replace 15215, 15219, 15220, and 15221 1200 Amp Current Transformers.** **Replace PM174 15 Amp Meters.** **Replace SEL501, SEL421, and SEL411L 15 Amp Relays.** **All new terminal equipment and conductors should be rated above 1493 MVA (Rate B).** **Project Type : FAC** **Cost : $35,425,000** **Time Estimate : 30.0 Months**	$35,425,000

ID	Index	Facility	Upgrade Description	Cost
8466927,8466928	21	28VANHISVL 230.0 kV - 28LARRABEE 230.0 kV Ckt 1	JCPL JCP&L-018K (708) : Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Replace 2000 Amp Generic Wave Trap. Replace 10 Amp DFR (Older) and KD-4 (0.73) Relay (3 Total). Replace 10 Amp Meter. Replace KD4, 321(Z4P-PR) Impedance Relay. Replace 39034 1200 Amp Circuit Breaker. All new terminal equipment above 1305 MVA (Rate B). Project Type : FAC Cost : $29,900,000 Time Estimate : 30.0 Months	$29,900,000
8466904,8466905	22	28WHITINGS 230.0 kV - 28MANCHSTR 230.0 kV Ckt 1	JCPL JCP&L-019K (722) : Reconductor existing section of 1590 ACSR 45/7. Replace 2000 Amp Generic Wave Trap. Replace 10 Amp W/V XDUC, DFR Meter S. Replace SEL-321 Z2, SEL-321 Z3, SEL-321 Z4 Impedance Relays. Replace 2000 Amp MITSUBISHI Circuit Breaker. Reconductor existing section of 2.5 SPS AL PIPE. Replace 2000 Amp Generic and SS Disconnect Switch. All new terminal equipment and conductors should be rated above 1404 MVA (Rate B). Project Type : FAC Cost : $50,440,000 Time Estimate : 36.0 Months	$50,440,000

ID	Index	Facility	Upgrade Description	Cost
8466918,8466917	26	28MANCHSTR 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	JCPL JCP&L-024H (746) : Reconductor existing section of 1590 ACSR 45/7. Reconductor existing section of 2.5 SPS AL PIPE. Replace 2000 Amp SS Disconnect Switch. All new terminal equipment and conductors should be rated above 1388 MVA (Rate B). Project Type : FAC Cost : $23,660,000 Time Estimate : 24.0 Months	$23,660,000
			TOTAL COST	$489,288,698

14.6 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.

14.7 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
8466236	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	146.5	149.79	DC	62.57

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

14.8 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
8466218	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	150.28	153.56	DC	62.23

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	161.53
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

14.9 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
8466630	218331	KILMER_I	PSE&G	218333	LNELSN_I	PSE&G	1	PS_P1-2_#2LINE	single	805.0	100.15	101.13	DC	17.28

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

14.10 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
8466982	206286	28ATLANTIC	JCP&L	206310	28NEWPROSP	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	84.24	93.62	DC	76.23

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

14.11 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
8467039	206287	28COOKSTOW	JCP&L	219218	LUMBRTN_2	PSE&G	1	JC-P7-1-JCC-230-7A	tower	869.0	62.99	72.11	DC	84.03

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
8466975	206294	28LARRABEE	JCP&L	206300	28OCEANVW	JCP&L	1	JC-P7-1-JCC-230-8A	tower	805.0	99.03	105.78	DC	54.27

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
CPLE	CPLE	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
8466886	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	120.41	132.2	DC	112.65

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
8466970	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	AE_P7-1 AE3TOWER-A	tower	1394.0	92.12	101.44	DC	129.92

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
8466998	206310	28NEWPROSP	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P7-1-JCC-230-7A	tower	813.0	80.33	89.71	DC	76.23

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
8466999	206318	28VANHISVL	JCP&L	206287	28COOKSTOW	JCP&L	1	JC-P7-1-JCC-230-7A	tower	797.0	74.92	85.15	DC	81.46

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
8466403	206411	28R11RINGA	JCP&L	206410	28R11RINGB	JCP&L	1	JC-P2-3-JCC-230-85	breaker	999.0	86.71	88.9	DC	48.58

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
CPLE	CPLE	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
8467011	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	93.32	101.64	DC	37.86

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
940161	AE2-000 C O1	21.7
940162	AE2-000 E O1	55.53
940361	AE2-020 C O1	10.17
940362	AE2-020 E O1	47.64
940371	AE2-021 C O1	10.17
940372	AE2-021 E O1	47.64
940381	AE2-022 C O1	5.94
940382	AE2-022 E O1	27.79
940391	AE2-023 C O1	9.33
940392	AE2-023 E O1	43.69
940973	AE2-088 BAT	0.11
941931	AE2-205 C O1	2.61
941932	AE2-205 E O1	1.74
942101	AE2-222 C O1	12.16
942102	AE2-222 E O1	30.53
942201	AE2-232 C O1	10.64
942202	AE2-232 E O1	27.22

Bus #	Bus	MW Impact
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

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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
8466169	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	143.49	158.18	DC	119.99

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
8466875	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	157.81	182.68	DC	203.18

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
940161	AE2-000 C O1	116.48
940162	AE2-000 E O1	298.02
940361	AE2-020 C O1	27.13
940362	AE2-020 E O1	127.03
940371	AE2-021 C O1	27.13
940372	AE2-021 E O1	127.03
940381	AE2-022 C O1	15.83
940382	AE2-022 E O1	74.1
940391	AE2-023 C O1	8.78

Bus #	Bus	MW Impact
940392	AE2-023 E O1	41.1
942101	AE2-222 C O1	11.63
942102	AE2-222 E O1	29.21
942201	AE2-232 C O1	57.09
942202	AE2-232 E O1	146.09
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

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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
8466241	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47D	breaker	432.0	147.12	150.2	DC	29.57

Bus #	Bus	MW Impact
206325	28O 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
CPLE	CPLE	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
8466865	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	130.43	189.6	DC	369.82

Bus #	Bus	MW Impact
206360	28O CRK C1	3.83
206361	28O CRK C2	2.15
940161	AE2-000 C O1	212.0
940162	AE2-000 E O1	542.43
942201	AE2-232 C O1	103.92
942202	AE2-232 E O1	265.9
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

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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
8466459	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	112.12	121.62	DC	77.6

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
940161	AE2-000 C O1	158.31
940361	AE2-020 C O1	37.23
940371	AE2-021 C O1	37.23
940381	AE2-022 C O1	21.72
940391	AE2-023 C O1	12.33
940961	AE2-087 C	0.12
940963	AE2-087 BAT	0.08
941001	AE2-091 C O1	1.92
941121	AE2-106 C	0.13
941123	AE2-106 BAT	0.08
941931	AE2-205 C O1	4.88

Bus #	Bus	MW Impact
942101	AE2-222 C O1	16.22
942201	AE2-232 C O1	77.6
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
CPLE	CPLE	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

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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
8466481	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	105.44	114.38	DC	77.62

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
940161	AE2-000 C O1	158.34
940361	AE2-020 C O1	37.24
940371	AE2-021 C O1	37.24
940381	AE2-022 C O1	21.72
940391	AE2-023 C O1	12.33
940961	AE2-087 C	0.12
940963	AE2-087 BAT	0.08
941001	AE2-091 C O1	1.92
941121	AE2-106 C	0.13
941123	AE2-106 BAT	0.08
941931	AE2-205 C O1	4.89

Bus #	Bus	MW Impact
942101	AE2-222 C O1	16.23
942201	AE2-232 C O1	77.62
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
CPLE	CPLE	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

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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
8466292	206305	28RAR RVR	JCP&L	218331	KILMER_I	PSE&G	1	PS_P2-3_LNEPS_P1-2_2_LT	breaker	813.0	127.18	130.69	DC	61.5

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
8466330	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	113.22	115.85	DC	46.4

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

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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
8466927	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	132.93	150.02	DC	148.4

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
940161	AE2-000 C O1	85.07
940162	AE2-000 E O1	217.67
940311	AE2-015 C O1	1.07
940312	AE2-015 E O1	0.53
940361	AE2-020 C O1	22.09
940362	AE2-020 E O1	103.41
940371	AE2-021 C O1	22.09
940372	AE2-021 E O1	103.41
940381	AE2-022 C O1	12.88
940382	AE2-022 E O1	60.33
940391	AE2-023 C O1	8.92
940392	AE2-023 E O1	41.75
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 O1	11.15
942102	AE2-222 E O1	28.02
942201	AE2-232 C O1	41.7
942202	AE2-232 E O1	106.7
942941	AE2-314 C	6.02
942942	AE2-314 E	4.01

Bus #	Bus	MW Impact
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	9.98
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

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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
8466904	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	138.05	161.45	DC	203.34

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
940161	AE2-000 C O1	116.56
940162	AE2-000 E O1	298.25
940361	AE2-020 C O1	27.16
940362	AE2-020 E O1	127.17
940371	AE2-021 C O1	27.16
940372	AE2-021 E O1	127.17
940381	AE2-022 C O1	15.84

Bus #	Bus	MW Impact
940382	AE2-022 E O1	74.18
940391	AE2-023 C O1	8.8
940392	AE2-023 E O1	41.17
942101	AE2-222 C O1	11.65
942102	AE2-222 E O1	29.26
942201	AE2-232 C O1	57.14
942202	AE2-232 E O1	146.2
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

14.29 Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466184	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	170.09	195.7	DC	209.18

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
940161	AE2-000 C O1	119.91
940162	AE2-000 E O1	306.82
940361	AE2-020 C O1	28.47
940362	AE2-020 E O1	133.28

Bus #	Bus	MW Impact
940371	AE2-021 C O1	28.47
940372	AE2-021 E O1	133.28
940381	AE2-022 C O1	16.61
940382	AE2-022 E O1	77.75
940391	AE2-023 C O1	9.63
940392	AE2-023 E O1	45.06
942101	AE2-222 C O1	12.6
942102	AE2-222 E O1	31.65
942201	AE2-232 C O1	58.78
942202	AE2-232 E O1	150.4
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	14.99
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

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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
8466274	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	119.62	122.9	DC	63.16

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
8466265	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	123.66	126.95	DC	63.34

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
8466917	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	136.31	159.72	DC	203.34

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
940161	AE2-000 C O1	116.56
940162	AE2-000 E O1	298.25
940361	AE2-020 C O1	27.16
940362	AE2-020 E O1	127.17
940371	AE2-021 C O1	27.16
940372	AE2-021 E O1	127.17
940381	AE2-022 C O1	15.84

Bus #	Bus	MW Impact
940382	AE2-022 E O1	74.18
940391	AE2-023 C O1	8.8
940392	AE2-023 E O1	41.17
942101	AE2-222 C O1	11.65
942102	AE2-222 E O1	29.26
942201	AE2-232 C O1	57.14
942202	AE2-232 E O1	146.2
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

14.33 Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466639	218332	KILMER_W	PSE&G	218334	LNELSN_W	PSE&G	1	PS_P1-2_#1LINE	single	679.0	101.78	102.65	DC	13.06

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

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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
8466870	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	157.17	179.88	DC	157.13

Bus #	Bus	MW Impact
206360	28O CRK C1	1.63
206361	28O 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
228721	V2-035E	0.1
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
936411	AD2-052 C	0.54
936412	AD2-052 E	0.26
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
940161	AE2-000 C O1	90.07
940162	AE2-000 E O1	230.47
940361	AE2-020 C O1	44.03
940362	AE2-020 E O1	206.16

Bus #	Bus	MW Impact
940371	AE2-021 C O1	44.03
940372	AE2-021 E O1	206.16
940381	AE2-022 C O1	25.69
940382	AE2-022 E O1	120.26
940391	AE2-023 C O1	22.39
940392	AE2-023 E O1	104.81
940961	AE2-087 C	0.16
940962	AE2-087 E	0.23
940963	AE2-087 BAT	0.06
941001	AE2-091 C O1	2.82
941002	AE2-091 E O1	1.47
941121	AE2-106 C	0.18
941122	AE2-106 E	0.25
941123	AE2-106 BAT	0.06
941931	AE2-205 C O1	8.1
941932	AE2-205 E O1	5.4
942101	AE2-222 C O1	29.17
942102	AE2-222 E O1	73.27
942201	AE2-232 C O1	44.15
942202	AE2-232 E O1	112.97
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
8466859	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	174.77	180.74	DC	37.85

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
940161	AE2-000 C O1	21.7
940162	AE2-000 E O1	55.52
940361	AE2-020 C O1	10.17
940362	AE2-020 E O1	47.63
940371	AE2-021 C O1	10.17
940372	AE2-021 E O1	47.63
940381	AE2-022 C O1	5.93
940382	AE2-022 E O1	27.78
940391	AE2-023 C O1	9.33
940392	AE2-023 E O1	43.68
940973	AE2-088 BAT	0.11
942101	AE2-222 C O1	12.15
942102	AE2-222 E O1	30.53
942201	AE2-232 C O1	10.64
942202	AE2-232 E O1	27.22

Bus #	Bus	MW Impact
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

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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
8466885	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	164.89	170.37	DC	37.86

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
940161	AE2-000 C O1	21.7
940162	AE2-000 E O1	55.53
940361	AE2-020 C O1	10.17
940362	AE2-020 E O1	47.64
940371	AE2-021 C O1	10.17
940372	AE2-021 E O1	47.64
940381	AE2-022 C O1	5.94
940382	AE2-022 E O1	27.79
940391	AE2-023 C O1	9.33
940392	AE2-023 E O1	43.69
940973	AE2-088 BAT	0.11
941931	AE2-205 C O1	2.61
941932	AE2-205 E O1	1.74
942101	AE2-222 C O1	12.16

Bus #	Bus	MW Impact
942102	AE2-222 E O1	30.53
942201	AE2-232 C O1	10.64
942202	AE2-232 E O1	27.22
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

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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
8466825	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	241.14	274.67	DC	330.83

Bus #	Bus	MW Impact
206360	28O CRK C1	3.43
206361	28O CRK C2	1.93
940161	AE2-000 C O1	189.65
940162	AE2-000 E O1	485.25
940361	AE2-020 C O1	97.39
940362	AE2-020 E O1	455.99
940371	AE2-021 C O1	97.39
940372	AE2-021 E O1	455.99
940381	AE2-022 C O1	56.81
940382	AE2-022 E O1	266.0
942201	AE2-232 C O1	92.96
942202	AE2-232 E O1	237.87
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

Affected Systems

14.38 Affected Systems

14.38.1 LG&E

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

14.38.2 MISO

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

14.38.3 TVA

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

14.38.4 Duke Energy Progress

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

14.38.5 NYISO

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

14.39 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 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 SOMRVLLE 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-230-019	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
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

Contingency Name	Contingency Definition
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
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-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
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
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

Contingency Name	Contingency Definition
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-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
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

Contingency Name	Contingency Definition
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
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 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

Contingency Name	Contingency Definition
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
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-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
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
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

Contingency Name	Contingency Definition
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
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
PS_P1-2_#1LINE_LT	CONTINGENCY 'PS_P1-2_#1LINE_LT' /* LAKE NELSON TO RARITIAN 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

Contingency Name	Contingency Definition
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
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

Short Circuit

14.40 Short Circuit

The following Breakers are overduty:

None

15 Network Impacts – Secondary Point of Interconnection

The Queue Project AE2-232 was evaluated as a 400.0 MW (Capacity 112.4 MW) injection at the Cardiff 230 kV substation in the AEC area. Project AE2-232 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-232 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
14264541	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	single	740.0	93.96	95.49	DC	11.3
8466793	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308_LT	single	758.0	99.49	100.1	DC	10.12
8466794	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308	single	758.0	98.92	99.54	DC	10.12
8466487	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	PECO_P1-2_5038/* $ CHESCO $ PECO_P1-2_5038 $ L	single	564.0	96.85	101.55	DC	26.53
14264400	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	Base Case	single	464.0	93.27	98.77	DC	25.54
14264722	228404	MONROE	AE	228402	MONROE	AE	2	AE_P1-3 MON 3 XFR	single	274.0	84.21	86.38	DC	5.95

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
14264263	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	1180.0	92.0	95.26	DC	84.98
14264039	214010	WANEETA2	PECO	213817	N PHILA	PECO	1	PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B	bus	621.0	95.7	98.46	DC	37.94
14264333	214010	WANEETA2	PECO	213817	N PHILA	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	621.0	95.65	98.41	DC	37.94
14264271	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	1336.0	92.72	95.74	DC	88.59
14264305	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_1-2_LT	breaker	771.0	99.37	101.4	DC	33.96
14264306	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_2-3_LT	breaker	771.0	97.83	99.82	DC	33.4
14264266	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	1336.0	92.74	95.76	DC	88.59

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466436	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PECO_P4_PEACH215/ * $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	740.0	97.12	99.47	DC	37.8
14264949	219756	BEAVERBK_2	PSE&G	219110	GLOUCSTR	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	99.67	102.08	DC	39.47
14264950	219756	BEAVERBK_2	PSE&G	219110	GLOUCSTR	PSE&G	1	AE_P7-1 W2275_O2241	tower	740.0	98.12	100.54	DC	39.63
14264167	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE7	breaker	906.0	97.35	110.99	DC	148.62
14264168	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE6	breaker	906.0	97.34	110.98	DC	148.59
14264203	227900	CARDIFF	AE	227913	CARDIFF	AE	1	AE_P4-2 AE9	breaker	425.0	75.43	90.54	DC	65.58
14264204	227900	CARDIFF	AE	227913	CARDIFF	AE	1	AE_P4-2 AE7	breaker	425.0	60.6	72.6	DC	50.97
14264205	227900	CARDIFF	AE	227913	CARDIFF	AE	1	AE_P4-2 AE6	breaker	425.0	60.5	72.48	DC	50.91
14264320	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P4-2 AE7	breaker	425.0	60.38	72.33	DC	50.78
14264321	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P4-2 AE6	breaker	425.0	60.27	72.21	DC	50.71
14264857	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P7-1 AE3TOWER	tower	425.0	91.13	105.44	DC	60.82
14264208	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	AE_P4-2 AE7	breaker	478.0	93.26	103.77	DC	50.21
14264209	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	AE_P4-2 AE6	breaker	478.0	93.24	103.74	DC	50.18
14264884	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	PS_P7-1_R2244+M2213	tower	478.0	92.59	102.85	DC	49.02
14264242	227913	CARDIFF	AE	227902	LEWIS #1	AE	1	AE_P4-2 AE9	breaker	478.0	67.07	80.5	DC	65.58
14264890	227934	CARDIFF2	AE	227945	LEWIS #2	AE	1	AE_P7-1 AE3TOWER	tower	478.0	81.03	93.75	DC	60.82
14264953	228312	PEDRKTWN	AE	228313	BRIDGPRT	AE	1	AE_P7-1 AE10TOWER-A	tower	552.0	93.08	96.51	DC	41.64
14264954	228312	PEDRKTWN	AE	228313	BRIDGPRT	AE	1	AE_P7-1 AE8TOWER	tower	552.0	92.39	95.82	DC	41.64
14264982	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	AE_P7-1 AE10TOWER-A	tower	805.0	89.84	92.18	DC	41.17
14264983	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	AE_P7-1 AE8TOWER	tower	805.0	89.38	91.72	DC	41.17

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
8466169	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	114.45	116.64	DC	39.57
8466886	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	105.91	110.11	DC	40.1
8466875	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	163.74	171.05	DC	59.75
8466876	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	158.94	166.79	DC	64.12
8466459	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	106.52	109.38	DC	23.35
8466481	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	100.16	102.85	DC	23.36

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466927	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	139.08	145.5	DC	55.74
8466928	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	137.5	144.28	DC	58.89
8466904	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	143.62	150.51	DC	59.85
8466905	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	136.79	144.08	DC	63.36
8466184	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	176.71	184.59	DC	64.36
8466917	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	141.9	148.79	DC	59.85
8466918	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	135.05	142.34	DC	63.36
8466108	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B	bus	1180.0	107.31	110.12	DC	73.25
8466396	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1180.0	107.3	110.11	DC	73.25
8466110	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B	bus	1336.0	106.55	109.14	DC	75.95
8466398	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1336.0	106.54	109.13	DC	75.95
8466382	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	740.0	124.82	130.27	DC	40.22
8466383	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH205/* $ CHESCO $ PECO_P4_PEACH205 $ STBK	breaker	740.0	123.53	128.99	DC	40.22
8466431	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_1-4_LT	breaker	771.0	103.09	105.19	DC	35.2
8466432	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_3-4_LT	breaker	771.0	101.7	103.76	DC	34.68
8466109	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B	bus	1336.0	106.57	109.16	DC	75.95
8466397	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1336.0	106.55	109.14	DC	75.95
8467024	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	108.62	111.03	DC	39.54
8467025	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	AE_P7-1 W2275_O2241	tower	740.0	102.75	105.17	DC	39.7
8466870	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	210.71	235.22	DC	169.59
8466871	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	196.11	223.49	DC	189.47
14264095	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE7	breaker	805.0	142.01	157.6	DC	125.46
14264096	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE6	breaker	805.0	142.01	157.59	DC	125.44
14264835	227945	LEWIS #2	AE	227902	LEWIS #1	AE	1	AE_P7-1 AE3TOWER	tower	286.8	103.43	119.88	DC	47.19
8467010	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	AE_P7-1 AE6TOWER	tower	205.0	120.14	127.6	DC	33.85
8467011	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	126.54	134.89	DC	38.0

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466166	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002D	breaker	564.0	227.21	243.8	DC	93.53
8466167	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002B	breaker	564.0	225.82	242.51	DC	94.17
8466302	228110	BLE	AE	228197	MERION	AE	1	AE_P4-2 AE29	breaker	482.0	113.43	115.73	DC	24.43
8466931	228110	BLE	AE	228197	MERION	AE	1	AE_P7-1 AE5TOWER	tower	482.0	104.61	107.21	DC	27.63
8466339	228197	MERION	AE	228106	CORSON 1	AE	1	AE_P4-2 AE29	breaker	478.0	100.21	102.54	DC	24.49
8466545	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	Base Case	single	230.0	146.01	149.62	DC	8.31
8466546	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P1-2 OY CK-CEDAR	single	286.0	137.03	140.86	DC	10.94
8466858	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P7-1 AE6TOWER	tower	286.0	198.23	203.57	DC	33.84
8466859	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	198.53	204.52	DC	38.0
8466570	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OY CK-CEDAR	single	311.0	127.75	131.27	DC	10.95
8466573	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	single	311.0	109.75	112.42	DC	8.31
8466884	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P7-1 AE6TOWER	tower	311.0	182.34	187.26	DC	33.85
8466885	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	186.79	192.29	DC	38.0
14264447	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 CARD-CEDAR	single	311.0	125.22	128.48	DC	10.15

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
8466494	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P1-2-JCC-230-017	operation	813.0	112.65	114.85	DC	39.57
8466520	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P1-2-JCC-230-018	operation	817.0	102.88	104.87	DC	35.96
8466658	206295	28LEISUR D	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-020	operation	869.0	116.55	123.65	DC	61.71
8466583	206296	28LEISUR U	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	132.77	140.29	DC	61.4
8466548	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	146.64	154.26	DC	62.32

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466554	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	145.99	153.62	DC	62.32
8466454	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	operation	817.0	234.12	244.29	DC	83.1
8466456	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	Base Case	operation	650.0	158.31	165.21	DC	44.86
8466476	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	operation	869.0	220.15	229.72	DC	83.12
8466478	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	Base Case	operation	709.0	145.31	151.65	DC	44.91
8466619	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PJM_P1_68	operation	813.0	108.93	110.46	DC	27.54
8466499	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P1-2-JCC-230-014	operation	817.0	176.33	184.22	DC	64.38
8466501	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	Base Case	operation	650.0	108.61	111.06	DC	35.2
8466531	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P1-2-JCC-230-013	operation	869.0	166.96	174.38	DC	64.39
8466533	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	Base Case	operation	709.0	99.85	102.1	DC	35.3
8466596	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PJM_P1_68	operation	869.0	115.14	116.56	DC	27.27
8466789	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	Base Case	operation	760.0	104.4	108.3	DC	65.51
14264634	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	operation	1180.0	89.0	92.26	DC	84.98
14264762	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	operation	1336.0	90.31	93.33	DC	88.59
8466771	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	operation	740.0	123.53	128.99	DC	40.22
8466662	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	PJM_P1_68	operation	805.0	98.66	100.21	DC	27.54
8466814	219108	CUTHBERT	PSE&G	219125	CAMDEN	PSE&G	1	PS_P1-2_U-2299_LT	operation	771.0	106.28	108.57	DC	38.52
14264671	219108	CUTHBERT	PSE&G	219125	CAMDEN	PSE&G	1	Base Case	operation	500.0	95.23	97.33	DC	22.9
8466790	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308_LT	operation	758.0	111.53	113.71	DC	36.0
8466812	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	Base Case	operation	500.0	106.75	108.92	DC	23.62
8466816	219110	GLOUCSTR	PSE&G	219753	CUTHBERT_2	PSE&G	1	PS_P1-2_D-2282_LT	operation	771.0	104.03	106.06	DC	34.14
14264641	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	Base Case	operation	550.0	100.1	102.05	DC	23.33
14264676	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P1-2_D-2282_LT	operation	771.0	94.07	95.96	DC	31.79
14264712	219110	GLOUCSTR	PSE&G	219753	CUTHBERT_2	PSE&G	1	Base Case	operation	500.0	96.44	98.31	DC	20.39
14264758	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	operation	1336.0	90.33	93.35	DC	88.59
14264749	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	operation	740.0	95.92	98.27	DC	37.8
14264726	219754	CUTHBERT_3	PSE&G	219125	CAMDEN	PSE&G	1	PS_P1-2_Z-2305_LT	operation	792.0	101.07	103.25	DC	37.58
8466574	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P1-2 OY CK-CEDAR	operation	692.0	186.03	211.11	DC	173.55

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466579	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	Base Case	operation	650.0	138.65	159.31	DC	134.3
14264435	227900	CARDIFF	AE	227955	CEDAR	AE	1	PS_P1-2_2310A	operation	805.0	141.97	157.42	DC	124.34
14264436	227900	CARDIFF	AE	227955	CEDAR	AE	1	Base Case	operation	650.0	143.12	156.21	DC	85.11
14264521	227900	CARDIFF	AE	228002	ORCHARD	AE	1	PS_P1-2_2310A	operation	906.0	96.99	110.48	DC	147.1
14264524	227900	CARDIFF	AE	228002	ORCHARD	AE	1	Base Case	operation	748.0	75.47	84.84	DC	96.8
14264729	227900	CARDIFF	AE	227913	CARDIFF	AE	1	AE_P1-3 CARD 7 XFR	operation	425.0	65.28	75.94	DC	45.31
14264733	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P1-3 CARD 6 XFR	operation	425.0	65.14	75.78	DC	45.22
14264734	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P1-2 CARD-LEW1	operation	425.0	65.14	75.78	DC	45.22
14264554	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	PS_P1-2_2310A	operation	478.0	92.44	102.71	DC	49.06
14264529	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	AE_P1-2 OY CK-CEDAR	operation	205.0	114.03	122.6	DC	38.95
14264532	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	Base Case	operation	154.0	97.86	106.48	DC	29.56
8466482	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	Base Case	operation	464.0	243.84	263.43	DC	90.87
8466484	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	PECO_P1-2_5038/* $ CHESCO $ PECO_P1-2_5038 $ L	operation	564.0	225.49	242.23	DC	94.41
8466734	228110	BLE	AE	228197	MERION	AE	1	AE_P1-2 ENG-CORSON	operation	482.0	103.5	106.09	DC	27.56
8466787	228110	BLE	AE	228111	MDLE TP	AE	1	AE_P1-2 MERION-CORSN	operation	482.0	90.94	93.57	DC	27.99
8466657	228111	MDLE TP	AE	228107	CORSON 2	AE	1	AE_P1-2 MERION-CORSN	operation	315.0	110.99	114.99	DC	27.79
8466788	228197	MERION	AE	228106	CORSON 1	AE	1	AE_P1-2 ENG-CORSON	operation	478.0	90.17	92.79	DC	27.63
14264750	228312	PEDRKTWN	AE	228313	BRIDGPRT	AE	1	AE_P1-2 ORCHARD XF	operation	552.0	82.54	88.16	DC	68.24
14264769	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	Base Case	operation	650.0	91.79	94.15	DC	33.36
14264658	228500	LANDIS	AE	228404	MONROE	AE	1	AE_P1-2 FRNK-LAND-A	operation	331.0	98.04	100.98	DC	21.58
14264728	228500	LANDIS	AE	943080	AE2-335 TAP	AE	1	AE_P1-2 MONROE-LANDIS_1	operation	331.0	98.58	101.52	DC	21.58
8466542	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	Base Case	operation	230.0	202.63	208.42	DC	29.56
8466543	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P1-2 OY CK-CEDAR	operation	286.0	190.46	196.59	DC	38.94
8466566	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OY CK-CEDAR	operation	311.0	178.75	184.39	DC	38.95
8466569	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	operation	311.0	149.95	154.23	DC	29.56

15.5 Flow Gate Details

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466382	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	breaker	740.0	124.82	130.27	DC	40.22

Bus #	Bus	MW Impact
200036	SALEM-G1	15.06
200037	SALEM-G2	9.27
200039	HOPE CG1	9.46
200062	SALEM G3	0.5
227801	ONTC&DCT	3.64
227843	MARINGEN E	0.38
227928	V4-067E	0.16
228261	V4-054E	0.41
228712	V2-041E	0.2
228721	V2-035E	0.08
232922	MR3	8.53
292063	V1-021 E	0.03
293404	V3-036	0.52
901004	W1-003 E	0.36
901014	W1-004 E	0.36
901024	W1-005 E	0.36
901034	W1-006 E	0.36
902092	W1-130E	0.52
902432	W2-030 E	0.59
907052	X1-032 E	0.32
909032	X2-013 E	0.15
910572	X3-008 E	0.96
910822	X3-066 E	0.27
913362	Y1-079 E	0.45
913412	Y1-080 E	0.16
915022	Y3-012 E	0.71
915542	Y3-058 E	0.73
916292	Z1-082 E	0.18
917082	Z2-012 E	0.98
917432	Z2-076 E	0.16
917442	Z2-077 E	0.16
919831	AA2-069	37.74
923921	AB2-032 C	0.96
923922	AB2-032 E	0.45
923951	AB2-036 C	2.55
923952	AB2-036 E	4.18
923961	AB2-037 C	5.78
923962	AB2-037 E	9.45
924051	AB2-049 C	0.45
924052	AB2-049 E	0.74

Bus #	Bus	MW Impact
924191	AB2-063 C	0.54
924192	AB2-063 E	0.89
924531	AB2-102 C	18.67
924532	AB2-102 E	0.41
924681	AB2-120 C	3.0
924682	AB2-120 E	4.9
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
924781	AB2-130 C O1	2.55
924782	AB2-130 E O1	4.17
924801	AB2-133 C O1	1.73
924802	AB2-133 E O1	2.2
924821	AB2-135 C	2.17
924822	AB2-135 E	2.47
924831	AB2-136 C	1.92
924832	AB2-136 E	2.04
924971	AB2-153 C	0.54
924972	AB2-153 E	0.87
925151	AB2-172 C	1.46
925152	AB2-172 E	2.39
925251	AB2-179 C	2.39
925252	AB2-179 E	0.79
925261	AB2-180 C	1.1
925262	AB2-180 E	0.47
925271	AB2-185 C	1.02
925272	AB2-185 E	0.44
926131	AC1-091 C	0.63
926132	AC1-091 E	1.03
926141	AC1-092 C	0.63
926142	AC1-092 E	1.03
926151	AC1-093 C	0.6
926152	AC1-093 E	0.98
926161	AC1-094 C	0.5
926162	AC1-094 E	0.83
926171	AC1-095 C	0.32
926172	AC1-095 E	0.51
926911	AC1-177	0.32
927031	AC1-190 C	2.7
927032	AC1-190 E	1.16
927191	AC1-213 C	0.25
927192	AC1-213 E	0.17
930002	AB1-001 E	0.13
930202	AB1-056 E O1	14.66
930722	AB1-116 E	0.08
930732	AB1-119 E	0.09
930881	AB1-137 C	0.34
930882	AB1-137 E	0.14
930921	AB1-141 C	0.95
930922	AB1-141 E	0.44
930931	AB1-142 C	0.95
930932	AB1-142 E	0.44
931111	AB1-162 C	0.45

Bus #	Bus	MW Impact
931112	AB1-162 E	0.74
931191	AB1-169A	46.43
931261	AB1-176 C	0.24
931262	AB1-176 E	0.4
932082	AC2-018 E1	2.35
932092	AC2-018 E2	2.35
932161	AC2-023 C	2.08
932162	AC2-023 E	1.51
932361	AC2-050 C O1	0.25
932362	AC2-050 E O1	0.42
933631	AC2-185 C	1.28
933632	AC2-185 E	2.09
933641	AC2-186 C	1.52
933642	AC2-186 E	2.48
933962	AD1-019 E	0.72
936491	AD2-064 C	0.07
936492	AD2-064 E	0.09
936501	AD2-065 C	0.25
936502	AD2-065 E	0.35
936611	AD2-076 C O1	1.32
936612	AD2-076 E O1	2.16
936691	AD2-088 C O1	1.42
936692	AD2-088 E O1	0.95
937011	AD2-135 C	0.09
937012	AD2-135 E	0.15
937281	AD2-167	4.71
938251	AE1-038 C O1	0.7
938252	AE1-038 E O1	0.97
938311	AE1-046 C	0.17
938312	AE1-046 E	0.08
938421	AE1-061 C	0.22
938422	AE1-061 E	0.22
938431	AE1-062 C	1.23
938432	AE1-062 E	1.23
938651	AE1-087 C	0.65
938652	AE1-087 E	0.16
938781	AE1-104 C O1	12.65
938782	AE1-104 E O1	32.36
938811	AE1-107 C	1.96
938812	AE1-107 E	1.4
938891	AE1-117 C O1	3.83
938892	AE1-117 E O1	10.22
938901	AE1-118 C O1	3.83
938902	AE1-118 E O1	10.22
939151	AE1-145 C1	0.95
939152	AE1-145 C2	0.63
939153	AE1-145 E	0.02
939301	AE1-161 C	0.86
939302	AE1-161 E	1.29
939361	AE1-167 C O1	0.47
939362	AE1-167 E O1	0.4
939501	AE1-179 C O1	2.66

Bus #	Bus	MW Impact
939502	AE1-179 E O1	1.88
939621	AE1-192 C O1	3.71
939622	AE1-192 E O1	1.82
939821	AE1-218 C O1	0.08
939822	AE1-218 E O1	0.12
939831	AE1-219 C O1	0.18
939832	AE1-219 E O1	0.25
940001	AE1-240 C O1	2.18
940002	AE1-240 E O1	1.55
940281	AE2-011 C	0.16
940282	AE2-011 E	0.22
940361	AE2-020 C O2	10.7
940362	AE2-020 E O2	50.12
940371	AE2-021 C O2	10.7
940372	AE2-021 E O2	50.12
940381	AE2-022 C O2	6.24
940382	AE2-022 E O2	29.23
940391	AE2-023 C O2	7.42
940392	AE2-023 E O2	34.74
940411	AE2-025 C O2	4.94
940412	AE2-025 E O2	23.11
940741	AE2-061	0.63
940961	AE2-087 C	0.1
940962	AE2-087 E	0.13
940963	AE2-087 BAT	0.04
940971	AE2-088 C	0.06
940972	AE2-088 E	0.08
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	1.62
941002	AE2-091 E O2	0.84
941021	AE2-093 C	1.47
941022	AE2-093 E	2.34
941121	AE2-106 C	0.11
941122	AE2-106 E	0.15
941123	AE2-106 BAT	0.04
941181	AE2-112 C	0.54
941182	AE2-112 E	0.88
941441	AE2-141 C	0.08
941442	AE2-141 E	0.12
941472	AE2-144 E	0.08
941931	AE2-205 C O2	3.89
941932	AE2-205 E O2	2.59
941971	AE2-209 C	2.56
941972	AE2-209 E	1.79
942012	AE2-213 E	0.02
942101	AE2-222 C O2	8.05
942102	AE2-222 E O2	20.23
942201	AE2-232 C O2	11.3
942202	AE2-232 E O2	28.92
942261	AE2-238 C	0.24
942262	AE2-238 E	0.33
942381	AE2-251 C O2	33.91

Bus #	Bus	MW Impact
942382	AE2-251 E O2	86.76
942441	AE2-257 C O2	2.63
942442	AE2-257 E O2	6.94
942701	AE2-286 C	0.62
942702	AE2-286 E	0.9
942821	AE2-301 C	0.32
942822	AE2-301 E	0.48
942941	AE2-314 C	4.34
942942	AE2-314 E	2.9
943071	AE2-334 C	2.61
943072	AE2-334 E	1.39
943081	AE2-335 C O2	3.48
943082	AE2-335 E O2	1.55
BLUEG	BLUEG	2.56
CALDERWOOD	CALDERWOOD	0.28
CANNELTON	CANNELTON	0.16
CATAWBA	CATAWBA	0.18
CBM-N	CBM-N	0.34
CHEOAH	CHEOAH	0.26
CHILHOWEE	CHILHOWEE	0.09
COFFEEN	COFFEEN	0.27
COTTONWOOD	COTTONWOOD	1.08
DUCKCREEK	DUCKCREEK	0.59
EDWARDS	EDWARDS	0.27
ELMERSMITH	ELMERSMITH	0.27
FARMERCITY	FARMERCITY	0.18
G-007A	G-007A	4.12
GIBSON	GIBSON	0.11
HAMLET	HAMLET	0.3
NEWTON	NEWTON	0.71
NYISO	NYISO	1.45
PRAIRIE	PRAIRIE	1.33
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.32
TILTON	TILTON	0.32
TRIMBLE	TRIMBLE	0.28
TVA	TVA	0.9
UNIONPOWER	UNIONPOWER	0.4
VFT	VFT	6.1

15.7 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
8466793	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308_LT	single	758.0	99.49	100.1	DC	10.12

Bus #	Bus	MW Impact
213400	COVANTA DELA	1.39
219124	CAMDEN_STG	2.67
219126	CAMDEN_CTG	3.28
219128	GLOUCSTR_26	1.45
219229	EAGLEPT_G3	2.31
219230	EAGLEPT_G1	3.41
219231	EAGLEPT_G2	3.41
227801	ONTC&DCT	3.73
227881	GRENWCHG	0.04
228200	CARL#1CT	0.39
228201	CARL#2CT	0.41
228251	CARLLS#4	0.05
228260	V4-054C	0.13
228304	LOGAN	5.29
228306	PCLP STM	1.39
228307	PCLP GT	1.39
228309	CCLP NUG	4.83
228334	MANNMILG	0.17
228343	QUINTN#1	0.04
228351	V2-046C	0.14
228400	MICK 1CT	0.97
228423	Q-090 2	21.69
228471	VALERO1	0.33
228472	VALERO2	0.26
228473	VALERO3	0.26
228484	VALERO4	0.19
228717	S121	0.55
228720	V2-035C	0.01
291995	U4-036 C	0.06
292104	V1-030 C6	0.02
292194	V1-030 CE	0.09
902091	W1-130C	0.06
914231	Y2-081 C OP1	1.1
914232	Y2-081 E OP1	0.06
915591	Y3-087 C OP1	0.05
917381	Z2-062	0.12
924051	AB2-049 C	0.43
924531	AB2-102 C	24.71
924701	AB2-122 C	0.07
925391	AC1-010 C	0.74
931191	AB1-169A	71.08

Bus #	Bus	MW Impact
936411	AD2-052 C	1.03
936491	AD2-064 C	0.06
936501	AD2-065 C	0.2
937011	AD2-135 C	0.07
938311	AE1-046 C	0.26
938421	AE1-061 C	0.65
938431	AE1-062 C	0.47
938781	AE1-104 C O1	14.23
938871	AE1-115 C	1.65
939301	AE1-161 C	2.8
939501	AE1-179 C O1	4.38
939821	AE1-218 C O1	0.11
939831	AE1-219 C O1	0.24
939931	AE1-229 C O1	13.42
940001	AE1-240 C O1	3.64
940281	AE2-011 C	0.14
940361	AE2-020 C O2	9.58
940371	AE2-021 C O2	9.58
940381	AE2-022 C O2	5.59
940391	AE2-023 C O2	7.67
940771	AE2-064 C	0.33
940781	AE2-065 C	0.22
940961	AE2-087 C	0.2
940963	AE2-087 BAT	0.14
940971	AE2-088 C	0.11
940973	AE2-088 BAT	0.11
941001	AE2-091 C O2	3.01
941071	AE2-101 C	0.3
941121	AE2-106 C	0.22
941123	AE2-106 BAT	0.14
941471	AE2-144 C	0.45
941931	AE2-205 C O2	5.23
942011	AE2-213 C	0.33
942101	AE2-222 C O2	8.26
942201	AE2-232 C O2	10.12
942381	AE2-251 C O2	30.35
942571	AE2-272	0.23
942941	AE2-314 C	3.89
943071	AE2-334 C	3.95
943081	AE2-335 C O2	5.92
BLUEG	BLUEG	1.64
CALDERWOOD	CALDERWOOD	0.17
CANNELTON	CANNELTON	0.1
CARR	CARR	0.38
CATAWBA	CATAWBA	0.1
CHEOAH	CHEOAH	0.15
CHILHOWEE	CHILHOWEE	0.06
COFFEEN	COFFEEN	0.17
COTTONWOOD	COTTONWOOD	0.66
DUCKCREEK	DUCKCREEK	0.38
EDWARDS	EDWARDS	0.17
ELMERSMITH	ELMERSMITH	0.17

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.11
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.16
NEWTON	NEWTON	0.45
PRAIRIE	PRAIRIE	0.83
RENSSELAER	RENSSELAER	0.3
SANTEETLA	SANTEETLA	0.05
SMITHLAND	SMITHLAND	0.07
TATANKA	TATANKA	0.21
TILTON	TILTON	0.21
TRIMBLE	TRIMBLE	0.18
TVA	TVA	0.55
UNIONPOWER	UNIONPOWER	0.24

15.8 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
8466166	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002D	breaker	564.0	227.21	243.8	DC	93.53

Bus #	Bus	MW Impact
227801	ONTC&DCT	8.28
227842	MARINGEN	0.1
227843	MARINGEN E	0.86
227927	V4-067C	0.03
227928	V4-067E	0.36
228014	PVILLEG	0.11
228202	CUMB CT	0.82
228261	V4-054E	0.59
228357	V2-046E	0.89
228712	V2-041E	0.31
228721	V2-035E	0.1
292062	V1-021 C	0.04
292063	V1-021 E	0.05
293404	V3-036	1.18
902092	W1-130E	0.73
902431	W2-030 C	0.1
902432	W2-030 E	1.31
913341	Y1-077	9.82
915022	Y3-012 E	1.61
918452	AA1-060 E	1.43
919662	AA2-048 E	0.78
919672	AA2-049 E	0.28
924531	AB2-102 C	27.97
924532	AB2-102 E	0.62
924701	AB2-122 C	0.15
924702	AB2-122 E	0.26
930001	AB1-001 C	0.02
930002	AB1-001 E	0.31
931191	AB1-169A	65.66
933962	AD1-019 E	1.63
936411	AD2-052 C	0.52
936412	AD2-052 E	0.26
938311	AE1-046 C	0.24
938312	AE1-046 E	0.12
938421	AE1-061 C	0.31
938422	AE1-061 E	0.31
938781	AE1-104 C O1	25.13
938782	AE1-104 E O1	64.28
938871	AE1-115 C	0.36
938872	AE1-115 E	0.36
939301	AE1-161 C	0.94

Bus #	Bus	MW Impact
939302	AE1-161 E	1.41
939501	AE1-179 C O1	3.69
939502	AE1-179 E O1	2.61
939931	AE1-229 C O1	7.03
939932	AE1-229 E O1	4.77
940001	AE1-240 C O1	3.07
940002	AE1-240 E O1	2.19
940361	AE2-020 C O2	24.89
940362	AE2-020 E O2	116.53
940371	AE2-021 C O2	24.89
940372	AE2-021 E O2	116.53
940381	AE2-022 C O2	14.52
940382	AE2-022 E O2	67.98
940391	AE2-023 C O2	16.3
940392	AE2-023 E O2	76.32
940411	AE2-025 C O2	45.79
940412	AE2-025 E O2	214.38
940961	AE2-087 C	0.14
940962	AE2-087 E	0.19
940963	AE2-087 BAT	0.05
940971	AE2-088 C	0.06
940972	AE2-088 E	0.08
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	2.3
941002	AE2-091 E O2	1.2
941121	AE2-106 C	0.16
941122	AE2-106 E	0.21
941123	AE2-106 BAT	0.05
941931	AE2-205 C O2	5.96
941932	AE2-205 E O2	3.97
942101	AE2-222 C O2	18.33
942102	AE2-222 E O2	46.06
942201	AE2-232 C O2	26.28
942202	AE2-232 E O2	67.25
942381	AE2-251 C O2	78.85
942382	AE2-251 E O2	201.75
942571	AE2-272	0.1
942941	AE2-314 C	10.1
942942	AE2-314 E	6.73
943081	AE2-335 C O2	3.22
943082	AE2-335 E O2	1.44
BLUEG	BLUEG	0.03
CANNELTON	CANNELTON	0.0
CARR	CARR	0.73
CBM-S1	CBM-S1	0.03
CBM-S2	CBM-S2	0.07
CBM-W2	CBM-W2	0.07
COFFEEN	COFFEEN	0.0
CPLE	CPLE	0.04
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.0

Bus #	Bus	MW Impact
FARMERCITY	FARMERCITY	0.0
G-007	G-007	6.33
GIBSON	GIBSON	0.0
NEWTON	NEWTON	0.01
O-066	O-066	19.64
PRAIRIE	PRAIRIE	0.0
RENSSELAER	RENSSELAER	0.58
TATANKA	TATANKA	0.0
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.0

15.9 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
14264722	228404	MONROE	AE	228402	MONROE	AE	2	AE_P1-3 MON 3 XFR	single	274.0	84.21	86.38	DC	5.95

Bus #	Bus	MW Impact
227801	ONTC&DCT	3.23
227842	MARINGEN	0.04
227927	V4-067C	0.01
228014	PVILLEG	0.04
228720	V2-035C	0.03
292062	V1-021 C	0.02
902091	W1-130C	0.18
902431	W2-030 C	0.04
913341	Y1-077	4.08
924701	AB2-122 C	0.05
930001	AB1-001 C	0.01
931191	AB1-169A	214.46
938311	AE1-046 C	0.78
938421	AE1-061 C	1.97
938781	AE1-104 C O1	10.46
939301	AE1-161 C	9.86
939931	AE1-229 C O1	21.62
940361	AE2-020 C O2	5.64
940371	AE2-021 C O2	5.64
940381	AE2-022 C O2	3.29
940391	AE2-023 C O2	7.34
940971	AE2-088 C	0.43
940973	AE2-088 BAT	0.45
942101	AE2-222 C O2	7.14
942201	AE2-232 C O2	5.95
942381	AE2-251 C O2	17.86
942941	AE2-314 C	2.29
943081	AE2-335 C O2	24.02
BLUEG	BLUEG	0.22
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CARR	CARR	0.0
CATAWBA	CATAWBA	0.02
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.09
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.02

Bus #	Bus	MW Impact
G-007A	G-007A	0.52
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.06
PRAIRIE	PRAIRIE	0.11
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.08
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	0.15

15.10 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
8466396	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1180.0	107.3	110.11	DC	73.25

Bus #	Bus	MW Impact
213606	FAIRLESS	9.69
213878	PENNSBRY	0.92
213918	RICHMD91	2.82
213919	RICHMD92	2.82
219124	CAMDEN_STG	2.8
219126	CAMDEN_CTG	3.44
219128	GLOUCSTR_26	1.52
219229	EAGLEPT_G3	2.5
219230	EAGLEPT_G1	3.7
219241	CAMDEN1	0.21
219242	CAMDEN2	0.02
227801	ONTC&DCT	7.26
227843	MARINGEN E	0.75
227928	V4-067E	0.3
228261	V4-054E	1.35
228357	V2-046E	3.06
228712	V2-041E	0.49
228721	V2-035E	0.28
291996	U4-036 E	1.01
292063	V1-021 E	0.06
292088	V1-030 CB	0.1
292099	V1-030 E3	0.23
292105	V1-030 E6	0.3
292115	V1-030 EB	1.33
292194	V1-030 CE	0.09
292195	V1-030 EE	1.23
293404	V3-036	1.03
902092	W1-130E	1.35
902432	W2-030 E	1.17
902692	W2-056 E	1.64
902842	W2-071E	0.45
903152	W2-102 E	1.04
903991	W3-080C	1.96
903992	W3-080E	3.21
904042	V4-005 E	0.43
904432	W3-124 E	0.42
905792	W4-103 E	1.03
907382	X1-070 E	0.73
907392	X1-071 E	0.26
909032	X2-013 E	0.63

Bus #	Bus	MW Impact
910862	X3-075 E	1.06
913242	Y1-057 E	0.32
913332	Y1-075 E	0.41
915022	Y3-012 E	1.41
915072	Y3-026 E	1.6
915592	Y3-087 E OP1	0.8
916292	Z1-082 E	0.34
917381	Z2-062	0.13
924051	AB2-049 C	0.87
924052	AB2-049 E	1.41
924531	AB2-102 C	43.43
924532	AB2-102 E	0.97
924701	AB2-122 C	0.13
924702	AB2-122 E	0.22
925391	AC1-010 C	0.78
925392	AC1-010 E	1.34
925442	AC1-016 E	1.41
925452	AC1-017 E	0.67
925562	AC1-030 E	0.51
930002	AB1-001 E	0.27
930102	AB1-025 E	1.01
930242	AB1-063 E	0.14
930722	AB1-116 E	0.18
930732	AB1-119 E	0.17
931191	AB1-169A	119.56
932361	AC2-050 C O1	0.89
932362	AC2-050 E O1	1.46
933962	AD1-019 E	1.43
936211	AD2-027 C	1.4
936212	AD2-027 E	2.29
936321	AD2-042 C	1.85
936322	AD2-042 E	3.03
936411	AD2-052 C	1.54
936412	AD2-052 E	0.76
936491	AD2-064 C	0.12
936492	AD2-064 E	0.17
936501	AD2-065 C	0.5
936502	AD2-065 E	0.69
936541	AD2-069 C	0.52
936542	AD2-069 E	0.26
937011	AD2-135 C	0.13
937012	AD2-135 E	0.23
938311	AE1-046 C	0.43
938312	AE1-046 E	0.22
938421	AE1-061 C	0.58
938422	AE1-061 E	0.58
938431	AE1-062 C	1.2
938432	AE1-062 E	1.2
938611	AE1-083 C	0.51
938612	AE1-083 E	0.71
938781	AE1-104 C O1	26.58
938782	AE1-104 E O1	67.99

Bus #	Bus	MW Impact
938871	AE1-115 C	1.26
938872	AE1-115 E	1.26
939301	AE1-161 C	2.41
939302	AE1-161 E	3.61
939501	AE1-179 C O1	7.33
939502	AE1-179 E O1	5.17
939821	AE1-218 C O1	0.19
939822	AE1-218 E O1	0.28
939831	AE1-219 C O1	0.42
939832	AE1-219 E O1	0.61
939931	AE1-229 C O1	20.42
939932	AE1-229 E O1	13.83
940001	AE1-240 C O1	6.08
940002	AE1-240 E O1	4.34
940281	AE2-011 C	0.29
940282	AE2-011 E	0.41
940361	AE2-020 C O2	19.49
940362	AE2-020 E O2	91.26
940371	AE2-021 C O2	19.49
940372	AE2-021 E O2	91.26
940381	AE2-022 C O2	11.37
940382	AE2-022 E O2	53.23
940391	AE2-023 C O2	14.81
940392	AE2-023 E O2	69.34
940771	AE2-064 C	0.37
940772	AE2-064 E	0.5
940781	AE2-065 C	0.24
940782	AE2-065 E	0.37
940951	AE2-085 C	0.43
940952	AE2-085 E	0.41
940961	AE2-087 C	0.32
940962	AE2-087 E	0.44
940963	AE2-087 BAT	0.12
940971	AE2-088 C	0.17
940972	AE2-088 E	0.23
940973	AE2-088 BAT	0.1
941001	AE2-091 C O2	4.91
941002	AE2-091 E O2	2.56
941051	AE2-097 C	0.24
941052	AE2-097 E	0.38
941071	AE2-101 C	0.42
941072	AE2-101 E	0.58
941121	AE2-106 C	0.35
941122	AE2-106 E	0.49
941123	AE2-106 BAT	0.12
941441	AE2-141 C	0.27
941442	AE2-141 E	0.44
941471	AE2-144 C	0.49
941472	AE2-144 E	0.46
941931	AE2-205 C O2	9.18
941932	AE2-205 E O2	6.12
942011	AE2-213 C	0.37

Bus #	Bus	MW Impact
942012	AE2-213 E	0.33
942101	AE2-222 C O2	16.06
942102	AE2-222 E O2	40.34
942201	AE2-232 C O2	20.58
942202	AE2-232 E O2	52.67
942381	AE2-251 C O2	61.75
942382	AE2-251 E O2	158.0
942571	AE2-272	0.33
942941	AE2-314 C	7.91
942942	AE2-314 E	5.27
943071	AE2-334 C	6.7
943072	AE2-334 E	3.57
943081	AE2-335 C O2	9.58
943082	AE2-335 E O2	4.27
BLUEG	BLUEG	6.64
CALDERWOOD	CALDERWOOD	0.72
CANNELTON	CANNELTON	0.4
CATAWBA	CATAWBA	0.46
CBM-N	CBM-N	0.84
CHEOAH	CHEOAH	0.66
CHILHOWEE	CHILHOWEE	0.24
COFFEEN	COFFEEN	0.7
COTTONWOOD	COTTONWOOD	2.77
DUCKCREEK	DUCKCREEK	1.53
EDWARDS	EDWARDS	0.7
ELMERSMITH	ELMERSMITH	0.7
FARMERCITY	FARMERCITY	0.46
G-007A	G-007A	12.57
GIBSON	GIBSON	0.27
HAMLET	HAMLET	0.75
NEWTON	NEWTON	1.83
NYISO	NYISO	3.63
PRAIRIE	PRAIRIE	3.42
SANTEETLA	SANTEETLA	0.19
SMITHLAND	SMITHLAND	0.27
TATANKA	TATANKA	0.83
TILTON	TILTON	0.83
TRIMBLE	TRIMBLE	0.74
TVA	TVA	2.31
UNIONPOWER	UNIONPOWER	1.03
VFT	VFT	22.63

15.11 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
14264333	214010	WANEETA2	PECO	213817	N PHILA	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	621.0	95.65	98.41	DC	37.94

Bus #	Bus	MW Impact
213606	FAIRLESS	6.63
213878	PENNSBRY	0.63
213918	RICHMD91	1.37
213919	RICHMD92	1.37
219124	CAMDEN_STG	1.4
219126	CAMDEN_CTG	1.72
219128	GLOUCSTR_26	0.76
219229	EAGLEPT_G3	1.25
219230	EAGLEPT_G1	1.85
219241	CAMDEN1	0.1
219242	CAMDEN2	0.01
227801	ONTC&DCT	3.75
227843	MARINGEN E	0.39
227928	V4-067E	0.16
228261	V4-054E	0.69
228357	V2-046E	1.55
228712	V2-041E	0.25
228721	V2-035E	0.14
291996	U4-036 E	0.51
292063	V1-021 E	0.03
292088	V1-030 CB	0.05
292099	V1-030 E3	0.12
292105	V1-030 E6	0.15
292115	V1-030 EB	0.66
292194	V1-030 CE	0.05
292195	V1-030 EE	0.61
293404	V3-036	0.53
902092	W1-130E	0.69
902432	W2-030 E	0.6
902692	W2-056 E	0.86
902842	W2-071E	0.23
903152	W2-102 E	0.55
903991	W3-080C	1.09
903992	W3-080E	1.78
904042	V4-005 E	0.23
904432	W3-124 E	0.22
905792	W4-103 E	0.54
907382	X1-070 E	0.37
907391	X1-071 C	0.01
907392	X1-071 E	0.13

Bus #	Bus	MW Impact
909032	X2-013 E	0.32
910862	X3-075 E	0.53
913332	Y1-075 E	0.22
915022	Y3-012 E	0.73
915072	Y3-026 E	0.89
915592	Y3-087 E OP1	0.4
916292	Z1-082 E	0.17
917381	Z2-062	0.06
924051	AB2-049 C	0.44
924052	AB2-049 E	0.72
924531	AB2-102 C	22.23
924532	AB2-102 E	0.49
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
925391	AC1-010 C	0.39
925392	AC1-010 E	0.67
925442	AC1-016 E	0.78
925452	AC1-017 E	0.36
925561	AC1-030 C	0.02
925562	AC1-030 E	0.26
930002	AB1-001 E	0.14
930102	AB1-025 E	0.53
930242	AB1-063 E	0.07
930722	AB1-116 E	0.09
930732	AB1-119 E	0.08
931191	AB1-169A	61.04
932361	AC2-050 C O1	0.47
932362	AC2-050 E O1	0.76
933962	AD1-019 E	0.74
936211	AD2-027 C	0.7
936212	AD2-027 E	1.14
936321	AD2-042 C	0.92
936322	AD2-042 E	1.51
936411	AD2-052 C	0.78
936412	AD2-052 E	0.38
936491	AD2-064 C	0.06
936492	AD2-064 E	0.08
936501	AD2-065 C	0.26
936502	AD2-065 E	0.35
936541	AD2-069 C	0.27
936542	AD2-069 E	0.13
937011	AD2-135 C	0.07
937012	AD2-135 E	0.12
938311	AE1-046 C	0.22
938312	AE1-046 E	0.11
938421	AE1-061 C	0.29
938422	AE1-061 E	0.29
938431	AE1-062 C	0.62
938432	AE1-062 E	0.62
938611	AE1-083 C	0.29
938612	AE1-083 E	0.4
938781	AE1-104 C O1	13.68

Bus #	Bus	MW Impact
938782	AE1-104 E O1	35.0
938871	AE1-115 C	0.64
938872	AE1-115 E	0.64
939301	AE1-161 C	1.23
939302	AE1-161 E	1.84
939501	AE1-179 C O1	3.74
939502	AE1-179 E O1	2.64
939821	AE1-218 C O1	0.1
939822	AE1-218 E O1	0.14
939831	AE1-219 C O1	0.21
939832	AE1-219 E O1	0.31
939931	AE1-229 C O1	10.36
939932	AE1-229 E O1	7.02
940001	AE1-240 C O1	3.1
940002	AE1-240 E O1	2.21
940281	AE2-011 C	0.15
940282	AE2-011 E	0.21
940361	AE2-020 C O2	10.1
940362	AE2-020 E O2	47.27
940371	AE2-021 C O2	10.1
940372	AE2-021 E O2	47.27
940381	AE2-022 C O2	5.89
940382	AE2-022 E O2	27.58
940391	AE2-023 C O2	7.65
940392	AE2-023 E O2	35.79
940771	AE2-064 C	0.18
940772	AE2-064 E	0.25
940781	AE2-065 C	0.12
940782	AE2-065 E	0.19
940951	AE2-085 C	0.23
940952	AE2-085 E	0.21
940961	AE2-087 C	0.16
940962	AE2-087 E	0.22
940963	AE2-087 BAT	0.06
940971	AE2-088 C	0.09
940972	AE2-088 E	0.12
940973	AE2-088 BAT	0.05
941001	AE2-091 C O2	2.5
941002	AE2-091 E O2	1.31
941051	AE2-097 C	0.12
941052	AE2-097 E	0.2
941071	AE2-101 C	0.21
941072	AE2-101 E	0.29
941121	AE2-106 C	0.18
941122	AE2-106 E	0.25
941123	AE2-106 BAT	0.06
941441	AE2-141 C	0.14
941442	AE2-141 E	0.23
941471	AE2-144 C	0.25
941472	AE2-144 E	0.23
941931	AE2-205 C O2	4.7
941932	AE2-205 E O2	3.13

Bus #	Bus	MW Impact
942011	AE2-213 C	0.19
942012	AE2-213 E	0.17
942101	AE2-222 C O2	8.29
942102	AE2-222 E O2	20.83
942201	AE2-232 C O2	10.66
942202	AE2-232 E O2	27.28
942381	AE2-251 C O2	31.99
942382	AE2-251 E O2	81.85
942571	AE2-272	0.17
942941	AE2-314 C	4.1
942942	AE2-314 E	2.73
943071	AE2-334 C	3.41
943072	AE2-334 E	1.82
943081	AE2-335 C O2	4.87
943082	AE2-335 E O2	2.17
BLUEG	BLUEG	2.88
CALDERWOOD	CALDERWOOD	0.32
CANNELTON	CANNELTON	0.18
CATAWBA	CATAWBA	0.21
CBM-N	CBM-N	0.87
CHEOAH	CHEOAH	0.29
CHILHOWEE	CHILHOWEE	0.1
COFFEEN	COFFEEN	0.3
COTTONWOOD	COTTONWOOD	1.22
DUCKCREEK	DUCKCREEK	0.66
EDWARDS	EDWARDS	0.3
ELMERSMITH	ELMERSMITH	0.3
FARMERCITY	FARMERCITY	0.2
G-007A	G-007A	8.18
GIBSON	GIBSON	0.12
HAMLET	HAMLET	0.34
NEWTON	NEWTON	0.79
NYISO	NYISO	3.79
PRAIRIE	PRAIRIE	1.49
SANTEETLA	SANTEETLA	0.09
SMITHLAND	SMITHLAND	0.12
TATANKA	TATANKA	0.36
TILTON	TILTON	0.36
TRIMBLE	TRIMBLE	0.32
TVA	TVA	1.01
UNIONPOWER	UNIONPOWER	0.45
VFT	VFT	16.55

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466398	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1336.0	106.54	109.13	DC	75.95

Bus #	Bus	MW Impact
219124	CAMDEN_STG	3.13
219126	CAMDEN_CTG	3.85
219128	GLOUCSTR_26	1.7
219229	EAGLEPT_G3	2.79
219230	EAGLEPT_G1	4.12
219231	EAGLEPT_G2	4.12
219241	CAMDEN1	0.23
219242	CAMDEN2	0.03
227801	ONTC&DCT	7.56
227843	MARINGEN E	0.78
227928	V4-067E	0.31
228261	V4-054E	1.44
228357	V2-046E	3.3
228423	Q-090 2	30.11
228712	V2-041E	0.52
228721	V2-035E	0.3
291995	U4-036 C	0.08
291996	U4-036 E	1.12
292063	V1-021 E	0.06
292088	V1-030 CB	0.11
292099	V1-030 E3	0.22
292104	V1-030 C6	0.02
292105	V1-030 E6	0.33
292115	V1-030 EB	1.49
292194	V1-030 CE	0.1
292195	V1-030 EE	1.37
293404	V3-036	1.08
902092	W1-130E	1.43
902432	W2-030 E	1.21
902692	W2-056 E	1.53
902842	W2-071E	0.44
903152	W2-102 E	0.98
903991	W3-080C	1.35
903992	W3-080E	2.2
904042	V4-005 E	0.4
904432	W3-124 E	0.4
905792	W4-103 E	0.97
907381	X1-070 C	0.05
907382	X1-070 E	0.77
907391	X1-071 C	0.01

Bus #	Bus	MW Impact
907392	X1-071 E	0.26
909032	X2-013 E	0.7
910862	X3-075 E	1.18
913332	Y1-075 E	0.39
914231	Y2-081 C OP1	1.35
914232	Y2-081 E OP1	0.07
915022	Y3-012 E	1.47
915072	Y3-026 E	1.1
915591	Y3-087 C OP1	0.06
915592	Y3-087 E OP1	0.89
916292	Z1-082 E	0.38
917381	Z2-062	0.14
919901	AB1-000 1	1.04
919911	AB1-000 2	1.04
919921	AB1-000 3	1.04
924051	AB2-049 C	0.91
924052	AB2-049 E	1.48
924531	AB2-102 C	45.91
924532	AB2-102 E	1.02
924701	AB2-122 C	0.14
924702	AB2-122 E	0.23
925391	AC1-010 C	0.87
925392	AC1-010 E	1.5
925442	AC1-016 E	0.97
925452	AC1-017 E	0.56
925561	AC1-030 C	0.04
925562	AC1-030 E	0.52
930002	AB1-001 E	0.28
930102	AB1-025 E	0.94
930242	AB1-063 E	0.15
930722	AB1-116 E	0.19
930732	AB1-119 E	0.17
931191	AB1-169A	126.85
932361	AC2-050 C O1	0.86
932362	AC2-050 E O1	1.41
933962	AD1-019 E	1.49
934661	AD1-097 1	1.67
934671	AD1-097 2	1.67
934681	AD1-097 3	1.67
934691	AD1-097 4	0.99
936211	AD2-027 C	1.57
936212	AD2-027 E	2.57
936321	AD2-042 C	2.07
936322	AD2-042 E	3.4
936411	AD2-052 C	1.66
936412	AD2-052 E	0.82
936491	AD2-064 C	0.12
936492	AD2-064 E	0.17
936501	AD2-065 C	0.51
936502	AD2-065 E	0.71
936541	AD2-069 C	0.51
936542	AD2-069 E	0.25

Bus #	Bus	MW Impact
937011	AD2-135 C	0.14
937012	AD2-135 E	0.24
938311	AE1-046 C	0.46
938312	AE1-046 E	0.23
938421	AE1-061 C	0.61
938422	AE1-061 E	0.61
938431	AE1-062 C	1.23
938432	AE1-062 E	1.23
938611	AE1-083 C	0.35
938612	AE1-083 E	0.49
938781	AE1-104 C O1	27.85
938782	AE1-104 E O1	71.26
938871	AE1-115 C	1.36
938872	AE1-115 E	1.36
939301	AE1-161 C	2.57
939302	AE1-161 E	3.85
939501	AE1-179 C O1	7.79
939502	AE1-179 E O1	5.5
939821	AE1-218 C O1	0.2
939822	AE1-218 E O1	0.3
939831	AE1-219 C O1	0.44
939832	AE1-219 E O1	0.64
939931	AE1-229 C O1	21.94
939932	AE1-229 E O1	14.86
940001	AE1-240 C O1	6.46
940002	AE1-240 E O1	4.61
940281	AE2-011 C	0.31
940282	AE2-011 E	0.42
940361	AE2-020 C O2	20.21
940362	AE2-020 E O2	94.63
940371	AE2-021 C O2	20.21
940372	AE2-021 E O2	94.63
940381	AE2-022 C O2	11.79
940382	AE2-022 E O2	55.2
940391	AE2-023 C O2	15.45
940392	AE2-023 E O2	72.34
940771	AE2-064 C	0.41
940772	AE2-064 E	0.56
940781	AE2-065 C	0.26
940782	AE2-065 E	0.41
940951	AE2-085 C	0.41
940952	AE2-085 E	0.39
940961	AE2-087 C	0.34
940962	AE2-087 E	0.47
940963	AE2-087 BAT	0.13
940971	AE2-088 C	0.18
940972	AE2-088 E	0.25
940973	AE2-088 BAT	0.1
941001	AE2-091 C O2	5.24
941002	AE2-091 E O2	2.73
941051	AE2-097 C	0.25
941052	AE2-097 E	0.41

Bus #	Bus	MW Impact
941071	AE2-101 C	0.46
941072	AE2-101 E	0.63
941121	AE2-106 C	0.38
941122	AE2-106 E	0.52
941123	AE2-106 BAT	0.13
941441	AE2-141 C	0.26
941442	AE2-141 E	0.42
941471	AE2-144 C	0.55
941472	AE2-144 E	0.97
941931	AE2-205 C O2	9.7
941932	AE2-205 E O2	6.47
942011	AE2-213 C	0.41
942012	AE2-213 E	0.7
942101	AE2-222 C O2	16.74
942102	AE2-222 E O2	42.04
942201	AE2-232 C O2	21.34
942202	AE2-232 E O2	54.61
942381	AE2-251 C O2	64.03
942382	AE2-251 E O2	163.83
942571	AE2-272	0.36
942941	AE2-314 C	8.2
942942	AE2-314 E	5.47
943071	AE2-334 C	7.11
943072	AE2-334 E	3.79
943081	AE2-335 C O2	10.22
943082	AE2-335 E O2	4.56
BLUEG	BLUEG	5.69
CALDERWOOD	CALDERWOOD	0.61
CANNELTON	CANNELTON	0.34
CATAWBA	CATAWBA	0.39
CBM-N	CBM-N	0.34
CHEOAH	CHEOAH	0.56
CHILHOWEE	CHILHOWEE	0.2
COFFEEN	COFFEEN	0.6
COTTONWOOD	COTTONWOOD	2.36
DUCKCREEK	DUCKCREEK	1.31
EDWARDS	EDWARDS	0.6
ELMERSMITH	ELMERSMITH	0.59
FARMERCITY	FARMERCITY	0.4
G-007A	G-007A	9.86
GIBSON	GIBSON	0.23
HAMLET	HAMLET	0.63
NEWTON	NEWTON	1.57
NYISO	NYISO	1.45
PRAIRIE	PRAIRIE	2.92
SANTEETLA	SANTEETLA	0.16
SMITHLAND	SMITHLAND	0.23
TATANKA	TATANKA	0.71
TILTON	TILTON	0.72
TRIMBLE	TRIMBLE	0.63
TVA	TVA	1.97
UNIONPOWER	UNIONPOWER	0.88

Bus #	Bus	MW Impact
VFT	VFT	14.46

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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
8466431	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_1-4_LT	breaker	771.0	103.09	105.19	DC	35.2

Bus #	Bus	MW Impact
219124	CAMDEN_STG	2.61
219126	CAMDEN_CTG	3.21
219128	GLOUCSTR_26	1.41
219229	EAGLEPT_G3	2.25
219230	EAGLEPT_G1	3.34
219231	EAGLEPT_G2	3.34
227801	ONTC&DCT	3.65
227843	MARINGEN E	0.38
227928	V4-067E	0.15
228261	V4-054E	0.82
228357	V2-046E	2.03
228423	Q-090 2	21.2
228712	V2-041E	0.28
228721	V2-035E	0.18
291995	U4-036 C	0.06
291996	U4-036 E	0.86
292063	V1-021 E	0.03
292104	V1-030 C6	0.02
292105	V1-030 E6	0.25
292194	V1-030 CE	0.09
292195	V1-030 EE	1.14
293404	V3-036	0.52
902092	W1-130E	0.79
902432	W2-030 E	0.59
909032	X2-013 E	0.54
910862	X3-075 E	0.99
914231	Y2-081 C OP1	1.07
914232	Y2-081 E OP1	0.06
915022	Y3-012 E	0.71
915591	Y3-087 C OP1	0.05
915592	Y3-087 E OP1	0.7
916292	Z1-082 E	0.14
917381	Z2-062	0.12
924051	AB2-049 C	0.42
924052	AB2-049 E	0.69
924531	AB2-102 C	24.15
924532	AB2-102 E	0.54
924701	AB2-122 C	0.06
924702	AB2-122 E	0.11
925391	AC1-010 C	0.72
925392	AC1-010 E	1.25

Bus #	Bus	MW Impact
930002	AB1-001 E	0.14
930722	AB1-116 E	0.1
930732	AB1-119 E	0.07
931191	AB1-169A	69.49
933962	AD1-019 E	0.72
936411	AD2-052 C	1.01
936412	AD2-052 E	0.5
936491	AD2-064 C	0.05
936492	AD2-064 E	0.07
936501	AD2-065 C	0.19
936502	AD2-065 E	0.26
937011	AD2-135 C	0.06
937012	AD2-135 E	0.11
938311	AE1-046 C	0.25
938312	AE1-046 E	0.13
938421	AE1-061 C	0.34
938422	AE1-061 E	0.34
938431	AE1-062 C	0.46
938432	AE1-062 E	0.46
938781	AE1-104 C O1	13.91
938782	AE1-104 E O1	35.59
938871	AE1-115 C	0.85
938872	AE1-115 E	0.85
939301	AE1-161 C	1.45
939302	AE1-161 E	2.18
939501	AE1-179 C O1	4.28
939502	AE1-179 E O1	3.02
939821	AE1-218 C O1	0.11
939822	AE1-218 E O1	0.16
939831	AE1-219 C O1	0.24
939832	AE1-219 E O1	0.34
939931	AE1-229 C O1	13.11
939932	AE1-229 E O1	8.89
940001	AE1-240 C O1	3.56
940002	AE1-240 E O1	2.54
940281	AE2-011 C	0.13
940282	AE2-011 E	0.18
940361	AE2-020 C O2	9.37
940362	AE2-020 E O2	43.85
940371	AE2-021 C O2	9.37
940372	AE2-021 E O2	43.85
940381	AE2-022 C O2	5.46
940382	AE2-022 E O2	25.58
940391	AE2-023 C O2	7.5
940392	AE2-023 E O2	35.11
940771	AE2-064 C	0.32
940772	AE2-064 E	0.44
940781	AE2-065 C	0.21
940782	AE2-065 E	0.33
940961	AE2-087 C	0.19
940962	AE2-087 E	0.27
940963	AE2-087 BAT	0.07

Bus #	Bus	MW Impact
940971	AE2-088 C	0.1
940972	AE2-088 E	0.14
940973	AE2-088 BAT	0.06
941001	AE2-091 C O2	2.94
941002	AE2-091 E O2	1.53
941071	AE2-101 C	0.3
941072	AE2-101 E	0.41
941121	AE2-106 C	0.22
941122	AE2-106 E	0.3
941123	AE2-106 BAT	0.07
941471	AE2-144 C	0.44
941472	AE2-144 E	0.78
941931	AE2-205 C O2	5.11
941932	AE2-205 E O2	3.41
942011	AE2-213 C	0.32
942012	AE2-213 E	0.54
942101	AE2-222 C O2	8.07
942102	AE2-222 E O2	20.28
942201	AE2-232 C O2	9.89
942202	AE2-232 E O2	25.31
942381	AE2-251 C O2	29.67
942382	AE2-251 E O2	75.92
942571	AE2-272	0.22
942941	AE2-314 C	3.8
942942	AE2-314 E	2.53
943071	AE2-334 C	3.87
943072	AE2-334 E	2.06
943081	AE2-335 C O2	5.79
943082	AE2-335 E O2	2.58
BLUEG	BLUEG	1.6
CALDERWOOD	CALDERWOOD	0.16
CANNELTON	CANNELTON	0.1
CARR	CARR	0.37
CATAWBA	CATAWBA	0.1
CHEOAH	CHEOAH	0.15
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.17
COTTONWOOD	COTTONWOOD	0.64
DUCKCREEK	DUCKCREEK	0.37
EDWARDS	EDWARDS	0.17
ELMERSMITH	ELMERSMITH	0.17
FARMERCITY	FARMERCITY	0.11
G-007	G-007	0.75
GIBSON	GIBSON	0.07
HAMLET	HAMLET	0.16
NEWTON	NEWTON	0.44
O-066	O-066	8.35
PRAIRIE	PRAIRIE	0.82
RENSSELAER	RENSSELAER	0.3
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.2

Bus #	Bus	MW Impact
TILTON	TILTON	0.2
TRIMBLE	TRIMBLE	0.18
TVA	TVA	0.54
UNIONPOWER	UNIONPOWER	0.24

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466397	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	breaker	1336.0	106.55	109.14	DC	75.95

Bus #	Bus	MW Impact
219124	CAMDEN_STG	3.13
219126	CAMDEN_CTG	3.85
219128	GLOUCSTR_26	1.7
219229	EAGLEPT_G3	2.79
219230	EAGLEPT_G1	4.12
219231	EAGLEPT_G2	4.12
219241	CAMDEN1	0.23
219242	CAMDEN2	0.03
227801	ONTC&DCT	7.56
227843	MARINGEN E	0.78
227928	V4-067E	0.31
228261	V4-054E	1.44
228357	V2-046E	3.3
228423	Q-090 2	30.11
228712	V2-041E	0.52
228721	V2-035E	0.3
291995	U4-036 C	0.08
291996	U4-036 E	1.12
292063	V1-021 E	0.06
292088	V1-030 CB	0.11
292099	V1-030 E3	0.22
292104	V1-030 C6	0.02
292105	V1-030 E6	0.33
292115	V1-030 EB	1.49
292194	V1-030 CE	0.1
292195	V1-030 EE	1.37
293404	V3-036	1.08
902092	W1-130E	1.43
902432	W2-030 E	1.21
902692	W2-056 E	1.53
902842	W2-071E	0.44
903152	W2-102 E	0.98
903991	W3-080C	1.35
903992	W3-080E	2.2
904042	V4-005 E	0.4
904432	W3-124 E	0.4
905792	W4-103 E	0.97
907381	X1-070 C	0.05
907382	X1-070 E	0.77
907391	X1-071 C	0.01

Bus #	Bus	MW Impact
907392	X1-071 E	0.26
909032	X2-013 E	0.7
910862	X3-075 E	1.18
913332	Y1-075 E	0.39
914231	Y2-081 C OP1	1.35
914232	Y2-081 E OP1	0.07
915022	Y3-012 E	1.47
915072	Y3-026 E	1.1
915591	Y3-087 C OP1	0.06
915592	Y3-087 E OP1	0.89
916292	Z1-082 E	0.38
917381	Z2-062	0.14
919901	AB1-000 1	1.04
919911	AB1-000 2	1.04
919921	AB1-000 3	1.04
924051	AB2-049 C	0.91
924052	AB2-049 E	1.48
924531	AB2-102 C	45.91
924532	AB2-102 E	1.02
924701	AB2-122 C	0.14
924702	AB2-122 E	0.23
925391	AC1-010 C	0.87
925392	AC1-010 E	1.5
925442	AC1-016 E	0.97
925452	AC1-017 E	0.56
925561	AC1-030 C	0.04
925562	AC1-030 E	0.52
930002	AB1-001 E	0.28
930102	AB1-025 E	0.94
930242	AB1-063 E	0.15
930722	AB1-116 E	0.19
930732	AB1-119 E	0.17
931191	AB1-169A	126.85
932361	AC2-050 C O1	0.86
932362	AC2-050 E O1	1.41
933962	AD1-019 E	1.49
934661	AD1-097 1	1.67
934671	AD1-097 2	1.67
934681	AD1-097 3	1.67
934691	AD1-097 4	0.99
936211	AD2-027 C	1.57
936212	AD2-027 E	2.57
936321	AD2-042 C	2.07
936322	AD2-042 E	3.4
936411	AD2-052 C	1.66
936412	AD2-052 E	0.82
936491	AD2-064 C	0.12
936492	AD2-064 E	0.17
936501	AD2-065 C	0.51
936502	AD2-065 E	0.71
936541	AD2-069 C	0.51
936542	AD2-069 E	0.25

Bus #	Bus	MW Impact
937011	AD2-135 C	0.14
937012	AD2-135 E	0.24
938311	AE1-046 C	0.46
938312	AE1-046 E	0.23
938421	AE1-061 C	0.61
938422	AE1-061 E	0.61
938431	AE1-062 C	1.23
938432	AE1-062 E	1.23
938611	AE1-083 C	0.35
938612	AE1-083 E	0.49
938781	AE1-104 C O1	27.85
938782	AE1-104 E O1	71.26
938871	AE1-115 C	1.36
938872	AE1-115 E	1.36
939301	AE1-161 C	2.57
939302	AE1-161 E	3.85
939501	AE1-179 C O1	7.79
939502	AE1-179 E O1	5.5
939821	AE1-218 C O1	0.2
939822	AE1-218 E O1	0.3
939831	AE1-219 C O1	0.44
939832	AE1-219 E O1	0.64
939931	AE1-229 C O1	21.94
939932	AE1-229 E O1	14.86
940001	AE1-240 C O1	6.46
940002	AE1-240 E O1	4.61
940281	AE2-011 C	0.31
940282	AE2-011 E	0.42
940361	AE2-020 C O2	20.21
940362	AE2-020 E O2	94.63
940371	AE2-021 C O2	20.21
940372	AE2-021 E O2	94.63
940381	AE2-022 C O2	11.79
940382	AE2-022 E O2	55.2
940391	AE2-023 C O2	15.45
940392	AE2-023 E O2	72.34
940771	AE2-064 C	0.41
940772	AE2-064 E	0.56
940781	AE2-065 C	0.26
940782	AE2-065 E	0.41
940951	AE2-085 C	0.41
940952	AE2-085 E	0.39
940961	AE2-087 C	0.34
940962	AE2-087 E	0.47
940963	AE2-087 BAT	0.13
940971	AE2-088 C	0.18
940972	AE2-088 E	0.25
940973	AE2-088 BAT	0.1
941001	AE2-091 C O2	5.24
941002	AE2-091 E O2	2.73
941051	AE2-097 C	0.25
941052	AE2-097 E	0.41

Bus #	Bus	MW Impact
941071	AE2-101 C	0.46
941072	AE2-101 E	0.63
941121	AE2-106 C	0.38
941122	AE2-106 E	0.52
941123	AE2-106 BAT	0.13
941441	AE2-141 C	0.26
941442	AE2-141 E	0.42
941471	AE2-144 C	0.55
941472	AE2-144 E	0.97
941931	AE2-205 C O2	9.7
941932	AE2-205 E O2	6.47
942011	AE2-213 C	0.41
942012	AE2-213 E	0.7
942101	AE2-222 C O2	16.74
942102	AE2-222 E O2	42.04
942201	AE2-232 C O2	21.34
942202	AE2-232 E O2	54.61
942381	AE2-251 C O2	64.03
942382	AE2-251 E O2	163.83
942571	AE2-272	0.36
942941	AE2-314 C	8.2
942942	AE2-314 E	5.47
943071	AE2-334 C	7.11
943072	AE2-334 E	3.79
943081	AE2-335 C O2	10.22
943082	AE2-335 E O2	4.56
BLUEG	BLUEG	5.69
CALDERWOOD	CALDERWOOD	0.61
CANNELTON	CANNELTON	0.34
CATAWBA	CATAWBA	0.39
CBM-N	CBM-N	0.34
CHEOAH	CHEOAH	0.56
CHILHOWEE	CHILHOWEE	0.2
COFFEEN	COFFEEN	0.6
COTTONWOOD	COTTONWOOD	2.36
DUCKCREEK	DUCKCREEK	1.31
EDWARDS	EDWARDS	0.6
ELMERSMITH	ELMERSMITH	0.59
FARMERCITY	FARMERCITY	0.4
G-007A	G-007A	9.86
GIBSON	GIBSON	0.23
HAMLET	HAMLET	0.63
NEWTON	NEWTON	1.57
NYISO	NYISO	1.45
PRAIRIE	PRAIRIE	2.92
SANTEETLA	SANTEETLA	0.16
SMITHLAND	SMITHLAND	0.23
TATANKA	TATANKA	0.71
TILTON	TILTON	0.72
TRIMBLE	TRIMBLE	0.63
TVA	TVA	1.97
UNIONPOWER	UNIONPOWER	0.88

Bus #	Bus	MW Impact
VFT	VFT	14.46

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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
8467024	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	108.62	111.03	DC	39.54

Bus #	Bus	MW Impact
227801	ONTC&DCT	3.8
227843	MARINGEN E	0.39
227928	V4-067E	0.16
228260	V4-054C	0.09
228261	V4-054E	0.63
228357	V2-046E	1.3
228702	WEST CT	0.33
228712	V2-041E	0.25
228717	S121	0.47
228720	V2-035C	0.01
228721	V2-035E	0.13
228727	W2-039G	0.79
291996	U4-036 E	0.3
292063	V1-021 E	0.03
292105	V1-030 E6	0.09
293404	V3-036	0.54
902091	W1-130C	0.05
902092	W1-130E	0.69
902432	W2-030 E	0.61
909032	X2-013 E	0.19
915022	Y3-012 E	0.74
924051	AB2-049 C	0.47
924052	AB2-049 E	0.77
924531	AB2-102 C	21.84
924532	AB2-102 E	0.49
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
930002	AB1-001 E	0.14
930722	AB1-116 E	0.1
930732	AB1-119 E	0.09
931191	AB1-169A	60.9
933962	AD1-019 E	0.75
936411	AD2-052 C	0.66
936412	AD2-052 E	0.33
936491	AD2-064 C	0.06
936492	AD2-064 E	0.09
936501	AD2-065 C	0.24
936502	AD2-065 E	0.33
937011	AD2-135 C	0.08
937012	AD2-135 E	0.14
938311	AE1-046 C	0.22
938312	AE1-046 E	0.11

Bus #	Bus	MW Impact
938421	AE1-061 C	0.55
938422	AE1-061 E	0.55
938431	AE1-062 C	1.13
938432	AE1-062 E	1.13
938781	AE1-104 C O1	13.77
938782	AE1-104 E O1	35.21
938871	AE1-115 C	0.52
938872	AE1-115 E	0.52
939301	AE1-161 C	2.29
939302	AE1-161 E	3.44
939501	AE1-179 C O1	3.57
939502	AE1-179 E O1	2.52
939821	AE1-218 C O1	0.1
939822	AE1-218 E O1	0.15
939831	AE1-219 C O1	0.22
939832	AE1-219 E O1	0.32
939931	AE1-229 C O1	9.24
939932	AE1-229 E O1	6.26
940001	AE1-240 C O1	2.95
940002	AE1-240 E O1	2.1
940281	AE2-011 C	0.16
940282	AE2-011 E	0.22
940361	AE2-020 C O2	10.52
940362	AE2-020 E O2	49.27
940371	AE2-021 C O2	10.52
940372	AE2-021 E O2	49.27
940381	AE2-022 C O2	6.14
940382	AE2-022 E O2	28.74
940391	AE2-023 C O2	7.79
940392	AE2-023 E O2	36.46
940781	AE2-065 C	0.07
940782	AE2-065 E	0.1
940961	AE2-087 C	0.15
940962	AE2-087 E	0.21
940963	AE2-087 BAT	0.06
940971	AE2-088 C	0.09
940972	AE2-088 E	0.12
940973	AE2-088 BAT	0.09
941001	AE2-091 C O2	2.34
941002	AE2-091 E O2	1.22
941071	AE2-101 C	0.16
941072	AE2-101 E	0.23
941121	AE2-106 C	0.17
941122	AE2-106 E	0.23
941123	AE2-106 BAT	0.06
941471	AE2-144 C	0.14
941472	AE2-144 E	0.13
941931	AE2-205 C O2	4.61
941932	AE2-205 E O2	3.08
942011	AE2-213 C	0.11
942012	AE2-213 E	0.1
942101	AE2-222 C O2	8.42

Bus #	Bus	MW Impact
942102	AE2-222 E O2	21.14
942201	AE2-232 C O2	11.11
942202	AE2-232 E O2	28.43
942381	AE2-251 C O2	33.34
942382	AE2-251 E O2	85.3
942571	AE2-272	0.14
942941	AE2-314 C	4.27
942942	AE2-314 E	2.85
943071	AE2-334 C	3.44
943072	AE2-334 E	1.84
943081	AE2-335 C O2	4.9
943082	AE2-335 E O2	2.19
BLUEG	BLUEG	0.62
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.04
CARR	CARR	0.26
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.07
COTTONWOOD	COTTONWOOD	0.23
DUCKCREEK	DUCKCREEK	0.14
EDWARDS	EDWARDS	0.07
ELMERSMITH	ELMERSMITH	0.06
FARMERCITY	FARMERCITY	0.04
G-007	G-007	0.15
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.05
NEWTON	NEWTON	0.17
O-066	O-066	5.67
PRAIRIE	PRAIRIE	0.31
RENSSELAER	RENSSELAER	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.08
TILTON	TILTON	0.08
TRIMBLE	TRIMBLE	0.07
TVA	TVA	0.19
UNIONPOWER	UNIONPOWER	0.08

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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
14264949	219756	BEAVERBK_2	PSE&G	219110	GLOUCSTR	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	99.67	102.08	DC	39.47

Bus #	Bus	MW Impact
227801	ONTC&DCT	3.8
227843	MARINGEN E	0.39
227928	V4-067E	0.16
228261	V4-054E	0.63
228357	V2-046E	1.3
228702	WEST CT	0.33
228712	V2-041E	0.25
228717	S121	0.47
228720	V2-035C	0.01
228721	V2-035E	0.13
291996	U4-036 E	0.3
292063	V1-021 E	0.03
292105	V1-030 E6	0.09
293404	V3-036	0.54
902091	W1-130C	0.05
902092	W1-130E	0.69
902432	W2-030 E	0.61
909032	X2-013 E	0.19
914231	Y2-081 C OP1	2.5
914232	Y2-081 E OP1	0.13
915022	Y3-012 E	0.74
915591	Y3-087 C OP1	0.12
915592	Y3-087 E OP1	1.64
924051	AB2-049 C	0.47
924052	AB2-049 E	0.77
924531	AB2-102 C	21.8
924532	AB2-102 E	0.48
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
930002	AB1-001 E	0.14
930722	AB1-116 E	0.1
930732	AB1-119 E	0.09
931191	AB1-169A	60.8
933962	AD1-019 E	0.75
936411	AD2-052 C	0.66
936412	AD2-052 E	0.33
936491	AD2-064 C	0.06
936492	AD2-064 E	0.09
936501	AD2-065 C	0.24
936502	AD2-065 E	0.33
937011	AD2-135 C	0.08
937012	AD2-135 E	0.14

Bus #	Bus	MW Impact
938311	AE1-046 C	0.22
938312	AE1-046 E	0.11
938421	AE1-061 C	0.55
938422	AE1-061 E	0.55
938431	AE1-062 C	1.13
938432	AE1-062 E	1.13
938781	AE1-104 C O1	13.74
938782	AE1-104 E O1	35.15
938871	AE1-115 C	0.52
938872	AE1-115 E	0.52
939301	AE1-161 C	2.29
939302	AE1-161 E	3.43
939501	AE1-179 C O1	3.56
939502	AE1-179 E O1	2.52
939821	AE1-218 C O1	0.1
939822	AE1-218 E O1	0.15
939831	AE1-219 C O1	0.22
939832	AE1-219 E O1	0.32
939931	AE1-229 C O1	9.23
939932	AE1-229 E O1	6.25
940001	AE1-240 C O1	2.94
940002	AE1-240 E O1	2.1
940281	AE2-011 C	0.16
940282	AE2-011 E	0.22
940361	AE2-020 C O2	10.5
940362	AE2-020 E O2	49.18
940371	AE2-021 C O2	10.5
940372	AE2-021 E O2	49.18
940381	AE2-022 C O2	6.13
940382	AE2-022 E O2	28.69
940391	AE2-023 C O2	7.77
940392	AE2-023 E O2	36.4
940771	AE2-064 C	0.75
940772	AE2-064 E	1.03
940781	AE2-065 C	0.07
940782	AE2-065 E	0.1
940961	AE2-087 C	0.15
940962	AE2-087 E	0.21
940963	AE2-087 BAT	0.06
940971	AE2-088 C	0.09
940972	AE2-088 E	0.12
940973	AE2-088 BAT	0.09
941001	AE2-091 C O2	2.33
941002	AE2-091 E O2	1.22
941071	AE2-101 C	0.16
941072	AE2-101 E	0.23
941121	AE2-106 C	0.16
941122	AE2-106 E	0.23
941123	AE2-106 BAT	0.06
941471	AE2-144 C	0.14
941472	AE2-144 E	0.13
941931	AE2-205 C O2	4.6

Bus #	Bus	MW Impact
941932	AE2-205 E O2	3.07
942011	AE2-213 C	0.11
942012	AE2-213 E	0.1
942101	AE2-222 C O2	8.4
942102	AE2-222 E O2	21.1
942201	AE2-232 C O2	11.09
942202	AE2-232 E O2	28.38
942381	AE2-251 C O2	33.27
942382	AE2-251 E O2	85.14
942571	AE2-272	0.14
942941	AE2-314 C	4.26
942942	AE2-314 E	2.84
943071	AE2-334 C	3.44
943072	AE2-334 E	1.83
943081	AE2-335 C O2	4.9
943082	AE2-335 E O2	2.18
BLUEG	BLUEG	0.71
CALDERWOOD	CALDERWOOD	0.07
CANNELTON	CANNELTON	0.04
CARR	CARR	0.26
CATAWBA	CATAWBA	0.04
CHEOAH	CHEOAH	0.06
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.07
COTTONWOOD	COTTONWOOD	0.27
DUCKCREEK	DUCKCREEK	0.16
EDWARDS	EDWARDS	0.08
ELMERSMITH	ELMERSMITH	0.07
FARMERCITY	FARMERCITY	0.05
G-007	G-007	0.17
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.06
NEWTON	NEWTON	0.19
O-066	O-066	5.79
PRAIRIE	PRAIRIE	0.36
RENSSELAER	RENSSELAER	0.21
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.09
TILTON	TILTON	0.09
TRIMBLE	TRIMBLE	0.08
TVA	TVA	0.22
UNIONPOWER	UNIONPOWER	0.1

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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
14264168	227900	CARDIFF	AE	228002	ORCHARD	AE	1	AE_P4-2 AE6	breaker	906.0	97.34	110.98	DC	148.59

Bus #	Bus	MW Impact
206325	28O C GEN	70.97
206360	28O 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

15.18 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264203	227900	CARDIFF	AE	227913	CARDIFF	AE	1	AE_P4-2 AE9	breaker	425.0	75.43	90.54	DC	65.58

Bus #	Bus	MW Impact
938421	AE1-061 C	0.72
938422	AE1-061 E	0.72
939301	AE1-161 C	0.89
939302	AE1-161 E	1.34
940361	AE2-020 C O2	17.45
940362	AE2-020 E O2	81.7
940371	AE2-021 C O2	17.45
940372	AE2-021 E O2	81.7
940381	AE2-022 C O2	10.18
940382	AE2-022 E O2	47.66
940411	AE2-025 C O2	5.12
940412	AE2-025 E O2	23.95
940963	AE2-087 BAT	0.04
940973	AE2-088 BAT	0.03
941123	AE2-106 BAT	0.04
942201	AE2-232 C O2	18.43
942202	AE2-232 E O2	47.15
942381	AE2-251 C O2	55.28
942382	AE2-251 E O2	141.45
942941	AE2-314 C	7.08
942942	AE2-314 E	4.72
CBM-N	CBM-N	0.25
CBM-S1	CBM-S1	0.26
CBM-S2	CBM-S2	0.13
CBM-W1	CBM-W1	0.49
CBM-W2	CBM-W2	1.93
CIN	CIN	0.21
CPLE	CPLE	0.05
G-007A	G-007A	2.17
IPL	IPL	0.13
LGEE	LGEE	0.06
MEC	MEC	0.38
MECS	MECS	0.3
NYISO	NYISO	1.09
VFT	VFT	2.93
WEC	WEC	0.06

15.19 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264857	227900	CARDIFF	AE	227934	CARDIFF2	AE	1	AE_P7-1 AE3TOWER	tower	425.0	91.13	105.44	DC	60.82

Bus #	Bus	MW Impact
938421	AE1-061 C	0.7
938422	AE1-061 E	0.7
939301	AE1-161 C	0.81
939302	AE1-161 E	1.22
940361	AE2-020 C O2	16.18
940362	AE2-020 E O2	75.78
940371	AE2-021 C O2	16.18
940372	AE2-021 E O2	75.78
940381	AE2-022 C O2	9.44
940382	AE2-022 E O2	44.2
940963	AE2-087 BAT	0.03
940973	AE2-088 BAT	0.02
941123	AE2-106 BAT	0.03
942201	AE2-232 C O2	17.09
942202	AE2-232 E O2	43.73
942381	AE2-251 C O2	51.27
942382	AE2-251 E O2	131.19
942941	AE2-314 C	6.57
942942	AE2-314 E	4.38
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.29
CBM-S2	CBM-S2	0.15
CBM-W1	CBM-W1	0.52
CBM-W2	CBM-W2	2.15
CIN	CIN	0.22
CPLE	CPLE	0.06
G-007	G-007	0.22
IPL	IPL	0.14
LGEE	LGEE	0.06
MEC	MEC	0.42
MECS	MECS	0.31
NYISO	NYISO	0.02
O-066	O-066	0.25
WEC	WEC	0.06

15.20 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
14264209	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	AE_P4-2 AE6	breaker	478.0	93.24	103.74	DC	50.18

Bus #	Bus	MW Impact
227928	V4-067E	0.1
228712	V2-041E	0.17
292062	V1-021 C	0.03
292063	V1-021 E	0.03
913341	Y1-077	8.14
924531	AB2-102 C	15.16
924532	AB2-102 E	0.34
924701	AB2-122 C	0.04
924702	AB2-122 E	0.07
938421	AE1-061 C	1.65
938422	AE1-061 E	1.65
938781	AE1-104 C O1	20.83
938782	AE1-104 E O1	53.28
939301	AE1-161 C	3.66
939302	AE1-161 E	5.5
940361	AE2-020 C O2	13.35
940362	AE2-020 E O2	62.52
940371	AE2-021 C O2	13.35
940372	AE2-021 E O2	62.52
940381	AE2-022 C O2	7.79
940382	AE2-022 E O2	36.47
940391	AE2-023 C O2	17.63
940392	AE2-023 E O2	82.51
940411	AE2-025 C O2	4.32
940412	AE2-025 E O2	20.2
940973	AE2-088 BAT	0.11
941931	AE2-205 C O2	3.38
941932	AE2-205 E O2	2.25
942201	AE2-232 C O2	14.1
942202	AE2-232 E O2	36.08
942381	AE2-251 C O2	42.31
942382	AE2-251 E O2	108.25
942941	AE2-314 C	5.42
942942	AE2-314 E	3.61
BLUEG	BLUEG	0.27
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.02
CBM-N	CBM-N	0.06
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.03

Bus #	Bus	MW Impact
COTTONWOOD	COTTONWOOD	0.12
DUCKCREEK	DUCKCREEK	0.06
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.03
FARMERCITY	FARMERCITY	0.02
G-007A	G-007A	1.24
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.07
NYISO	NYISO	0.25
PRAIRIE	PRAIRIE	0.14
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.03
TVA	TVA	0.1
UNIONPOWER	UNIONPOWER	0.04
VFT	VFT	0.93

15.21 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264242	227913	CARDIFF	AE	227902	LEWIS #1	AE	1	AE_P4-2 AE9	breaker	478.0	67.07	80.5	DC	65.58

Bus #	Bus	MW Impact
938421	AE1-061 C	0.72
938422	AE1-061 E	0.72
939301	AE1-161 C	0.89
939302	AE1-161 E	1.34
940361	AE2-020 C O2	17.45
940362	AE2-020 E O2	81.7
940371	AE2-021 C O2	17.45
940372	AE2-021 E O2	81.7
940381	AE2-022 C O2	10.18
940382	AE2-022 E O2	47.66
940411	AE2-025 C O2	5.12
940412	AE2-025 E O2	23.95
940963	AE2-087 BAT	0.04
940973	AE2-088 BAT	0.03
941123	AE2-106 BAT	0.04
942201	AE2-232 C O2	18.43
942202	AE2-232 E O2	47.15
942381	AE2-251 C O2	55.28
942382	AE2-251 E O2	141.45
942941	AE2-314 C	7.08
942942	AE2-314 E	4.72
CBM-N	CBM-N	0.25
CBM-S1	CBM-S1	0.26
CBM-S2	CBM-S2	0.13
CBM-W1	CBM-W1	0.49
CBM-W2	CBM-W2	1.93
CIN	CIN	0.21
CPLE	CPLE	0.05
G-007A	G-007A	2.17
IPL	IPL	0.13
LGEE	LGEE	0.06
MEC	MEC	0.38
MECS	MECS	0.3
NYISO	NYISO	1.09
VFT	VFT	2.93
WEC	WEC	0.06

15.22 Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264890	227934	CARDIFF2	AE	227945	LEWIS #2	AE	1	AE_P7-1 AE3TOWER	tower	478.0	81.03	93.75	DC	60.82

Bus #	Bus	MW Impact
938421	AE1-061 C	0.7
938422	AE1-061 E	0.7
939301	AE1-161 C	0.81
939302	AE1-161 E	1.22
940361	AE2-020 C O2	16.18
940362	AE2-020 E O2	75.78
940371	AE2-021 C O2	16.18
940372	AE2-021 E O2	75.78
940381	AE2-022 C O2	9.44
940382	AE2-022 E O2	44.2
940963	AE2-087 BAT	0.03
940973	AE2-088 BAT	0.02
941123	AE2-106 BAT	0.03
942201	AE2-232 C O2	17.09
942202	AE2-232 E O2	43.73
942381	AE2-251 C O2	51.27
942382	AE2-251 E O2	131.19
942941	AE2-314 C	6.57
942942	AE2-314 E	4.38
CBM-N	CBM-N	0.0
CBM-S1	CBM-S1	0.29
CBM-S2	CBM-S2	0.15
CBM-W1	CBM-W1	0.52
CBM-W2	CBM-W2	2.15
CIN	CIN	0.22
CPLE	CPLE	0.06
G-007	G-007	0.22
IPL	IPL	0.14
LGEE	LGEE	0.06
MEC	MEC	0.42
MECS	MECS	0.31
NYISO	NYISO	0.02
O-066	O-066	0.25
WEC	WEC	0.06

15.23 Index 18

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264953	228312	PEDRKTWN	AE	228313	BRIDGPRT	AE	1	AE_P7-1 AE10TOWER-A	tower	552.0	93.08	96.51	DC	41.64

Bus #	Bus	MW Impact
227801	ONTC&DCT	4.76
227843	MARINGEN E	0.49
227928	V4-067E	0.19
228201	CARL#2CT	0.55
228261	V4-054E	1.13
228306	PCLP STM	4.77
228307	PCLP GT	4.76
228309	CCLP NUG	14.01
228334	MANNMILG	0.24
228343	QUINTN#1	0.06
228351	V2-046C	0.18
228357	V2-046E	2.72
228712	V2-041E	0.4
228720	V2-035C	0.03
228721	V2-035E	0.4
292063	V1-021 E	0.05
293404	V3-036	0.68
902091	W1-130C	0.11
902092	W1-130E	1.49
902432	W2-030 E	0.77
915022	Y3-012 E	0.92
924531	AB2-102 C	38.79
924532	AB2-102 E	0.86
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930002	AB1-001 E	0.18
931191	AB1-169A	131.36
933962	AD1-019 E	0.94
936411	AD2-052 C	1.76
936412	AD2-052 E	0.87
938311	AE1-046 C	0.48
938312	AE1-046 E	0.24
938421	AE1-061 C	1.2
938422	AE1-061 E	1.2
938781	AE1-104 C O1	19.7
938782	AE1-104 E O1	50.4
938871	AE1-115 C	3.12
938872	AE1-115 E	3.12
939301	AE1-161 C	5.54
939302	AE1-161 E	8.31
939501	AE1-179 C O1	5.55

Bus #	Bus	MW Impact
939502	AE1-179 E O1	3.92
939931	AE1-229 C O1	32.63
939932	AE1-229 E O1	22.11
940001	AE1-240 C O1	4.71
940002	AE1-240 E O1	3.36
940361	AE2-020 C O2	11.08
940362	AE2-020 E O2	51.88
940371	AE2-021 C O2	11.08
940372	AE2-021 E O2	51.88
940381	AE2-022 C O2	6.46
940382	AE2-022 E O2	30.27
940391	AE2-023 C O2	10.07
940392	AE2-023 E O2	47.15
940961	AE2-087 C	0.27
940962	AE2-087 E	0.37
940963	AE2-087 BAT	0.1
941001	AE2-091 C O2	3.94
941002	AE2-091 E O2	2.05
941071	AE2-101 C	0.31
941072	AE2-101 E	0.42
941121	AE2-106 C	0.3
941122	AE2-106 E	0.41
941123	AE2-106 BAT	0.1
941931	AE2-205 C O2	7.63
941932	AE2-205 E O2	5.09
942101	AE2-222 C O2	10.52
942102	AE2-222 E O2	26.44
942201	AE2-232 C O2	11.7
942202	AE2-232 E O2	29.94
942381	AE2-251 C O2	35.11
942382	AE2-251 E O2	89.83
942571	AE2-272	0.3
942941	AE2-314 C	4.5
942942	AE2-314 E	3.0
943081	AE2-335 C O2	11.5
943082	AE2-335 E O2	5.13
BLUEG	BLUEG	0.52
CALDERWOOD	CALDERWOOD	0.05
CANNELTON	CANNELTON	0.03
CARR	CARR	0.07
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02
COFFEEN	COFFEEN	0.06
COTTONWOOD	COTTONWOOD	0.21
DUCKCREEK	DUCKCREEK	0.12
EDWARDS	EDWARDS	0.06
ELMERSMITH	ELMERSMITH	0.05
FARMERCITY	FARMERCITY	0.04
G-007A	G-007A	0.58
GIBSON	GIBSON	0.02
HAMLET	HAMLET	0.05

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.14
O-066	O-066	1.13
PRAIRIE	PRAIRIE	0.27
RENSSELAER	RENSSELAER	0.05
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.07
TILTON	TILTON	0.07
TRIMBLE	TRIMBLE	0.06
TVA	TVA	0.18
UNIONPOWER	UNIONPOWER	0.08

15.24 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
14264982	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	AE_P7-1 AE10TOWER-A	tower	805.0	89.84	92.18	DC	41.17

Bus #	Bus	MW Impact
227801	ONTC&DCT	4.71
227843	MARINGEN E	0.49
227928	V4-067E	0.19
228261	V4-054E	1.12
228304	LOGAN	18.88
228306	PCLP STM	4.76
228307	PCLP GT	4.75
228309	CCLP NUG	13.97
228334	MANNMILG	0.24
228343	QUINTN#1	0.06
228351	V2-046C	0.18
228357	V2-046E	2.71
228712	V2-041E	0.4
228720	V2-035C	0.03
228721	V2-035E	0.4
292063	V1-021 E	0.05
293404	V3-036	0.67
902091	W1-130C	0.11
902092	W1-130E	1.48
902432	W2-030 E	0.76
915022	Y3-012 E	0.91
924531	AB2-102 C	38.52
924532	AB2-102 E	0.86
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930002	AB1-001 E	0.17
931191	AB1-169A	130.71
933962	AD1-019 E	0.93
936411	AD2-052 C	1.75
936412	AD2-052 E	0.86
938311	AE1-046 C	0.48
938312	AE1-046 E	0.24
938421	AE1-061 C	1.19
938422	AE1-061 E	1.19
938781	AE1-104 C O1	19.54
938782	AE1-104 E O1	49.98
938871	AE1-115 C	3.11
938872	AE1-115 E	3.11
939301	AE1-161 C	5.52
939302	AE1-161 E	8.28
939501	AE1-179 C O1	5.51

Bus #	Bus	MW Impact
939502	AE1-179 E O1	3.89
939931	AE1-229 C O1	32.52
939932	AE1-229 E O1	22.03
940001	AE1-240 C O1	4.67
940002	AE1-240 E O1	3.34
940361	AE2-020 C O2	10.95
940362	AE2-020 E O2	51.29
940371	AE2-021 C O2	10.95
940372	AE2-021 E O2	51.29
940381	AE2-022 C O2	6.39
940382	AE2-022 E O2	29.92
940391	AE2-023 C O2	9.98
940392	AE2-023 E O2	46.71
940961	AE2-087 C	0.27
940962	AE2-087 E	0.37
940963	AE2-087 BAT	0.1
941001	AE2-091 C O2	3.91
941002	AE2-091 E O2	2.04
941071	AE2-101 C	0.3
941072	AE2-101 E	0.42
941121	AE2-106 C	0.3
941122	AE2-106 E	0.41
941123	AE2-106 BAT	0.1
941931	AE2-205 C O2	7.58
941932	AE2-205 E O2	5.05
942101	AE2-222 C O2	10.42
942102	AE2-222 E O2	26.18
942201	AE2-232 C O2	11.57
942202	AE2-232 E O2	29.6
942381	AE2-251 C O2	34.7
942382	AE2-251 E O2	88.8
942571	AE2-272	0.29
942941	AE2-314 C	4.45
942942	AE2-314 E	2.96
943081	AE2-335 C O2	11.45
943082	AE2-335 E O2	5.11
BLUEG	BLUEG	1.13
CALDERWOOD	CALDERWOOD	0.12
CANNELTON	CANNELTON	0.07
CARR	CARR	0.11
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.11
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.12
COTTONWOOD	COTTONWOOD	0.47
DUCKCREEK	DUCKCREEK	0.26
EDWARDS	EDWARDS	0.12
ELMERSMITH	ELMERSMITH	0.12
FARMERCITY	FARMERCITY	0.08
G-007A	G-007A	0.29
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.12

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.31
O-066	O-066	1.95
PRAIRIE	PRAIRIE	0.58
RENSSELAER	RENSSELAER	0.09
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.14
TILTON	TILTON	0.14
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.39
UNIONPOWER	UNIONPOWER	0.17

15.25 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
8466169	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-13G	breaker	817.0	114.45	116.64	DC	39.57

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

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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
8466886	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	956.0	105.91	110.11	DC	40.1

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

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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
8466875	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	163.74	171.05	DC	59.75

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

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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
8466459	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	106.52	109.38	DC	23.35

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
CPLE	CPLE	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

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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
8466481	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	100.16	102.85	DC	23.36

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
CPLE	CPLE	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

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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
8466927	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	139.08	145.5	DC	55.74

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

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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
8466904	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	143.62	150.51	DC	59.85

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

15.32 Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466184	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	176.71	184.59	DC	64.36

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

15.33 Index 28

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466917	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	141.9	148.79	DC	59.85

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

15.34 Index 29

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466870	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	210.71	235.22	DC	169.59

Bus #	Bus	MW Impact
206360	28O CRK C1	1.63
206361	28O 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

15.35 Index 30

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264096	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE6	breaker	805.0	142.01	157.59	DC	125.44

Bus #	Bus	MW Impact
227801	ONTC&DCT	8.49
227842	MARINGEN	0.1
227843	MARINGEN E	0.88
227927	V4-067C	0.03
227928	V4-067E	0.4
228014	PVILLEG	0.11
228202	CUMB CT	0.87
228261	V4-054E	0.59
228357	V2-046E	0.81
228712	V2-041E	0.32
228721	V2-035E	0.1
292062	V1-021 C	0.04
292063	V1-021 E	0.05
293404	V3-036	1.21
902092	W1-130E	0.74
902431	W2-030 C	0.1
902432	W2-030 E	1.4
913341	Y1-077	10.88
915022	Y3-012 E	1.65
919662	AA2-048 E	0.53
924531	AB2-102 C	29.86
924532	AB2-102 E	0.66
924701	AB2-122 C	0.17
924702	AB2-122 E	0.3
930001	AB1-001 C	0.02
930002	AB1-001 E	0.31
931191	AB1-169A	66.67
933962	AD1-019 E	1.67
936411	AD2-052 C	0.5
936412	AD2-052 E	0.25
938311	AE1-046 C	0.24
938312	AE1-046 E	0.12
938421	AE1-061 C	0.32
938422	AE1-061 E	0.32
938781	AE1-104 C O1	27.84
938782	AE1-104 E O1	71.22
938871	AE1-115 C	0.34
938872	AE1-115 E	0.34
939301	AE1-161 C	0.87
939302	AE1-161 E	1.3
939501	AE1-179 C O1	3.75
939502	AE1-179 E O1	2.65

Bus #	Bus	MW Impact
939931	AE1-229 C O1	6.61
939932	AE1-229 E O1	4.48
940001	AE1-240 C O1	3.12
940002	AE1-240 E O1	2.23
940361	AE2-020 C O2	33.38
940362	AE2-020 E O2	156.29
940371	AE2-021 C O2	33.38
940372	AE2-021 E O2	156.29
940381	AE2-022 C O2	19.47
940382	AE2-022 E O2	91.17
940391	AE2-023 C O2	18.37
940392	AE2-023 E O2	85.99
940961	AE2-087 C	0.14
940962	AE2-087 E	0.19
940963	AE2-087 BAT	0.05
940971	AE2-088 C	0.05
940972	AE2-088 E	0.07
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	2.31
941002	AE2-091 E O2	1.21
941121	AE2-106 C	0.15
941122	AE2-106 E	0.21
941123	AE2-106 BAT	0.05
941931	AE2-205 C O2	6.34
941932	AE2-205 E O2	4.23
942101	AE2-222 C O2	18.79
942102	AE2-222 E O2	47.21
942201	AE2-232 C O2	35.25
942202	AE2-232 E O2	90.19
942381	AE2-251 C O2	105.75
942382	AE2-251 E O2	270.57
942571	AE2-272	0.09
942941	AE2-314 C	13.55
942942	AE2-314 E	9.03
943081	AE2-335 C O2	2.79
943082	AE2-335 E O2	1.24
BLUEG	BLUEG	0.19
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.01
CARR	CARR	0.42
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.06
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007	G-007	4.03
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.0

Bus #	Bus	MW Impact
NEWTON	NEWTON	0.05
O-066	O-066	11.32
PRAIRIE	PRAIRIE	0.09
RENSSELAER	RENSSELAER	0.33
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.05
UNIONPOWER	UNIONPOWER	0.02

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
14264835	227945	LEWIS #2	AE	227902	LEWIS #1	AE	1	AE_P7-1 AE3TOWER	tower	286.8	103.43	119.88	DC	47.19

Bus #	Bus	MW Impact
938421	AE1-061 C	1.14
938422	AE1-061 E	1.14
939301	AE1-161 C	2.5
939302	AE1-161 E	3.75
940361	AE2-020 C O2	12.56
940362	AE2-020 E O2	58.8
940371	AE2-021 C O2	12.56
940372	AE2-021 E O2	58.8
940381	AE2-022 C O2	7.33
940382	AE2-022 E O2	34.3
940973	AE2-088 BAT	0.04
942201	AE2-232 C O2	13.26
942202	AE2-232 E O2	33.93
942381	AE2-251 C O2	39.78
942382	AE2-251 E O2	101.79
942941	AE2-314 C	5.1
942942	AE2-314 E	3.4
CARR	CARR	0.02
CBM-S1	CBM-S1	0.07
CBM-S2	CBM-S2	0.04
CBM-W1	CBM-W1	0.12
CBM-W2	CBM-W2	0.52
CIN	CIN	0.05
CPLE	CPLE	0.02
G-007	G-007	0.19
IPL	IPL	0.03
LGEE	LGEE	0.01
MEC	MEC	0.1
MECS	MECS	0.07
O-066	O-066	0.52
RENSSELAER	RENSSELAER	0.01
WEC	WEC	0.01

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8467011	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	205.0	126.54	134.89	DC	38.0

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

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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
8466302	228110	BLE	AE	228197	MERION	AE	1	AE_P4-2 AE29	breaker	482.0	113.43	115.73	DC	24.43

Bus #	Bus	MW Impact
227801	ONTC&DCT	4.4
227842	MARINGEN	0.05
227843	MARINGEN E	0.46
227928	V4-067E	0.15
228014	PVILLEG	0.06
293404	V3-036	0.63
902431	W2-030 C	0.05
902432	W2-030 E	0.68
913341	Y1-077	21.8
915022	Y3-012 E	0.86
924701	AB2-122 C	0.06
924702	AB2-122 E	0.11
930001	AB1-001 C	0.01
930002	AB1-001 E	0.17
931191	AB1-169A	27.6
933962	AD1-019 E	0.87
938311	AE1-046 C	0.1
938312	AE1-046 E	0.05
938781	AE1-104 C O1	55.78
938782	AE1-104 E O1	142.69
940361	AE2-020 C O2	6.5
940362	AE2-020 E O2	30.43
940371	AE2-021 C O2	6.5
940372	AE2-021 E O2	30.43
940381	AE2-022 C O2	3.79
940382	AE2-022 E O2	17.75
940391	AE2-023 C O2	9.93
940392	AE2-023 E O2	46.49
940963	AE2-087 BAT	0.11
941123	AE2-106 BAT	0.11
942101	AE2-222 C O2	9.75
942102	AE2-222 E O2	24.48
942201	AE2-232 C O2	6.86
942202	AE2-232 E O2	17.56
942381	AE2-251 C O2	20.59
942382	AE2-251 E O2	52.69
942941	AE2-314 C	2.64
942942	AE2-314 E	1.76
BLUEG	BLUEG	0.3
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.02

Bus #	Bus	MW Impact
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.03
COTTONWOOD	COTTONWOOD	0.13
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.03
FARMERCITY	FARMERCITY	0.02
G-007A	G-007A	1.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.04
NEWTON	NEWTON	0.08
NYISO	NYISO	0.31
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	0.11
UNIONPOWER	UNIONPOWER	0.05
VFT	VFT	1.08

15.39 Index 34

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466339	228197	MERION	AE	228106	CORSON 1	AE	1	AE_P4-2 AE29	breaker	478.0	100.21	102.54	DC	24.49

Bus #	Bus	MW Impact
227801	ONTC&DCT	4.42
227842	MARINGEN	0.05
227843	MARINGEN E	0.46
227928	V4-067E	0.15
228014	PVILLEG	0.06
293404	V3-036	0.63
902431	W2-030 C	0.05
902432	W2-030 E	0.69
913341	Y1-077	21.85
915022	Y3-012 E	0.86
924701	AB2-122 C	0.06
924702	AB2-122 E	0.11
930001	AB1-001 C	0.01
930002	AB1-001 E	0.17
931191	AB1-169A	27.67
933962	AD1-019 E	0.87
938311	AE1-046 C	0.1
938312	AE1-046 E	0.05
938781	AE1-104 C O1	55.92
938782	AE1-104 E O1	143.06
940361	AE2-020 C O2	6.52
940362	AE2-020 E O2	30.51
940371	AE2-021 C O2	6.52
940372	AE2-021 E O2	30.51
940381	AE2-022 C O2	3.8
940382	AE2-022 E O2	17.8
940391	AE2-023 C O2	9.95
940392	AE2-023 E O2	46.6
940963	AE2-087 BAT	0.11
941123	AE2-106 BAT	0.11
942101	AE2-222 C O2	9.77
942102	AE2-222 E O2	24.55
942201	AE2-232 C O2	6.88
942202	AE2-232 E O2	17.61
942381	AE2-251 C O2	20.64
942382	AE2-251 E O2	52.82
942941	AE2-314 C	2.64
942942	AE2-314 E	1.76
BLUEG	BLUEG	0.3
CALDERWOOD	CALDERWOOD	0.03
CANNELTON	CANNELTON	0.02
CATAWBA	CATAWBA	0.02

Bus #	Bus	MW Impact
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.03
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.03
COTTONWOOD	COTTONWOOD	0.13
DUCKCREEK	DUCKCREEK	0.07
EDWARDS	EDWARDS	0.03
ELMERSMITH	ELMERSMITH	0.03
FARMERCITY	FARMERCITY	0.02
G-007A	G-007A	1.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.04
NEWTON	NEWTON	0.08
NYISO	NYISO	0.31
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	0.11
UNIONPOWER	UNIONPOWER	0.05
VFT	VFT	1.08

15.40 Index 35

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466859	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	198.53	204.52	DC	38.0

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

15.41 Index 36

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
8466885	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	186.79	192.29	DC	38.0

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

15.42 Affected Systems

15.42.1 LG&E

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

15.42.2 MISO

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

15.42.3 TVA

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

15.42.4 Duke Energy Progress

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

15.42.5 NYISO

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

15.43 Contingency Descriptions

Contingency Name	Contingency Definition
PS_P1-2_U-2299_LT	CONTINGENCY 'PS_P1-2_U-2299_LT' /* CAMDEN CUTBERTH DISCONNECT BUS 219754 /* CUTHBERTH SECTION 3 CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219676 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219724 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE 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_D-2282_LT	CONTINGENCY 'PS_P1-2_D-2282_LT' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE END
AE_P1-2 OY CK-CEDAR	CONTINGENCY 'AE_P1-2 OY CK-CEDAR' OPEN LINE FROM BUS 206302 TO BUS 227955 CIRCUIT 1 / END
PS_P7-1_V2274+P2242_LT	CONTINGENCY 'PS_P7-1_V2274+P2242_LT' /* EAGEL POINT - GLOUCESTER & DEPTFORD - GLOUCESTER DISCONNECT BUS 219757 /* DEPTFORD SECTION 2 DISCONNECT BUS 219760 /* EAGLE POINT SECTION 4 TRIP LINE FROM BUS 219110 TO BUS 219128 CKT 1 /* DISCONNECT TRANSFORMER 26KV CKT 1 CLOSE LINE FROM BUS 219255 TO BUS 219256 CKT Z /* DEPTFORD CLOSE LINE FROM BUS 219180 TO BUS 219181 CKT Z /* DEPTFORD MOVE 8 MW LOAD FROM BUS 219180 TO BUS 219162 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T1 MOVE 8 MW LOAD FROM BUS 219181 TO BUS 219163 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T2 MOVE 8 MW LOAD FROM BUS 219255 TO BUS 219162 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T1 MOVE 8 MW LOAD FROM BUS 219256 TO BUS 219163 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T2 END

Contingency Name	Contingency Definition
PS_P2-3_CUTB_3-4_LT	CONTINGENCY 'PS_P2-3_CUTB_3-4_LT' DISCONNECT BUS 219754 /* CUTHBERTH SECTION 3 DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE END
PS_P2-3_CUTB_1-4_LT	CONTINGENCY 'PS_P2-3_CUTB_1-4_LT' DISCONNECT BUS 219108 /* CUTBERTH SECTION 1 DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE 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
AE_P4-2 AE29	CONTINGENCY 'AE_P4-2 AE29' /*ENGLAND TO CORSON BREAKER D DISCONNECT BRANCH FROM BUS 228110 TO BUS 228111 CKT 1 /*ENGLAND MIDDLE TAP 138 138 DISCONNECT BRANCH FROM BUS 228110 TO BUS 227906 CKT 1 /*ENGLAND #2 SCULL 138 138 END

Contingency Name	Contingency Definition
PS_P2-3_CUTB_1-2_LT	CONTINGENCY 'PS_P2-3_CUTB_1-2_LT' DISCONNECT BUS 219753 /* CUTHBERTH SECTION 2 DISCONNECT BUS 219108 /* CUTHBERTH SECTION 1 CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE END
PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK	CONTINGENCY 'PECO_P4_CHICH045/* $ DELCO $ PECO_P4_CHICH045 $ STBK' DISCONNECT BUS 213489 /* CHICHST1 230.00 $ DELCO $ PECO_P4_CHICH045 $ STBK DISCONNECT BUS 213627 /* FOULK8 230.00 $ DELCO $ PECO_P4_CHICH045 $ STBK 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-230-017	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
AE_P7-1 AE8TOWER	CONTINGENCY 'AE_P7-1 AE8TOWER' DISCONNECT BRANCH FROM BUS 228404 TO BUS 228482 CKT 1 /* MONROE TO FRANK 138 KV DISCONNECT BRANCH FROM BUS 228404 TO BUS 228500 CKT 1 /* MONROE TO LANDIS 138 KV END
PS_P1-2_C-2308	CONTINGENCY 'PS_P1-2_C-2308' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219753 /* CUTHBERTH SECTOIN 2 END
AE_P1-3 MON 3 XFR	CONTINGENCY 'AE_P1-3 MON 3 XFR' OPEN LINE FROM BUS 228402 TO BUS 228404 CIRCUIT 1 / END

Contingency Name	Contingency Definition
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
AE_P7-1 AE6TOWER	CONTINGENCY 'AE_P7-1 AE6TOWER' DISCONNECT BRANCH FROM BUS 228197 TO BUS 228106 CKT 1 /* MERION TO CORSON 138 KV DISCONNECT BUS 228111 /* BLE TO CORSON 138 KV END
PECO_P1-2_5038/* $ CHESCO $ PECO_P1-2_5038 $ L	CONTINGENCY 'PECO_P1-2_5038/* $ CHESCO $ PECO_P1-2_5038 $ L' TRIP BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NFREEDOM 500.00 WINDSOR 500.00 $ CHESCO $ PECO_P1-2_5038 $ L END
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

Contingency Name	Contingency Definition
PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B	CONTINGENCY 'PECO_P2-2_CHI230B1/* $ DELCO $ PECO_P2-2_CHI230B1 $ B' DISCONNECT BUS 213489 /* CHICHST1 230.00 $ DELCO $ PECO_P2-2_CHI230B1 $ B END
AE_P1-2 ORCHARD XF	CONTINGENCY 'AE_P1-2 ORCHARD XF' OPEN LINE FROM BUS 200063 TO BUS 228002 CIRCUIT 1 / END
AE_P7-1 AE10TOWER-A	CONTINGENCY 'AE_P7-1 AE10TOWER-A' DISCONNECT BRANCH FROM BUS 228482 TO BUS 943080 CKT 1 /* FRANK TO AE2-335 TAP 138 KV DISCONNECT BRANCH FROM BUS 228404 TO BUS 228500 CKT 1 /* MONROE TO LANDIS 138 KV END
PECO_P4_PEACH205/* $ CHESCO $ PECO_P4_PEACH205 $ STBK	CONTINGENCY 'PECO_P4_PEACH205/* $ CHESCO $ PECO_P4_PEACH205 $ STBK' TRIP BRANCH FROM BUS 200065 TO BUS 200066 CKT 1 /* PCHBTM2S 500.00 PCHBTM1N 500.00 $ CHESCO $ PECO_P4_PEACH205 $ STBK TRIP BRANCH FROM BUS 200064 TO BUS 200065 CKT Z1 /* PCHBTM1S 500.00 PCHBTM2S 500.00 $ CHESCO $ PECO_P4_PEACH205 $ STBK TRIP BRANCH FROM BUS 200013 TO BUS 200066 CKT Z1 /* PCHBTM2N 500.00 PCHBTM1N 500.00 $ CHESCO $ PECO_P4_PEACH205 $ STBK TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 $ CHESCO $ PECO_P4_PEACH205 $ STBK END
AE_P7-1 AE3TOWER	CONTINGENCY 'AE_P7-1 AE3TOWER' DISCONNECT BRANCH FROM BUS 227900 TO BUS 227955 CKT 1 /* CARDIFF TO CEDAR 230 KV DISCONNECT BRANCH FROM BUS 227913 TO BUS 227902 CKT 1 /* CARDIFF TO LEWIS 138 KV END
AE_P7-1 W2275_O2241	CONTINGENCY 'AE_P7-1 W2275_O2241' /* DOUBLE CIRCUIT TOWER W-2275(MICKLETON - DEPTFORD) AND O-2241(MICKLETON - THOROFARE) TRIP BRANCH FROM BUS 219762 TO BUS 228401 CKT 1 /* TRIP O-2241(MICKLETON - THOROFARE) 230KV TRIP BRANCH FROM BUS 219121 TO BUS 228401 CKT 1 /* TRIP (MICKLETON - THOROFARE #2) 230KV END
AE_P1-2 FRNK-LAND-A	CONTINGENCY 'AE_P1-2 FRNK-LAND-A' OPEN LINE FROM BUS 228482 TO BUS 943080 CIRCUIT 1 / 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

Contingency Name	Contingency Definition
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
AE_P1-3 CARD 6 XFR	CONTINGENCY 'AE_P1-3 CARD 6 XFR' OPEN LINE FROM BUS 227900 TO BUS 227913 CIRCUIT 1 / END
PS_P1-2_Z-2305_LT	CONTINGENCY 'PS_P1-2_Z-2305_LT' /* CAMDEN TO CUTBERTH DISCONNECT BUS 219108 /* CUTBERTH SECTION 1 CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE END
AE_P1-2 CARD-LEW1	CONTINGENCY 'AE_P1-2 CARD-LEW1' OPEN LINE FROM BUS 227913 TO BUS 227902 CIRCUIT 1 / END
PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L	CONTINGENCY 'PECO_P1-2_5014/* $ CHESCO $ PECO_P1-2_5014 $ L' TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 $ CHESCO $ PECO_P1-2_5014 $ L END
AE_P1-2 MERION-CORSN	CONTINGENCY 'AE_P1-2 MERION-CORSN' OPEN LINE FROM BUS 228197 TO BUS 228106 CIRCUIT 1 / OPEN LINE FROM BUS 228197 TO BUS 228198 CIRCUIT 1 / CLOSE LINE FROM BUS 228198 TO BUS 228199 CIRCUIT 1 / END
AE_P1-3 CARD 7 XFR	CONTINGENCY 'AE_P1-3 CARD 7 XFR' OPEN LINE FROM BUS 227900 TO BUS 227934 CIRCUIT 1 / 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-P2-3-JCC-500-002B	CONTINGENCY 'JC-P2-3-JCC-500-002B' /* E.WINDSOR CB10 DISCONNECT BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NEWFRDM - WINDSOR 500.00 LINE DISCONNECT BRANCH FROM BUS 200028 TO BUS 206326 CKT 2 /* WINDSOR 500.00 - 28E WINDSR 230.00 XFMR END
AE_P1-2 ENG-CORSON	CONTINGENCY 'AE_P1-2 ENG-CORSON' DISCONNECT BUS 228111 / END
PS_P2-3_CUTB_2-3_LT	CONTINGENCY 'PS_P2-3_CUTB_2-3_LT' DISCONNECT BUS 219753 /* CUTHBERTH SECTION 2 DISCONNECT BUS 219754 /* CUTHBERTH SECTION 3 CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE 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
PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK	CONTINGENCY 'PECO_P4_PEACH215/* $ CHESCO $ PECO_P4_PEACH215 $ STBK' TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 $ CHESCO $ PECO_P4_PEACH215 $ STBK REMOVE MACHINE 1 FROM BUS 200034 /* PCHBTM 2 22.00 $ CHESCO $ PECO_P4_PEACH215 $ STBK END

Contingency Name	Contingency Definition
AE_P4-2 AE9	CONTINGENCY 'AE_P4-2 AE9' /*CARDIFF TO ORCHARD BREAKER NEW1 DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* CARDIFF TO ORCHARD 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227934 CKT 1 /*CARDIFF CARDIFF 230 138 T7 END
AE_P1-2 CARD-CEDAR	CONTINGENCY 'AE_P1-2 CARD-CEDAR' OPEN LINE FROM BUS 227900 TO BUS 227955 CIRCUIT 1 / END
PS_P1-2_C-2308_LT	CONTINGENCY 'PS_P1-2_C-2308_LT' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219753 /* CUTHBERTH SECTOIN 2 CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE 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
JC-P2-3-JCC-500-002D	CONTINGENCY 'JC-P2-3-JCC-500-002D' /* E.WINDSOR CB16 DISCONNECT BRANCH FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS - WINDSOR 500.00 LINE DISCONNECT BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NEWFRDM - WINDSOR 500.00 LINE END
AE_P7-1 AE5TOWER	CONTINGENCY 'AE_P7-1 AE5TOWER' DISCONNECT BRANCH FROM BUS 228110 TO BUS 228660 CKT 1 /* BLE TO OCITY 138 KV DISCONNECT BUS 228111 /* BLE TO CORSON 138 KV 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
AE_P1-2 MONROE-LANDIS_1	CONTINGENCY 'AE_P1-2 MONROE-LANDIS_1' OPEN BRANCH FROM BUS 228404 TO BUS 228500 CKT 1 END
PS_P7-1_R2244+M2213	CONTINGENCY 'PS_P7-1_R2244+M2213' TRIP LINE FROM BUS 219100 TO BUS 227900 CKT 1 /* NEW FREEDOM TO CARDIFF TRIP LINE FROM BUS 219100 TO BUS 228600 CKT 1 /* NEW FREEDOM TO SICKLER END

Short Circuit

15.44 Short Circuit

The following Breakers are overduty:

None

16 Attachment 1: One Line

17 Attachment 1: Project Location