



**Generation Interconnection
System Impact Study Report
for**

Queue Project AF1-101

OYSTER CREEK 230 KV III

224.8 MW Capacity / 800 MW Energy

August 2020

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1 Introduction

This System Impact Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 205, as well as the System Impact 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 System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. 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 System Impact Study is performed.

The System Impact 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.

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.

3 General

The Interconnection Customer (IC), has proposed a Offshore Wind generating facility located in Atlantic County, New Jersey. The installed facilities will have a total capability of 800 MW with 224.8 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is November 23, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF1-101
Project Name	OYSTER CREEK 230 KV III
State	New Jersey
County	Atlantic
Transmission Owner	JCPL
MFO	800
MWE	800
MWC	224.8
Fuel	Offshore Wind
Basecase Study Year	2023

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AF1-101 will interconnect with the JCPL on transmission system at the Oyster Creek 230kV substation.

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 consist of hundred 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 steps 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 are two 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. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The project will also require non-direct connection upgrades at Oyster Creek 230 kV Substation.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AF1-101 generation project to connect to the FirstEnergy ("FE") transmission system. 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.

5 Cost Summary

The AF1-101 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 2,668,300
Allocation towards System Network Upgrade Costs* (Summer Peak)	\$389,695,464
Allocation towards System Network Upgrade Costs* (Light Load)	\$179,847,501
Total Costs	\$572,211,265

*As your project progresses through the study process and other projects modify their request or withdraw, then your cost allocation could change.

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 88-129. If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Note 1: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

Note 2: For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates \$0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently \$0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

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. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The project will also require direct and non-direct connection upgrades at Oyster Creek 230 kV Substation.

The total physical interconnection costs is given in the table below:

Description	Total Cost
Install Attachment Facilities associated with Oyster Creek 230 kV Substation for (1) new POI connections for wind farm.	\$ 281,600
Install new line terminal at Oyster Creek Substation for AF1-101 interconnection	\$ 1,866,200
Estimated SCADA work at Oyster Creek Substation to support breaker and relay installations	\$ 59,700
Project Management	\$ 391,900
Review drawings, nameplates, and relay settings at AF1-101 Customer Substation	\$ 68,900
Total Physical Interconnection Costs	\$ 2,668,300

7 Schedule

Based on the scope of work for the interconnection facilities, it is expected to take a minimum of **15 months** after the signing of an Interconnection Construction Service Agreement and construction kickoff call to complete the installation. 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.

8 Transmission Owner Analysis

8.1 Power Flow Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AF1-101 project did not contribute to any overloads on the FE transmission <100 kV system.

9 Interconnection Customer Requirements

9.1 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.

9.2 Compliance Issues and Interconnection Customer Requirements

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

1. The purchase and installation of a fully rated 230 kV circuit breaker to protect the AF1-101 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 AF1-101 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.

9.3 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.

10 Revenue Metering and SCADA Requirements

10.1 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.

10.2 Interconnected Transmission Owner 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>.

11 Summer Peak Analysis

The Queue Project AF1-101 was evaluated as a 575.2 MW (Capacity 0.0 MW) injection at the Oyster Creek 230kV substation in the JCPL area. 224.8 MW MWC was not evaluated as AF1-101 is claiming capacity rights from Oyster Creek units. Project AF1-101 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-101 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

11.2 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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE T LOADIN G %	POST PROJE T LOADIN G %	AC D C	MW IMPAC T
42704549	206294	28LARRABE E	230.0	JCP&L	206286	28ATLANTIC	230.0	JCP&L	1	JC-P7-1-JCC-230-7A	tower	1147.0	88.8	101.04	AC	161.97
41522162	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P2-3-JCC-230-15E	breaker	564.0	91.76	119.41	AC	159.15
41522163	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P2-3-JCC-230-17A	breaker	564.0	91.58	119.25	AC	159.3
42704556	206309	28SMITHBR G	230.0	JCP&L	206326	28E WINDSR	230.0	JCP&L	1	PS_P7-1_1LINE+2LIN E	tower	1394.0	88.5	100.22	AC	194.02
42138495	206326	28E WINDSR	230.0	JCP&L	206316	28WINDSO R	230.0	JCP&L	1	JC-P2-3-JCC-230-80	breaker	869.0	95.67	102.78	AC	74.09
46761033	206326	28E WINDSR	230.0	JCP&L	206316	28WINDSO R	230.0	JCP&L	1	PJM500_PS_P2-3_DEAN5_5-6	breaker	869.0	93.27	100.29	AC	73.08
46761034	206326	28E WINDSR	230.0	JCP&L	206316	28WINDSO R	230.0	JCP&L	1	PJM_P4_P484 B	breaker	869.0	93.26	100.28	AC	73.08
42704365	206720	28MANCHS TR	230.0	JCP&L	206318	28VANHIS VL	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	99.57	134.68	AC	305.98
42704607	219104	CLRKSULL_2	230.0	PSE&G	217150	LAWRENC E	230.0	PSE&G	1	PS_P7-1_1LINE+2LIN E	tower	869.0	98.36	106.79	AC	86.29
42704608	219104	CLRKSULL_2	230.0	PSE&G	217150	LAWRENC E	230.0	PSE&G	1	PS_P7-1_1023+GBK-LN_LT	tower	869.0	96.09	104.5	AC	86.19
42704380	227955	CEDAR	230.0	AE	227900	CARDIFF	230.0	AE	1	JC-P7-1-JCC-230-13	tower	805.0	54.88	114.67	AC	474.39

11.3 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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE T LOADIN G %	POST PROJE T LOADIN G %	AC D C	MW IMPAC T
42138102	206294	28LARRABE E	230.0	JCP&L	206309	28SMITHBR G	230.0	JCP&L	2	JC-P2-3-JCC-230-15F	breaker	813.0	126.3	144.47	AC	173.05

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS LOADIN G %	POST PROJECTIONS LOADIN G %	AC DC	MW IMPACT
42138103	206294	28LARRABE E	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	2	JC-P2-3-JCC-230-13A	breaker	813.0	125.5	143.21	AC	168.62
42138107	206294	28LARRABE E	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P2-3-JCC-230-15G	breaker	817.0	125.68	143.77	AC	173.05
42138108	206294	28LARRABE E	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P2-3-JCC-230-15A	breaker	817.0	122.1	139.73	AC	168.63
42704349	206297	28MANITOU	230.0	JCP&L	206319	28WHITINGS	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	141.74	178.11	AC	292.01
42704350	206297	28MANITOU	230.0	JCP&L	206319	28WHITINGS	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	119.75	158.59	AC	309.77
40978935	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P7-1-JCC-230-13	tower	564.0	121.74	218.86	AC	531.89
40978936	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P7-1-JCC-230-10A	tower	564.0	101.3	142.43	AC	232.21
41522295	206305	28RAR RVR	230.0	JCP&L	218332	KILMER_W	230.0	PSE&G	1	PS_P2-3_LNPS_P1-2_1_LT	breaker	817.0	121.92	129.01	AC	66.57
42138092	206314	28RED OAKA	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	153.45	162.21	AC	89.79
42138093	206314	28RED OAKA	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	140.19	148.96	AC	90.21
42138087	206315	28RED OAKB	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	157.15	165.87	AC	89.32
42138088	206315	28RED OAKB	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	143.92	152.65	AC	89.73
40979067	206316	28WINDSOR	230.0	JCP&L	219752	CLRKSULL_1	230.0	PSE&G	1	PS_P7-1_1LINE+2LINE	tower	813.0	113.8	122.84	AC	86.29
40979068	206316	28WINDSOR	230.0	JCP&L	219752	CLRKSULL_1	230.0	PSE&G	1	PS_P7-1_1023+GBK-LN_LT	tower	813.0	111.01	120.04	AC	86.19
42704372	206318	28VANHISVL	230.0	JCP&L	206294	28LARRABE E	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	109.88	135.07	AC	226.0
42704374	206318	28VANHISVL	230.0	JCP&L	206294	28LARRABE E	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	118.92	136.71	AC	213.84
42704361	206319	28WHITINGS	230.0	JCP&L	206720	28MANCHSTR	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	116.76	149.46	AC	292.15
42704362	206319	28WHITINGS	230.0	JCP&L	206720	28MANCHSTR	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	101.11	136.13	AC	305.98
42138042	206323	28LAKEWOOD	230.0	JCP&L	206294	28LARRABE E	230.0	JCP&L	2	JC-P2-3-JCC-230-15J	breaker	817.0	152.33	187.42	AC	300.88
42704527	206326	28E WINDSR	230.0	JCP&L	206316	28WINDSOR	230.0	JCP&L	1	PS_P7-1_1LINE+2LINE	tower	869.0	115.61	123.15	AC	78.2
42704528	206326	28E WINDSR	230.0	JCP&L	206316	28WINDSOR	230.0	JCP&L	1	PS_P7-1_1023+GBK-LN_LT	tower	869.0	113.18	120.7	AC	78.11
42138212	206410	28R11RINGB	230.0	JCP&L	206315	28RED OAKB	230.0	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	113.47	122.31	AC	90.57
42138213	206410	28R11RINGB	230.0	JCP&L	206315	28RED OAKB	230.0	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	100.95	109.81	AC	90.97
42138203	206411	28R11RINGA	230.0	JCP&L	206314	28RED OAKA	230.0	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	117.52	126.4	AC	90.84
42138204	206411	28R11RINGA	230.0	JCP&L	206314	28RED OAKA	230.0	JCP&L	1	JC-P2-3-JCC-230-026A	breaker	869.0	104.66	113.56	AC	91.24
42704364	206720	28MANCHSTR	230.0	JCP&L	206318	28VANHISVL	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	115.24	147.93	AC	292.15
40978930	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	229.99	262.57	DC	225.43
40978931	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	219.21	231.72	AC	83.54
41522016	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE46	breaker	692.0	201.97	211.7	AC	81.07
41522017	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE45	breaker	692.0	187.69	197.32	AC	78.24

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE C T LOADIN G %	POST PROJE C T LOADIN G %	AC D C	MW IMPAC T
41522018	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE9	breaker	692.0	186.05	196.73	AC	77.69
41522019	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE8	breaker	692.0	183.36	193.79	AC	75.89
42138127	227900	CARDIFF	230.0	AE	228002	ORCHARD	230.0	AE	1	AE_P4-2 AE7	breaker	805.0	119.23	127.27	AC	66.46
42138128	227900	CARDIFF	230.0	AE	228002	ORCHARD	230.0	AE	1	AE_P4-2 AE6	breaker	805.0	119.2	127.24	AC	66.45
42704375	227900	CARDIFF	230.0	AE	228002	ORCHARD	230.0	AE	1	JC-P7-1-JCC-230-13	tower	805.0	119.26	139.2	DC	160.54
42704561	228311	CHAMBERS	230.0	AE	228312	PEDRKTWN	230.0	AE	1	JC-P7-1-JCC-230-13	tower	552.0	103.04	112.37	AC	60.48
42704490	228312	PEDRKTWN	230.0	AE	228313	BRIDGPRT	230.0	AE	1	JC-P7-1-JCC-230-13	tower	552.0	119.52	128.84	AC	60.13
42704600	228313	BRIDGPRT	230.0	AE	228401	MCKLTON	230.0	AE	1	JC-P7-1-JCC-230-13	tower	804.0	107.18	113.54	AC	59.48
40978965	228502	MNOTLA 1	138.0	AE	228500	LANDIS	138.0	AE	1	JC-P7-1-JCC-230-13	tower	478.0	155.5	167.57	DC	57.72
40978940	228503	MNOTLA 2	138.0	AE	228502	MNOTLA 1	138.0	AE	1	JC-P7-1-JCC-230-13	tower	311.0	239.48	258.04	DC	57.72

11.4 Steady-State Voltage Requirements

To be determined in the Facilities Study phase.

11.5 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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE C T LOADIN G %	POST PROJE C T LOADIN G %	AC D C	MW IMPAC T
42422216	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	2	JC-P1-2-JCC-230-017	operation	813.0	124.32	142.5	AC	173.06
42422217	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	2	Base Case	operation	678.0	98.06	112.31	AC	113.16
42422342	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P1-2-JCC-230-018	operation	817.0	113.32	129.91	AC	158.78
42422343	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	Base Case	operation	650.0	102.28	117.15	AC	113.16
42422304	206295	28LEISUR D	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-020	operation	869.0	83.89	116.04	AC	284.93
42422210	206296	28LEISUR U	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	97.64	131.96	AC	283.59
42422182	206297	28MANITOU	230.0	JCP&L	206296	28LEISUR U	230.0	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	109.31	144.2	AC	287.85
42422188	206297	28MANITOU	230.0	JCP&L	206295	28LEISUR D	230.0	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	108.75	143.72	AC	287.84

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS LOADIN G %	POST PROJECTIONS LOADIN G %	AC/D C	MW IMPACT
424226 26	20630 0	28OCEANV W	230.0	JCP& L	20628 6	28ATLANTIC	230.0	JCP& L	Y	JC-P1-2-JCC-230-003	operation	869.0	69.89	73.91	AC	42.31
424226 27	20630 0	28OCEANV W	230.0	JCP& L	20628 6	28ATLANTIC	230.0	JCP& L	X	JC-P1-2-JCC-230-004	operation	869.0	69.89	73.91	AC	42.31
411851 62	20630 2	28OYSTER C	230.0	JCP& L	22795 5	CEDAR	230.0	AE	1	Base Case	operation	464.0	96.55	126.39	AC	141.27
411851 63	20630 2	28OYSTER C	230.0	JCP& L	22795 5	CEDAR	230.0	AE	1	JC-P1-2-JCC-230-031	operation	564.0	91.02	118.65	AC	159.1
424220 90	20630 2	28OYSTER C	230.0	JCP& L	20629 7	28MANITOU	230.0	JCP& L	1	JC-P1-2-JCC-230-022	operation	817.0	182.8	231.73	AC	397.07
424220 91	20630 2	28OYSTER C	230.0	JCP& L	20629 7	28MANITOU	230.0	JCP& L	1	Base Case	operation	650.0	120.91	153.18	AC	214.35
424221 11	20630 2	28OYSTER C	230.0	JCP& L	20629 7	28MANITOU	230.0	JCP& L	2	JC-P1-2-JCC-230-021	operation	869.0	171.88	217.89	AC	397.15
424221 12	20630 2	28OYSTER C	230.0	JCP& L	20629 7	28MANITOU	230.0	JCP& L	2	Base Case	operation	709.0	110.98	140.6	AC	214.62
411852 27	20630 5	28RAR RVR	230.0	JCP& L	21833 1	KILMER_I	230.0	PSE& G	1	PS_P1-2_#2LINE	operation	869.0	135.84	144.72	AC	88.66
411852 32	20630 5	28RAR RVR	230.0	JCP& L	21833 1	KILMER_I	230.0	PSE& G	1	Base Case	operation	709.0	114.15	122.23	AC	65.94
411854 02	20630 5	28RAR RVR	230.0	JCP& L	21833 2	KILMER_W	230.0	PSE& G	1	PS_P1-2_#1LINE	operation	817.0	121.03	128.14	AC	66.72
411854 07	20630 5	28RAR RVR	230.0	JCP& L	21833 2	KILMER_W	230.0	PSE& G	1	Base Case	operation	650.0	96.59	101.68	AC	38.19
424222 78	20631 4	28RED OAKA	230.0	JCP& L	20630 5	28RAR RVR	230.0	JCP& L	1	JC-P1-2-JCC-230-027	operation	869.0	134.94	143.66	AC	89.66
424222 79	20631 4	28RED OAKA	230.0	JCP& L	20630 5	28RAR RVR	230.0	JCP& L	1	Base Case	operation	709.0	109.44	115.2	AC	47.95
424222 42	20631 5	28RED OAKB	230.0	JCP& L	20630 5	28RAR RVR	230.0	JCP& L	1	JC-P1-2-JCC-230-028	operation	869.0	138.71	147.39	AC	89.18
424222 43	20631 5	28RED OAKB	230.0	JCP& L	20630 5	28RAR RVR	230.0	JCP& L	1	Base Case	operation	709.0	98.31	103.86	AC	46.11
411856 29	20631 6	28WINDSOR	230.0	JCP& L	21975 2	CLRKSVLL_1	230.0	PSE& G	1	JC-P1-2-JCC-230-042T	operation	813.0	92.13	99.49	AC	72.1
411856 32	20631 6	28WINDSOR	230.0	JCP& L	21975 2	CLRKSVLL_1	230.0	PSE& G	1	Base Case	operation	678.0	92.28	100.03	AC	63.67
424221 28	20632 3	28LAKEWOOD	230.0	JCP& L	20629 4	28LARRABEE	230.0	JCP& L	2	JC-P1-2-JCC-230-014	operation	817.0	151.15	186.47	AC	301.01
424221 32	20632 3	28LAKEWOOD	230.0	JCP& L	20629 4	28LARRABEE	230.0	JCP& L	2	Base Case	operation	650.0	104.69	128.91	AC	164.59
424221 34	20632 3	28LAKEWOOD	230.0	JCP& L	20629 4	28LARRABEE	230.0	JCP& L	1	JC-P1-2-JCC-230-013	operation	869.0	143.22	176.42	AC	301.04
424221 38	20632 3	28LAKEWOOD	230.0	JCP& L	20629 4	28LARRABEE	230.0	JCP& L	1	Base Case	operation	709.0	96.23	118.49	AC	165.03
424227 24	20632 6	28E WINDSR	230.0	JCP& L	20631 6	28WINDSOR	230.0	JCP& L	1	Base Case	operation	706.0	100.54	107.51	AC	59.44
494606 88	20632 6	28E WINDSR	230.0	JCP& L	20631 6	28WINDSOR	230.0	JCP& L	1	PJM500_PS_P1-2_5022	operation	869.0	91.93	98.93	AC	72.98
424225 97	20641 0	28R11RINGB	230.0	JCP& L	20631 5	28RED OAKB	230.0	JCP& L	1	JC-P1-2-JCC-230-028	operation	869.0	96.42	105.22	AC	90.43
424225 49	20641 1	28R11RINGA	230.0	JCP& L	20631 4	28RED OAKA	230.0	JCP& L	1	JC-P1-2-JCC-230-027	operation	869.0	100.27	109.12	AC	90.7
411859 05	21831 3	GREENBK_W	230.0	PSE& G	20623 9	28GILLET W	230.0	JCP& L	1	JC-P1-2-JCC-230-042T	operation	802.0	86.1	92.09	AC	55.21
424223 20	21833 1	KILMER_I	230.0	PSE& G	21833 3	LNELSN_I	230.0	PSE& G	1	JC-P1-2-JCC-230-043T	operation	805.0	139.76	149.34	AC	88.66
424223 25	21833 1	KILMER_I	230.0	PSE& G	21833 3	LNELSN_I	230.0	PSE& G	1	Base Case	operation	650.0	119.56	128.35	AC	65.94
424223 47	21833 2	KILMER_W	230.0	PSE& G	21833 4	LNELSN_W	230.0	PSE& G	1	PS_P1-2_I-1023	operation	679.0	137.14	145.67	AC	66.57
424223 52	21833 2	KILMER_W	230.0	PSE& G	21833 4	LNELSN_W	230.0	PSE& G	1	Base Case	operation	523.0	111.11	117.44	AC	38.19
424224 79	21833 3	LNELSN_I	230.0	PSE& G	21830 1	MIDDLESEX_I	230.0	PSE& G	1	JC-P1-2-JCC-230-043T	operation	819.0	118.21	126.96	AC	82.65
424224 84	21833 3	LNELSN_I	230.0	PSE& G	21830 1	MIDDLESEX_I	230.0	PSE& G	1	Base Case	operation	709.0	105.25	105.54	AC	62.82

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
42422710	218334	LNELSN_W	230.0	PSE&G	218522	MIDDLESEX_W	230.0	PSE&G	1	JC-P1-2-JCC-230-042T	operation	887.0	101.65	108.18	AC	66.56
42422704	218522	MIDDLESEX_W	230.0	PSE&G	218313	GREENBK_W	230.0	PSE&G	1	JC-P1-2-JCC-230-042T	operation	887.0	101.65	108.18	AC	66.56
41184972	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	Base Case	operation	650.0	155.37	162.89	AC	57.4
42422263	227900	CARDIFF	230.0	AE	228002	ORCHARD	230.0	AE	1	PS_P1-2_2310	operation	805.0	117.9	125.83	AC	65.98

11.6 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																					
42138103, 42138102	9	28LARRABEE 230.0 kV - 28SMITHBRG 230.0 kV Ckt 2	JCPL: Upgrade no. 1: Replace wave traps at Larrabee and Smithburg Type : FAC Total Cost : \$55,779,836 Time Estimate : 54.0 Months New Ratings : 1245.0/1272.0/1272.0 The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE2-251</td><td>48.50</td><td>21.89%</td><td>\$ 12,210,887</td><td>Single</td><td>LL</td><td>'JC-P1-2-JCC-230-017'</td></tr> <tr> <td>AF1-101</td><td>173.05</td><td>78.11%</td><td>\$ 43,568,949</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-15F</td></tr> </tbody> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-251	48.50	21.89%	\$ 12,210,887	Single	LL	'JC-P1-2-JCC-230-017'	AF1-101	173.05	78.11%	\$ 43,568,949	breaker	SP	JC-P2-3-JCC-230-15F	\$57,122,311	\$43,568,949	N6426
Queue	MW	Cost %	Cost \$	Type	Study	ContName																					
AE2-251	48.50	21.89%	\$ 12,210,887	Single	LL	'JC-P1-2-JCC-230-017'																					
AF1-101	173.05	78.11%	\$ 43,568,949	breaker	SP	JC-P2-3-JCC-230-15F																					
41522295	12	28RAR RVR 230.0 kV - KILMER_W 230.0 kV Ckt 1	JCPL: Replace substation conductor at Raritan River. Reconductor the Kilmer (W1037) - Raritan River 230 kV transmission line (~5.92 miles) Project Type : FAC Cost : \$27,983,891 New Ratings: 1156.0/1334.0/1334.0 Time Estimate : 42 Months The cost allocation table is below:	\$27,983,891	\$5,081,804	N6202																					

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
			Queue	MW	Cost %	Cost \$	Type	Study	ContName			
			AE2-000	68.85	18.78 %	\$ 5,255,854	breaker	SP	'PS_P2-3_LNEPS_P1-2_1_LT'			
			AE2-024	122.74	33.48 %	\$ 9,369,695	breaker	SP	'PS_P2-3_LNEPS_P1-2_1_LT'			
			AE2-025	61.95	16.90 %	\$ 4,729,123	breaker	SP	'PS_P2-3_LNEPS_P1-2_1_LT'			
			AE2-232	46.47	12.68 %	\$ 3,547,415	breaker	SP	'PS_P2-3_LNEPS_P1-2_1_LT'			
			AF1-101	66.57	18.16 %	\$ 5,081,804	breaker	SP	'PS_P2-3_LNEPS_P1-2_1_LT'			
			PSEG: No upgrade required.									
42138108, 42138107	10	28LARRABEE 230.0 kV - 28SMITHBRG 230.0 kV Ckt 1	JCPL Upgrade no.1: "Replace substation conductor at Larrabee Reconductor the Larrabee - Smithburg 230 kV line (~11.9 miles). Replace wave trap at Larrabee" Project Type : FAC Cost : \$56,249,703 New Ratings : 913/1147/1147 Time Estimate : 54 Months The cost allocation table is below:							\$56,484,636	\$17,467,846	N6487 & N6488
			Queue	MW	Cost %	Cost \$	Type	Study	ContName			
			AE2-025	125.20	22.17%	\$ 12,467,84	breaker	SP	'JC-P2-3-JCC-230-13G'			

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
						6						
			AE2-222	27.5	4.87%	\$ 2,738,544	breaker	SP	'JC-P2-3-JCC-230-13G'			
			AE2-232	120.1	21.26%	\$ 11,959,970	breaker	SP	'JC-P2-3-JCC-230-13G'			
			AE2-251	119	21.07%	\$ 11,850,429	breaker	SP	'JC-P2-3-JCC-230-13G'			
			AF1-101	173.05	30.64%	\$ 17,232,913	breaker	SP	JC-P2-3-JCC-230-15G			
Upgrade no.2: Replace disconnect switch at Larrabee substation. Project Type : FAC Cost : \$234,933 New Ratings : 1222.0/1385.0/1385.0 Time Estimate : 12 Months AF1-101 is the driver for this upgrade.												
42704607, 42704608	7	CLRKSVLL_2 230.0 kV - LAWRENCE 230.0 kV Ckt 1	JCPL: Reconductor the Clariksville (PS) - Lawrence (PS) 230 kV line. (~0.8 miles) Project Type : FAC Cost : \$3,759,000 New Ratings : 1140/1387/1387 Time Estimate : 24 Months AF1-101 is the driver for this upgrade.							\$3,759,000	\$3,759,000	N6793
40979067, 40979068	4	28WINDSOR 230.0 kV - CLRKSVLL 1	JCPL:							\$38,495,471	\$15,370,756	N6768

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																					
		230.0 kV Ckt 1	Replace substation conductor at Windsor. Replace current transformers at Windsor. Reconductor the Clarikville (PS) - Windsor 230 kV transmission line (~7.45 miles). Replace wave trap at Windsor Replace circuit breaker at Windsor Replace disconnect switches at Windsor. Replace relaying, metering, and fault switch at Windsor". Project Type : FAC Cost : \$38,495,471 New Ratings : 1140.0/1334.0/1334.0 Time Estimate : 42 Months The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE2 Queue</td><td>129.82</td><td>60.07%</td><td>\$ 23,124,714</td><td>tower</td><td>SP</td><td>PS_P7-1_1LINE+2LINE</td></tr> <tr> <td>AF1-101</td><td>86.29</td><td>39.93%</td><td>\$ 15,370,756</td><td>tower</td><td>SP</td><td>PS_P7-1_1LINE+2LINE</td></tr> </tbody> </table> PSEG : No upgrade is required.	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2 Queue	129.82	60.07%	\$ 23,124,714	tower	SP	PS_P7-1_1LINE+2LINE	AF1-101	86.29	39.93%	\$ 15,370,756	tower	SP	PS_P7-1_1LINE+2LINE			
Queue	MW	Cost %	Cost \$	Type	Study	ContName																					
AE2 Queue	129.82	60.07%	\$ 23,124,714	tower	SP	PS_P7-1_1LINE+2LINE																					
AF1-101	86.29	39.93%	\$ 15,370,756	tower	SP	PS_P7-1_1LINE+2LINE																					
42704556	3	28SMITHBRG 230.0 kV - 28E WINDSR 230.0 kV Ckt 1	JCPL: Upgrade no. 1 "Replace Gas Insulated Bus terminal equipment at Smithburg. Replace fault switches at East Windsor substation."	\$1,879,465	\$1,879,465	N6762																					

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																			
			Project Type : FAC Cost : \$1,879,465 New Ratings: 1274.0/1528.0/1528.0 Time Estimate : 12 Months AF1-101 is the driver for this upgrade.																																						
42704349, 42704350	11	28MANITOU 230.0 kV - 28WHITINGS 230.0 kV Ckt 1	JCPL: "Replace substation conductor at Manitou and Whittings Reconductor the Manitou - Whittings 230 kV line (~8.78 miles) Replace wave trap, circuit breaker and disconnect switch at Manitou Replace relaying and current transformers at Manitou Replace metering at Whittings" Project Type : FAC Cost : \$43,435,778 New Ratings: 1355.0/1625.0/1625.0 Time Estimate : 48 Months The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE2-021</td><td>2.28</td><td>0.27%</td><td>\$ 119,065</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-022</td><td>52.8</td><td>6.35%</td><td>\$ 2,757,300</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-023</td><td>50.014</td><td>6.01%</td><td>\$ 2,611,811</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-222</td><td>40.935</td><td>4.92%</td><td>\$ 2,137,691</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-</td></tr> </tbody> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-021	2.28	0.27%	\$ 119,065	tower	SP	JC-P7-1-JCC-230-10A	AE2-022	52.8	6.35%	\$ 2,757,300	tower	SP	JC-P7-1-JCC-230-10A	AE2-023	50.014	6.01%	\$ 2,611,811	tower	SP	JC-P7-1-JCC-230-10A	AE2-222	40.935	4.92%	\$ 2,137,691	tower	SP	JC-P7-1-JCC-230-	\$43,435,778	\$15,249,227	N6413
Queue	MW	Cost %	Cost \$	Type	Study	ContName																																			
AE2-021	2.28	0.27%	\$ 119,065	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-022	52.8	6.35%	\$ 2,757,300	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-023	50.014	6.01%	\$ 2,611,811	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-222	40.935	4.92%	\$ 2,137,691	tower	SP	JC-P7-1-JCC-230-																																			

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
									10A			
			AE2-232	203.31	24.44 %	\$ 10,617,172	tower	SP	JC-P7-1-JCC-230-10A			
			AE2-251	179.63	21.60 %	\$ 9,380,564	tower	SP	JC-P7-1-JCC-230-10A			
			AE2-314	10.78	1.30%	\$ 562,949	tower	SP	JC-P7-1-JCC-230-10A			
			AF1-101	292.01	35.11 %	\$ 15,249,227	tower	SP	JC-P7-1-JCC-230-10A			
41522017, 41522016, 40978930, 40978931, 41522019, 41522018	20	CARDIFF 230.0 kV - NEWFRDM 230.0 kV Ckt 1	AEC: Upgrade no.1: 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 New Ratings: 796.0/932.0/932.0 Time Estimate : 36-60 Months The cost allocation table is below:							\$251,926,649	\$101,820,425	N6342 & N6343 & N6344 & N6504 & N6568 & N6569 & N6505 & N6794
			Queue	MW	Cost %	Cost \$	Type	Study	ContName			
			AE2-021	188.6	15.26%	\$ 9,644,335	Tower	SP	JC-P7-1-JCC-230-13'			
			AE2-022	149.8	12.12%	\$ 7,659,428	Tower	SP	JC-P7-1-JCC-230-13'			
			AE2-024	39.8	3.22%	\$ 2,035,015	Breaker	SP	AE_P4-2 AE46			

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
			AE2-025	20.0	1.63%	\$ 1,027,222	Breaker	SP	AE_P4-2 AE46			
			AE2-222	102.7	8.31%	\$ 5,251,157	Tower	SP	JC-P7-1-JCC-230-13'			
			AE2-251	509.6	41.23%	\$ 26,056,374	Tower	SP	JC-P7-1-JCC-230-13'			
			AF1-101	225.4	18.24%	\$ 11,526,468	Tower	SP	JC-P7-1-JCC-230-13'			
			Upgrade no.2: 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 New Ratings: 993.0/993.0/993.0 Time Estimate : 24-36 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no.3: 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.									

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
			Project Type : FAC Cost : \$600,000 New Ratings: 1195.0/1195.0/1195.0 Time Estimate : 24-36 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no.4: 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 New Ratings: 1189.0/1427.0/1427.0 Time Estimate : 24-36 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.			

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number							
			Upgrade no.5: 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 New Ratings: 1593.0/1593.0/1593.0 Time Estimate : 24-36 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no.6: 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 : \$160,000,000 New Ratings: 2159.0/2622.0/2622.0 Time Estimate : 60-72 Months The cost allocation table is below: <table border="1"> <tr> <td>Queue</td><td>MW</td><td>Cost %</td><td>Cost \$</td><td>Type</td><td>Study</td><td>ContName</td></tr> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName			
Queue	MW	Cost %	Cost \$	Type	Study	ContName							

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
			AE2-251	330.7	59.47%	\$95,145,554	Tower	SP	JC-P7-1-JCC-230-13'			
			AF1-101	225.4	40.53%	\$64,854,446	Tower	SP	JC-P7-1-JCC-230-13			
			PSEG Upgrade no.1: Upgrade New Freedom 230kV terminal equipment to achieve a SER of 1593 MVA Project Type : FAC Cost : 1,033,138 New Ratings: 1593.0/1593.0 Time Estimate : 13 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 2: Upgrade New Freedom 230kV terminal equipment to achieve a SER of 1992 MVA Project Type : FAC Cost : \$25,493,511 New Ratings: 1992/1992 Time Estimate : 27 Months AF1-101 is the driver for this upgrade.									
40978965	25	MNOTLA 1 138.0								\$14,500,000	\$1,789,637	N6409

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																																												
		kV - LANDIS 138.0 kV Ckt 1	AEC: Upgrade no. 1: 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 New Ratings: 478/559/559 Time Estimate : 36-48 Months The cost allocation table is below: <table><tr><th>Queue</th><th>MW contribution</th><th>% of cost</th><th>Cost (\$12,800,000)</th><th>Contingency</th><th>Contingency Type</th></tr><tr><td>AE2-020</td><td>8.82</td><td>2.14</td><td>\$ 273,468</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-021</td><td>57.6</td><td>13.95</td><td>\$ 1,785,917</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-022</td><td>33.6</td><td>8.14</td><td>\$ 1,041,785</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-023</td><td>53.14</td><td>12.87</td><td>\$ 1,647,632</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-222</td><td>42.77</td><td>10.36</td><td>\$ 1,326,105</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-232</td><td>37.97</td><td>9.20</td><td>\$ 1,177,279</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-251</td><td>114.35</td><td>27.70</td><td>\$ 3,545,479</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-314</td><td>6.86</td><td>1.66</td><td>\$ 212,698</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AF1-101</td><td>57.72</td><td>13.98</td><td>\$ 1,789,637</td><td>JC-P7-1-JCC-230-13</td><td>tower</td></tr></table> Upgrade no. 2: To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload, several terminal equipment reinforcement is required at both, Landis and Minotola substation.	Queue	MW contribution	% of cost	Cost (\$12,800,000)	Contingency	Contingency Type	AE2-020	8.82	2.14	\$ 273,468	'JC-P7-1-JCC-230-13'	tower	AE2-021	57.6	13.95	\$ 1,785,917	'JC-P7-1-JCC-230-13'	tower	AE2-022	33.6	8.14	\$ 1,041,785	'JC-P7-1-JCC-230-13'	tower	AE2-023	53.14	12.87	\$ 1,647,632	'JC-P7-1-JCC-230-13'	tower	AE2-222	42.77	10.36	\$ 1,326,105	'JC-P7-1-JCC-230-13'	tower	AE2-232	37.97	9.20	\$ 1,177,279	'JC-P7-1-JCC-230-13'	tower	AE2-251	114.35	27.70	\$ 3,545,479	'JC-P7-1-JCC-230-13'	tower	AE2-314	6.86	1.66	\$ 212,698	'JC-P7-1-JCC-230-13'	tower	AF1-101	57.72	13.98	\$ 1,789,637	JC-P7-1-JCC-230-13	tower			& N6414 & N6517 & N6515 & N6570 & N6571
Queue	MW contribution	% of cost	Cost (\$12,800,000)	Contingency	Contingency Type																																																													
AE2-020	8.82	2.14	\$ 273,468	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-021	57.6	13.95	\$ 1,785,917	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-022	33.6	8.14	\$ 1,041,785	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-023	53.14	12.87	\$ 1,647,632	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-222	42.77	10.36	\$ 1,326,105	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-232	37.97	9.20	\$ 1,177,279	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-251	114.35	27.70	\$ 3,545,479	'JC-P7-1-JCC-230-13'	tower																																																													
AE2-314	6.86	1.66	\$ 212,698	'JC-P7-1-JCC-230-13'	tower																																																													
AF1-101	57.72	13.98	\$ 1,789,637	JC-P7-1-JCC-230-13	tower																																																													

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
			Project Type : FAC Cost : \$200,000 New Ratings: 549/621/621 Time Estimate : 12 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 3: To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload, several terminal equipment reinforcement is required at both, Landis and Minotola substation. Project Type : FAC Cost : \$200,000 New Ratings: 549/662/662 Time Estimate : 12-24 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior			

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
			to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 4: To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload, several terminal equipment reinforcement is required at both, Landis and Minotola substation. Project Type : FAC Cost : \$300,000 New Ratings: 717/717/717 Time Estimate : 12-24 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 5: To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload, several terminal equipment reinforcement is required at both, Landis and Minotola substation. Project Type : FAC Cost : \$600,000 New Ratings: 605/726/726 Time Estimate : 24-48 Months Queue Project AF1-101 presently does not receive cost allocation for this			

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
			upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 6: To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload, several terminal equipment reinforcement is required at both, Landis and Minotola substation. Project Type : FAC Cost : \$400,000 New Ratings: 717/838/838 Time Estimate : 12-24 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.			
40978940	26	MNOTLA 2 138.0 kV - MNOTLA 1 138.0 kV Ckt 1	AEC: Not an overload. The new ratings after Minotola 138 kV has been converted into a ring bus is 956 SE MVA.	\$0	\$0	N/A
40978936,	2	28OYSTER C		32877509	\$26,556,453	N6587

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
40978935, 41522163, 41522162		230.0 kV - CEDAR 230.0 kV Ckt 1	JCPL: Upgrade no. 1: Reconductor the Oyster Creek - Cedar 230 kV line (JCP&L portion only ~0.1 miles. AE portion ~14 miles) Upgrade terminal equipment at Oyster Creek Project Type : FAC Cost : \$469,866 New Ratings : 913.0/1147.0/1147.0 Time Estimate : 12 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 2: "Replace disconnect switch at Oyster Creek Additionally, AE would need to replace their section of the limiting conductor and provide estimates for their replacement." Project Type : FAC Cost : \$402,743 New Ratings : 1355/1625/1625 Time Estimate : 12 Months AF1-101 is the driver for this upgrade.			& N6728

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																			
			AEC: Upgrade no.1: 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 New Ratings : 1195/1195/1195 Time Estimate : 36-60 Months The Cost allocation table is below: <table> <tr> <th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost</th><th>SP/LL</th><th>Contingency</th><th>Contingency Type</th></tr> <tr> <td>AE2-000</td><td>123.84</td><td>0.19</td><td>\$ 5,099,172</td><td>SP</td><td>JC-P7-1-JCC-230-13</td><td>Tower</td></tr> <tr> <td>AF1-101</td><td>531.89</td><td>0.81</td><td>\$ 21,900,828</td><td>SP</td><td>JC-P7-1-JCC-230-13</td><td>Tower</td></tr> </table> Upgrade no.2: Reconductor transmission line.. Project Type : FAC Cost : \$5,004,900 New Ratings : 1306/1593/1593 Time Estimate : 15 Months The Cost allocation table is below: <table> <tr> <th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost (\$5,004,900)</th><th>SP/LL</th><th>Contingency</th><th>Contingency Type</th></tr> <tr> <td>AE2-025</td><td>31.45</td><td>0.05</td><td>\$ 251,481</td><td>SP</td><td>JC-P2-3-JCC-230-</td><td>breaker</td></tr> </table>	Queue	MW contribution	% of Cost	Cost	SP/LL	Contingency	Contingency Type	AE2-000	123.84	0.19	\$ 5,099,172	SP	JC-P7-1-JCC-230-13	Tower	AF1-101	531.89	0.81	\$ 21,900,828	SP	JC-P7-1-JCC-230-13	Tower	Queue	MW contribution	% of Cost	Cost (\$5,004,900)	SP/LL	Contingency	Contingency Type	AE2-025	31.45	0.05	\$ 251,481	SP	JC-P2-3-JCC-230-	breaker			
Queue	MW contribution	% of Cost	Cost	SP/LL	Contingency	Contingency Type																																			
AE2-000	123.84	0.19	\$ 5,099,172	SP	JC-P7-1-JCC-230-13	Tower																																			
AF1-101	531.89	0.81	\$ 21,900,828	SP	JC-P7-1-JCC-230-13	Tower																																			
Queue	MW contribution	% of Cost	Cost (\$5,004,900)	SP/LL	Contingency	Contingency Type																																			
AE2-025	31.45	0.05	\$ 251,481	SP	JC-P2-3-JCC-230-	breaker																																			

ID	Idx	Facility	Upgrade Description							Cost	Cost Allocated to AF1-101	Upgrade Number
								26B'				
			AE2-232	62.60	0.10	\$ 500,537	SP	JC-P2-3-JCC-230-26B'	breaker			
			AF1-101	531.89	0.85	\$ 4,252,882	SP	JC-P7-1-JCC-230-13	Tower			
42704380	8	CEDAR 230.0 kV - CARDIFF 230.0 kV Ckt 1	AEC: To mitigate the (ACE) Cardiff Cedar 230 kV line overload, it will require increasing the emergency rating of the Cardiff to Cedar 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$66,000,000 New Ratings : 1003/1003/1003 Time Estimate : 48-60 Months AF1-101 is the driver for this upgrade.							\$66,000,000	\$66,000,000	N6789
42704490	23	PEDRKTWN 230.0 kV - BRIDGPRT 230.0 kV Ckt 1	AEC: Not a valid violation. The applicable SE rating is 804 MVA.							\$0	\$0	N/A

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
42138088, 42138087	14	28RED OAKB 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	JCPL: Upgrade no. 1: Reconductor existing sections of 1590 ACSR 45/7 (Segment 3, Position 2; Segment 7, Position 1) with 1590 ACSS 45/7. Project Type : FAC Cost : \$3,900,000 Time Estimate : 30 Months New Ratings:: 1156/1334/1334 Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study. Upgrade no. 2: Reconductor the Raritan River - Red Oak B 230 kV transmission line (~2.58 miles). Project Type : FAC Cost : \$12,122,549 Time Estimate : 30 Months New Ratings:: 1162.0/1519.0/1519.0 The cost allocation table is below:	\$16,022,549	\$5,029,906	N6204 & N6550

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																												
			<table> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> <tr> <td>AE2-025</td><td>63.65</td><td>29.57</td><td>\$ 3,584,323</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26D</td></tr> <tr> <td>AE2-232</td><td>62.30</td><td>28.94</td><td>\$ 3,508,320</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26D</td></tr> <tr> <td>AF1-101</td><td>89.32</td><td>41.49</td><td>\$ 5,029,906</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26D</td></tr> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-025	63.65	29.57	\$ 3,584,323	breaker	SP	JC-P2-3-JCC-230-26D	AE2-232	62.30	28.94	\$ 3,508,320	breaker	SP	JC-P2-3-JCC-230-26D	AF1-101	89.32	41.49	\$ 5,029,906	breaker	SP	JC-P2-3-JCC-230-26D			
Queue	MW	Cost %	Cost \$	Type	Study	ContName																												
AE2-025	63.65	29.57	\$ 3,584,323	breaker	SP	JC-P2-3-JCC-230-26D																												
AE2-232	62.30	28.94	\$ 3,508,320	breaker	SP	JC-P2-3-JCC-230-26D																												
AF1-101	89.32	41.49	\$ 5,029,906	breaker	SP	JC-P2-3-JCC-230-26D																												
42704549	1	28LARRABEE 230.0 kV - 28ATLANTIC 230.0 kV Ckt 1	JCPL: Replace disconnect switch at Atlantic substation. Project Type : FAC Cost : \$234,933 New Ratings: 1114.0/1285.0/1285.0 Time Estimate : 12 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be	\$234,933	\$0	N6533																												

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																																															
			deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.																																																																		
42138093, 42138092	13	28RED OAKA 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	JCPL: Reconductor the Raritan River - Red Oak A 230 kV transmission line (~2.58 miles). Project Type : FAC Cost : \$12,122,549 New Ratings : 1306.0/1593.0/1593.0 Time Estimate : 30 Months The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE1-238</td><td>238.34</td><td>28.29%</td><td>\$ 3,429,023</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> <tr> <td>AE2-000</td><td>127.80</td><td>15.17%</td><td>\$ 1,838,667</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> <tr> <td>AE2-024</td><td>166.20</td><td>19.72%</td><td>\$ 2,391,130</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> <tr> <td>AE2-025</td><td>83.87</td><td>9.95%</td><td>\$ 1,206,643</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> <tr> <td>AE2-222</td><td>14.1</td><td>1.67%</td><td>\$ 202,858</td><td>single</td><td>LL</td><td>'JC-P1-2-JCC-230-027'</td></tr> <tr> <td>AE2-232</td><td>62.6</td><td>7.43%</td><td>\$ 900,630</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> <tr> <td>AE2-251</td><td>59.9</td><td>7.11%</td><td>\$ 861,785</td><td>single</td><td>LL</td><td>'JC-P1-2-JCC-230-027'</td></tr> <tr> <td>AF1-101</td><td>89.79</td><td>10.66%</td><td>\$ 1,291,814</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-26B'</td></tr> </tbody> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE1-238	238.34	28.29%	\$ 3,429,023	breaker	SP	JC-P2-3-JCC-230-26B'	AE2-000	127.80	15.17%	\$ 1,838,667	breaker	SP	JC-P2-3-JCC-230-26B'	AE2-024	166.20	19.72%	\$ 2,391,130	breaker	SP	JC-P2-3-JCC-230-26B'	AE2-025	83.87	9.95%	\$ 1,206,643	breaker	SP	JC-P2-3-JCC-230-26B'	AE2-222	14.1	1.67%	\$ 202,858	single	LL	'JC-P1-2-JCC-230-027'	AE2-232	62.6	7.43%	\$ 900,630	breaker	SP	JC-P2-3-JCC-230-26B'	AE2-251	59.9	7.11%	\$ 861,785	single	LL	'JC-P1-2-JCC-230-027'	AF1-101	89.79	10.66%	\$ 1,291,814	breaker	SP	JC-P2-3-JCC-230-26B'	\$12,122,549	\$1,291,814	N5870
Queue	MW	Cost %	Cost \$	Type	Study	ContName																																																															
AE1-238	238.34	28.29%	\$ 3,429,023	breaker	SP	JC-P2-3-JCC-230-26B'																																																															
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AF1-101	89.79	10.66%	\$ 1,291,814	breaker	SP	JC-P2-3-JCC-230-26B'																																																															
42138042	17	28LAKEWOOD 230.0 kV - 28LARRABEE 230.0 kV Ckt 2	JCPL: "Replace substation conductor at Lakewood Gen. and Larrabee. Reconductor the Lakewood Gen. - Larrabee 230 kV line. Replace disconnect switch at Larrabee and disconnect switch at Lakewood Gen. Replace wave trap at Larrabee.	\$16,176,823	\$5,079,504	N6411																																																															

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																																															
			Replace metering and fault switches at Lakewood Gen. and Larrabee." Project Type : FAC Cost : \$ 16,176,823 New Ratings: 1306.0/1697.0/1697.0 Time Estimate : 30 Months The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE2-021</td><td>86.92</td><td>9.07%</td><td>\$ 1,467,397</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-022</td><td>56.80</td><td>5.93%</td><td>\$ 958,907</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-023</td><td>54.84</td><td>5.72%</td><td>\$ 925,818</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-222</td><td>44.35</td><td>4.63%</td><td>\$ 748,724</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-232</td><td>209.32</td><td>21.84%</td><td>\$ 3,533,774</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-251</td><td>193.5</td><td>20.19%</td><td>\$ 3,266,698</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AE2-314</td><td>11.61</td><td>1.21%</td><td>\$ 196,002</td><td>breaker</td><td>SP</td><td>'JC-P2-3-JCC-230-13D'</td></tr> <tr> <td>AF1-101</td><td>300.88</td><td>31.40%</td><td>\$ 5,079,504</td><td>breaker</td><td>SP</td><td>JC-P2-3-JCC-230-15J</td></tr> </tbody> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-021	86.92	9.07%	\$ 1,467,397	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-022	56.80	5.93%	\$ 958,907	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-023	54.84	5.72%	\$ 925,818	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-222	44.35	4.63%	\$ 748,724	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-232	209.32	21.84%	\$ 3,533,774	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-251	193.5	20.19%	\$ 3,266,698	breaker	SP	'JC-P2-3-JCC-230-13D'	AE2-314	11.61	1.21%	\$ 196,002	breaker	SP	'JC-P2-3-JCC-230-13D'	AF1-101	300.88	31.40%	\$ 5,079,504	breaker	SP	JC-P2-3-JCC-230-15J			
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AF1-101	300.88	31.40%	\$ 5,079,504	breaker	SP	JC-P2-3-JCC-230-15J																																																															
42704375, 42138128, 42138127	21	CARDIFF 230.0 kV - ORCHARD 230.0 kV Ckt 1	AEC: Upgrade no. 1:	\$74,300,000	\$23,560,480	N6561 & N6562																																																															

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																								
			To mitigate the (ACE) Orchard Cardiff 230 kV line (from bus 228002 to bus 227900 ckt 1) overload, it will require increasing the emergency rating of the Orchard to Cardiff 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 is required at Orchard & Cardiff. Project Type : FAC Cost : \$74,000,000 New Ratings : 916/1035/1035 Time Estimate : 48-60 Months The cost allocation table is below: <table><tr><th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost (\$74,000,000)</th><th>Contingency</th><th>Contingency Type</th></tr><tr><td>AE2-251</td><td>321.84</td><td>63.83%</td><td>\$ 47,235,600</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AE2-314</td><td>21.83</td><td>4.33%</td><td>\$ 3,203,920</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr><tr><td>AF1-101</td><td>160.53</td><td>31.84%</td><td>\$ 23,560,480</td><td>'JC-P7-1-JCC-230-13'</td><td>tower</td></tr></table> Upgrade no. 2: To mitigate the (ACE) Orchard Cardiff 230 kV line (from bus 228002 to bus 227900 ckt 1) overload, it will require reinforcement of terminal equipment at Orchard & Cardiff. Project Type : FAC Cost : \$300,000 New Ratings : 997/1167/1167 Time Estimate : 24-36 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-	Queue	MW contribution	% of Cost	Cost (\$74,000,000)	Contingency	Contingency Type	AE2-251	321.84	63.83%	\$ 47,235,600	'JC-P7-1-JCC-230-13'	tower	AE2-314	21.83	4.33%	\$ 3,203,920	'JC-P7-1-JCC-230-13'	tower	AF1-101	160.53	31.84%	\$ 23,560,480	'JC-P7-1-JCC-230-13'	tower			
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42704600	24	BRIDGPRT 230.0 kV - MCKLTON 230.0 kV Ckt 1	AEC To mitigate the (ACE) Bridgeport to Mickleton 230 kV line (from bus 228313 to bus 228401 ckt 1) overload, it will require increasing the emergency rating of the Bridgeport to Mickleton 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$18,000,000 New Ratings : 993/993/993 Time Estimate : 36-60 Months The cost allocation table is below: <table><tr><th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost</th><th>Contingency</th><th>Contingency Type</th></tr><tr><td>AE2 Queue</td><td>66.88</td><td>52.93%</td><td>\$ 9,527,066</td><td>JC-P7-1-JCC-230-13</td><td>Tower</td></tr><tr><td>AF1-101</td><td>59.48</td><td>47.07%</td><td>\$ 8,472,934</td><td>JC-P7-1-JCC-230-13</td><td>Tower</td></tr></table>	Queue	MW contribution	% of Cost	Cost	Contingency	Contingency Type	AE2 Queue	66.88	52.93%	\$ 9,527,066	JC-P7-1-JCC-230-13	Tower	AF1-101	59.48	47.07%	\$ 8,472,934	JC-P7-1-JCC-230-13	Tower	\$18,000,000	\$8,472,934	N6791
Queue	MW contribution	% of Cost	Cost	Contingency	Contingency Type																			
AE2 Queue	66.88	52.93%	\$ 9,527,066	JC-P7-1-JCC-230-13	Tower																			
AF1-101	59.48	47.07%	\$ 8,472,934	JC-P7-1-JCC-230-13	Tower																			
42138203, 42138204	19	28R11RINGA 230.0 kV - 28RED OAKA 230.0 kV Ckt 1	JCPL: "Reconductor R11 Ring bus to Red Oak A 230 kV transmission line (~0.6 miles). Upgrade terminals as required." Project Type : FAC Cost : \$2,987,006	\$2,987,006	\$0	N6597																		

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
			New Ratings: 1156.0/1334.0/1334.0 Time Estimate : 12 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.			
42138213, 42138212	18	28R11RINGB 230.0 kV - 28RED OAKB 230.0 kV Ckt 1	JCPL: "Reconductor R11 Ring bus to Red Oak B 230 kV transmission line (~0.6 miles). Upgrade terminals as required." Project Type : FAC Cost : \$2,819,198 New Ratings : 1156.0/1334.0/1334.0 Time Estimate : 18-24 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.	\$2,819,198	\$0	N6596
42704561	22	CHAMBERS 230.0	JCPL:	\$1,000,000	\$0	n6792

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number							
		kV - PEDRKTWN 230.0 kV Ckt 1	To mitigate the (ACE) Chambers to Pedrickton 230 kV line (from bus 228311 to bus 228312 ckt 1) overload, it will require reinforcement of terminal equipment at both substations. Project Type : FAC Cost : \$1,000,000 New Ratings : 796/932/932 Time Estimate : 12-32 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.										
42704374, 42704372	15	28VANHISVL 230.0 kV - 28LARRABEE 230.0 kV Ckt 1	JCPL: Upgrade no. 1: "Reconductor the Larrabee - Van Hiseville 230 kV line (~7.5 miles). Replace wave trap at Larrabee" Project Type : FAC Cost : \$35,407,778 New Ratings : 956.0/956.0/956.0 Time Estimate : 42 Months The cost allocation table is below: <table border="1"> <tr> <td>Queue</td><td>MW</td><td>Cost %</td><td>Cost \$</td><td>Type</td><td>Study</td><td>ContName</td></tr> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	\$35,407,778	\$2,112,027	N6537
Queue	MW	Cost %	Cost \$	Type	Study	ContName							

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																										
			<table border="1"> <tr> <td>AE2-023</td><td>45.81</td><td>7.33%</td><td>\$ 2,594,741</td><td>tower</td><td>SP</td><td>'JC-P7-1-JCC-230-10A'</td></tr> <tr> <td>AE2-222</td><td>39.30</td><td>6.29%</td><td>\$ 2,225,976</td><td>tower</td><td>SP</td><td>'JC-P7-1-JCC-230-10A'</td></tr> <tr> <td>AE2-232</td><td>148.50</td><td>23.76%</td><td>\$ 8,411,130</td><td>tower</td><td>SP</td><td>'JC-P7-1-JCC-230-10A'</td></tr> <tr> <td>AE2-251</td><td>167.62</td><td>26.81%</td><td>\$ 9,494,099</td><td>tower</td><td>SP</td><td>'JC-P7-1-JCC-230-10A'</td></tr> <tr> <td>AE2-314</td><td>10.06</td><td>1.61%</td><td>\$ 569,805</td><td>tower</td><td>SP</td><td>'JC-P7-1-JCC-230-10A'</td></tr> <tr> <td>AF1-101</td><td>213.84</td><td>34.21%</td><td>\$ 12,112,027</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> </table> Upgrade no. 2: "Replace relaying, metering, current transformers, and fault switch at Larrabee. Upgrade terminal equipment at Larrabee as necessary." Project Type : FAC Cost : \$ 1,778,779 New Ratings : 1355.0/1434.0/1434.0 Time Estimate : 12 Months Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.	AE2-023	45.81	7.33%	\$ 2,594,741	tower	SP	'JC-P7-1-JCC-230-10A'	AE2-222	39.30	6.29%	\$ 2,225,976	tower	SP	'JC-P7-1-JCC-230-10A'	AE2-232	148.50	23.76%	\$ 8,411,130	tower	SP	'JC-P7-1-JCC-230-10A'	AE2-251	167.62	26.81%	\$ 9,494,099	tower	SP	'JC-P7-1-JCC-230-10A'	AE2-314	10.06	1.61%	\$ 569,805	tower	SP	'JC-P7-1-JCC-230-10A'	AF1-101	213.84	34.21%	\$ 12,112,027	tower	SP	JC-P7-1-JCC-230-10A			
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42704528, 46761033, 46761034, 42138495, 42704527	5	28E WINDSR 230.0 kV - 28WINDSOR 230.0 kV Ckt 1	JCPL: Reconductor the East Windsor - Windsor 230 kV line (~2.5 miles). Replace wave trap at Windsor.	\$14,867,911	\$4,460,972	N6774.1																																										

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																					
			Replace circuit breaker at Windsor. Replace metering, relaying, and fault switch at Windsor. Project Type : FAC Cost : \$13,693,245 Ratings : 913.0/1147.0/1147.0 Time Estimate : 30 Months The cost allocation table is below: <table border="1"> <thead> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> </thead> <tbody> <tr> <td>AE2 Queue</td><td>161.84</td><td>67.42%</td><td>\$ 9,232,273</td><td>tower</td><td>SP</td><td>PS_P7-1_1LINE+2LINE</td></tr> <tr> <td>AF1-101</td><td>78.20</td><td>32.58%</td><td>\$ 4,460,972</td><td>tower</td><td>SP</td><td>PS_P7-1_1LINE+2LINE</td></tr> </tbody> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2 Queue	161.84	67.42%	\$ 9,232,273	tower	SP	PS_P7-1_1LINE+2LINE	AF1-101	78.20	32.58%	\$ 4,460,972	tower	SP	PS_P7-1_1LINE+2LINE			
Queue	MW	Cost %	Cost \$	Type	Study	ContName																					
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AF1-101	78.20	32.58%	\$ 4,460,972	tower	SP	PS_P7-1_1LINE+2LINE																					
42704362, 42704361	16	28WHITINGS 230.0 kV - 28MANCHSTR 230.0 kV Ckt 1	JCPL: Upgrade no.1 "Reconductor the Manchester - Whittings 230 kV transmission line (~12.65 miles). Replace wave trap at Whittings. Replace substation conductor at Manchester. Replace circuit breaker at Whittings. Replace disconnect switches at Manchester and disconnect switches at Whittings. Replace relaying at Whittings." Project Type : FAC Cost : \$ 62,324,401 Ratings : 1162.0/1288.0/1288.0 Time Estimate : 54 Months	\$65,210,722	\$29,485,272	N6578 & N6578.7																					

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																			
			The cost allocation table is below: <table> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> <tr> <td>AE2-232</td><td>201.68</td><td>29.46%</td><td>\$ 18,361,703</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-251</td><td>179.92</td><td>26.28%</td><td>\$ 16,380,911</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-314</td><td>10.80</td><td>1.58%</td><td>\$ 982,836</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AF1-101</td><td>292.15</td><td>42.68%</td><td>\$ 26,598,951</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> </table> Upgrade no.2 "Replace fault switches at Whitings. Upgrade terminals as required." Project Type : FAC Cost : \$2,886,321 Ratings : 1162.0/1434.0/1434.0 Time Estimate : 12 Months AF1-101 is the driver for this upgrade.	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-232	201.68	29.46%	\$ 18,361,703	tower	SP	JC-P7-1-JCC-230-10A	AE2-251	179.92	26.28%	\$ 16,380,911	tower	SP	JC-P7-1-JCC-230-10A	AE2-314	10.80	1.58%	\$ 982,836	tower	SP	JC-P7-1-JCC-230-10A	AF1-101	292.15	42.68%	\$ 26,598,951	tower	SP	JC-P7-1-JCC-230-10A			
Queue	MW	Cost %	Cost \$	Type	Study	ContName																																			
AE2-232	201.68	29.46%	\$ 18,361,703	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-251	179.92	26.28%	\$ 16,380,911	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-314	10.80	1.58%	\$ 982,836	tower	SP	JC-P7-1-JCC-230-10A																																			
AF1-101	292.15	42.68%	\$ 26,598,951	tower	SP	JC-P7-1-JCC-230-10A																																			
42704364, 42704365	6	28MANCHSTR 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	JCPL: "Reconductor the Van Hiseville Tap - Manchester 230 kV transmission line (~5.55 miles). Replace substation conductor at Manchester. Replace disconnect switches at Manchester." Project Type : FAC Cost : \$26,715,252 Ratings : 1156.0/1334.0/1334.0 Time Estimate : 42 Months	\$26,715,252	\$11,658,993	n6579																																			

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number																																			
			The cost allocation table is below: <table> <tr> <th>Queue</th><th>MW</th><th>Cost %</th><th>Cost \$</th><th>Type</th><th>Study</th><th>ContName</th></tr> <tr> <td>AE2-232</td><td>186.56</td><td>27.87%</td><td>7,445,289</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-251</td><td>179.92</td><td>26.88%</td><td>7,180,168</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AE2-314</td><td>10.80</td><td>1.61%</td><td>430,802</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> <tr> <td>AF1-101</td><td>292.15</td><td>43.64%</td><td>11,658,993</td><td>tower</td><td>SP</td><td>JC-P7-1-JCC-230-10A</td></tr> </table>	Queue	MW	Cost %	Cost \$	Type	Study	ContName	AE2-232	186.56	27.87%	7,445,289	tower	SP	JC-P7-1-JCC-230-10A	AE2-251	179.92	26.88%	7,180,168	tower	SP	JC-P7-1-JCC-230-10A	AE2-314	10.80	1.61%	430,802	tower	SP	JC-P7-1-JCC-230-10A	AF1-101	292.15	43.64%	11,658,993	tower	SP	JC-P7-1-JCC-230-10A			
Queue	MW	Cost %	Cost \$	Type	Study	ContName																																			
AE2-232	186.56	27.87%	7,445,289	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-251	179.92	26.88%	7,180,168	tower	SP	JC-P7-1-JCC-230-10A																																			
AE2-314	10.80	1.61%	430,802	tower	SP	JC-P7-1-JCC-230-10A																																			
AF1-101	292.15	43.64%	11,658,993	tower	SP	JC-P7-1-JCC-230-10A																																			
			TOTAL COST	\$880,329,431	\$389,695,464																																				

Note : For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates \$0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently \$0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

11.7 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

11.7.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704549	206294	28LARRABEE	JCP&L	206286	28ATLANTIC	JCP&L	1	JC-P7-1-JCC-230-7A	tower	1147.0	88.8	101.04	AC	161.97

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206280	28LAKEHURS	0.7236	50/50	0.7236
206306	28LKWD G1	4.8964	50/50	4.8964
206308	28LKWD G2	4.8964	50/50	4.8964
206312	28LKWD G3	3.5896	50/50	3.5896
206325	28O C GEN (Deactivation : 17/09/2018)	53.8062	Adder	63.3
206366	28LKWD CT1	9.8690	50/50	9.8690
206367	28LKWD CT2	9.8690	50/50	9.8690
206370	LKWD CT3	66.2960	50/50	66.2960
206414	28X4-005E	-1.4890	Adder	-1.75
207400	28AA1-060 E	2.3264	Adder	2.74
219288	REEVES ST E	0.4296	Adder	0.51
219652	LUMB23SP1_E	0.0131	Adder	0.02
219656	LUMB23SP2_E	0.0131	Adder	0.02
219687	LUMSOLAR_N E	0.1323	Adder	0.16
227928	V4-067E	0.1314	Adder	0.15
228102	BLE#2 ST (Deactivation : 30/04/2019)	10.3602	Adder	12.19
901982	W1-119 E	0.9925	Adder	1.17
901992	W1-120E	0.9925	Adder	1.17
902082	W1-129E	0.5225	Adder	0.61
902322	W2-019 E	0.6165	Adder	0.73
902432	W2-030 E	0.4681	Adder	0.55
902952	W2-082 E OP1	1.7937	Adder	2.11
903982	W3-079 E	0.9429	Adder	1.11
905252	W4-025 E	0.7416	Adder	0.87
907272	X1-085 E	0.3192	Adder	0.38
912102	X4-015 E	0.5254	Adder	0.62
914092	Y2-051 E	0.7293	Adder	0.86
917612	Z2-102 E	1.4627	Adder	1.72
919662	AA2-048 E	1.5001	Adder	1.76
923292	AB1-138 C	0.1847	50/50	0.1847
923293	AB1-138 E	1.7384	50/50	1.7384
923463	AB1-163 E	1.0954	Adder	1.29
923791	AB2-014	0.4755	50/50	0.4755
924701	AB2-122 C	0.0568	Adder	0.07
924702	AB2-122 E	0.0973	Adder	0.11
930001	AB1-001 C	0.0822	Adder	0.1
930002	AB1-001 E	0.1351	Adder	0.16
933962	AD1-019 E	0.6039	Adder	0.71
934351	AD1-059	0.8748	50/50	0.8748
938781	AE1-104 C O1	8.3625	Adder	9.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938782	AE1-104 E O1	21.3954	Adder	25.17
939121	AE1-142 C O1	2.4970	50/50	2.4970
939122	AE1-142 E O1	3.5932	50/50	3.5932
940161	AE2-000 C O1	54.8833	Adder	64.57
940162	AE2-000 E O1	140.4275	Adder	165.21
940361	AE2-020 C	9.0736	Adder	10.67
940362	AE2-020 E	42.4834	Adder	49.98
940371	AE2-021 C	9.0736	Adder	10.67
940372	AE2-021 E	42.4834	Adder	49.98
940381	AE2-022 C	5.2930	Adder	6.23
940382	AE2-022 E	24.7820	Adder	29.16
940401	AE2-024 C O1	53.6211	50/50	53.6211
940402	AE2-024 E O1	251.0482	50/50	251.0482
940411	AE2-025 C	27.0679	50/50	27.0679
940412	AE2-025 E	126.7175	50/50	126.7175
942101	AE2-222 C O1	6.8200	Adder	8.02
942102	AE2-222 E O1	17.1322	Adder	20.16
942381	AE2-251 C	28.7451	Adder	33.82
942382	AE2-251 E	73.5507	Adder	86.53
943561	AF1-027	0.2585	Adder	0.3
943732	AF1-041 E	0.1931	Adder	0.23
944332	AF1-101 E O1	137.6750	Adder	161.97
944611	AF1-126 C O1	8.4243	Adder	9.91
944612	AF1-126 E O1	33.6974	Adder	39.64
945201	AF1-185 1	-0.3350	Adder	-0.39
945211	AF1-185 2	-0.0745	Adder	-0.09
945951	AF1-260	0.2143	Adder	0.25
999905	MARINGEN 2	0.3167	Adder	0.37
999906	PVILLEG 2	0.1363	Adder	0.16
NEWTON	NEWTON	0.0795	Confirmed LTF	0.0795
FARMERCITY	FARMERCITY	0.0040	Confirmed LTF	0.0040
NY	NY	0.9600	Confirmed LTF	0.9600
PRAIRIE	PRAIRIE	0.1834	Confirmed LTF	0.1834
O-066	O-066	18.0835	Confirmed LTF	18.0835
COFFEEN	COFFEEN	0.0148	Confirmed LTF	0.0148
CHEOAH	CHEOAH	0.0275	Confirmed LTF	0.0275
EDWARDS	EDWARDS	0.0269	Confirmed LTF	0.0269
TILTON	TILTON	0.0485	Confirmed LTF	0.0485
G-007	G-007	9.1094	Confirmed LTF	9.1094
MADISON	MADISON	0.0081	Confirmed LTF	0.0081
GIBSON	GIBSON	0.0409	Confirmed LTF	0.0409
CALDERWOOD	CALDERWOOD	0.0278	Confirmed LTF	0.0278
BLUEG	BLUEG	0.1302	Confirmed LTF	0.1302
TRIMBLE	TRIMBLE	0.0417	Confirmed LTF	0.0417
CATAWBA	CATAWBA	0.0140	Confirmed LTF	0.0140

11.7.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40978935	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	121.74	218.86	AC	531.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	5.5685	50/50	5.5685
206361	28O CRK C2	3.7266	50/50	3.7266
940161	AE2-000 C O1	212.0360	50/50	212.0360
940162	AE2-000 E O1	542.5274	50/50	542.5274
944332	AF1-101 E O1	531.8932	50/50	531.8932
NEWTON	NEWTON	0.0376	Confirmed LTF	0.0376
FARMERCITY	FARMERCITY	0.0020	Confirmed LTF	0.0020
G-007A	G-007A	1.0261	Confirmed LTF	1.0261
VFT	VFT	1.0449	Confirmed LTF	1.0449
PRAIRIE	PRAIRIE	0.0904	Confirmed LTF	0.0904
COFFEEN	COFFEEN	0.0070	Confirmed LTF	0.0070
CHEOAH	CHEOAH	0.0180	Confirmed LTF	0.0180
EDWARDS	EDWARDS	0.0119	Confirmed LTF	0.0119
TILTON	TILTON	0.0220	Confirmed LTF	0.0220
GIBSON	GIBSON	0.0191	Confirmed LTF	0.0191
CALDERWOOD	CALDERWOOD	0.0179	Confirmed LTF	0.0179
BLUEG	BLUEG	0.0608	Confirmed LTF	0.0608
TRIMBLE	TRIMBLE	0.0195	Confirmed LTF	0.0195
CATAWBA	CATAWBA	0.0133	Confirmed LTF	0.0133

11.7.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704556	206309	28SMITHBRG	JCP&L	206326	28E WINDSR	JCP&L	1	PS_P7-1_1LINE+2LINE	tower	1394.0	88.5	100.22	AC	194.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206271	28MCRC/REC	2.3725	Adder	2.79
206325	28O C GEN (Deactivation : 17/09/2018)	64.4532	Adder	75.83
206327	28S RIV G1	5.5886	50/50	5.5886
206328	28S RIV G2	5.5886	50/50	5.5886
206329	28S RIV G3	7.4691	50/50	7.4691
206358	28PARLN1&2	3.5637	50/50	3.5637
206359	28PARLN3&4	4.3081	50/50	4.3081
206362	28RDOAKCT1	13.2577	50/50	13.2577
206363	28RDOAKCT2	13.2584	50/50	13.2584
206364	28RDOAKCT3	13.2584	50/50	13.2584
206365	28RDOAKST1	18.5913	50/50	18.5913
206370	LKWD CT3	68.1292	Adder	80.15
206403	28W4-009	55.1905	50/50	55.1905
206412	28R11	189.3408	50/50	189.3408
206414	28X4-005E	7.3068	Adder	8.6
206416	28MLH_W1-032	0.0943	50/50	0.0943
207143	28BYD_X4-031	0.7203	Adder	0.85
207204	28HOL_W1-112	0.1161	50/50	0.1161
207205	28MAN_W1-024	0.1175	50/50	0.1175
207206	28TIN_W1-124	0.4874	50/50	0.4874
207400	28AA1-060 E	2.9596	Adder	3.48
207419	AB2-139 E	0.1151	Adder	0.14
207420	AC1-207 C	1.5466	Adder	1.82
901032	W1-024E OP1	1.0916	50/50	1.0916
901112	W1-032 E OP1	0.9005	50/50	0.9005
901422	W1-113 E	1.0173	Adder	1.2
901912	W1-112E OP1	1.0695	50/50	1.0695
901982	W1-119 E	1.2147	Adder	1.43
901992	W1-120E	1.2147	Adder	1.43
902032	W1-124E	4.5152	50/50	4.5152
902082	W1-129E	0.6407	Adder	0.75
902322	W2-019 E	0.7562	Adder	0.89
902912	W2-078 E	1.1383	Adder	1.34
902952	W2-082 E OP1	2.1988	Adder	2.59
903982	W3-079 E	1.5246	Adder	1.79
905252	W4-025 E	0.9093	Adder	1.07
905502	W4-060 E OP1	2.2549	Adder	2.65
907082	X1-037 E	3.8094	Adder	4.48
907272	X1-085 E	0.4228	Adder	0.5
912102	X4-015 E	0.6442	Adder	0.76
914092	Y2-051 E	1.0861	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
917612	Z2-102 E	1.7903	Adder	2.11
919662	AA2-048 E	2.4255	Adder	2.85
920732	AA2-184 E	4.9894	50/50	4.9894
923293	AB1-138 E	1.8813	Adder	2.21
923463	AB1-163 E	1.4826	Adder	1.74
927132	AC1-207 E	2.5882	Adder	3.04
934841	AD1-113 (Suspended)	27.4004	Adder	32.24
939121	AE1-142 C O1	2.5715	Adder	3.03
939122	AE1-142 E O1	3.7005	Adder	4.35
939981	AE1-238 C	97.0830	50/50	97.0830
939982	AE1-238 E	255.0047	50/50	255.0047
940161	AE2-000 C O1	65.7434	Adder	77.35
940162	AE2-000 E O1	168.2148	Adder	197.9
940401	AE2-024 C O1	55.1150	Adder	64.84
940402	AE2-024 E O1	258.0422	Adder	303.58
940411	AE2-025 C	27.8220	Adder	32.73
940412	AE2-025 E	130.2478	Adder	153.23
940691	AE2-056 C	0.5784	Adder	0.68
940692	AE2-056 E	0.5061	Adder	0.6
940701	AE2-057 C	0.1819	Adder	0.21
940702	AE2-057 E	0.1819	Adder	0.21
940921	AE2-081 C	0.6145	Adder	0.72
940922	AE2-081 E	0.6326	Adder	0.74
940931	AE2-082 C	1.0974	Adder	1.29
940932	AE2-082 E	1.1619	Adder	1.37
943521	AF1-023	3.6130	50/50	3.6130
943561	AF1-027	0.3288	Adder	0.39
944332	AF1-101 E O1	164.9176	Adder	194.02
944611	AF1-126 C O1	9.7967	Adder	11.53
944612	AF1-126 E O1	39.1867	Adder	46.1
945201	AF1-185 1	1.6440	Adder	1.93
945211	AF1-185 2	0.3653	Adder	0.43
945571	AF1-222 C	60.5151	50/50	60.5151
945572	AF1-222 E	159.5397	50/50	159.5397
945951	AF1-260	0.3465	Adder	0.41
NEWTON	NEWTON	0.7339	Confirmed LTF	0.7339
FARMERCITY	FARMERCITY	0.0382	Confirmed LTF	0.0382
G-007A	G-007A	103.0469	Confirmed LTF	103.0469
NY	NY	0.7233	Confirmed LTF	0.7233
PRAIRIE	PRAIRIE	1.7616	Confirmed LTF	1.7616
O-066	O-066	11.7331	Confirmed LTF	11.7331
COFFEEN	COFFEEN	0.1363	Confirmed LTF	0.1363
CHEOAH	CHEOAH	0.3383	Confirmed LTF	0.3383
EDWARDS	EDWARDS	0.2394	Confirmed LTF	0.2394
TILTON	TILTON	0.4309	Confirmed LTF	0.4309
MADISON	MADISON	0.0040	Confirmed LTF	0.0040
GIBSON	GIBSON	0.3735	Confirmed LTF	0.3735
CALDERWOOD	CALDERWOOD	0.3360	Confirmed LTF	0.3360
BLUEG	BLUEG	1.1874	Confirmed LTF	1.1874
TRIMBLE	TRIMBLE	0.3806	Confirmed LTF	0.3806
CATAWBA	CATAWBA	0.2345	Confirmed LTF	0.2345

11.7.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40979067	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PS_P7-1_1LINE+2LINE	tower	813.0	113.8	122.84	AC	86.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0713	50/50	0.0713
206271	28MCRC/REC	1.0626	Adder	1.25
206325	28O C GEN (Deactivation : 17/09/2018)	28.6639	Adder	33.72
206350	28RRCT1&2	2.8687	50/50	2.8687
206351	28RRCT3&4	2.6862	50/50	2.6862
206362	28RDOAKCT1	6.0788	50/50	6.0788
206365	28RDOAKST1	8.5243	50/50	8.5243
206368	28MDLSEXCO	0.7120	50/50	0.7120
206370	LKWD CT3	30.0220	Adder	35.32
206403	28W4-009	25.3899	50/50	25.3899
206412	28R11	73.7191	Adder	86.73
206414	28X4-005E	3.9546	50/50	3.9546
206416	28MLH_W1-032	0.0416	50/50	0.0416
207143	28BYD_X4-031	0.3252	Adder	0.38
207152	28NPK_W1-113	0.1326	50/50	0.1326
207162	28APLW2-078	0.1484	50/50	0.1484
207169	28W4-060COL	0.1341	50/50	0.1341
207205	28MAN_W1-024	0.0582	50/50	0.0582
207400	28AA1-060 E	2.4094	Adder	2.83
207419	AB2-139 E	0.0979	50/50	0.0979
207420	AC1-207 C	1.1006	50/50	1.1006
219679	NRGCENTER E	-0.3193	Adder	-0.38
901032	W1-024E OP1	0.5401	50/50	0.5401
901112	W1-032 E OP1	0.3973	50/50	0.3973
901422	W1-113 E	1.2314	50/50	1.2314
901912	W1-112E OP1	0.4117	Adder	0.48
901982	W1-119 E	0.6146	Adder	0.72
901992	W1-120E	0.6146	Adder	0.72
902032	W1-124E	1.7178	Adder	2.02
902082	W1-129E	0.3351	Adder	0.39
902322	W2-019 E	0.3977	Adder	0.47
902912	W2-078 E	1.3794	50/50	1.3794
902952	W2-082 E OP1	1.1433	Adder	1.35
903982	W3-079 E	0.6788	Adder	0.8
905252	W4-025 E	0.4757	Adder	0.56
905502	W4-060 E OP1	1.2352	50/50	1.2352
907082	X1-037 E	1.7604	Adder	2.07
907272	X1-085 E	0.4739	Adder	0.56
912102	X4-015 E	0.3361	Adder	0.4
914092	Y2-051 E	0.4813	Adder	0.57
917612	Z2-102 E	0.9064	Adder	1.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
919662	AA2-048 E	1.0799	Adder	1.27
919712	AA2-058 E	-0.1713	Adder	-0.2
919802	AA2-066 E	-0.3193	Adder	-0.38
920732	AA2-184 E	1.9000	Adder	2.24
923293	AB1-138 E	0.8425	Adder	0.99
923463	AB1-163 E	0.6828	Adder	0.8
927132	AC1-207 E	1.8419	50/50	1.8419
934841	AD1-113 (Suspended)	14.8298	50/50	14.8298
937523	AD2-213 BAT	1.8022	Merchant Transmission	1.8022
939121	AE1-142 C O1	1.1390	Adder	1.34
939122	AE1-142 E O1	1.6390	Adder	1.93
939981	AE1-238 C	36.7315	Adder	43.21
939982	AE1-238 E	96.4813	Adder	113.51
940161	AE2-000 C O1	29.2377	Adder	34.4
940162	AE2-000 E O1	74.8092	Adder	88.01
940401	AE2-024 C O1	24.2437	Adder	28.52
940402	AE2-024 E O1	113.5062	Adder	133.54
940411	AE2-025 C	12.2382	Adder	14.4
940412	AE2-025 E	57.2927	Adder	67.4
940691	AE2-056 C	0.2675	Adder	0.31
940692	AE2-056 E	0.2341	Adder	0.28
940701	AE2-057 C	0.1007	50/50	0.1007
940702	AE2-057 E	0.1007	50/50	0.1007
940921	AE2-081 C	0.2842	Adder	0.33
940922	AE2-081 E	0.2926	Adder	0.34
940931	AE2-082 C	0.7623	50/50	0.7623
940932	AE2-082 E	0.8072	50/50	0.8072
943521	AF1-023	1.3759	Adder	1.62
943561	AF1-027	0.2677	Adder	0.31
944332	AF1-101 E O1	73.3429	Adder	86.29
944432	AF1-108 BAT	1.8618	Merchant Transmission	1.8618
944442	AF1-109 BAT	5.4178	50/50	5.4178
944611	AF1-126 C O1	4.2215	Adder	4.97
944612	AF1-126 E O1	16.8861	Adder	19.87
945201	AF1-185 1	0.8898	50/50	0.8898
945211	AF1-185 2	0.1977	50/50	0.1977
945571	AF1-222 C	22.8960	Adder	26.94
945572	AF1-222 E	60.3621	Adder	71.01
945723	AF1-237 BAT	38.8140	Merchant Transmission	38.8140
945951	AF1-260	0.1543	Adder	0.18
NEWTON	NEWTON	0.2579	Confirmed LTF	0.2579
FARMERCITY	FARMERCITY	0.0134	Confirmed LTF	0.0134
G-007A	G-007A	47.4058	Confirmed LTF	47.4058
NY	NY	0.2124	Confirmed LTF	0.2124
PRAIRIE	PRAIRIE	0.6199	Confirmed LTF	0.6199
O-066	O-066	7.3315	Confirmed LTF	7.3315
COFFEEN	COFFEEN	0.0479	Confirmed LTF	0.0479
CHEOAH	CHEOAH	0.1196	Confirmed LTF	0.1196
EDWARDS	EDWARDS	0.0840	Confirmed LTF	0.0840
TILTON	TILTON	0.1512	Confirmed LTF	0.1512
GIBSON	GIBSON	0.1310	Confirmed LTF	0.1310
CALDERWOOD	CALDERWOOD	0.1188	Confirmed LTF	0.1188

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
BLUEG	BLUEG	0.4166	Confirmed LTF	0.4166
TRIMBLE	TRIMBLE	0.1336	Confirmed LTF	0.1336
CATAWBA	CATAWBA	0.0833	Confirmed LTF	0.0833

11.7.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704527	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PS_P7-1_1LINE+2LINE	tower	869.0	115.61	123.15	AC	78.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206271	28MCRC/REC	1.0956	50/50	1.0956
206325	28O C GEN (Deactivation : 17/09/2018)	25.9792	Adder	30.56
206327	28S RIV G1	2.1249	50/50	2.1249
206328	28S RIV G2	2.1249	50/50	2.1249
206329	28S RIV G3	2.8400	50/50	2.8400
206358	28PARLN1&2	1.3584	50/50	1.3584
206359	28PARLN3&4	1.6421	50/50	1.6421
206362	28RDOAKCT1	5.0341	50/50	5.0341
206363	28RDOAKCT2	5.0353	50/50	5.0353
206364	28RDOAKCT3	5.0353	50/50	5.0353
206365	28RDOAKST1	7.0593	50/50	7.0593
206370	LKWD CT3	27.3292	Adder	32.15
206403	28W4-009	20.8507	50/50	20.8507
206412	28R11	71.9928	50/50	71.9928
206414	28X4-005E	2.7605	Adder	3.25
206416	28MLH_W1-032	0.0381	50/50	0.0381
207143	28BYD_X4-031	0.3287	50/50	0.3287
207145	28FRN_Y2-051	0.0551	50/50	0.0551
207204	28HOL_W1-112	0.0449	50/50	0.0449
207206	28TIN_W1-124	0.1915	50/50	0.1915
219679	NRGCENTER E	-0.3114	Adder	-0.37
901032	W1-024E OP1	0.3138	Adder	0.37
901112	W1-032 E OP1	0.3634	50/50	0.3634
901912	W1-112E OP1	0.4135	50/50	0.4135
902032	W1-124E	1.7739	50/50	1.7739
903982	W3-079 E	0.6002	Adder	0.71
905502	W4-060 E OP1	0.8376	Adder	0.99
907082	X1-037 E	1.4308	Adder	1.68
914092	Y2-051 E	0.5075	50/50	0.5075
919662	AA2-048 E	0.9548	Adder	1.12
919712	AA2-058 E	-0.1674	Adder	-0.2
919802	AA2-066 E	-0.3114	Adder	-0.37
920732	AA2-184 E	1.9576	50/50	1.9576
923293	AB1-138 E	0.7324	Adder	0.86
923463	AB1-163 E	0.5447	Adder	0.64
934841	AD1-113 (Suspended)	10.3517	Adder	12.18
937523	AD2-213 BAT	1.7466	Merchant Transmission	1.7466
939121	AE1-142 C O1	1.0267	Adder	1.21
939122	AE1-142 E O1	1.4774	Adder	1.74
939981	AE1-238 C	38.4345	50/50	38.4345
939982	AE1-238 E	100.9546	50/50	100.9546

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940161	AE2-000 C O1	26.4993	Adder	31.18
940162	AE2-000 E O1	67.8026	Adder	79.77
940401	AE2-024 C O1	26.0228	50/50	26.0228
940402	AE2-024 E O1	121.8357	50/50	121.8357
940411	AE2-025 C	13.1363	50/50	13.1363
940412	AE2-025 E	61.4971	50/50	61.4971
940691	AE2-056 C	0.2169	Adder	0.26
940692	AE2-056 E	0.1898	Adder	0.22
940701	AE2-057 C	0.0666	Adder	0.08
940702	AE2-057 E	0.0666	Adder	0.08
940921	AE2-081 C	0.2305	Adder	0.27
940922	AE2-081 E	0.2373	Adder	0.28
940931	AE2-082 C	0.2438	Adder	0.29
940932	AE2-082 E	0.2581	Adder	0.3
943521	AF1-023	1.4176	50/50	1.4176
944332	AF1-101 E O1	66.4736	Adder	78.2
944432	AF1-108 BAT	1.8050	Merchant Transmission	1.8050
944442	AF1-109 BAT	5.2966	50/50	5.2966
944611	AF1-126 C O1	3.4650	Adder	4.08
944612	AF1-126 E O1	13.8601	Adder	16.31
945201	AF1-185 1	0.6211	Adder	0.73
945211	AF1-185 2	0.1380	Adder	0.16
945571	AF1-222 C	23.9575	50/50	23.9575
945572	AF1-222 E	63.1607	50/50	63.1607
945723	AF1-237 BAT	37.9620	50/50	37.9620
945951	AF1-260	0.1364	Adder	0.16
NEWTON	NEWTON	0.2020	Confirmed LTF	0.2020
FARMERCITY	FARMERCITY	0.0105	Confirmed LTF	0.0105
G-007A	G-007A	38.9330	Confirmed LTF	38.9330
NY	NY	0.1488	Confirmed LTF	0.1488
PRAIRIE	PRAIRIE	0.4856	Confirmed LTF	0.4856
O-066	O-066	6.3235	Confirmed LTF	6.3235
COFFEEN	COFFEEN	0.0375	Confirmed LTF	0.0375
CHEOAH	CHEOAH	0.0941	Confirmed LTF	0.0941
EDWARDS	EDWARDS	0.0658	Confirmed LTF	0.0658
TILTON	TILTON	0.1184	Confirmed LTF	0.1184
GIBSON	GIBSON	0.1026	Confirmed LTF	0.1026
CALDERWOOD	CALDERWOOD	0.0934	Confirmed LTF	0.0934
BLUEG	BLUEG	0.3264	Confirmed LTF	0.3264
TRIMBLE	TRIMBLE	0.1046	Confirmed LTF	0.1046
CATAWBA	CATAWBA	0.0658	Confirmed LTF	0.0658

11.7.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704364	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	115.24	147.93	AC	292.15

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206306	28LKWD G1	8.1466	50/50	8.1466
206308	28LKWD G2	8.1466	50/50	8.1466
206312	28LKWD G3	5.9724	50/50	5.9724
206325	28O C GEN (Deactivation : 17/09/2018)	114.1782	50/50	114.1782
206360	28O CRK C1	3.0586	50/50	3.0586
206361	28O CRK C2	2.0469	50/50	2.0469
206366	28LKWD CT1	16.4202	50/50	16.4202
206367	28LKWD CT2	16.4202	50/50	16.4202
206370	LKWD CT3	110.3040	50/50	110.3040
227928	V4-067E	0.1928	Adder	0.23
228102	BLE#2 ST (Deactivation : 30/04/2019)	14.4267	Adder	16.97
901982	W1-119 E	0.4655	Adder	0.55
901992	W1-120E	0.4655	Adder	0.55
902432	W2-030 E	0.6786	Adder	0.8
917612	Z2-102 E	0.6738	Adder	0.79
923293	AB1-138 E	1.9038	Adder	2.24
923463	AB1-163 E	0.6619	Adder	0.78
923791	AB2-014	0.7912	50/50	0.7912
924701	AB2-122 C	0.0833	Adder	0.1
924702	AB2-122 E	0.1428	Adder	0.17
930001	AB1-001 C	0.1265	Adder	0.15
930002	AB1-001 E	0.2079	Adder	0.24
933962	AD1-019 E	0.8800	Adder	1.04
934351	AD1-059	1.4555	50/50	1.4555
938781	AE1-104 C O1	11.6450	Adder	13.7
938782	AE1-104 E O1	29.7935	Adder	35.05
939121	AE1-142 C O1	4.4406	50/50	4.4406
939122	AE1-142 E O1	6.3902	50/50	6.3902
940161	AE2-000 C O1	116.4638	50/50	116.4638
940162	AE2-000 E O1	297.9908	50/50	297.9908
940361	AE2-020 C	13.5177	Adder	15.9
940362	AE2-020 E	63.2910	Adder	74.46
940371	AE2-021 C	13.5177	Adder	15.9
940372	AE2-021 E	63.2910	Adder	74.46
940381	AE2-022 C	7.8853	Adder	9.28
940382	AE2-022 E	36.9197	Adder	43.43
942101	AE2-222 C O1	9.9515	Adder	11.71
942102	AE2-222 E O1	24.9988	Adder	29.41
942381	AE2-251 C	42.8239	Adder	50.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942382	AE2-251 E	109.5743	Adder	128.91
943732	AF1-041 E	0.2825	Adder	0.33
944332	AF1-101 E O1	292.1498	50/50	292.1498
999905	MARINGEN 2	0.4610	Adder	0.54
999906	PVILLEG 2	0.1991	Adder	0.23
NEWTON	NEWTON	0.2203	Confirmed LTF	0.2203
FARMERCITY	FARMERCITY	0.0114	Confirmed LTF	0.0114
NY	NY	0.5707	Confirmed LTF	0.5707
PRAIRIE	PRAIRIE	0.5243	Confirmed LTF	0.5243
O-066	O-066	9.6096	Confirmed LTF	9.6096
COFFEEN	COFFEEN	0.0409	Confirmed LTF	0.0409
CHEOAH	CHEOAH	0.0971	Confirmed LTF	0.0971
EDWARDS	EDWARDS	0.0721	Confirmed LTF	0.0721
TILTON	TILTON	0.1298	Confirmed LTF	0.1298
G-007	G-007	3.1106	Confirmed LTF	3.1106
MADISON	MADISON	0.0040	Confirmed LTF	0.0040
GIBSON	GIBSON	0.1119	Confirmed LTF	0.1119
CALDERWOOD	CALDERWOOD	0.0969	Confirmed LTF	0.0969
BLUEG	BLUEG	0.3559	Confirmed LTF	0.3559
TRIMBLE	TRIMBLE	0.1141	Confirmed LTF	0.1141
CATAWBA	CATAWBA	0.0651	Confirmed LTF	0.0651

11.7.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704607	219104	CLRKSVLL_2	PSE&G	217150	LAWRENCE	PSE&G	1	PS_P7-1_1LINE+2LINE	tower	869.0	98.36	106.79	AC	86.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0713	50/50	0.0713
206271	28MCRC/REC	1.0626	Adder	1.25
206325	28O C GEN (Deactivation : 17/09/2018)	28.6639	Adder	33.72
206350	28RRCT1&2	2.8687	50/50	2.8687
206351	28RRCT3&4	2.6862	50/50	2.6862
206362	28RDOAKCT1	6.0788	50/50	6.0788
206365	28RDOAKST1	8.5243	50/50	8.5243
206368	28MDLSEXCO	0.7120	50/50	0.7120
206370	LKWD CT3	30.0220	Adder	35.32
206403	28W4-009	25.3899	50/50	25.3899
206412	28R11	73.7191	Adder	86.73
206414	28X4-005E	3.9546	50/50	3.9546
206416	28MLH_W1-032	0.0416	50/50	0.0416
207143	28BYD_X4-031	0.3252	Adder	0.38
207152	28NPK_W1-113	0.1326	50/50	0.1326
207162	28APLW2-078	0.1484	50/50	0.1484
207169	28W4-060COL	0.1341	50/50	0.1341
207205	28MAN_W1-024	0.0582	50/50	0.0582
207400	28AA1-060 E	2.4094	Adder	2.83
207419	AB2-139 E	0.0979	50/50	0.0979
207420	AC1-207 C	1.1006	50/50	1.1006
219278	CLARKSP1_C	0.0016	50/50	0.0016
219281	CLARKSP1_E	0.0148	50/50	0.0148
219283	CLARKSP2_C	0.0013	50/50	0.0013
219302	CLARKSP2_E	0.0122	50/50	0.0122
219327	CLARKSP3_C	0.0004	50/50	0.0004
219329	CLARKSP3_E	0.0031	50/50	0.0031
219330	CLARKSP4_C	0.0006	50/50	0.0006
219335	CLARKSP4_E	0.0061	50/50	0.0061
219679	NRGCENTER E	-0.3193	Adder	-0.38
901032	W1-024E OP1	0.5401	50/50	0.5401
901112	W1-032 E OP1	0.3973	50/50	0.3973
901422	W1-113 E	1.2314	50/50	1.2314
901912	W1-112E OP1	0.4117	Adder	0.48
901982	W1-119 E	0.6146	Adder	0.72
901992	W1-120E	0.6146	Adder	0.72
902032	W1-124E	1.7178	Adder	2.02
902082	W1-129E	0.3351	Adder	0.39
902322	W2-019 E	0.3977	Adder	0.47
902912	W2-078 E	1.3794	50/50	1.3794
902952	W2-082 E OP1	1.1433	Adder	1.35

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
903982	W3-079 E	0.6788	Adder	0.8
905252	W4-025 E	0.4757	Adder	0.56
905502	W4-060 E OP1	1.2352	50/50	1.2352
907082	X1-037 E	1.7604	Adder	2.07
907272	X1-085 E	0.4739	Adder	0.56
912102	X4-015 E	0.3361	Adder	0.4
914092	Y2-051 E	0.4813	Adder	0.57
917612	Z2-102 E	0.9064	Adder	1.07
919662	AA2-048 E	1.0799	Adder	1.27
919712	AA2-058 E	-0.1713	Adder	-0.2
919802	AA2-066 E	-0.3193	Adder	-0.38
920732	AA2-184 E	1.9000	Adder	2.24
923293	AB1-138 E	0.8425	Adder	0.99
923463	AB1-163 E	0.6828	Adder	0.8
927132	AC1-207 E	1.8419	50/50	1.8419
934841	AD1-113 (Suspended)	14.8298	50/50	14.8298
937523	AD2-213 BAT	1.8022	Merchant Transmission	1.8022
939121	AE1-142 C O1	1.1390	Adder	1.34
939122	AE1-142 E O1	1.6390	Adder	1.93
939981	AE1-238 C	36.7315	Adder	43.21
939982	AE1-238 E	96.4813	Adder	113.51
940161	AE2-000 C O1	29.2377	Adder	34.4
940162	AE2-000 E O1	74.8092	Adder	88.01
940401	AE2-024 C O1	24.2437	Adder	28.52
940402	AE2-024 E O1	113.5062	Adder	133.54
940411	AE2-025 C	12.2382	Adder	14.4
940412	AE2-025 E	57.2927	Adder	67.4
940691	AE2-056 C	0.2675	Adder	0.31
940692	AE2-056 E	0.2341	Adder	0.28
940701	AE2-057 C	0.1007	50/50	0.1007
940702	AE2-057 E	0.1007	50/50	0.1007
940921	AE2-081 C	0.2842	Adder	0.33
940922	AE2-081 E	0.2926	Adder	0.34
940931	AE2-082 C	0.7623	50/50	0.7623
940932	AE2-082 E	0.8072	50/50	0.8072
943521	AF1-023	1.3759	Adder	1.62
943561	AF1-027	0.2677	Adder	0.31
944332	AF1-101 E O1	73.3429	Adder	86.29
944432	AF1-108 BAT	1.8618	Merchant Transmission	1.8618
944442	AF1-109 BAT	5.4178	50/50	5.4178
944611	AF1-126 C O1	4.2215	Adder	4.97
944612	AF1-126 E O1	16.8861	Adder	19.87
945201	AF1-185 1	0.8898	50/50	0.8898
945211	AF1-185 2	0.1977	50/50	0.1977
945571	AF1-222 C	22.8960	Adder	26.94
945572	AF1-222 E	60.3621	Adder	71.01
945723	AF1-237 BAT	38.8140	Merchant Transmission	38.8140
945951	AF1-260	0.1543	Adder	0.18
NEWTON	NEWTON	0.2579	Confirmed LTF	0.2579
FARMERCITY	FARMERCITY	0.0134	Confirmed LTF	0.0134
G-007A	G-007A	47.4058	Confirmed LTF	47.4058
NY	NY	0.2124	Confirmed LTF	0.2124

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
PRAIRIE	PRAIRIE	0.6199	Confirmed LTF	0.6199
O-066	O-066	7.3315	Confirmed LTF	7.3315
COFFEEN	COFFEEN	0.0479	Confirmed LTF	0.0479
CHEOAH	CHEOAH	0.1196	Confirmed LTF	0.1196
EDWARDS	EDWARDS	0.0840	Confirmed LTF	0.0840
TILTON	TILTON	0.1512	Confirmed LTF	0.1512
GIBSON	GIBSON	0.1310	Confirmed LTF	0.1310
CALDERWOOD	CALDERWOOD	0.1188	Confirmed LTF	0.1188
BLUEG	BLUEG	0.4166	Confirmed LTF	0.4166
TRIMBLE	TRIMBLE	0.1336	Confirmed LTF	0.1336
CATAWBA	CATAWBA	0.0833	Confirmed LTF	0.0833

11.7.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704380	227955	CEDAR	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	54.88	114.67	AC	474.39

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	4.9664	50/50	4.9664
206361	28O CRK C2	3.3237	50/50	3.3237
930001	AB1-001 C	0.1116	50/50	0.1116
930002	AB1-001 E	0.1834	50/50	0.1834
940161	AE2-000 C O1	189.1129	50/50	189.1129
940162	AE2-000 E O1	483.8750	50/50	483.8750
944332	AF1-101 E O1	474.3905	50/50	474.3905
NEWTON	NEWTON	0.0355	Confirmed LTF	0.0355
FARMERCITY	FARMERCITY	0.0018	Confirmed LTF	0.0018
G-007A	G-007A	0.9087	Confirmed LTF	0.9087
VFT	VFT	0.9223	Confirmed LTF	0.9223
PRAIRIE	PRAIRIE	0.0852	Confirmed LTF	0.0852
COFFEEN	COFFEEN	0.0066	Confirmed LTF	0.0066
CHEOAH	CHEOAH	0.0170	Confirmed LTF	0.0170
EDWARDS	EDWARDS	0.0116	Confirmed LTF	0.0116
TILTON	TILTON	0.0208	Confirmed LTF	0.0208
GIBSON	GIBSON	0.0180	Confirmed LTF	0.0180
CALDERWOOD	CALDERWOOD	0.0169	Confirmed LTF	0.0169
BLUEG	BLUEG	0.0573	Confirmed LTF	0.0573
TRIMBLE	TRIMBLE	0.0184	Confirmed LTF	0.0184
CATAWBA	CATAWBA	0.0126	Confirmed LTF	0.0126

11.7.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138102	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P2-3-JCC-230-15F	breaker	813.0	126.3	144.47	AC	173.05

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206271	28MCRC/REC	1.0638	Adder	1.25
206280	28LAKEHURS	0.7862	50/50	0.7862
206306	28LKWD G1	5.2600	50/50	5.2600
206308	28LKWD G2	5.2600	50/50	5.2600
206312	28LKWD G3	3.8562	50/50	3.8562
206325	28O C GEN (Deactivation : 17/09/2018)	57.4883	Adder	67.63
206366	28LKWD CT1	10.6020	50/50	10.6020
206367	28LKWD CT2	10.6020	50/50	10.6020
206370	LKWD CT3	71.2200	50/50	71.2200
206412	28R11	31.3636	Adder	36.9
207143	28BYD_X4-031	0.3463	Adder	0.41
207145	28FRN_Y2-051	0.1059	50/50	0.1059
207148	28MDF_W3-079	0.1486	50/50	0.1486
207400	28AA1-060 E	2.3553	Adder	2.77
207419	AB2-139 E	-0.0275	Adder	-0.03
227928	V4-067E	0.1293	Adder	0.15
228102	BLE#2 ST (Deactivation : 30/04/2019)	9.9766	Adder	11.74
901912	W1-112E OP1	0.3071	Adder	0.36
901982	W1-119 E	1.0542	Adder	1.24
901992	W1-120E	1.0542	Adder	1.24
902032	W1-124E	1.7152	Adder	2.02
902082	W1-129E	0.5533	Adder	0.65
902322	W2-019 E	0.6526	Adder	0.77
902432	W2-030 E	0.4587	Adder	0.54
902952	W2-082 E OP1	1.9006	Adder	2.24
903982	W3-079 E	1.3875	50/50	1.3875
905252	W4-025 E	0.7853	Adder	0.92
905502	W4-060 E OP1	0.4651	Adder	0.55
907082	X1-037 E	1.2827	Adder	1.51
907272	X1-085 E	0.3063	Adder	0.36
912102	X4-015 E	0.5565	Adder	0.65
914092	Y2-051 E	0.9759	50/50	0.9759
917612	Z2-102 E	1.5535	Adder	1.83
919662	AA2-048 E	2.2073	50/50	2.2073
920732	AA2-184 E	1.8530	Adder	2.18
923292	AB1-138 C	0.2007	50/50	0.2007
923293	AB1-138 E	1.8890	50/50	1.8890
923463	AB1-163 E	1.2291	Adder	1.45
923791	AB2-014	0.5109	50/50	0.5109

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924701	AB2-122 C	0.0559	Adder	0.07
924702	AB2-122 E	0.0958	Adder	0.11
930001	AB1-001 C	0.0824	Adder	0.1
930002	AB1-001 E	0.1355	Adder	0.16
933962	AD1-019 E	0.5933	Adder	0.7
934351	AD1-059	0.9397	50/50	0.9397
938781	AE1-104 C O1	8.0529	Adder	9.47
938782	AE1-104 E O1	20.6033	Adder	24.24
939121	AE1-142 C O1	2.6799	50/50	2.6799
939122	AE1-142 E O1	3.8565	50/50	3.8565
939981	AE1-238 C	39.6366	Adder	46.63
939982	AE1-238 E	104.1120	Adder	122.48
940161	AE2-000 C O1	58.6391	Adder	68.99
940162	AE2-000 E O1	150.0374	Adder	176.51
940361	AE2-020 C	8.9877	Adder	10.57
940362	AE2-020 E	42.0810	Adder	49.51
940371	AE2-021 C	8.9877	Adder	10.57
940372	AE2-021 E	42.0810	Adder	49.51
940381	AE2-022 C	5.2428	Adder	6.17
940382	AE2-022 E	24.5473	Adder	28.88
940401	AE2-024 C O1	57.6400	50/50	57.6400
940402	AE2-024 E O1	269.8643	50/50	269.8643
940411	AE2-025 C	29.0966	50/50	29.0966
940412	AE2-025 E	136.2150	50/50	136.2150
940691	AE2-056 C	0.1914	Adder	0.23
940692	AE2-056 E	0.1675	Adder	0.2
940701	AE2-057 C	0.0358	Adder	0.04
940702	AE2-057 E	0.0358	Adder	0.04
940921	AE2-081 C	0.2034	Adder	0.24
940922	AE2-081 E	0.2094	Adder	0.25
942101	AE2-222 C O1	6.7045	Adder	7.89
942102	AE2-222 E O1	16.8422	Adder	19.81
942381	AE2-251 C	28.4728	Adder	33.5
942382	AE2-251 E	72.8540	Adder	85.71
943521	AF1-023	1.3418	Adder	1.58
943561	AF1-027	0.2617	Adder	0.31
943732	AF1-041 E	0.1900	Adder	0.22
944332	AF1-101 E O1	147.0965	Adder	173.05
944611	AF1-126 C O1	8.8647	Adder	10.43
944612	AF1-126 E O1	35.4586	Adder	41.72
945571	AF1-222 C	24.7068	Adder	29.07
945572	AF1-222 E	65.1361	Adder	76.63
945951	AF1-260	0.3153	50/50	0.3153
999905	MARINGEN 2	0.3110	Adder	0.37
999906	PVILLEG 2	0.1341	Adder	0.16
NEWTON	NEWTON	0.3428	Confirmed LTF	0.3428
FARMERCITY	FARMERCITY	0.0178	Confirmed LTF	0.0178
G-007A	G-007A	16.1615	Confirmed LTF	16.1615
NY	NY	0.5563	Confirmed LTF	0.5563
PRAIRIE	PRAIRIE	0.8188	Confirmed LTF	0.8188
O-066	O-066	5.7389	Confirmed LTF	5.7389
COFFEEN	COFFEEN	0.0636	Confirmed LTF	0.0636

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CHEOAH	CHEOAH	0.1537	Confirmed LTF	0.1537
EDWARDS	EDWARDS	0.1123	Confirmed LTF	0.1123
TILTON	TILTON	0.2022	Confirmed LTF	0.2022
MADISON	MADISON	0.0060	Confirmed LTF	0.0060
GIBSON	GIBSON	0.1742	Confirmed LTF	0.1742
CALDERWOOD	CALDERWOOD	0.1526	Confirmed LTF	0.1526
BLUEG	BLUEG	0.5538	Confirmed LTF	0.5538
TRIMBLE	TRIMBLE	0.1775	Confirmed LTF	0.1775
CATAWBA	CATAWBA	0.1040	Confirmed LTF	0.1040

11.7.10 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138107	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-15G	breaker	817.0	125.68	143.77	AC	173.05

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206271	28MCRC/REC	1.0638	Adder	1.25
206280	28LAKEHURS	0.7862	50/50	0.7862
206306	28LKWD G1	5.2600	50/50	5.2600
206308	28LKWD G2	5.2600	50/50	5.2600
206312	28LKWD G3	3.8562	50/50	3.8562
206325	280 C GEN (Deactivation : 17/09/2018)	57.4883	Adder	67.63
206366	28LKWD CT1	10.6020	50/50	10.6020
206367	28LKWD CT2	10.6020	50/50	10.6020
206370	LKWD CT3	71.2200	50/50	71.2200
206412	28R11	31.3636	Adder	36.9
207143	28BYD_X4-031	0.3463	Adder	0.41
207145	28FRN_Y2-051	0.1059	50/50	0.1059
207148	28MDF_W3-079	0.1486	50/50	0.1486
207400	28AA1-060 E	2.3553	Adder	2.77
207419	AB2-139 E	-0.0275	Adder	-0.03
227928	V4-067E	0.1293	Adder	0.15
228102	BLE#2 ST (Deactivation : 30/04/2019)	9.9766	Adder	11.74
901912	W1-112E OP1	0.3071	Adder	0.36
901982	W1-119 E	1.0542	Adder	1.24
901992	W1-120E	1.0542	Adder	1.24
902032	W1-124E	1.7152	Adder	2.02
902082	W1-129E	0.5533	Adder	0.65
902322	W2-019 E	0.6526	Adder	0.77
902432	W2-030 E	0.4587	Adder	0.54
902952	W2-082 E OP1	1.9006	Adder	2.24
903982	W3-079 E	1.3875	50/50	1.3875
905252	W4-025 E	0.7853	Adder	0.92
905502	W4-060 E OP1	0.4651	Adder	0.55
907082	X1-037 E	1.2827	Adder	1.51
907272	X1-085 E	0.3063	Adder	0.36
912102	X4-015 E	0.5565	Adder	0.65
914092	Y2-051 E	0.9759	50/50	0.9759
917612	Z2-102 E	1.5535	Adder	1.83
919662	AA2-048 E	2.2073	50/50	2.2073
920732	AA2-184 E	1.8530	Adder	2.18
923292	AB1-138 C	0.2007	50/50	0.2007
923293	AB1-138 E	1.8890	50/50	1.8890
923463	AB1-163 E	1.2291	Adder	1.45
923791	AB2-014	0.5109	50/50	0.5109

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924701	AB2-122 C	0.0559	Adder	0.07
924702	AB2-122 E	0.0958	Adder	0.11
930001	AB1-001 C	0.0824	Adder	0.1
930002	AB1-001 E	0.1355	Adder	0.16
933962	AD1-019 E	0.5933	Adder	0.7
934351	AD1-059	0.9397	50/50	0.9397
938781	AE1-104 C O1	8.0529	Adder	9.47
938782	AE1-104 E O1	20.6033	Adder	24.24
939121	AE1-142 C O1	2.6799	50/50	2.6799
939122	AE1-142 E O1	3.8565	50/50	3.8565
939981	AE1-238 C	39.6366	Adder	46.63
939982	AE1-238 E	104.1120	Adder	122.48
940161	AE2-000 C O1	58.6391	Adder	68.99
940162	AE2-000 E O1	150.0374	Adder	176.51
940361	AE2-020 C	8.9877	Adder	10.57
940362	AE2-020 E	42.0810	Adder	49.51
940371	AE2-021 C	8.9877	Adder	10.57
940372	AE2-021 E	42.0810	Adder	49.51
940381	AE2-022 C	5.2428	Adder	6.17
940382	AE2-022 E	24.5473	Adder	28.88
940401	AE2-024 C O1	57.6400	50/50	57.6400
940402	AE2-024 E O1	269.8643	50/50	269.8643
940411	AE2-025 C	29.0966	50/50	29.0966
940412	AE2-025 E	136.2150	50/50	136.2150
940691	AE2-056 C	0.1914	Adder	0.23
940692	AE2-056 E	0.1675	Adder	0.2
940701	AE2-057 C	0.0358	Adder	0.04
940702	AE2-057 E	0.0358	Adder	0.04
940921	AE2-081 C	0.2034	Adder	0.24
940922	AE2-081 E	0.2094	Adder	0.25
942101	AE2-222 C O1	6.7045	Adder	7.89
942102	AE2-222 E O1	16.8422	Adder	19.81
942381	AE2-251 C	28.4728	Adder	33.5
942382	AE2-251 E	72.8540	Adder	85.71
943521	AF1-023	1.3418	Adder	1.58
943561	AF1-027	0.2617	Adder	0.31
943732	AF1-041 E	0.1900	Adder	0.22
944332	AF1-101 E O1	147.0965	Adder	173.05
944611	AF1-126 C O1	8.8647	Adder	10.43
944612	AF1-126 E O1	35.4586	Adder	41.72
945571	AF1-222 C	24.7068	Adder	29.07
945572	AF1-222 E	65.1361	Adder	76.63
945951	AF1-260	0.3153	50/50	0.3153
999905	MARINGEN 2	0.3110	Adder	0.37
999906	PVILLEG 2	0.1341	Adder	0.16
NEWTON	NEWTON	0.3428	Confirmed LTF	0.3428
FARMERCITY	FARMERCITY	0.0178	Confirmed LTF	0.0178
G-007A	G-007A	16.1615	Confirmed LTF	16.1615
NY	NY	0.5563	Confirmed LTF	0.5563
PRAIRIE	PRAIRIE	0.8188	Confirmed LTF	0.8188
O-066	O-066	5.7389	Confirmed LTF	5.7389
COFFEEN	COFFEEN	0.0636	Confirmed LTF	0.0636

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CHEOAH	CHEOAH	0.1537	Confirmed LTF	0.1537
EDWARDS	EDWARDS	0.1123	Confirmed LTF	0.1123
TILTON	TILTON	0.2022	Confirmed LTF	0.2022
MADISON	MADISON	0.0060	Confirmed LTF	0.0060
GIBSON	GIBSON	0.1742	Confirmed LTF	0.1742
CALDERWOOD	CALDERWOOD	0.1526	Confirmed LTF	0.1526
BLUEG	BLUEG	0.5538	Confirmed LTF	0.5538
TRIMBLE	TRIMBLE	0.1775	Confirmed LTF	0.1775
CATAWBA	CATAWBA	0.1040	Confirmed LTF	0.1040

11.7.11 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704349	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	141.74	178.11	AC	292.01

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206306	28LKWD G1	8.2085	50/50	8.2085
206308	28LKWD G2	8.2085	50/50	8.2085
206312	28LKWD G3	6.0178	50/50	6.0178
206325	28O C GEN (Deactivation : 17/09/2018)	114.1242	50/50	114.1242
206360	28O CRK C1	3.0571	50/50	3.0571
206361	28O CRK C2	2.0459	50/50	2.0459
206366	28LKWD CT1	16.5450	50/50	16.5450
206367	28LKWD CT2	16.5450	50/50	16.5450
206370	LKWD CT3	111.1420	50/50	111.1420
227928	V4-067E	0.1925	Adder	0.23
228102	BLE#2 ST (Deactivation : 30/04/2019)	14.4037	Adder	16.95
902432	W2-030 E	0.6776	Adder	0.8
923293	AB1-138 E	0.7362	Adder	0.87
923791	AB2-014	0.7972	50/50	0.7972
924701	AB2-122 C	0.0832	Adder	0.1
924702	AB2-122 E	0.1426	Adder	0.17
930001	AB1-001 C	0.1486	50/50	0.1486
930002	AB1-001 E	0.2443	50/50	0.2443
933962	AD1-019 E	0.8788	Adder	1.03
934351	AD1-059	1.4665	50/50	1.4665
938781	AE1-104 C O1	11.6264	Adder	13.68
938782	AE1-104 E O1	29.7460	Adder	35.0
939121	AE1-142 C O1	3.9321	50/50	3.9321
939122	AE1-142 E O1	5.6583	50/50	5.6583
940161	AE2-000 C O1	116.4087	50/50	116.4087
940162	AE2-000 E O1	297.8500	50/50	297.8500
940361	AE2-020 C	15.8830	50/50	15.8830
940362	AE2-020 E	74.3653	50/50	74.3653
940371	AE2-021 C	15.8830	50/50	15.8830
940372	AE2-021 E	74.3653	50/50	74.3653
940381	AE2-022 C	9.2651	50/50	9.2651
940382	AE2-022 E	43.3797	50/50	43.3797
942101	AE2-222 C O1	9.9377	Adder	11.69
942102	AE2-222 E O1	24.9641	Adder	29.37
942381	AE2-251 C	50.3170	50/50	50.3170
942382	AE2-251 E	128.7470	50/50	128.7470
943732	AF1-041 E	0.2821	Adder	0.33
944332	AF1-101 E O1	292.0118	50/50	292.0118
999905	MARINGEN 2	0.4604	Adder	0.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
999906	PVILLEG 2	0.1988	Adder	0.23
NEWTON	NEWTON	0.2181	Confirmed LTF	0.2181
FARMERCITY	FARMERCITY	0.0113	Confirmed LTF	0.0113
NY	NY	0.5641	Confirmed LTF	0.5641
PRAIRIE	PRAIRIE	0.5192	Confirmed LTF	0.5192
O-066	O-066	9.5088	Confirmed LTF	9.5088
COFFEEN	COFFEEN	0.0405	Confirmed LTF	0.0405
CHEOAH	CHEOAH	0.0961	Confirmed LTF	0.0961
EDWARDS	EDWARDS	0.0714	Confirmed LTF	0.0714
TILTON	TILTON	0.1285	Confirmed LTF	0.1285
G-007	G-007	3.0784	Confirmed LTF	3.0784
MADISON	MADISON	0.0040	Confirmed LTF	0.0040
GIBSON	GIBSON	0.1108	Confirmed LTF	0.1108
CALDERWOOD	CALDERWOOD	0.0959	Confirmed LTF	0.0959
BLUEG	BLUEG	0.3524	Confirmed LTF	0.3524
TRIMBLE	TRIMBLE	0.1130	Confirmed LTF	0.1130
CATAWBA	CATAWBA	0.0644	Confirmed LTF	0.0644

11.7.12 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41522295	206305	28RAR RVR	JCP&L	218332	KILMER_W	PSE&G	1	PS_P2-3_LNEPS_P1-2_1_LT	breaker	817.0	121.92	129.01	AC	66.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206271	28MCRC/REC	1.1332	Adder	1.33
206325	28O C GEN (Deactivation : 17/09/2018)	22.1137	Adder	26.02
206329	28S RIV G3	6.1534	50/50	6.1534
206350	28RRCT1&2	5.4961	50/50	5.4961
206351	28RRCT3&4	5.1464	50/50	5.1464
206362	28RDOAKCT1	11.0885	50/50	11.0885
206363	28RDOAKCT2	11.0648	50/50	11.0648
206364	28RDOAKCT3	11.0648	50/50	11.0648
206365	28RDOAKST1	15.5494	50/50	15.5494
206370	LKWD CT3	22.7630	Adder	26.78
206403	28W4-009	48.6443	50/50	48.6443
206412	28R11	132.5905	Adder	155.99
206414	28X4-005E	7.5766	50/50	7.5766
207143	28BYD_X4-031	0.3133	Adder	0.37
207400	28AA1-060 E	1.4939	Adder	1.76
207419	AB2-139 E	0.0524	Adder	0.06
207420	AC1-207 C	0.6668	Adder	0.78
901032	W1-024E OP1	0.2947	Adder	0.35
901112	W1-032 E OP1	0.1784	Adder	0.21
901422	W1-113 E	0.6023	Adder	0.71
901912	W1-112E OP1	0.5187	Adder	0.61
901982	W1-119 E	0.4680	Adder	0.55
901992	W1-120E	0.4680	Adder	0.55
902032	W1-124E	1.8365	Adder	2.16
902082	W1-129E	0.2546	Adder	0.3
902322	W2-019 E	0.3020	Adder	0.36
902912	W2-078 E	0.6744	Adder	0.79
902952	W2-082 E OP1	0.8689	Adder	1.02
903982	W3-079 E	0.5518	Adder	0.65
905252	W4-025 E	0.3614	Adder	0.43
905502	W4-060 E OP1	1.4928	Adder	1.76
907082	X1-037 E	1.5482	Adder	1.82
907272	X1-085 E	0.2607	Adder	0.31
912102	X4-015 E	0.2554	Adder	0.3
914092	Y2-051 E	0.3833	Adder	0.45
917612	Z2-102 E	0.6902	Adder	0.81
919662	AA2-048 E	0.8778	Adder	1.03
920732	AA2-184 E	2.0445	Adder	2.41
923293	AB1-138 E	0.6512	Adder	0.77
923463	AB1-163 E	0.5335	Adder	0.63
927132	AC1-207 E	1.1158	Adder	1.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934841	AD1-113 (Suspended)	28.4122	50/50	28.4122
937513	AD2-210 BAT (Suspended)	0.1766	Merchant Transmission	0.1766
939121	AE1-142 C O1	0.8725	Adder	1.03
939122	AE1-142 E O1	1.2556	Adder	1.48
939981	AE1-238 C	38.2940	Adder	45.05
939982	AE1-238 E	100.5855	Adder	118.34
940161	AE2-000 C O1	22.5564	Adder	26.54
940162	AE2-000 E O1	57.7140	Adder	67.9
940401	AE2-024 C O1	18.2942	Adder	21.52
940402	AE2-024 E O1	85.6517	Adder	100.77
940411	AE2-025 C	9.2349	Adder	10.86
940412	AE2-025 E	43.2330	Adder	50.86
940691	AE2-056 C	0.2344	Adder	0.28
940692	AE2-056 E	0.2051	Adder	0.24
940701	AE2-057 C	0.0735	Adder	0.09
940702	AE2-057 E	0.0735	Adder	0.09
940921	AE2-081 C	0.2491	Adder	0.29
940922	AE2-081 E	0.2564	Adder	0.3
940931	AE2-082 C	0.4347	Adder	0.51
940932	AE2-082 E	0.4603	Adder	0.54
943521	AF1-023	1.4805	Adder	1.74
943561	AF1-027	0.1660	Adder	0.2
944332	AF1-101 E O1	56.5827	Adder	66.57
944611	AF1-126 C O1	3.6525	Adder	4.3
944612	AF1-126 E O1	14.6098	Adder	17.19
945201	AF1-185 1	1.7047	50/50	1.7047
945211	AF1-185 2	0.3788	50/50	0.3788
945571	AF1-222 C	23.8699	Adder	28.08
945572	AF1-222 E	62.9298	Adder	74.04
945951	AF1-260	0.1254	Adder	0.15
NEWTON	NEWTON	0.4169	Confirmed LTF	0.4169
FARMERCITY	FARMERCITY	0.0216	Confirmed LTF	0.0216
G-007A	G-007A	90.8245	Confirmed LTF	90.8245
NY	NY	1.7895	Confirmed LTF	1.7895
PRAIRIE	PRAIRIE	0.9919	Confirmed LTF	0.9919
O-066	O-066	41.6438	Confirmed LTF	41.6438
COFFEEN	COFFEEN	0.0774	Confirmed LTF	0.0774
CHEOAH	CHEOAH	0.1827	Confirmed LTF	0.1827
EDWARDS	EDWARDS	0.1368	Confirmed LTF	0.1368
TILTON	TILTON	0.2463	Confirmed LTF	0.2463
MADISON	MADISON	0.0121	Confirmed LTF	0.0121
GIBSON	GIBSON	0.2124	Confirmed LTF	0.2124
CALDERWOOD	CALDERWOOD	0.1819	Confirmed LTF	0.1819
BLUEG	BLUEG	0.6736	Confirmed LTF	0.6736
TRIMBLE	TRIMBLE	0.2165	Confirmed LTF	0.2165
CATAWBA	CATAWBA	0.1215	Confirmed LTF	0.1215

11.7.13 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138092	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	153.45	162.21	AC	89.79

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0656	50/50	0.0656
206271	28MCRC/REC	1.8971	50/50	1.8971
206325	28O C GEN (Deactivation : 17/09/2018)	29.8295	Adder	35.09
206327	28S RIV G1	7.9615	50/50	7.9615
206328	28S RIV G2	7.9615	50/50	7.9615
206329	28S RIV G3	10.6406	50/50	10.6406
206358	28PARLN1&2	4.8084	50/50	4.8084
206359	28PARLN3&4	5.8128	50/50	5.8128
206363	28RDOAKCT2	19.4644	50/50	19.4644
206364	28RDOAKCT3	19.4644	50/50	19.4644
206366	28LKWD CT1	5.3948	50/50	5.3948
206367	28LKWD CT2	5.3948	50/50	5.3948
206370	LKWD CT3	30.8040	Adder	36.24
206412	28R11	269.7376	50/50	269.7376
207143	28BYD_X4-031	0.4965	50/50	0.4965
207144	28HOW_X1-037	0.2330	50/50	0.2330
207145	28FRN_Y2-051	0.0662	50/50	0.0662
207148	28MDF_W3-079	0.0944	50/50	0.0944
207204	28HOL_W1-112	0.0820	50/50	0.0820
207206	28TIN_W1-124	0.3339	50/50	0.3339
207400	28AA1-060 E	1.6342	Adder	1.92
901032	W1-024E OP1	0.1991	Adder	0.23
901112	W1-032 E OP1	0.1689	Adder	0.2
901912	W1-112E OP1	0.7551	50/50	0.7551
901982	W1-119 E	0.5986	Adder	0.7
901992	W1-120E	0.5986	Adder	0.7
902032	W1-124E	3.0927	50/50	3.0927
902082	W1-129E	0.3216	Adder	0.38
902322	W2-019 E	0.3807	Adder	0.45
902952	W2-082 E OP1	1.1000	Adder	1.29
903982	W3-079 E	0.8815	50/50	0.8815
905252	W4-025 E	0.4564	Adder	0.54
907082	X1-037 E	2.1464	50/50	2.1464
907272	X1-085 E	0.2553	Adder	0.3
912102	X4-015 E	0.3229	Adder	0.38
914092	Y2-051 E	0.6101	50/50	0.6101
917612	Z2-102 E	0.8827	Adder	1.04
919662	AA2-048 E	1.4025	50/50	1.4025
920732	AA2-184 E	3.4247	50/50	3.4247
923293	AB1-138 E	0.8749	Adder	1.03
923463	AB1-163 E	0.7101	Adder	0.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939121	AE1-142 C O1	1.1778	Adder	1.39
939122	AE1-142 E O1	1.6949	Adder	1.99
939981	AE1-238 C	67.0455	50/50	67.0455
939982	AE1-238 E	176.1062	50/50	176.1062
940161	AE2-000 C O1	30.4266	Adder	35.8
940162	AE2-000 E O1	77.8513	Adder	91.59
940401	AE2-024 C O1	29.1506	50/50	29.1506
940402	AE2-024 E O1	136.4801	50/50	136.4801
940411	AE2-025 C	14.7152	50/50	14.7152
940412	AE2-025 E	68.8889	50/50	68.8889
940691	AE2-056 C	0.3230	50/50	0.3230
940692	AE2-056 E	0.2826	50/50	0.2826
940701	AE2-057 C	0.0926	50/50	0.0926
940702	AE2-057 E	0.0926	50/50	0.0926
940921	AE2-081 C	0.3432	50/50	0.3432
940922	AE2-081 E	0.3533	50/50	0.3533
943521	AF1-023	2.4799	50/50	2.4799
943561	AF1-027	0.1816	Adder	0.21
944332	AF1-101 E O1	76.3253	Adder	89.79
944611	AF1-126 C O1	4.8454	Adder	5.7
944612	AF1-126 E O1	19.3817	Adder	22.8
945201	AF1-185 1	-1.0984	Adder	-1.29
945211	AF1-185 2	-0.2441	Adder	-0.29
945571	AF1-222 C	41.7917	50/50	41.7917
945572	AF1-222 E	110.1781	50/50	110.1781
945951	AF1-260	0.2004	50/50	0.2004
NEWTON	NEWTON	0.2772	Confirmed LTF	0.2772
FARMERCITY	FARMERCITY	0.0143	Confirmed LTF	0.0143
NY	NY	1.5412	Confirmed LTF	1.5412
PRAIRIE	PRAIRIE	0.6587	Confirmed LTF	0.6587
O-066	O-066	33.6941	Confirmed LTF	33.6941
COFFEEN	COFFEEN	0.0517	Confirmed LTF	0.0517
CHEOAH	CHEOAH	0.1176	Confirmed LTF	0.1176
EDWARDS	EDWARDS	0.0917	Confirmed LTF	0.0917
TILTON	TILTON	0.1644	Confirmed LTF	0.1644
G-007	G-007	29.8657	Confirmed LTF	29.8657
MADISON	MADISON	0.0101	Confirmed LTF	0.0101
GIBSON	GIBSON	0.1414	Confirmed LTF	0.1414
CALDERWOOD	CALDERWOOD	0.1173	Confirmed LTF	0.1173
BLUEG	BLUEG	0.4496	Confirmed LTF	0.4496
TRIMBLE	TRIMBLE	0.1441	Confirmed LTF	0.1441
CATAWBA	CATAWBA	0.0756	Confirmed LTF	0.0756

11.7.14 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138087	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	157.15	165.87	AC	89.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0655	50/50	0.0655
206271	28MCRC/REC	1.8910	50/50	1.8910
206325	28O C GEN (Deactivation : 17/09/2018)	29.6728	Adder	34.91
206327	28S RIV G1	7.7962	50/50	7.7962
206328	28S RIV G2	7.7962	50/50	7.7962
206329	28S RIV G3	10.4196	50/50	10.4196
206358	28PARLN1&2	4.8745	50/50	4.8745
206359	28PARLN3&4	5.8926	50/50	5.8926
206362	28RDOAKCT1	19.5060	50/50	19.5060
206365	28RDOAKST1	27.3533	50/50	27.3533
206366	28LKWD CT1	5.3674	50/50	5.3674
206367	28LKWD CT2	5.3674	50/50	5.3674
206370	LKWD CT3	30.6476	Adder	36.06
206412	28R11	264.1364	50/50	264.1364
207143	28BYD_X4-031	0.4948	50/50	0.4948
207144	28HOW_X1-037	0.2324	50/50	0.2324
207145	28FRN_Y2-051	0.0659	50/50	0.0659
207148	28MDF_W3-079	0.0940	50/50	0.0940
207204	28HOL_W1-112	0.0821	50/50	0.0821
207206	28TIN_W1-124	0.3327	50/50	0.3327
207400	28AA1-060 E	1.6247	Adder	1.91
901032	W1-024E OP1	0.1981	Adder	0.23
901112	W1-032 E OP1	0.1679	Adder	0.2
901912	W1-112E OP1	0.7567	50/50	0.7567
901982	W1-119 E	0.5953	Adder	0.7
901992	W1-120E	0.5953	Adder	0.7
902032	W1-124E	3.0823	50/50	3.0823
902082	W1-129E	0.3198	Adder	0.38
902322	W2-019 E	0.3785	Adder	0.45
902952	W2-082 E OP1	1.0938	Adder	1.29
903982	W3-079 E	0.8775	50/50	0.8775
905252	W4-025 E	0.4538	Adder	0.53
907082	X1-037 E	2.1407	50/50	2.1407
907272	X1-085 E	0.2538	Adder	0.3
912102	X4-015 E	0.3211	Adder	0.38
914092	Y2-051 E	0.6073	50/50	0.6073
917612	Z2-102 E	0.8778	Adder	1.03
919662	AA2-048 E	1.3960	50/50	1.3960
920732	AA2-184 E	3.4139	50/50	3.4139
923293	AB1-138 E	0.8704	Adder	1.02
923463	AB1-163 E	0.7065	Adder	0.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939121	AE1-142 C O1	1.1717	Adder	1.38
939122	AE1-142 E O1	1.6860	Adder	1.98
939981	AE1-238 C	66.7305	50/50	66.7305
939982	AE1-238 E	175.2788	50/50	175.2788
940161	AE2-000 C O1	30.2668	Adder	35.61
940162	AE2-000 E O1	77.4423	Adder	91.11
940401	AE2-024 C O1	29.0032	50/50	29.0032
940402	AE2-024 E O1	135.7897	50/50	135.7897
940411	AE2-025 C	14.6408	50/50	14.6408
940412	AE2-025 E	68.5404	50/50	68.5404
940691	AE2-056 C	0.3221	50/50	0.3221
940692	AE2-056 E	0.2819	50/50	0.2819
940701	AE2-057 C	0.0924	50/50	0.0924
940702	AE2-057 E	0.0924	50/50	0.0924
940921	AE2-081 C	0.3423	50/50	0.3423
940922	AE2-081 E	0.3523	50/50	0.3523
943521	AF1-023	2.4721	50/50	2.4721
943561	AF1-027	0.1805	Adder	0.21
944332	AF1-101 E O1	75.9244	Adder	89.32
944611	AF1-126 C O1	4.8169	Adder	5.67
944612	AF1-126 E O1	19.2678	Adder	22.67
945201	AF1-185 1	-1.0951	Adder	-1.29
945211	AF1-185 2	-0.2434	Adder	-0.29
945571	AF1-222 C	41.5953	50/50	41.5953
945572	AF1-222 E	109.6605	50/50	109.6605
945951	AF1-260	0.1994	50/50	0.1994
NEWTON	NEWTON	0.3009	Confirmed LTF	0.3009
FARMERCITY	FARMERCITY	0.0156	Confirmed LTF	0.0156
NY	NY	1.5478	Confirmed LTF	1.5478
PRAIRIE	PRAIRIE	0.7155	Confirmed LTF	0.7155
O-066	O-066	33.7210	Confirmed LTF	33.7210
COFFEEN	COFFEEN	0.0559	Confirmed LTF	0.0559
CHEOAH	CHEOAH	0.1286	Confirmed LTF	0.1286
EDWARDS	EDWARDS	0.0994	Confirmed LTF	0.0994
TILTON	TILTON	0.1783	Confirmed LTF	0.1783
G-007	G-007	29.7762	Confirmed LTF	29.7762
MADISON	MADISON	0.0101	Confirmed LTF	0.0101
GIBSON	GIBSON	0.1534	Confirmed LTF	0.1534
CALDERWOOD	CALDERWOOD	0.1282	Confirmed LTF	0.1282
BLUEG	BLUEG	0.4878	Confirmed LTF	0.4878
TRIMBLE	TRIMBLE	0.1564	Confirmed LTF	0.1564
CATAWBA	CATAWBA	0.0833	Confirmed LTF	0.0833

11.7.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704374	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	118.92	136.71	AC	213.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206306	28LKWD G1	5.8826	50/50	5.8826
206308	28LKWD G2	5.8826	50/50	5.8826
206312	28LKWD G3	4.3127	50/50	4.3127
206325	28O C GEN (Deactivation : 17/09/2018)	71.0359	Adder	83.57
206360	28O CRK C1	2.2387	50/50	2.2387
206366	28LKWD CT1	11.8570	50/50	11.8570
206367	28LKWD CT2	11.8570	50/50	11.8570
206370	LKWD CT3	79.6500	50/50	79.6500
206414	28X4-005E	-1.6065	Adder	-1.89
207400	28AA1-060 E	3.7679	Adder	4.43
207419	AB2-139 E	-0.0347	Adder	-0.04
207420	AC1-207 C	-0.4290	Adder	-0.5
218661	EHAMPSOLAR E	0.1815	Adder	0.21
219273	CLEANLIGHT E	0.1555	Adder	0.18
219288	REEVES ST E	0.8179	Adder	0.96
219292	REEVESSO E	0.0611	Adder	0.07
219582	COXSCOSP1_E	0.0072	Adder	0.01
219614	COXSCOSP2_E	0.0072	Adder	0.01
219652	LUMB23SP1_E	0.0250	Adder	0.03
219656	LUMB23SP2_E	0.0249	Adder	0.03
219687	LUMSOLAR_N E	0.2518	Adder	0.3
219689	LUMSOLAR_S E	0.1792	Adder	0.21
227928	V4-067E	0.1837	Adder	0.22
228102	BLE#2 ST (Deactivation : 30/04/2019)	14.6594	Adder	17.25
901982	W1-119 E	1.5726	Adder	1.85
901992	W1-120E	1.5726	Adder	1.85
902082	W1-129E	0.8530	Adder	1.0
902322	W2-019 E	1.0112	Adder	1.19
902432	W2-030 E	0.6565	Adder	0.77
902952	W2-082 E OP1	2.9127	Adder	3.43
905252	W4-025 E	1.2107	Adder	1.42
907272	X1-085 E	0.5085	Adder	0.6
912102	X4-015 E	0.8559	Adder	1.01
917612	Z2-102 E	2.3193	Adder	2.73
923293	AB1-138 E	1.3888	Adder	1.63
923463	AB1-163 E	0.7019	Adder	0.83
923791	AB2-014	0.5713	50/50	0.5713
924701	AB2-122 C	0.0794	Adder	0.09
924702	AB2-122 E	0.1361	Adder	0.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
930001	AB1-001 C	0.1136	Adder	0.13
930002	AB1-001 E	0.1867	Adder	0.22
932361	AC2-050 C O1	0.3366	Adder	0.4
932362	AC2-050 E O1	0.5492	Adder	0.65
933962	AD1-019 E	0.8461	Adder	1.0
934351	AD1-059	1.0510	50/50	1.0510
938781	AE1-104 C O1	11.8328	Adder	13.92
938782	AE1-104 E O1	30.2740	Adder	35.62
939121	AE1-142 C O1	3.2247	50/50	3.2247
939122	AE1-142 E O1	4.6405	50/50	4.6405
940161	AE2-000 C O1	72.4579	Adder	85.24
940162	AE2-000 E O1	185.3949	Adder	218.11
940361	AE2-020 C	12.6437	Adder	14.87
940362	AE2-020 E	59.1989	Adder	69.65
940371	AE2-021 C	12.6437	Adder	14.87
940372	AE2-021 E	59.1989	Adder	69.65
940381	AE2-022 C	7.3755	Adder	8.68
940382	AE2-022 E	34.5327	Adder	40.63
940691	AE2-056 C	-0.1561	Adder	-0.18
940701	AE2-057 C	-0.0493	Adder	-0.06
940921	AE2-081 C	-0.1658	Adder	-0.2
942101	AE2-222 C O1	9.5529	Adder	11.24
942102	AE2-222 E O1	23.9974	Adder	28.23
942381	AE2-251 C	40.0551	Adder	47.12
942382	AE2-251 E	102.4899	Adder	120.58
943561	AF1-027	0.4187	Adder	0.49
943732	AF1-041 E	0.2703	Adder	0.32
944332	AF1-101 E O1	181.7609	Adder	213.84
944611	AF1-126 C O1	19.9150	50/50	19.9150
944612	AF1-126 E O1	79.6600	50/50	79.6600
945201	AF1-185 1	-0.3615	Adder	-0.43
945211	AF1-185 2	-0.0803	Adder	-0.09
999905	MARINGEN 2	0.4438	Adder	0.52
999906	PVILLEG 2	0.1909	Adder	0.22
NEWTON	NEWTON	0.1558	Confirmed LTF	0.1558
FARMERCITY	FARMERCITY	0.0080	Confirmed LTF	0.0080
NY	NY	1.4489	Confirmed LTF	1.4489
PRAIRIE	PRAIRIE	0.3642	Confirmed LTF	0.3642
O-066	O-066	25.9190	Confirmed LTF	25.9190
COFFEEN	COFFEEN	0.0289	Confirmed LTF	0.0289
CHEOAH	CHEOAH	0.0576	Confirmed LTF	0.0576
EDWARDS	EDWARDS	0.0525	Confirmed LTF	0.0525
TILTON	TILTON	0.0939	Confirmed LTF	0.0939
G-007	G-007	9.8280	Confirmed LTF	9.8280
MADISON	MADISON	0.0161	Confirmed LTF	0.0161
GIBSON	GIBSON	0.0797	Confirmed LTF	0.0797
CALDERWOOD	CALDERWOOD	0.0577	Confirmed LTF	0.0577
BLUEG	BLUEG	0.2535	Confirmed LTF	0.2535
TRIMBLE	TRIMBLE	0.0818	Confirmed LTF	0.0818
CATAWBA	CATAWBA	0.0319	Confirmed LTF	0.0319

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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
42704361	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	116.76	149.46	AC	292.15

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206306	28LKWD G1	8.1466	50/50	8.1466
206308	28LKWD G2	8.1466	50/50	8.1466
206312	28LKWD G3	5.9724	50/50	5.9724
206325	28O C GEN (Deactivation : 17/09/2018)	114.1782	50/50	114.1782
206360	28O CRK C1	3.0586	50/50	3.0586
206361	28O CRK C2	2.0469	50/50	2.0469
206366	28LKWD CT1	16.4202	50/50	16.4202
206367	28LKWD CT2	16.4202	50/50	16.4202
206370	LKWD CT3	110.3040	50/50	110.3040
227928	V4-067E	0.1928	Adder	0.23
228102	BLE#2 ST (Deactivation : 30/04/2019)	14.4267	Adder	16.97
901982	W1-119 E	0.4655	Adder	0.55
901992	W1-120E	0.4655	Adder	0.55
902432	W2-030 E	0.6786	Adder	0.8
917612	Z2-102 E	0.6738	Adder	0.79
923293	AB1-138 E	1.9038	Adder	2.24
923463	AB1-163 E	0.6619	Adder	0.78
923791	AB2-014	0.7912	50/50	0.7912
924701	AB2-122 C	0.0833	Adder	0.1
924702	AB2-122 E	0.1428	Adder	0.17
930001	AB1-001 C	0.1265	Adder	0.15
930002	AB1-001 E	0.2079	Adder	0.24
933962	AD1-019 E	0.8800	Adder	1.04
934351	AD1-059	1.4555	50/50	1.4555
938781	AE1-104 C O1	11.6450	Adder	13.7
938782	AE1-104 E O1	29.7935	Adder	35.05
939121	AE1-142 C O1	4.4406	50/50	4.4406
939122	AE1-142 E O1	6.3902	50/50	6.3902
940161	AE2-000 C O1	116.4638	50/50	116.4638
940162	AE2-000 E O1	297.9908	50/50	297.9908
940361	AE2-020 C	13.5177	Adder	15.9
940362	AE2-020 E	63.2910	Adder	74.46
940371	AE2-021 C	13.5177	Adder	15.9
940372	AE2-021 E	63.2910	Adder	74.46
940381	AE2-022 C	7.8853	Adder	9.28
940382	AE2-022 E	36.9197	Adder	43.43
942101	AE2-222 C O1	9.9515	Adder	11.71
942102	AE2-222 E O1	24.9988	Adder	29.41
942381	AE2-251 C	42.8239	Adder	50.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942382	AE2-251 E	109.5743	Adder	128.91
943732	AF1-041 E	0.2825	Adder	0.33
944332	AF1-101 E O1	292.1498	50/50	292.1498
999905	MARINGEN 2	0.4610	Adder	0.54
999906	PVILLEG 2	0.1991	Adder	0.23
NEWTON	NEWTON	0.2203	Confirmed LTF	0.2203
FARMERCITY	FARMERCITY	0.0114	Confirmed LTF	0.0114
NY	NY	0.5707	Confirmed LTF	0.5707
PRAIRIE	PRAIRIE	0.5243	Confirmed LTF	0.5243
O-066	O-066	9.6096	Confirmed LTF	9.6096
COFFEEN	COFFEEN	0.0409	Confirmed LTF	0.0409
CHEOAH	CHEOAH	0.0971	Confirmed LTF	0.0971
EDWARDS	EDWARDS	0.0721	Confirmed LTF	0.0721
TILTON	TILTON	0.1298	Confirmed LTF	0.1298
G-007	G-007	3.1106	Confirmed LTF	3.1106
MADISON	MADISON	0.0040	Confirmed LTF	0.0040
GIBSON	GIBSON	0.1119	Confirmed LTF	0.1119
CALDERWOOD	CALDERWOOD	0.0969	Confirmed LTF	0.0969
BLUEG	BLUEG	0.3559	Confirmed LTF	0.3559
TRIMBLE	TRIMBLE	0.1141	Confirmed LTF	0.1141
CATAWBA	CATAWBA	0.0651	Confirmed LTF	0.0651

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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
42138042	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-15J	breaker	817.0	152.33	187.42	AC	300.88

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206306	28LKWD G1	10.6958	50/50	10.6958
206308	28LKWD G2	10.6958	50/50	10.6958
206312	28LKWD G3	7.8413	50/50	7.8413
206325	28O C GEN (Deactivation : 17/09/2018)	117.5906	50/50	117.5906
206360	28O CRK C1	3.1500	50/50	3.1500
206361	28O CRK C2	2.1081	50/50	2.1081
206366	28LKWD CT1	21.5584	50/50	21.5584
206367	28LKWD CT2	21.5584	50/50	21.5584
206370	LKWD CT3	144.8200	50/50	144.8200
227928	V4-067E	0.2084	Adder	0.25
228102	BLE#2 ST (Deactivation : 30/04/2019)	15.8074	Adder	18.6
901982	W1-119 E	0.5770	Adder	0.68
901992	W1-120E	0.5770	Adder	0.68
902432	W2-030 E	0.7359	Adder	0.87
917612	Z2-102 E	0.8438	Adder	0.99
923293	AB1-138 E	1.6942	Adder	1.99
923463	AB1-163 E	0.6144	Adder	0.72
923791	AB2-014	1.0388	50/50	1.0388
924701	AB2-122 C	0.0900	Adder	0.11
924702	AB2-122 E	0.1544	Adder	0.18
930001	AB1-001 C	0.1351	Adder	0.16
930002	AB1-001 E	0.2221	Adder	0.26
933962	AD1-019 E	0.9532	Adder	1.12
934351	AD1-059	1.9109	50/50	1.9109
938781	AE1-104 C O1	12.7594	Adder	15.01
938782	AE1-104 E O1	32.6448	Adder	38.41
939121	AE1-142 C O1	4.4386	50/50	4.4386
939122	AE1-142 E O1	6.3872	50/50	6.3872
940161	AE2-000 C O1	119.9445	50/50	119.9445
940162	AE2-000 E O1	306.8969	50/50	306.8969
940361	AE2-020 C	14.5600	Adder	17.13
940362	AE2-020 E	68.1709	Adder	80.2
940371	AE2-021 C	14.5600	Adder	17.13
940372	AE2-021 E	68.1709	Adder	80.2
940381	AE2-022 C	8.4933	Adder	9.99
940382	AE2-022 E	39.7664	Adder	46.78
942101	AE2-222 C O1	10.7756	Adder	12.68
942102	AE2-222 E O1	27.0689	Adder	31.85
942381	AE2-251 C	46.1258	Adder	54.27
942382	AE2-251 E	118.0228	Adder	138.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943732	AF1-041 E	0.3057	Adder	0.36
944332	AF1-101 E O1	300.8814	50/50	300.8814
999905	MARINGEN 2	0.4995	Adder	0.59
999906	PVILLEG 2	0.2155	Adder	0.25
NEWTON	NEWTON	0.2783	Confirmed LTF	0.2783
FARMERCITY	FARMERCITY	0.0144	Confirmed LTF	0.0144
NY	NY	0.8666	Confirmed LTF	0.8666
PRAIRIE	PRAIRIE	0.6638	Confirmed LTF	0.6638
O-066	O-066	14.8310	Confirmed LTF	14.8310
COFFEEN	COFFEEN	0.0517	Confirmed LTF	0.0517
CHEOAH	CHEOAH	0.1216	Confirmed LTF	0.1216
EDWARDS	EDWARDS	0.0917	Confirmed LTF	0.0917
TILTON	TILTON	0.1644	Confirmed LTF	0.1644
G-007	G-007	5.1002	Confirmed LTF	5.1002
MADISON	MADISON	0.0081	Confirmed LTF	0.0081
GIBSON	GIBSON	0.1420	Confirmed LTF	0.1420
CALDERWOOD	CALDERWOOD	0.1208	Confirmed LTF	0.1208
BLUEG	BLUEG	0.4514	Confirmed LTF	0.4514
TRIMBLE	TRIMBLE	0.1447	Confirmed LTF	0.1447
CATAWBA	CATAWBA	0.0805	Confirmed LTF	0.0805

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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
42138212	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	113.47	122.31	AC	90.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0662	50/50	0.0662
206271	28MCRC/REC	1.9051	50/50	1.9051
206306	28LKWD G1	2.6950	50/50	2.6950
206308	28LKWD G2	2.6950	50/50	2.6950
206325	28O C GEN (Deactivation : 17/09/2018)	30.0875	Adder	35.4
206327	28S RIV G1	7.8244	50/50	7.8244
206328	28S RIV G2	7.8244	50/50	7.8244
206329	28S RIV G3	10.4573	50/50	10.4573
206358	28PARLN1&2	4.8924	50/50	4.8924
206359	28PARLN3&4	5.9144	50/50	5.9144
206366	28LKWD CT1	5.4320	50/50	5.4320
206367	28LKWD CT2	5.4320	50/50	5.4320
206370	LKWD CT3	31.0165	Adder	36.49
206412	28R11	265.0912	50/50	265.0912
207143	28BYD_X4-031	0.4992	50/50	0.4992
207144	28HOW_X1-037	0.2349	50/50	0.2349
207145	28FRN_Y2-051	0.0667	50/50	0.0667
207148	28MDF_W3-079	0.0950	50/50	0.0950
207204	28HOL_W1-112	0.0827	50/50	0.0827
207206	28TIN_W1-124	0.3352	50/50	0.3352
207400	28AA1-060 E	1.6579	Adder	1.95
901032	W1-024E OP1	0.2027	Adder	0.24
901112	W1-032 E OP1	0.1713	Adder	0.2
901912	W1-112E OP1	0.7621	50/50	0.7621
901982	W1-119 E	0.6054	Adder	0.71
901992	W1-120E	0.6054	Adder	0.71
902032	W1-124E	3.1051	50/50	3.1051
902082	W1-129E	0.3255	Adder	0.38
902322	W2-019 E	0.3854	Adder	0.45
902952	W2-082 E OP1	1.1131	Adder	1.31
903982	W3-079 E	0.8870	50/50	0.8870
905252	W4-025 E	0.4620	Adder	0.54
907082	X1-037 E	2.1635	50/50	2.1635
907272	X1-085 E	0.2595	Adder	0.31
912102	X4-015 E	0.3268	Adder	0.38
914092	Y2-051 E	0.6140	50/50	0.6140
917612	Z2-102 E	0.8926	Adder	1.05
919662	AA2-048 E	1.4112	50/50	1.4112
920732	AA2-184 E	3.4391	50/50	3.4391
923293	AB1-138 E	0.8815	Adder	1.04
923463	AB1-163 E	0.7157	Adder	0.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939121	AE1-142 C O1	1.1868	Adder	1.4
939122	AE1-142 E O1	1.7078	Adder	2.01
939981	AE1-238 C	67.2188	50/50	67.2188
939982	AE1-238 E	176.5613	50/50	176.5613
940161	AE2-000 C O1	30.6897	Adder	36.11
940162	AE2-000 E O1	78.5245	Adder	92.38
940401	AE2-024 C O1	29.3385	50/50	29.3385
940402	AE2-024 E O1	137.3595	50/50	137.3595
940411	AE2-025 C	14.8100	50/50	14.8100
940412	AE2-025 E	69.3328	50/50	69.3328
940691	AE2-056 C	0.3256	50/50	0.3256
940692	AE2-056 E	0.2849	50/50	0.2849
940701	AE2-057 C	0.0935	50/50	0.0935
940702	AE2-057 E	0.0935	50/50	0.0935
940921	AE2-081 C	0.3460	50/50	0.3460
940922	AE2-081 E	0.3561	50/50	0.3561
943521	AF1-023	2.4903	50/50	2.4903
943561	AF1-027	0.1842	Adder	0.22
944332	AF1-101 E O1	76.9853	Adder	90.57
944611	AF1-126 C O1	4.9092	Adder	5.78
944612	AF1-126 E O1	19.6367	Adder	23.1
945201	AF1-185 1	-1.0868	Adder	-1.28
945211	AF1-185 2	-0.2415	Adder	-0.28
945571	AF1-222 C	41.8997	50/50	41.8997
945572	AF1-222 E	110.4628	50/50	110.4628
945951	AF1-260	0.2016	50/50	0.2016
NEWTON	NEWTON	0.0677	Confirmed LTF	0.0677
FARMERCITY	FARMERCITY	0.0034	Confirmed LTF	0.0034
NY	NY	1.4267	Confirmed LTF	1.4267
PRAIRIE	PRAIRIE	0.1550	Confirmed LTF	0.1550
O-066	O-066	32.2627	Confirmed LTF	32.2627
COFFEEN	COFFEEN	0.0126	Confirmed LTF	0.0126
CHEOAH	CHEOAH	0.0200	Confirmed LTF	0.0200
EDWARDS	EDWARDS	0.0234	Confirmed LTF	0.0234
TILTON	TILTON	0.0416	Confirmed LTF	0.0416
G-007	G-007	29.5506	Confirmed LTF	29.5506
MADISON	MADISON	0.0101	Confirmed LTF	0.0101
GIBSON	GIBSON	0.0349	Confirmed LTF	0.0349
CALDERWOOD	CALDERWOOD	0.0204	Confirmed LTF	0.0204
BLUEG	BLUEG	0.1111	Confirmed LTF	0.1111
TRIMBLE	TRIMBLE	0.0356	Confirmed LTF	0.0356
CATAWBA	CATAWBA	0.0073	Confirmed LTF	0.0073

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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
42138203	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	117.52	126.4	AC	90.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206201	28JERSVGEN	0.0662	50/50	0.0662
206271	28MCRC/REC	1.9089	50/50	1.9089
206306	28LKWD G1	2.7033	50/50	2.7033
206308	28LKWD G2	2.7033	50/50	2.7033
206325	28O C GEN (Deactivation : 17/09/2018)	30.1754	Adder	35.5
206327	28S RIV G1	7.9849	50/50	7.9849
206328	28S RIV G2	7.9849	50/50	7.9849
206329	28S RIV G3	10.6718	50/50	10.6718
206358	28PARLN1&2	4.8234	50/50	4.8234
206359	28PARLN3&4	5.8309	50/50	5.8309
206366	28LKWD CT1	5.4487	50/50	5.4487
206367	28LKWD CT2	5.4487	50/50	5.4487
206370	LKWD CT3	31.1117	Adder	36.6
206412	28R11	270.5296	50/50	270.5296
207143	28BYD_X4-031	0.5001	50/50	0.5001
207144	28HOW_X1-037	0.2351	50/50	0.2351
207145	28FRN_Y2-051	0.0668	50/50	0.0668
207148	28MDF_W3-079	0.0952	50/50	0.0952
207204	28HOL_W1-112	0.0824	50/50	0.0824
207206	28TIN_W1-124	0.3359	50/50	0.3359
207400	28AA1-060 E	1.6619	Adder	1.96
901032	W1-024E OP1	0.2029	Adder	0.24
901112	W1-032 E OP1	0.1717	Adder	0.2
901912	W1-112E OP1	0.7595	50/50	0.7595
901982	W1-119 E	0.6070	Adder	0.71
901992	W1-120E	0.6070	Adder	0.71
902032	W1-124E	3.1117	50/50	3.1117
902082	W1-129E	0.3263	Adder	0.38
902322	W2-019 E	0.3864	Adder	0.45
902952	W2-082 E OP1	1.1161	Adder	1.31
903982	W3-079 E	0.8895	50/50	0.8895
905252	W4-025 E	0.4632	Adder	0.54
907082	X1-037 E	2.1654	50/50	2.1654
907272	X1-085 E	0.2600	Adder	0.31
912102	X4-015 E	0.3277	Adder	0.39
914092	Y2-051 E	0.6158	50/50	0.6158
917612	Z2-102 E	0.8950	Adder	1.05
919662	AA2-048 E	1.4151	50/50	1.4151
920732	AA2-184 E	3.4457	50/50	3.4457
923293	AB1-138 E	0.8841	Adder	1.04
923463	AB1-163 E	0.7177	Adder	0.84

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939121	AE1-142 C O1	1.1904	Adder	1.4
939122	AE1-142 E O1	1.7130	Adder	2.02
939981	AE1-238 C	67.4527	50/50	67.4527
939982	AE1-238 E	177.1759	50/50	177.1759
940161	AE2-000 C O1	30.7794	Adder	36.21
940162	AE2-000 E O1	78.7539	Adder	92.65
940401	AE2-024 C O1	29.4301	50/50	29.4301
940402	AE2-024 E O1	137.7883	50/50	137.7883
940411	AE2-025 C	14.8563	50/50	14.8563
940412	AE2-025 E	69.5492	50/50	69.5492
940691	AE2-056 C	0.3259	50/50	0.3259
940692	AE2-056 E	0.2851	50/50	0.2851
940701	AE2-057 C	0.0935	50/50	0.0935
940702	AE2-057 E	0.0935	50/50	0.0935
940921	AE2-081 C	0.3462	50/50	0.3462
940922	AE2-081 E	0.3564	50/50	0.3564
943521	AF1-023	2.4951	50/50	2.4951
943561	AF1-027	0.1847	Adder	0.22
944332	AF1-101 E O1	77.2102	Adder	90.84
944611	AF1-126 C O1	4.9219	Adder	5.79
944612	AF1-126 E O1	19.6877	Adder	23.16
945201	AF1-185 1	-1.0915	Adder	-1.28
945211	AF1-185 2	-0.2426	Adder	-0.29
945571	AF1-222 C	42.0455	50/50	42.0455
945572	AF1-222 E	110.8474	50/50	110.8474
945951	AF1-260	0.2022	50/50	0.2022
NEWTON	NEWTON	0.0827	Confirmed LTF	0.0827
FARMERCITY	FARMERCITY	0.0042	Confirmed LTF	0.0042
NY	NY	1.4400	Confirmed LTF	1.4400
PRAIRIE	PRAIRIE	0.1911	Confirmed LTF	0.1911
O-066	O-066	32.4778	Confirmed LTF	32.4778
COFFEEN	COFFEEN	0.0156	Confirmed LTF	0.0156
CHEOAH	CHEOAH	0.0270	Confirmed LTF	0.0270
EDWARDS	EDWARDS	0.0283	Confirmed LTF	0.0283
TILTON	TILTON	0.0504	Confirmed LTF	0.0504
G-007	G-007	29.6774	Confirmed LTF	29.6774
MADISON	MADISON	0.0101	Confirmed LTF	0.0101
GIBSON	GIBSON	0.0426	Confirmed LTF	0.0426
CALDERWOOD	CALDERWOOD	0.0273	Confirmed LTF	0.0273
BLUEG	BLUEG	0.1354	Confirmed LTF	0.1354
TRIMBLE	TRIMBLE	0.0434	Confirmed LTF	0.0434
CATAWBA	CATAWBA	0.0122	Confirmed LTF	0.0122

11.7.20 Index 20

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40978930	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	229.99	262.57	DC	225.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	2.3601	50/50	2.3601
206361	28O CRK C2	1.5794	50/50	1.5794
227842	MARINGEN	0.2297	50/50	0.2297
227927	V4-067C	0.0651	50/50	0.0651
227928	V4-067E	0.6075	50/50	0.6075
228014	PVILLEG	0.0784	50/50	0.0784
228102	BLE#2 ST (Deactivation : 30/04/2019)	43.1904	50/50	43.1904
228202	CUMB CT	1.9431	50/50	1.9431
228203	P06	2.0623	50/50	2.0623
228261	V4-054E	0.5802	Adder	0.68
228712	V2-041E	0.3529	Adder	0.42
228721	V2-035E	0.0902	Adder	0.11
228729	W2-030 C	0.2211	50/50	0.2211
228731	V3-036	0.3323	50/50	0.3323
228732	V1-021 C	0.0834	50/50	0.0834
902092	W1-130E	0.6973	Adder	0.82
902432	W2-030 E	2.0518	50/50	2.0518
923532	AB1-169AC	68.2690	Adder	80.32
924531	AB2-102 C	38.5043	50/50	38.5043
924532	AB2-102 E	0.7273	Adder	0.86
924701	AB2-122 C	0.2625	50/50	0.2625
924702	AB2-122 E	0.4500	50/50	0.4500
930001	AB1-001 C	0.3031	50/50	0.3031
930002	AB1-001 E	0.4982	50/50	0.4982
933962	AD1-019 E	2.5923	50/50	2.5923
938421	AE1-061 C	0.3364	Adder	0.4
938422	AE1-061 E	0.3364	Adder	0.4
938781	AE1-104 C O1	34.8624	50/50	34.8624
938782	AE1-104 E O1	89.1950	50/50	89.1950
939301	AE1-161 C	1.5560	Adder	1.83
939302	AE1-161 E	2.3340	Adder	2.75
939501	AE1-179 C O1	3.8458	Adder	4.52
939502	AE1-179 E O1	2.7140	Adder	3.19
939931	AE1-229 C O1	6.0603	Adder	7.13
939932	AE1-229 E O1	4.1060	Adder	4.83
940001	AE1-240 C O1	3.2067	Adder	3.77
940002	AE1-240 E O1	2.2889	Adder	2.69
940161	AE2-000 C O1	89.8673	50/50	89.8673
940162	AE2-000 E O1	229.9395	50/50	229.9395
940361	AE2-020 C	45.0412	50/50	45.0412
940362	AE2-020 E	210.8860	50/50	210.8860

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940371	AE2-021 C	45.0412	50/50	45.0412
940372	AE2-021 E	210.8860	50/50	210.8860
940381	AE2-022 C	26.2740	50/50	26.2740
940382	AE2-022 E	123.0168	50/50	123.0168
942101	AE2-222 C O1	29.1163	50/50	29.1163
942102	AE2-222 E O1	73.1417	50/50	73.1417
942381	AE2-251 C	142.6896	50/50	142.6896
942382	AE2-251 E	365.1025	50/50	365.1025
943732	AF1-041 E	0.8330	50/50	0.8330
944332	AF1-101 E O1	225.4324	50/50	225.4324
945431	AF1-208 C O1	2.2424	Adder	2.64
945432	AF1-208 E O1	1.4950	Adder	1.76
945731	AF1-238 C	5.8028	Adder	6.83
945732	AF1-238 E	8.7042	Adder	10.24
945741	AF1-239 C	1.3654	Adder	1.61
945742	AF1-239 E	2.0481	Adder	2.41
945971	AF1-262	0.0655	Adder	0.08
999905	MARINGEN 2	1.3650	50/50	1.3650
999906	PVILLEG 2	0.5792	50/50	0.5792
NEWTON	NEWTON	0.0774	Confirmed LTF	0.0774
FARMERCITY	FARMERCITY	0.0040	Confirmed LTF	0.0040
NY	NY	0.1123	Confirmed LTF	0.1123
PRAIRIE	PRAIRIE	0.1834	Confirmed LTF	0.1834
O-066	O-066	1.6934	Confirmed LTF	1.6934
COFFEEN	COFFEEN	0.0144	Confirmed LTF	0.0144
CHEOAH	CHEOAH	0.0345	Confirmed LTF	0.0345
EDWARDS	EDWARDS	0.0252	Confirmed LTF	0.0252
TILTON	TILTON	0.0454	Confirmed LTF	0.0454
G-007	G-007	0.2361	Confirmed LTF	0.2361
GIBSON	GIBSON	0.0393	Confirmed LTF	0.0393
CALDERWOOD	CALDERWOOD	0.0348	Confirmed LTF	0.0348
BLUEG	BLUEG	0.1250	Confirmed LTF	0.1250
TRIMBLE	TRIMBLE	0.0401	Confirmed LTF	0.0401
CATAWBA	CATAWBA	0.0238	Confirmed LTF	0.0238

11.7.21 Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704375	227900	CARDIFF	AE	228002	ORCHARD	AE	1	JC-P7-1-JCC-230-13	tower	805.0	119.26	139.2	DC	160.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	1.6807	50/50	1.6807
206361	28O CRK C2	1.1248	50/50	1.1248
227842	MARINGEN	0.1494	50/50	0.1494
227927	V4-067C	0.0440	50/50	0.0440
227928	V4-067E	0.4110	50/50	0.4110
228014	PVILLEG	0.0516	50/50	0.0516
228102	BLE#2 ST (Deactivation : 30/04/2019)	22.5374	50/50	22.5374
228729	W2-030 C	0.1419	50/50	0.1419
228731	V3-036	0.2168	50/50	0.2168
902092	W1-130E	0.4173	Adder	0.49
902432	W2-030 E	1.3174	50/50	1.3174
923532	AB1-169AC	40.9437	Adder	48.17
924701	AB2-122 C	0.1776	50/50	0.1776
924702	AB2-122 E	0.3044	50/50	0.3044
930001	AB1-001 C	0.2018	50/50	0.2018
930002	AB1-001 E	0.3316	50/50	0.3316
933962	AD1-019 E	1.6913	50/50	1.6913
938421	AE1-061 C	0.2013	Adder	0.24
938422	AE1-061 E	0.2013	Adder	0.24
938781	AE1-104 C O1	18.1918	50/50	18.1918
938782	AE1-104 E O1	46.5434	50/50	46.5434
940161	AE2-000 C O1	63.9976	50/50	63.9976
940162	AE2-000 E O1	163.7480	50/50	163.7480
940361	AE2-020 C	32.2332	50/50	32.2332
940362	AE2-020 E	150.9184	50/50	150.9184
940371	AE2-021 C	32.2332	50/50	32.2332
940372	AE2-021 E	150.9184	50/50	150.9184
940381	AE2-022 C	18.8027	50/50	18.8027
940382	AE2-022 E	88.0357	50/50	88.0357
942101	AE2-222 C O1	19.0760	50/50	19.0760
942102	AE2-222 E O1	47.9200	50/50	47.9200
942381	AE2-251 C	102.1143	50/50	102.1143
942382	AE2-251 E	261.2817	50/50	261.2817
943732	AF1-041 E	0.5510	50/50	0.5510
944332	AF1-101 E O1	160.5383	50/50	160.5383
999905	MARINGEN 2	0.8879	50/50	0.8879
999906	PVILLEG 2	0.3809	50/50	0.3809
NEWTON	NEWTON	0.0150	Confirmed LTF	0.0150
FARMERCITY	FARMERCITY	0.0008	Confirmed LTF	0.0008
G-007A	G-007A	1.0525	Confirmed LTF	1.0525
VFT	VFT	1.9415	Confirmed LTF	1.9415

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
PRAIRIE	PRAIRIE	0.0387	Confirmed LTF	0.0387
COFFEEN	COFFEEN	0.0028	Confirmed LTF	0.0028
CHEOAH	CHEOAH	0.0090	Confirmed LTF	0.0090
EDWARDS	EDWARDS	0.0049	Confirmed LTF	0.0049
TILTON	TILTON	0.0088	Confirmed LTF	0.0088
GIBSON	GIBSON	0.0076	Confirmed LTF	0.0076
CALDERWOOD	CALDERWOOD	0.0089	Confirmed LTF	0.0089
BLUEG	BLUEG	0.0243	Confirmed LTF	0.0243
TRIMBLE	TRIMBLE	0.0078	Confirmed LTF	0.0078
CATAWBA	CATAWBA	0.0073	Confirmed LTF	0.0073

11.7.22 Index 22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704561	228311	CHAMBERS	AE	228312	PEDRKTWN	AE	1	JC-P7-1-JCC-230-13	tower	552.0	103.04	112.37	AC	60.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
227928	V4-067E	0.1595	Adder	0.19
228102	BLE#2 ST (Deactivation : 30/04/2019)	17.1664	Adder	20.2
228201	CARL#2CT	0.9667	50/50	0.9667
228261	V4-054E	0.9792	Adder	1.15
228309	CCLP NUG	20.1373	50/50	20.1373
228334	MANNMILG	1.9621	50/50	1.9621
228343	QUINTN#1 (Deactivation : 26/04/2020)	0.0782	50/50	0.0782
228351	V2-046C	0.2638	50/50	0.2638
228357	V2-046E	2.7443	50/50	2.7443
228712	V2-041E	0.3394	Adder	0.4
228720	V2-035C	0.0267	50/50	0.0267
228721	V2-035E	0.2463	50/50	0.2463
902092	W1-130E	0.5357	Adder	0.63
902432	W2-030 E	0.6097	Adder	0.72
923532	AB1-169AC	51.7242	Adder	60.85
924531	AB2-102 C	32.8261	Adder	38.62
924532	AB2-102 E	0.7295	Adder	0.86
924701	AB2-122 C	0.0689	Adder	0.08
924702	AB2-122 E	0.1182	Adder	0.14
930001	AB1-001 C	0.0847	Adder	0.1
930002	AB1-001 E	0.1392	Adder	0.16
933962	AD1-019 E	0.7555	Adder	0.89
938421	AE1-061 C	0.2585	Adder	0.3
938422	AE1-061 E	0.2585	Adder	0.3
938781	AE1-104 C O1	13.8564	Adder	16.3
938782	AE1-104 E O1	35.4513	Adder	41.71
938871	AE1-115 C	3.1721	50/50	3.1721
938872	AE1-115 E	3.1721	50/50	3.1721
939301	AE1-161 C	1.8477	Adder	2.17
939302	AE1-161 E	2.7716	Adder	3.26
939501	AE1-179 C O1	4.8177	Adder	5.67
939502	AE1-179 E O1	3.3999	Adder	4.0
939931	AE1-229 C O1	25.1478	50/50	25.1478
939932	AE1-229 E O1	17.0384	50/50	17.0384
940001	AE1-240 C O1	4.0690	Adder	4.79
940002	AE1-240 E O1	2.9044	Adder	3.42
940161	AE2-000 C O1	20.4923	Adder	24.11
940162	AE2-000 E O1	52.4328	Adder	61.69
940361	AE2-020 C	10.0327	Adder	11.8
940362	AE2-020 E	46.9737	Adder	55.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940371	AE2-021 C	10.0327	Adder	11.8
940372	AE2-021 E	46.9737	Adder	55.26
940381	AE2-022 C	5.8524	Adder	6.89
940382	AE2-022 E	27.4013	Adder	32.24
942101	AE2-222 C O1	8.4420	Adder	9.93
942102	AE2-222 E O1	21.2068	Adder	24.95
942381	AE2-251 C	31.7833	Adder	37.39
942382	AE2-251 E	81.3245	Adder	95.68
942571	AE2-272	0.0301	50/50	0.0301
943732	AF1-041 E	0.2360	Adder	0.28
944332	AF1-101 E O1	51.4051	Adder	60.48
945431	AF1-208 C O1	5.7443	50/50	5.7443
945432	AF1-208 E O1	3.8295	50/50	3.8295
945731	AF1-238 C	6.3998	Adder	7.53
945732	AF1-238 E	9.5996	Adder	11.29
945741	AF1-239 C	1.5058	Adder	1.77
945742	AF1-239 E	2.2587	Adder	2.66
945971	AF1-262	0.1788	50/50	0.1788
999905	MARINGEN 2	0.3993	Adder	0.47
999906	PVILLEG 2	0.1671	Adder	0.2
WEC	WEC	0.0022	Confirmed LTF	0.0022
LGEE	LGEE	0.0046	Confirmed LTF	0.0046
CPL	CPL	0.0159	Confirmed LTF	0.0159
CBM-W2	CBM-W2	0.0819	Confirmed LTF	0.0819
NY	NY	0.1416	Confirmed LTF	0.1416
TVA	TVA	0.0182	Confirmed LTF	0.0182
O-066	O-066	2.2579	Confirmed LTF	2.2579
CBM-S2	CBM-S2	0.1214	Confirmed LTF	0.1214
CBM-S1	CBM-S1	0.1022	Confirmed LTF	0.1022
G-007	G-007	0.2974	Confirmed LTF	0.2974
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
MEC	MEC	0.0127	Confirmed LTF	0.0127
CBM-W1	CBM-W1	0.0751	Confirmed LTF	0.0751

11.7.23 Index 23

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704490	228312	PEDRKTWN	AE	228313	BRIDGPRT	AE	1	JC-P7-1-JCC-230-13	tower	552.0	119.52	128.84	AC	60.13

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
227928	V4-067E	0.1587	Adder	0.19
228102	BLE#2 ST (Deactivation : 30/04/2019)	17.0884	Adder	20.1
228261	V4-054E	0.9760	Adder	1.15
228306	PCLP STM	6.7851	50/50	6.7851
228307	PCLP GT	6.7851	50/50	6.7851
228309	CCLP NUG	20.1114	50/50	20.1114
228334	MANNMILG	1.9569	50/50	1.9569
228343	QUINTN#1 (Deactivation : 26/04/2020)	0.0781	50/50	0.0781
228351	V2-046C	0.2630	50/50	0.2630
228357	V2-046E	2.7365	50/50	2.7365
228712	V2-041E	0.3381	Adder	0.4
228720	V2-035C	0.0267	50/50	0.0267
228721	V2-035E	0.2455	50/50	0.2455
902092	W1-130E	0.5328	Adder	0.63
902432	W2-030 E	0.6066	Adder	0.71
923532	AB1-169AC	51.4437	Adder	60.52
924531	AB2-102 C	32.7095	Adder	38.48
924532	AB2-102 E	0.7269	Adder	0.86
924701	AB2-122 C	0.0686	Adder	0.08
924702	AB2-122 E	0.1176	Adder	0.14
930001	AB1-001 C	0.0843	Adder	0.1
930002	AB1-001 E	0.1385	Adder	0.16
933962	AD1-019 E	0.7516	Adder	0.88
938421	AE1-061 C	0.2570	Adder	0.3
938422	AE1-061 E	0.2570	Adder	0.3
938781	AE1-104 C O1	13.7934	Adder	16.23
938782	AE1-104 E O1	35.2902	Adder	41.52
938871	AE1-115 C	3.1661	50/50	3.1661
938872	AE1-115 E	3.1661	50/50	3.1661
939301	AE1-161 C	1.8375	Adder	2.16
939302	AE1-161 E	2.7563	Adder	3.24
939501	AE1-179 C O1	4.7996	Adder	5.65
939502	AE1-179 E O1	3.3871	Adder	3.98
939931	AE1-229 C O1	25.0935	50/50	25.0935
939932	AE1-229 E O1	17.0016	50/50	17.0016
940001	AE1-240 C O1	4.0539	Adder	4.77
940002	AE1-240 E O1	2.8937	Adder	3.4
940161	AE2-000 C O1	20.3734	Adder	23.97
940162	AE2-000 E O1	52.1286	Adder	61.33
940361	AE2-020 C	9.9775	Adder	11.74

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940362	AE2-020 E	46.7153	Adder	54.96
940371	AE2-021 C	9.9775	Adder	11.74
940372	AE2-021 E	46.7153	Adder	54.96
940381	AE2-022 C	5.8202	Adder	6.85
940382	AE2-022 E	27.2506	Adder	32.06
942101	AE2-222 C O1	8.3977	Adder	9.88
942102	AE2-222 E O1	21.0956	Adder	24.82
942381	AE2-251 C	31.6085	Adder	37.19
942382	AE2-251 E	80.8772	Adder	95.15
942571	AE2-272	0.0301	50/50	0.0301
943732	AF1-041 E	0.2348	Adder	0.28
944332	AF1-101 E O1	51.1068	Adder	60.13
945431	AF1-208 C O1	5.7281	50/50	5.7281
945432	AF1-208 E O1	3.8187	50/50	3.8187
945731	AF1-238 C	6.3733	Adder	7.5
945732	AF1-238 E	9.5600	Adder	11.25
945741	AF1-239 C	1.4996	Adder	1.76
945742	AF1-239 E	2.2494	Adder	2.65
945971	AF1-262	0.1782	50/50	0.1782
999905	MARINGEN 2	0.3972	Adder	0.47
999906	PVILLEG 2	0.1662	Adder	0.2
NEWTON	NEWTON	0.0569	Confirmed LTF	0.0569
FARMERCITY	FARMERCITY	0.0029	Confirmed LTF	0.0029
NY	NY	0.1753	Confirmed LTF	0.1753
PRAIRIE	PRAIRIE	0.1343	Confirmed LTF	0.1343
O-066	O-066	2.6678	Confirmed LTF	2.6678
COFFEEN	COFFEEN	0.0106	Confirmed LTF	0.0106
CHEOAH	CHEOAH	0.0230	Confirmed LTF	0.0230
EDWARDS	EDWARDS	0.0189	Confirmed LTF	0.0189
TILTON	TILTON	0.0340	Confirmed LTF	0.0340
G-007	G-007	0.3609	Confirmed LTF	0.3609
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.0289	Confirmed LTF	0.0289
CALDERWOOD	CALDERWOOD	0.0234	Confirmed LTF	0.0234
BLUEG	BLUEG	0.0920	Confirmed LTF	0.0920
TRIMBLE	TRIMBLE	0.0295	Confirmed LTF	0.0295
CATAWBA	CATAWBA	0.0144	Confirmed LTF	0.0144

11.7.24 Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704600	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	JC-P7-1-JCC-230-13	tower	804.0	107.18	113.54	AC	59.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
227928	V4-067E	0.1571	Adder	0.18
228102	BLE#2 ST (Deactivation : 30/04/2019)	16.9439	Adder	19.93
228261	V4-054E	0.9700	Adder	1.14
228304	LOGAN	27.5404	50/50	27.5404
228306	PCLP STM	6.7734	50/50	6.7734
228307	PCLP GT	6.7734	50/50	6.7734
228309	CCLP NUG	20.0633	50/50	20.0633
228334	MANNMILG	1.9475	50/50	1.9475
228343	QUINTN#1 (Deactivation : 26/04/2020)	0.0777	50/50	0.0777
228351	V2-046C	0.2616	50/50	0.2616
228357	V2-046E	2.7219	50/50	2.7219
228712	V2-041E	0.3357	Adder	0.39
228720	V2-035C	0.0265	50/50	0.0265
228721	V2-035E	0.2441	50/50	0.2441
902092	W1-130E	0.5273	Adder	0.62
902432	W2-030 E	0.6008	Adder	0.71
923532	AB1-169AC	50.9154	Adder	59.9
924531	AB2-102 C	32.4934	Adder	38.23
924532	AB2-102 E	0.7221	Adder	0.85
924701	AB2-122 C	0.0679	Adder	0.08
924702	AB2-122 E	0.1164	Adder	0.14
930001	AB1-001 C	0.0834	Adder	0.1
930002	AB1-001 E	0.1371	Adder	0.16
933962	AD1-019 E	0.7443	Adder	0.88
938421	AE1-061 C	0.2544	Adder	0.3
938422	AE1-061 E	0.2544	Adder	0.3
938781	AE1-104 C O1	13.6768	Adder	16.09
938782	AE1-104 E O1	34.9919	Adder	41.17
938871	AE1-115 C	3.1548	50/50	3.1548
938872	AE1-115 E	3.1548	50/50	3.1548
939301	AE1-161 C	1.8183	Adder	2.14
939302	AE1-161 E	2.7275	Adder	3.21
939501	AE1-179 C O1	4.7659	Adder	5.61
939502	AE1-179 E O1	3.3634	Adder	3.96
939931	AE1-229 C O1	24.9930	50/50	24.9930
939932	AE1-229 E O1	16.9334	50/50	16.9334
940001	AE1-240 C O1	4.0261	Adder	4.74
940002	AE1-240 E O1	2.8738	Adder	3.38
940161	AE2-000 C O1	20.1532	Adder	23.71
940162	AE2-000 E O1	51.5651	Adder	60.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940361	AE2-020 C	9.8752	Adder	11.62
940362	AE2-020 E	46.2366	Adder	54.4
940371	AE2-021 C	9.8752	Adder	11.62
940372	AE2-021 E	46.2366	Adder	54.4
940381	AE2-022 C	5.7606	Adder	6.78
940382	AE2-022 E	26.9713	Adder	31.73
942101	AE2-222 C O1	8.3157	Adder	9.78
942102	AE2-222 E O1	20.8895	Adder	24.58
942381	AE2-251 C	31.2846	Adder	36.81
942382	AE2-251 E	80.0484	Adder	94.17
942571	AE2-272	0.0299	50/50	0.0299
943732	AF1-041 E	0.2325	Adder	0.27
944332	AF1-101 E O1	50.5543	Adder	59.48
945431	AF1-208 C O1	5.6975	50/50	5.6975
945432	AF1-208 E O1	3.7984	50/50	3.7984
945731	AF1-238 C	6.3243	Adder	7.44
945732	AF1-238 E	9.4865	Adder	11.16
945741	AF1-239 C	1.4881	Adder	1.75
945742	AF1-239 E	2.2321	Adder	2.63
945971	AF1-262	0.1772	50/50	0.1772
999905	MARINGEN 2	0.3934	Adder	0.46
999906	PVILLEG 2	0.1646	Adder	0.19
NEWTON	NEWTON	0.1784	Confirmed LTF	0.1784
FARMERCITY	FARMERCITY	0.0092	Confirmed LTF	0.0092
NY	NY	0.2389	Confirmed LTF	0.2389
PRAIRIE	PRAIRIE	0.4262	Confirmed LTF	0.4262
O-066	O-066	3.4272	Confirmed LTF	3.4272
COFFEEN	COFFEEN	0.0331	Confirmed LTF	0.0331
CHEOAH	CHEOAH	0.0796	Confirmed LTF	0.0796
EDWARDS	EDWARDS	0.0585	Confirmed LTF	0.0585
TILTON	TILTON	0.1052	Confirmed LTF	0.1052
G-007	G-007	0.4784	Confirmed LTF	0.4784
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.0906	Confirmed LTF	0.0906
CALDERWOOD	CALDERWOOD	0.0795	Confirmed LTF	0.0795
BLUEG	BLUEG	0.2882	Confirmed LTF	0.2882
TRIMBLE	TRIMBLE	0.0924	Confirmed LTF	0.0924
CATAWBA	CATAWBA	0.0539	Confirmed LTF	0.0539

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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
40978965	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	478.0	155.5	167.57	DC	57.72

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	0.6042	50/50	0.6042
206361	28O CRK C2	0.4044	50/50	0.4044
227842	MARINGEN	0.0990	50/50	0.0990
227927	V4-067C	0.0216	50/50	0.0216
227928	V4-067E	0.2016	50/50	0.2016
228014	PVILLEG	0.0353	50/50	0.0353
228102	BLE#2 ST (Deactivation : 30/04/2019)	19.0196	50/50	19.0196
228712	V2-041E	0.1219	Adder	0.14
228728	W1-130C	0.4113	50/50	0.4113
228729	W2-030 C	0.0904	50/50	0.0904
228731	V3-036	0.1451	50/50	0.1451
902092	W1-130E	3.7818	50/50	3.7818
902432	W2-030 E	0.8386	50/50	0.8386
923532	AB1-169AC	361.9935	50/50	361.9935
924531	AB2-102 C	11.0466	Adder	13.0
924532	AB2-102 E	0.2455	Adder	0.29
924701	AB2-122 C	0.0871	50/50	0.0871
924702	AB2-122 E	0.1494	50/50	0.1494
930001	AB1-001 C	0.1278	50/50	0.1278
930002	AB1-001 E	0.2100	50/50	0.2100
933962	AD1-019 E	1.1319	50/50	1.1319
938421	AE1-061 C	1.8245	50/50	1.8245
938422	AE1-061 E	1.8245	50/50	1.8245
938781	AE1-104 C O1	15.3522	50/50	15.3522
938782	AE1-104 E O1	39.2785	50/50	39.2785
939303	AE1-161 BAT	10.2125	50/50	10.2125
940161	AE2-000 C O1	23.0080	50/50	23.0080
940162	AE2-000 E O1	58.8695	50/50	58.8695
940361	AE2-020 C	10.7100	50/50	10.7100
940362	AE2-020 E	50.1450	50/50	50.1450
940371	AE2-021 C	10.7100	50/50	10.7100
940372	AE2-021 E	50.1450	50/50	50.1450
940381	AE2-022 C	6.2475	50/50	6.2475
940382	AE2-022 E	29.2512	50/50	29.2512
942101	AE2-222 C O1	12.9309	50/50	12.9309
942102	AE2-222 E O1	32.4831	50/50	32.4831
942381	AE2-251 C	33.9291	50/50	33.9291
942382	AE2-251 E	86.8149	50/50	86.8149
943732	AF1-041 E	0.3558	50/50	0.3558
944332	AF1-101 E O1	57.7156	50/50	57.7156
999905	MARINGEN 2	0.5885	50/50	0.5885

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
999906	PVILLEG 2	0.2610	50/50	0.2610
NEWTON	NEWTON	0.0097	Confirmed LTF	0.0097
FARMERCITY	FARMERCITY	0.0005	Confirmed LTF	0.0005
NY	NY	0.0171	Confirmed LTF	0.0171
PRAIRIE	PRAIRIE	0.0232	Confirmed LTF	0.0232
O-066	O-066	0.2419	Confirmed LTF	0.2419
COFFEEN	COFFEEN	0.0018	Confirmed LTF	0.0018
CHEOAH	CHEOAH	0.0045	Confirmed LTF	0.0045
EDWARDS	EDWARDS	0.0035	Confirmed LTF	0.0035
TILTON	TILTON	0.0063	Confirmed LTF	0.0063
G-007	G-007	0.0094	Confirmed LTF	0.0094
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.0049	Confirmed LTF	0.0049
CALDERWOOD	CALDERWOOD	0.0045	Confirmed LTF	0.0045
BLUEG	BLUEG	0.0156	Confirmed LTF	0.0156
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0028	Confirmed LTF	0.0028

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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
40978940	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	239.48	258.04	DC	57.72

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206360	28O CRK C1	0.6043	50/50	0.6043
206361	28O CRK C2	0.4044	50/50	0.4044
227842	MARINGEN	0.0990	50/50	0.0990
227927	V4-067C	0.0216	50/50	0.0216
227928	V4-067E	0.2017	50/50	0.2017
228014	PVILLEG	0.0353	50/50	0.0353
228102	BLE#2 ST (Deactivation : 30/04/2019)	19.0226	50/50	19.0226
228712	V2-041E	0.1220	Adder	0.14
228729	W2-030 C	0.0904	50/50	0.0904
228731	V3-036	0.1451	50/50	0.1451
902432	W2-030 E	0.8387	50/50	0.8387
923532	AB1-169AC	362.0045	50/50	362.0045
924531	AB2-102 C	11.0485	Adder	13.0
924532	AB2-102 E	0.2455	Adder	0.29
924701	AB2-122 C	0.0871	50/50	0.0871
924702	AB2-122 E	0.1494	50/50	0.1494
930001	AB1-001 C	0.1278	50/50	0.1278
930002	AB1-001 E	0.2101	50/50	0.2101
933962	AD1-019 E	1.1320	50/50	1.1320
938423	AE1-061 BAT	1.8508	50/50	1.8508
938781	AE1-104 C O1	15.3547	50/50	15.3547
938782	AE1-104 E O1	39.2847	50/50	39.2847
939303	AE1-161 BAT	10.2115	50/50	10.2115
940161	AE2-000 C O1	23.0103	50/50	23.0103
940162	AE2-000 E O1	58.8753	50/50	58.8753
940361	AE2-020 C	10.7121	50/50	10.7121
940362	AE2-020 E	50.1549	50/50	50.1549
940371	AE2-021 C	10.7121	50/50	10.7121
940372	AE2-021 E	50.1549	50/50	50.1549
940381	AE2-022 C	6.2487	50/50	6.2487
940382	AE2-022 E	29.2571	50/50	29.2571
942101	AE2-222 C O1	12.9326	50/50	12.9326
942102	AE2-222 E O1	32.4874	50/50	32.4874
942381	AE2-251 C	33.9358	50/50	33.9358
942382	AE2-251 E	86.8322	50/50	86.8322
943732	AF1-041 E	0.3558	50/50	0.3558
944332	AF1-101 E O1	57.7213	50/50	57.7213
999905	MARINGEN 2	0.5886	50/50	0.5886
999906	PVILLEG 2	0.2610	50/50	0.2610
NEWTON	NEWTON	0.0075	Confirmed LTF	0.0075
FARMERCITY	FARMERCITY	0.0004	Confirmed LTF	0.0004

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
NY	NY	0.0160	Confirmed LTF	0.0160
PRAIRIE	PRAIRIE	0.0181	Confirmed LTF	0.0181
O-066	O-066	0.2285	Confirmed LTF	0.2285
COFFEEN	COFFEEN	0.0014	Confirmed LTF	0.0014
CHEOAH	CHEOAH	0.0035	Confirmed LTF	0.0035
EDWARDS	EDWARDS	0.0028	Confirmed LTF	0.0028
TILTON	TILTON	0.0050	Confirmed LTF	0.0050
G-007	G-007	0.0073	Confirmed LTF	0.0073
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.0038	Confirmed LTF	0.0038
CALDERWOOD	CALDERWOOD	0.0035	Confirmed LTF	0.0035
BLUEG	BLUEG	0.0122	Confirmed LTF	0.0122
TRIMBLE	TRIMBLE	0.0045	Confirmed LTF	0.0045
CATAWBA	CATAWBA	0.0021	Confirmed LTF	0.0021

11.8 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA1-060	Great Adventure 34.5kV	In Service
AA2-048	Allenwood-Larrabee 34kV	Engineering and Procurement
AA2-058	Mount Rose 13kV	Partially in Service - Under Construction
AA2-066	Penns Neck 13kV	In Service
AA2-184	Atlantic-Red Bank 34kV	In Service
AB1-001	Absecon 12 kV	Engineering and Procurement
AB1-138	Navy 34.5kV	In Service
AB1-163	Glidden-Van Hiseville 34.5 kV	Engineering and Procurement
AB1-169A	Minotola 138 kV	Active
AB2-014	Lakewood 230kV	Partially in Service - Under Construction
AB2-102	Cumberland 230kV	Active
AB2-122	Egg Harbor 12kV	Engineering and Procurement
AB2-139	Raceway Mall 34.5kV	In Service
AC1-207	Monroe 34.5kV	Engineering and Procurement
AC2-050	Tabernacle 12kV	Active
AD1-019	Ontario 23 kV	Active
AD1-059	Lakewood 230 kV	In Service
AD1-113	Raritan River 230 kV	Suspended
AD2-210	Cedar Knolls 12.5 kV	Suspended
AD2-213	East Flemington-Lebanon 34.5 kV	Active
AE1-061	Minotola 12 kV	Active
AE1-104	BL England 138 kV	Active
AE1-115	Churchtown 69 kV	Active
AE1-142	Manitou-Pleasant Plains 34.5 kV	Engineering and Procurement
AE1-161	Landis 138 kV	Active
AE1-179	South Millville-Newport 69 kV	Active
AE1-229	Deepwater-Upper Pittsgrove 138 kV	Active
AE1-238	Oceanview Wind 230 kV	Active
AE1-240	Carlls Corner-Sherman Avenue 69 kV	Active
AE2-000	N/A	N/A
AE2-020	Cardiff 230 kV I	Active
AE2-021	Cardiff 230 kV II	Active
AE2-022	Cardiff 230 kV III	Active
AE2-024	Larrabee 230 kV I	Active
AE2-025	Larrabee 230 kV II	Active
AE2-056	Howell 12.47 kV Solar I	Engineering and Procurement
AE2-057	Jerseyville 12.47 kV Solar	Engineering and Procurement
AE2-081	Howell 12.47 kV Solar II	Engineering and Procurement
AE2-082	Englishtown-Wyckoff 34.5 kV Solar	Active

Queue Number	Project Name	Status
AE2-222	Higbee 69 kV	Active
AE2-251	Cardiff 230 kV	Active
AE2-272	Woodstown 12 kV	In Service
AF1-023	Atlantic-Red Bank 34 kV II	Active
AF1-027	Plumsted 537 Energy Storage (CIRs)	Active
AF1-041	Absecon 12.47 kV	In Service
AF1-101	Oyster Creek 230 kV III	Active
AF1-108	East Flemington 34.5 kV	Active
AF1-109	Pleasant Valley 230 kV	Active
AF1-126	Cookstown 230 kV	Active
AF1-185	Sayreville 1-2-3 230 kV	In Service
AF1-208	Quinton-Roadstown 69 kV	Active
AF1-222	Oceanview Wind 2 230 kV	Active
AF1-237	Mercer 230 kV	Active
AF1-238	Sherman Ave. 69 kV	Active
AF1-239	Sherman Ave-Vineland 69 kV	Active
AF1-260	Allenwood-Larrabee 2 34.5 kV	Active
AF1-262	Upper Pittsgrove 12 kV	Active
V1-021	Cape May County 12kV	In Service
V2-035	Pittsgrove	In Service
V2-041	Clayville 12kV	In Service
V2-046	Pilesgrove Township 12kV	In Service
V3-036	Ontario 23kV	In Service
V4-054	Fairfield Township 12kV	In Service
V4-067	Cates Road Egg Harbor Township 12kV	In Service
W1-024	Manalapan 12.5kV	In Service
W1-032	Millhurst 12.5kV	In Service
W1-112	Holmdel	In Service
W1-113	Millstone 2	In Service
W1-119	Pemberton Township 1 34.5 kV	In Service
W1-120	Pemberton Township 2 34.5 kV	In Service
W1-124	Tinton Falls 34.5kV	In Service
W1-129	Cookstown 34.5kV	In Service
W1-130	Vine Road 12kV	In Service
W2-019	Wrightstown 34.5kV	In Service
W2-030	Egg Harbor Township	In Service
W2-078	Applegarth 12.5kV	In Service
W2-082	Fort Dix-McGuire 34.5kV	In Service
W3-079	Allenwood-Larabee 34.5kV	In Service
W4-009	Raritan River 230kV	In Service
W4-025	Cookstown-Fort Dix 34.5kV	In Service
W4-060	Midland-Werner 34.5kV	In Service
X1-037	Howell	In Service
X1-085	Hornerstown-Windsor 34kV	In Service
X4-005	Raritan River 230kV	In Service
X4-015	Cookstown-Fort Dix 34kV	In Service
X4-031	Bennett-Farmingdale 34kV	In Service
Y2-051	Brick-Lane Mill 34.5kV	In Service
Z2-102	Argonne-New Lisbon 34.5kV	In Service

11.9 Contingency Descriptions

Contingency Name	Contingency Definition
JC-P7-1-JCC-230-7A	CONTINGENCY 'JC-P7-1-JCC-230-7A' /* SMITHBURG - LARRABEE 230 LINES DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 1 DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 END
JC-P2-3-JCC-230-80	CONTINGENCY 'JC-P2-3-JCC-230-80' /* SOUTH RIVER JUNCTION G-T (RARITAN RIVER) LINES 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 BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 END
JC-P1-2-JCC-230-043T	CONTINGENCY 'JC-P1-2-JCC-230-043T' /** RARITAN RIVER - LAKE NELSON (W1037) 230 KV LINE DISCONNECT BRANCH FROM BUS 206305 TO BUS 218332 CKT 1 /* 28RAR RVR - KILMER_W 230.00 LINE DISCONNECT BRANCH FROM BUS 218332 TO BUS 218334 CKT 1 /* KILMER_W - LNELSN_W 230.00 LINE DISCONNECT BRANCH FROM BUS 218386 TO BUS 218332 CKT 1 /* KILMER_L1 13.20 - KILMER_W 230.00 XFMR DISCONNECT BRANCH FROM BUS 218387 TO BUS 218332 CKT 1 /* KILMER_L3 13.20 - KILMER_W 230.00 XFMR END
PS_P1-2_#1LINE	CONTINGENCY 'PS_P1-2_#1LINE' /* LAKE NELSON TO RARITAN RIVER DISCONNECT BUS 218331 /* KILMER #1 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER END

Contingency Name	Contingency Definition
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 SOMRVLE 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
JC-P1-2-JCC-230-031	CONTINGENCY 'JC-P1-2-JCC-230-031' /* VAN HISEVILLE TAP (B1042) 230 KV LINES DISCONNECT BRANCH FROM BUS 206318 TO BUS 206287 CKT 1 DISCONNECT BRANCH FROM BUS 206318 TO BUS 206720 CKT 1 DISCONNECT BRANCH FROM BUS 206720 TO BUS 206319 CKT 1 DISCONNECT BRANCH FROM BUS 206318 TO BUS 206294 CKT 1 DISCONNECT BUS 206318 DISCONNECT BUS 206720 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
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-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
AE_P4-2 AE45	CONTINGENCY 'AE_P4-2 AE45' /*ORCHARD 230 BUS BREAKER E DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* ORCHARD TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 200063 TO BUS 228002 CKT 1 /*ORCHARD ORCHARD 500 230 T1 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

Contingency Name	Contingency Definition
JC-P2-3-JCC-230-13A	CONTINGENCY 'JC-P2-3-JCC-230-13A' /* LARRABEE - SMITHBURG (D2004) & LAKEWOOD (Z2026) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 1 /* LARRABEE-SMITHBURG (D2004) DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 2 /* LARRABEE-LAKEWOOD (Z2026) SET BUS 206294 LOAD TO 0 MW /* LARRABEE BK8 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 12 /* LARRABEE BK12 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-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-P2-3-JCC-230-47D	CONTINGENCY 'JC-P2-3-JCC-230-47D' /* ATLANTIC - OCEANVIEW (Y2025) & OCEANVIEW BK1 230 KV FUTURE OCEANVIEW RING BUS DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT Y /* ATLANTIC - OCEANVIEW (Y2025) DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 1 /* OCEANVIEW BK1 REDUCE BUS 206273 SHUNT BY 50 PERCENT /* OCEANVIEW CAPS ON 34.5 KV BUS A DISCONNECT BRANCH FROM BUS 206273 TO BUS 206929 CKT 2 /* OCEANVIEW - ALLENHURST (X102) 34.5KV END
JC-P2-3-JCC-230-47E	CONTINGENCY 'JC-P2-3-JCC-230-47E' /* OCEANVIEW BK2 230 KV FUTURE OCEANVIEW RING BUS & ATLANTIC - OCEANVIEW (Y2025) DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT Y /* ATLANTIC - OCEANVIEW (Y2025) DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* OCEANVIEW BK2 REDUCE BUS 206273 SHUNT BY 50 PERCENT /* OCEANVIEW CAPS ON 34.5 KV BUS B END

Contingency Name	Contingency Definition
JC-P2-3-JCC-230-47C	CONTINGENCY 'JC-P2-3-JCC-230-47C' /* ATLANTIC - OCEANVIEW (X2024) & OCEANVIEW BK2 230 KV FUTURE OCEANVIEW RING BUS DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT X /* ATLANTIC - OCEANVIEW (X2024) DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* OCEANVIEW BK2 REDUCE BUS 206273 SHUNT BY 50 PERCENT /* OCEANVIEW CAPS ON 34.5 KV BUS B DISCONNECT BRANCH FROM BUS 206273 TO BUS 206929 CKT 1 /* OCEANVIEW - ALLENHURST (H216) 34.5KV END
JC-P2-3-JCC-230-15J	CONTINGENCY 'JC-P2-3-JCC-230-15J' /* LAKEWOOD-LARRABEE (K2011) & LARRABEE SE BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 1 /* LARRABEE - LAKEWOOD (K2011) DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 4 /* LARRABEE BK4 REDUCE BUS 206294 SHUNT BY 100 PERCENT /* LARRABEE 2X 130MVAR CAPS END
JC-P2-3-JCC-230-15E	CONTINGENCY 'JC-P2-3-JCC-230-15E' /* LARRABEE - VAN HISEVILLE JUNCTION (B1042) & LARRABEE NW BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206318 CKT 1 /* LARRABEE - VAN HISEVILLE JUNCTION DISCONNECT BRANCH FROM BUS 206287 TO BUS 206318 CKT 1 /* COOKSTOWN - VAN HISEVILLE JUNCTION DISCONNECT BUS 206720 /* MANCHESTER 230 KV BUS DISCONNECT BRANCH FROM BUS 206319 TO BUS 206281 CKT 5 /* WHITINGS #5 230/34.5 KV REMOVE LOAD 7 FROM BUS 206294 /* LARRABEE BK7 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* LARRABEE BK9 END
JC-P2-3-JCC-230-17A	CONTINGENCY 'JC-P2-3-JCC-230-17A' /* LARRABEE-COOKSTOWN- WHITINGS (B1042) & WHITINGS-MANITOU (V2022) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206318 CKT 1 /* LARRABEE-VAN HISEVILLE TAP (B1042) DISCONNECT BRANCH FROM BUS 206318 TO BUS 206287 CKT 1 /* VAN HISEVILLE TAP - COOKSTOWN (B1042) DISCONNECT BRANCH FROM BUS 206318 TO BUS 206720 CKT 1 /* VAN HISEVILLE TAP - MANCHESTER (B1042) DISCONNECT BUS 206720 /* ISOLATE MANCHESTER DISCONNECT BRANCH FROM BUS 206319 TO BUS 206281 CKT 5 /* WHITINGS BK5 DISCONNECT BRANCH FROM BUS 206319 TO BUS 206297 CKT 1 /* WHITINGS - MANITOU (V2022) DISCONNECT BRANCH FROM BUS 206319 TO BUS 206281 CKT 4 /* WHITINGS BK4 END

Contingency Name	Contingency Definition
JC-P2-3-JCC-230-15F	CONTINGENCY 'JC-P2-3-JCC-230-15F' /* LARRABEE - SMITHBURG (D2004) & LARRABEE NW BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 1 /* LARRABEE- SMITHBURG (D2004) REMOVE LOAD 7 FROM BUS 206294 /* LARRABEE BK7 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* LARRABEE BK9 END
JC-P2-3-JCC-230-15A	CONTINGENCY 'JC-P2-3-JCC-230-15A' /* LAKEWOOD-LARRABEE (K2011) & LARRABEE-SMITHBURG (H2008) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 1 /* LARRABEE - LAKEWOOD (K2011) DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* LARRABEE- SMITHBURG (H2008) END
JC-P2-3-JCC-230-26B	CONTINGENCY 'JC-P2-3-JCC-230-26B' /* RARITAN RIVER B144 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
PS_P1-2_2310	CONTINGENCY 'PS_P1-2_2310' /* NEW FREEDOM TO CARDIFF TIELINE TRIP LINE FROM BUS 219100 TO BUS 227900 CKT 1 /* NEW FREEDOM TO CARDIFF END
JC-P7-1-JCC-230-12	CONTINGENCY 'JC-P7-1-JCC-230-12' /* LEISURE VILLAGE-MANITOU A2027 & C2029 DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
JC-P7-1-JCC-230-13	CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES & OYSTER GEN DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 DISCONNECT BRANCH FROM BUS 206302 TO BUS 206325 CKT 1 END

Contingency Name	Contingency Definition
PS_P7-1_1LINE+2LINE	CONTINGENCY 'PS_P7-1_1LINE+2LINE' /* LAKE NELSON - RARITIAN X2 DISCONNECT BUS 218331 /* REMOVE KILMER 1 DISCONNECT BUS 218332 /* REMOVE KILMER 2 MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
PJM500_PS_P2-3_DEAN5_5-6	CONTINGENCY 'PJM500_PS_P2-3_DEAN5_5-6' DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 2/* BRANCHBURG TX -2 TRIP LINE FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS TO WINSOR END
PS_P1-2_#2LINE	CONTINGENCY 'PS_P1-2_#2LINE' /* LAKE NELSON TO RARITIAN RIVER DISCONNECT BUS 218332 /* KILMER LINE #2 CLOSE LINE FROM BUS 218384 TO BUS 218387 CKT Z /* KILMER CLOSE LINE FROM BUS 218385 TO BUS 218386 CKT Z /* KILMER END
PS_P7-1_I1023+GBK-LN_LT	CONTINGENCY 'PS_P7-1_I1023+GBK-LN_LT' /* LAKE NELSON - GILLETE BRIDGEWATER & LAKE NELSON -GREENBROOK DISCONNECT BUS 218312 /* GREENBROOK I DISCONNECT BUS 218301 /* MIDDLESEX I DISCONNECT BUS 218333 /* LAKE NELSON I DISCONNECT BUS 218334 /* LAKE NELSON W DISCONNECT BUS 218522 /* MIDDLESEX W 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 SOMRVLE 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 218384 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO KILMER T2 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-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

Contingency Name	Contingency Definition
PS_P1-2_I-1023	CONTINGENCY 'PS_P1-2_I-1023' /* TIE LINE GILLET I TO BRIDGEWATER THROUGH MIDDLESEX DISCONNECT BUS 218312 /* GREEN BROOK STATION DISCONNECT BUS 218301 /* MIDDLESEX I DISCONNECT BUS 218333 /* LAKE NELSON BUS I CLOSE LINE FROM BUS 218388 TO BUS 218389 CKT Z /* LAKE NELSON CLOSE LINE FROM BUS 218382 TO BUS 218383 CKT Z /* GREENBROOK END
JC-P1-2-JCC-230-042T	CONTINGENCY 'JC-P1-2-JCC-230-042T' /** RARITAN RIVER - LAKE NELSON (I1023) 230 KV LINE DISCONNECT BRANCH FROM BUS 206305 TO BUS 218331 CKT 1 /* 28RAR RVR - KILMER_I 230.00 LINE DISCONNECT BRANCH FROM BUS 218331 TO BUS 218333 CKT 1 /* KILMER_I - LNELSN_I 230.00 LINE DISCONNECT BRANCH FROM BUS 218384 TO BUS 218331 CKT 1 /* KILMER_L2 13.20 - KILMER_I 230.00 XFMR DISCONNECT BRANCH FROM BUS 218385 TO BUS 218331 CKT 1 /* KILMER_L4 13.20 - KILMER_I 230.00 XFMR DISCONNECT BRANCH FROM BUS 218333 TO BUS 218427 CKT 1 /* L.NELSN 230 L.NELSN3 69 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
JC-P1-2-JCC-230-020	CONTINGENCY 'JC-P1-2-JCC-230-020' /* LEISURE VILLAGE - MANITOU (C2029) 230 KV DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
Base Case	
JC-P1-2-JCC-230-003	CONTINGENCY 'JC-P1-2-JCC-230-003' /* FUTURE ATLANTIC - OCEANVIEW (X2024) 230 KV DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT X /* ATLANTIC 230.00 OCEANV 230.00 END

Contingency Name	Contingency Definition
JC-P2-3-JCC-230-15G	CONTINGENCY 'JC-P2-3-JCC-230-15G' /* LARRABEE-SMITHBURG (H2008) 230 KV & LARRABEE NW BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* LARRABEE-SMITHBURG (H2008) REMOVE LOAD 7 FROM BUS 206294 /* LARRABEE BK7 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* LARRABEE BK9 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
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
PJM500_PS_P1-2_5022	CONTINGENCY 'PJM500_PS_P1-2_5022' /* DEANS TO WINDSOR TRIP LINE FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS TO WINDSOR END
AE_P4-2 AE7	CONTINGENCY 'AE_P4-2 AE7' /*CARDIFF TO NEW FREEDOM BREAKER V DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227910 CKT 1 /*CARDIFF CARDIFF 230 69 T1 END
AE_P4-2 AE6	CONTINGENCY 'AE_P4-2 AE6' /*CARDIFF TO NEW FREEDOM BREAKER W DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227911 CKT 1 /*CARDIFF CARDIFF 230 69 T2 END

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_P4-2 AE8	CONTINGENCY 'AE_P4-2 AE8' /*CARDIFF TO ORCHARD BREAKER NEW2 DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /*CARDIFF TO ORCHARD 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227911 CKT 1 /*CARDIFF CARDIFF 230 69 T2 END
PJM_P4_P484B	CONTINGENCY 'PJM_P4_P484B' /* VALID FROM 2009 DISCONNECT BRANCH FROM BUS 200028 TO BUS 200006 CKT 1 /* WINDSOR DEANS 500500 DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 1 /* DEANS XF 2 500230 END
AE_P4-2 AE46	CONTINGENCY 'AE_P4-2 AE46' /*ORCHARD 230 BUS BREAKER D DISCONNECT BRANCH FROM BUS 228002 TO BUS 228310 CKT 1 /* ORCHARD TO CHURCHTOWN 230 230 DISCONNECT BRANCH FROM BUS 200063 TO BUS 228002 CKT 1 /*ORCHARD ORCHARD 500 230 T1 END
JC-P2-3-JCC-230-026A	CONTINGENCY 'JC-P2-3-JCC-230-026A' /* RARITAN RIVER B143 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END
JC-P2-3-JCC-230-026C	CONTINGENCY 'JC-P2-3-JCC-230-026C' /* RARITAN RIVER B145 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END

12 Light Load Analysis

The Queue Project AF1-101 was evaluated as a 575.2 MW (Capacity 575.2 MW) injection at the Oyster Creek 230kV substation in the JCPL area. Project AF1-101 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-101 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

12.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
71701558	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	2	JC-P1-2-JCC-230-017	single	813.0	90.59	107.22	AC	138.91
71701579	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P1-2-JCC-230-018	single	817.0	85.51	100.67	AC	127.43
71701724	206295	28LEISUR D	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-020	single	869.0	76.75	102.51	AC	227.88
71701727	206295	28LEISUR D	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-015	single	869.0	75.55	101.23	AC	227.53
71701600	206296	28LEISUR U	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-019	single	817.0	85.59	112.9	AC	226.8
71701602	206296	28LEISUR U	230.0	JCP&L	206323	28LAKEWOOD	230.0	JCP&L	1	JC-P1-2-JCC-230-016	single	817.0	82.54	109.94	AC	227.83
71701511	206297	28MANITOU	230.0	JCP&L	206296	28LEISUR U	230.0	JCP&L	1	JC-P1-2-JCC-230-019	single	817.0	92.02	119.77	AC	230.2
71701513	206297	28MANITOU	230.0	JCP&L	206296	28LEISUR U	230.0	JCP&L	1	JC-P1-2-JCC-230-016	single	817.0	91.38	119.12	AC	230.16
71701528	206297	28MANITOU	230.0	JCP&L	206295	28LEISUR D	230.0	JCP&L	1	JC-P1-2-JCC-230-020	single	817.0	91.71	119.45	AC	230.2
71701531	206297	28MANITOU	230.0	JCP&L	206295	28LEISUR D	230.0	JCP&L	1	JC-P1-2-JCC-230-015	single	817.0	85.15	111.99	AC	223.25
71701204	206302	28OYSTER C	230.0	JCP&L	206297	28MANITOU	230.0	JCP&L	1	Base Case	single	650.0	95.05	121.01	AC	171.46
71701252	206302	28OYSTER C	230.0	JCP&L	206297	28MANITOU	230.0	JCP&L	2	Base Case	single	709.0	87.24	111.07	AC	171.67
42422283	206314	28RED OAKA	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P1-2-JCC-230-027	single	869.0	91.8	100.02	AC	72.17
42422247	206315	28RED OAKB	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P1-2-JCC-230-028	single	869.0	93.35	101.39	AC	71.81

42422139	206323	28LAKEWOOD	230.0	JCP&L	206294	28LARRABEE	230.0	JCP&L	1	JC-P1-2-JCC-230-013	single	869.0	94.46	121.43	AC	241.23
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12.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
42138102	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	2	JC-P2-3-JCC-230-15F	breaker	813.0	91.24	107.82	AC	138.9
42138107	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P2-3-JCC-230-15G	breaker	817.0	90.79	107.29	AC	138.9
42138108	206294	28LARRABEE	230.0	JCP&L	206309	28SMITHBRG	230.0	JCP&L	1	JC-P2-3-JCC-230-15A	breaker	817.0	86.27	102.15	AC	135.36
42704349	206297	28MANITOU	230.0	JCP&L	206319	28WHITINGS	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	94.35	122.71	AC	233.92
42704350	206297	28MANITOU	230.0	JCP&L	206319	28WHITINGS	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	98.3	128.0	AC	247.81
40978935	206302	28OYSTER C	230.0	JCP&L	227955	CEDAR	230.0	AE	1	JC-P7-1-JCC-230-13	tower	564.0	93.45	168.45	AC	425.68
42138092	206314	28RED OAKA	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	95.73	103.94	AC	72.42
42138087	206315	28RED OAKB	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	97.04	105.12	AC	72.07
42138088	206315	28RED OAKB	230.0	JCP&L	206305	28RAR RVR	230.0	JCP&L	1	JC-P2-3-JCC-230-026C	breaker	869.0	93.37	101.5	AC	72.3
42704372	206318	28VANHISVL	230.0	JCP&L	206294	28LARRABEE	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	85.95	105.29	AC	180.66
42704374	206318	28VANHISVL	230.0	JCP&L	206294	28LARRABEE	230.0	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	83.96	102.48	AC	171.23

4270436 1	20631 9	28WHITINGS	230. 0	JCP& L	20672 0	28MANCHST R	230. 0	JCP& L	1	JC-P7- 1- JCC- 230- 10A	tower	869.0	83.34	109.51	AC	234.05
4270436 2	20631 9	28WHITINGS	230. 0	JCP& L	20672 0	28MANCHST R	230. 0	JCP& L	1	JC-P7- 1- JCC- 230- 12	tower	869.0	85.67	112.62	AC	244.8
4270436 4	20672 0	28MANCHST R	230. 0	JCP& L	20631 8	28VANHISVL	230. 0	JCP& L	1	JC-P7- 1- JCC- 230- 10A	tower	869.0	82.58	108.49	AC	234.05
4270436 5	20672 0	28MANCHST R	230. 0	JCP& L	20631 8	28VANHISVL	230. 0	JCP& L	1	JC-P7- 1- JCC- 230- 12	tower	869.0	84.89	111.55	AC	244.8
4270437 5	22790 0	CARDIFF	230. 0	AE	22800 2	ORCHARD	230. 0	AE	1	JC-P7- 1- JCC- 230- 13	tower	805.0	93.67	109.89	AC	128.59
4097894 0	22850 3	MNOTLA 2	138. 0	AE	22850 2	MNOTLA 1	138. 0	AE	1	JC-P7- 1- JCC- 230- 13	tower	311.0	99.81	114.83	AC	46.2

12.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Ratin g MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC/D C	MW IMPAC T
4242209 5	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP&L	1	JC-P1-2- JCC-230- 022	single	817.0	141.35	180.04	AC	317.61
4242211 6	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP&L	2	JC-P1-2- JCC-230- 021	single	869.0	132.91	169.29	AC	317.67
4242213 3	20632 3	28LAKEWOOD	230. 0	JCP& L	20629 4	28LARRABE E	230. 0	JCP&L	2	JC-P1-2- JCC-230- 014	single	817.0	100.13	128.8	AC	241.2
4097893 0	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	JC-P7-1- JCC-230-13	tower	692.0	166.74	193.03	AC	180.57
4097893 2	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P7-1 AE15TOWER	tower	692.0	155.66	165.31	AC	67.16
4152201 6	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P4-2 AE46	breaker	692.0	142.91	152.31	AC	65.48
4152201 8	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P4-2 AE9	breaker	692.0	145.03	154.05	AC	62.46
7170115 3	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P1-2 ORCH- CARD	single	692.0	141.38	149.96	AC	60.67
7170116 0	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P1-2 DOR-LEWIS	single	692.0	115.39	122.57	AC	49.99

12.4 Steady-State Voltage Requirements

To be determined

12.5 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	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC/D C	MW IMPAC T
424222 16	20629 4	28LARRABE E	230. 0	JCP& L	20630 9	28SMITHBR G	230. 0	JCP& L	2	JC-P1-2-JCC-230-017	operati on	813.0	90.12	106.69	AC	138.91
424223 42	20629 4	28LARRABE E	230. 0	JCP& L	20630 9	28SMITHBR G	230. 0	JCP& L	1	JC-P1-2-JCC-230-018	operati on	817.0	82.84	97.83	AC	127.43
424223 04	20629 5	28LEISUR D	230. 0	JCP& L	20632 3	28LAKEWO OD	230. 0	JCP& L	1	JC-P1-2-JCC-230-020	operati on	869.0	76.73	102.49	AC	227.88
424222 10	20629 6	28LEISUR U	230. 0	JCP& L	20632 3	28LAKEWO OD	230. 0	JCP& L	1	JC-P1-2-JCC-230-019	operati on	817.0	85.57	112.87	AC	226.8
424221 82	20629 7	28MANITO U	230. 0	JCP& L	20629 6	28LEISUR U	230. 0	JCP& L	1	JC-P1-2-JCC-230-019	operati on	817.0	92.0	119.74	AC	230.2
424221 88	20629 7	28MANITO U	230. 0	JCP& L	20629 5	28LEISUR D	230. 0	JCP& L	1	JC-P1-2-JCC-230-020	operati on	817.0	91.68	119.42	AC	230.2
424220 90	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP& L	1	JC-P1-2-JCC-230-022	operati on	817.0	141.3	179.94	AC	317.61
424220 91	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP& L	1	Base Case	operati on	650.0	94.62	120.44	AC	171.46
424221 11	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP& L	2	JC-P1-2-JCC-230-021	operati on	869.0	132.87	169.19	AC	317.67
424221 12	20630 2	28OYSTER C	230. 0	JCP& L	20629 7	28MANITO U	230. 0	JCP& L	2	Base Case	operati on	709.0	86.85	110.54	AC	171.67
424222 78	20631 4	28RED OAKA	230. 0	JCP& L	20630 5	28RAR RVR	230. 0	JCP& L	1	JC-P1-2-JCC-230-027	operati on	869.0	89.21	97.44	AC	72.17
424222 42	20631 5	28RED OAKB	230. 0	JCP& L	20630 5	28RAR RVR	230. 0	JCP& L	1	JC-P1-2-JCC-230-028	operati on	869.0	91.24	99.28	AC	71.81
717020 98	20631 6	28WINDSO R	230. 0	JCP& L	21975 2	CLRKSVLL_1	230. 0	PSE& G	1	PJM500_PS_P1-2_5022	operati on	813.0	80.29	87.62	AC	61.03
424221 28	20632 3	28LAKEWO OD	230. 0	JCP& L	20629 4	28LARRABE E	230. 0	JCP& L	2	JC-P1-2-JCC-230-014	operati on	817.0	100.11	128.8	AC	241.2
424221 34	20632 3	28LAKEWO OD	230. 0	JCP& L	20629 4	28LARRABE E	230. 0	JCP& L	1	JC-P1-2-JCC-230-013	operati on	869.0	94.44	121.43	AC	241.23
494606 88	20632 6	28E WINDSR	230. 0	JCP& L	20631 6	28WINDSO R	230. 0	JCP& L	1	PJM500_PS_P1-2_5022	operati on	869.0	81.86	88.41	AC	58.11
424225 97	20641 0	28R11RING B	230. 0	JCP& L	20631 5	28RED OAKB	230. 0	JCP& L	1	JC-P1-2-JCC-230-028	operati on	869.0	76.79	84.93	AC	72.49
424225 49	20641 1	28R11RING A	230. 0	JCP& L	20631 4	28RED OAKA	230. 0	JCP& L	1	JC-P1-2-JCC-230-027	operati on	869.0	78.41	86.66	AC	72.73
424224 95	21392 2	RICHMOND	230. 0	PECO	21401 2	WANEETA3	230. 0	PECO	1	Base Case	operati on	760.0	82.44	91.31	AC	52.37
494602 45	21392 2	RICHMOND	230. 0	PECO	21401 2	WANEETA3	230. 0	PECO	1	PJM500_PS_P1-2_5015	operati on	1180. 0	81.06	86.69	AC	67.61
411849 67	22790 0	CARDIFF	230. 0	AE	21910 0	NEWFRDM	230. 0	PSE& G	1	AE_P1-2 ORCH-CARD	operati on	692.0	140.33	149.02	AC	60.67

12.6 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-101	Upgrade Number
42138102,71701558	1	28LARRABE E 230.0 kV - 28SMITHBR G 230.0 kV Ckt 2	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
71701579,42138107,42138108	2	28LARRABE E 230.0 kV - 28SMITHBR G 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
71701600,71701602	4	28LEISUR U 230.0 kV - 28LAKEWO OD 230.0 kV Ckt 1	Reconductor the Leisure Village - Lakewood Ckt U 230 kV transmission line (~2.4 miles). Replace wire trap at Leisure Village Cost: \$11,444,599 Time: 30 Months New Ratings: 815/954/954 MVA AF1-101 is the driver for this upgrade	\$11,444,599	\$11,444,599	N6428
71701160,71701153,41522016,40978930,40978932,41522018	28	CARDIFF 230.0 kV - NEWFRDM 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
40978940	26	MNOTLA 2 138.0 kV - MNOTLA 1 138.0 kV Ckt 1	Loading is higher in Summer Peak Load Flow. AEC: Not an overload. The new ratings after Minotola 138 kV has been converted into a ring bus is 956 SE MVA.	\$0	\$0	-
71701727,71701724	3	28LEISUR D 230.0 kV - 28LAKEWO OD 230.0 kV Ckt 1	Reconductor the Leisure Village - Lakewood Ckt D 230 kV transmission line (~2.4 miles). Cost: \$11,276,790 Time: 30 Months New Ratings: 757/920/920 MVA AF1-101 is the driver for this upgrade	\$11,276,790	\$11,276,790	N6429
40978935	21	28OYSTER C 230.0 kV - CEDAR 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-

71701204,4242 2095	7	28OYSTER C 230.0 kV - 28MANITOU 230.0 kV Ckt 1	Upgrade 1 (N6547): Reconnector the Oyster Creek - Manitou 230 kV transmission line (~11.1 miles) Cost: \$52,322,963 Time: 48 Months New Ratings: 815/923/923 MVA Cost allocation is as follows: <table><tr><th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost</th></tr><tr><td>AE2-020</td><td>1.6</td><td>0.2%</td><td>129,251</td></tr><tr><td>AE2-021</td><td>100.3</td><td>16%</td><td>8,166,845</td></tr><tr><td>AE2-022</td><td>58.5</td><td>9%</td><td>4,763,314</td></tr><tr><td>AE2-222</td><td>45.5</td><td>7%</td><td>3,704,800</td></tr><tr><td>AE2-251</td><td>119.1</td><td>19%</td><td>9,697,620</td></tr><tr><td>AF1-101</td><td>317.6</td><td>49%</td><td>25,861,133</td></tr></table> Upgrade 2 (N6547.1): Replace wave traps at Oyster Creek and Manitou Replace relaying and metering at Oyster Creek and Manitou Replace disconnect switches at Oyster Creek and Manitou Replace relaying at Oyster Creek Replace current transformers and relaying at Manitou Cost: \$2,953,445 Time: 12 Months New Ratings: 1162/1519/1519 MVA Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.	Queue	MW contribution	% of Cost	Cost	AE2-020	1.6	0.2%	129,251	AE2-021	100.3	16%	8,166,845	AE2-022	58.5	9%	4,763,314	AE2-222	45.5	7%	3,704,800	AE2-251	119.1	19%	9,697,620	AF1-101	317.6	49%	25,861,133	\$52,322,963	\$25,861,133	N6547, N6547.1
Queue	MW contribution	% of Cost	Cost																															
AE2-020	1.6	0.2%	129,251																															
AE2-021	100.3	16%	8,166,845																															
AE2-022	58.5	9%	4,763,314																															
AE2-222	45.5	7%	3,704,800																															
AE2-251	119.1	19%	9,697,620																															
AF1-101	317.6	49%	25,861,133																															

71701252,4242 2116	8	28OYSTER C 230.0 kV - 28MANITOU 230.0 kV Ckt 2	Upgrade 1 (N6549): Reconnector the Manitou - Oyster Creek Ckt O1029 230 kV transmission line (~11.1 miles). Cost: \$52,155,154 Time: 48 Months New Ratings: 815/923/923 MVA Cost allocation is as follows: <table><thead><tr><th>Queue</th><th>MW contribution</th><th>% of Cost</th><th>Cost</th></tr></thead><tbody><tr><td>AE2-021</td><td>48.9</td><td>7%</td><td>3,807,550</td></tr><tr><td>AE2-022</td><td>58.5</td><td>9%</td><td>4,558,993</td></tr><tr><td>AE2-222</td><td>45.5</td><td>7%</td><td>3,543,461</td></tr><tr><td>AE2-251</td><td>199.1</td><td>30%</td><td>15,505,562</td></tr><tr><td>AF1-101</td><td>317.7</td><td>47%</td><td>24,739,587</td></tr></tbody></table> Upgrade 2 (N6549.1): Replace wave traps at Manitou and Oyster Creek. Replace relaying, metering, and fault switches at Manitou and Oyster Creek. Replace disconnect switches at Manitou and Oyster Creek. Cost: \$2,584,264 Time: 12 Months New Ratings: 1306/1603/1603 MVA Queue Project AF1-101 presently does not receive cost allocation for this upgrade. Note 1: as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, Queue Project AF1-101 could receive cost allocation. Note 2: Although Queue Project AF1-101 may not have cost responsibility for this upgrade, Queue Project AF1-101 may need this upgrade in-service to be deliverable to the PJM system. If Queue Project AF1-101 comes into service prior to completion of the upgrade, Queue Project AF1-101 will need an interim study.	Queue	MW contribution	% of Cost	Cost	AE2-021	48.9	7%	3,807,550	AE2-022	58.5	9%	4,558,993	AE2-222	45.5	7%	3,543,461	AE2-251	199.1	30%	15,505,562	AF1-101	317.7	47%	24,739,587	\$52,155,154	\$24,739,587	N6549, N6549.1
Queue	MW contribution	% of Cost	Cost																											
AE2-021	48.9	7%	3,807,550																											
AE2-022	58.5	9%	4,558,993																											
AE2-222	45.5	7%	3,543,461																											
AE2-251	199.1	30%	15,505,562																											
AF1-101	317.7	47%	24,739,587																											
42138088,4213 8087,42422247	10	28RED OAKB 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-																								

42138092,4242 2283	9	28RED OAKA 230.0 kV - 28RAR RVR 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42422133	27	28LAKEWO OD 230.0 kV - 28LARRABE E 230.0 kV Ckt 2	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42704375	25	CARDIFF 230.0 kV - ORCHARD 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42422139	12	28LAKEWO OD 230.0 kV - 28LARRABE E 230.0 kV Ckt 1	Reconductor the Lakewood Gen - Larrabee K2011 230 kV transmission line (~7.6 miles). Replace substation conductor at Lakewood. Replace wave trap at Larrabee. Replace wave trap at Lakewood. Cost: \$36,985,186 Time: 42 Months New Ratings: 913/1147/1147 MVA AF1-101 is the driver for this upgrade	\$36,985,186	\$36,985,186	N6431
71701511,7170 1513	5	28MANITOU 230.0 kV - 28LEISUR U 230.0 kV Ckt 1	Replace substation conductor at Manitou and Leisure Village. Reconductor the Manitou - Leisure Village U 230 kV transmission line (~7.1 miles). Replace wave traps at Leisure Village and Manitou. Replace metering and relaying at Leisure Village and Manitou. Replace circuit breaker at Leisure Village Cost: \$35,307,093 Time: 42 Months New Ratings: 913/1147/1147 MVA AF1-101 is the driver for this upgrade	\$35,307,093	\$35,307,093	N6432

71701528,71701531	6	28MANITOU 230.0 kV - 28LEISUR D 230.0 kV Ckt 1	Replace substation conductor at Manitou and Leisure Village. Reconductor the Manitou - Leisure Village D 230 kV transmission line (~7.1 miles). Replace wave traps at Leisure Village and Manitou. Replace metering at Manitou. Cost: \$34,233,113 Time: 42 Months New Ratings: 913/1147/1147 MVA AF1-101 is the driver for this upgrade	\$34,233,113	\$34,233,113	N6433
42704349,42704350	18	28MANITOU 230.0 kV - 28WHITING S 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42704374,42704372	22	28VANHISVL 230.0 kV - 28LARRABE E 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42704362,42704361	23	28WHITING S 230.0 kV - 28MANCHST R 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
42704364,42704365	24	28MANCHST R 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	Refer to AF1-101 Summer Peak Load Flow Report for reinforcement.	\$0	\$0	-
TOTAL COST				\$233,724,898	\$179,847,501	

Note : For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates \$0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently \$0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

12.7 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

12.7.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138102	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	2	JC-P2-3-JCC-230-15F	breaker	813.0	91.24	107.82	AC	138.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	67.8581	50/50	67.8581
938421	AE1-061 C	0.1293	Adder	0.15
938422	AE1-061 E	0.1293	Adder	0.15
938781	AE1-104 C O1	6.5257	Adder	7.68
938782	AE1-104 E O1	16.6960	Adder	19.64
939981	AE1-238 C	37.4850	50/50	37.4850
939982	AE1-238 E	98.4606	50/50	98.4606
940161	AE2-000 C O1	55.3732	50/50	55.3732
940162	AE2-000 E O1	141.6810	50/50	141.6810
940361	AE2-020 C	8.5442	50/50	8.5442
940362	AE2-020 E	40.0044	50/50	40.0044
940371	AE2-021 C	8.5442	50/50	8.5442
940372	AE2-021 E	40.0044	50/50	40.0044
940381	AE2-022 C	4.9841	50/50	4.9841
940382	AE2-022 E	23.3359	50/50	23.3359
940401	AE2-024 C O1	46.2374	50/50	46.2374
940402	AE2-024 E O1	216.4786	50/50	216.4786
940411	AE2-025 C	23.3406	50/50	23.3406
940412	AE2-025 E	109.2684	50/50	109.2684
942101	AE2-222 C O1	5.4223	Adder	6.38
942102	AE2-222 E O1	13.6211	Adder	16.02
942381	AE2-251 C	27.0677	50/50	27.0677
942382	AE2-251 E	69.2587	50/50	69.2587
943561	AF1-027	0.3099	50/50	0.3099
944332	AF1-101 E O1	138.9039	50/50	138.9039
944611	AF1-126 C O1	10.4795	50/50	10.4795
944612	AF1-126 E O1	41.9180	50/50	41.9180
945201	AF1-185 1	0.2617	Adder	0.31
945211	AF1-185 2	0.0581	Adder	0.07
945571	AF1-222 C	23.3657	50/50	23.3657
945572	AF1-222 E	61.6004	50/50	61.6004
945731	AF1-238 C	2.1835	Adder	2.57
945732	AF1-238 E	3.2753	Adder	3.85
945741	AF1-239 C	0.5138	Adder	0.6
945742	AF1-239 E	0.7707	Adder	0.91

12.7.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138107	206294	28LARRABEE	JCP&L	206309	28SMITHBRG	JCP&L	1	JC-P2-3-JCC-230-15G	breaker	817.0	90.79	107.29	AC	138.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	67.8581	50/50	67.8581
938421	AE1-061 C	0.1293	Adder	0.15
938422	AE1-061 E	0.1293	Adder	0.15
938781	AE1-104 C O1	6.5257	Adder	7.68
938782	AE1-104 E O1	16.6960	Adder	19.64
939981	AE1-238 C	37.4850	50/50	37.4850
939982	AE1-238 E	98.4606	50/50	98.4606
940161	AE2-000 C O1	55.3732	50/50	55.3732
940162	AE2-000 E O1	141.6810	50/50	141.6810
940361	AE2-020 C	8.5442	50/50	8.5442
940362	AE2-020 E	40.0044	50/50	40.0044
940371	AE2-021 C	8.5442	50/50	8.5442
940372	AE2-021 E	40.0044	50/50	40.0044
940381	AE2-022 C	4.9841	50/50	4.9841
940382	AE2-022 E	23.3359	50/50	23.3359
940401	AE2-024 C O1	46.2374	50/50	46.2374
940402	AE2-024 E O1	216.4786	50/50	216.4786
940411	AE2-025 C	23.3406	50/50	23.3406
940412	AE2-025 E	109.2684	50/50	109.2684
942101	AE2-222 C O1	5.4223	Adder	6.38
942102	AE2-222 E O1	13.6211	Adder	16.02
942381	AE2-251 C	27.0677	50/50	27.0677
942382	AE2-251 E	69.2587	50/50	69.2587
943561	AF1-027	0.3099	50/50	0.3099
944332	AF1-101 E O1	138.9039	50/50	138.9039
944611	AF1-126 C O1	10.4795	50/50	10.4795
944612	AF1-126 E O1	41.9180	50/50	41.9180
945201	AF1-185 1	0.2617	Adder	0.31
945211	AF1-185 2	0.0581	Adder	0.07
945571	AF1-222 C	23.3657	50/50	23.3657
945572	AF1-222 E	61.6004	50/50	61.6004
945731	AF1-238 C	2.1835	Adder	2.57
945732	AF1-238 E	3.2753	Adder	3.85
945741	AF1-239 C	0.5138	Adder	0.6
945742	AF1-239 E	0.7707	Adder	0.91

1.1.1 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
71701724	206295	28LEISUR D	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-020	single	869.0	76.75	102.51	AC	227.88

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	111.3232	80/20	111.3232
938421	AE1-061 C	0.2100	80/20	0.2100
938422	AE1-061 E	0.2100	80/20	0.2100
938781	AE1-104 C O1	11.5592	80/20	11.5592
938782	AE1-104 E O1	29.5741	80/20	29.5741
939301	AE1-161 C	1.2032	80/20	1.2032
939302	AE1-161 E	1.8048	80/20	1.8048
940161	AE2-000 C O1	90.8413	80/20	90.8413
940162	AE2-000 E O1	232.4318	80/20	232.4318
940361	AE2-020 C	13.1245	80/20	13.1245
940362	AE2-020 E	61.4498	80/20	61.4498
940371	AE2-021 C	13.1245	80/20	13.1245
940372	AE2-021 E	61.4498	80/20	61.4498
940381	AE2-022 C	7.6559	80/20	7.6559
940382	AE2-022 E	35.8457	80/20	35.8457
942101	AE2-222 C O1	9.7269	80/20	9.7269
942102	AE2-222 E O1	24.4347	80/20	24.4347
942381	AE2-251 C	41.5781	80/20	41.5781
942382	AE2-251 E	106.3867	80/20	106.3867
944332	AF1-101 E O1	227.8758	80/20	227.8758
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5769	80/20	0.5769
945731	AF1-238 C	3.5777	80/20	3.5777
945732	AF1-238 E	5.3665	80/20	5.3665
945741	AF1-239 C	0.8418	80/20	0.8418
945742	AF1-239 E	1.2627	80/20	1.2627

12.7.3 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
71701600	206296	28LEISUR U	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-019	single	817.0	85.59	112.9	AC	226.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	110.7972	80/20	110.7972
938421	AE1-061 C	0.2089	80/20	0.2089
938422	AE1-061 E	0.2089	80/20	0.2089
938781	AE1-104 C O1	11.5019	80/20	11.5019
938782	AE1-104 E O1	29.4275	80/20	29.4275
939301	AE1-161 C	1.1966	80/20	1.1966
939302	AE1-161 E	1.7949	80/20	1.7949
940161	AE2-000 C O1	90.4121	80/20	90.4121
940162	AE2-000 E O1	231.3335	80/20	231.3335
940361	AE2-020 C	13.0598	80/20	13.0598
940362	AE2-020 E	61.1468	80/20	61.1468
940371	AE2-021 C	13.0598	80/20	13.0598
940372	AE2-021 E	61.1468	80/20	61.1468
940381	AE2-022 C	7.6182	80/20	7.6182
940382	AE2-022 E	35.6690	80/20	35.6690
942101	AE2-222 C O1	9.6791	80/20	9.6791
942102	AE2-222 E O1	24.3145	80/20	24.3145
942381	AE2-251 C	41.3731	80/20	41.3731
942382	AE2-251 E	105.8621	80/20	105.8621
944332	AF1-101 E O1	226.7991	80/20	226.7991
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5739	80/20	0.5739
945731	AF1-238 C	3.5588	80/20	3.5588
945732	AF1-238 E	5.3382	80/20	5.3382
945741	AF1-239 C	0.8374	80/20	0.8374
945742	AF1-239 E	1.2560	80/20	1.2560

12.7.4 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
71701513	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	JC-P1-2-JCC-230-016	single	817.0	91.38	119.12	AC	230.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	112.4382	80/20	112.4382
938421	AE1-061 C	0.2118	80/20	0.2118
938422	AE1-061 E	0.2118	80/20	0.2118
938781	AE1-104 C O1	11.6690	80/20	11.6690
938782	AE1-104 E O1	29.8549	80/20	29.8549
939301	AE1-161 C	1.2134	80/20	1.2134
939302	AE1-161 E	1.8201	80/20	1.8201
940161	AE2-000 C O1	91.7512	80/20	91.7512
940162	AE2-000 E O1	234.7598	80/20	234.7598
940361	AE2-020 C	13.2505	80/20	13.2505
940362	AE2-020 E	62.0398	80/20	62.0398
940371	AE2-021 C	13.2505	80/20	13.2505
940372	AE2-021 E	62.0398	80/20	62.0398
940381	AE2-022 C	7.7295	80/20	7.7295
940382	AE2-022 E	36.1899	80/20	36.1899
942101	AE2-222 C O1	9.8199	80/20	9.8199
942102	AE2-222 E O1	24.6681	80/20	24.6681
942381	AE2-251 C	41.9774	80/20	41.9774
942382	AE2-251 E	107.4082	80/20	107.4082
944332	AF1-101 E O1	230.1582	80/20	230.1582
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5819	80/20	0.5819
945731	AF1-238 C	3.6098	80/20	3.6098
945732	AF1-238 E	5.4147	80/20	5.4147
945741	AF1-239 C	0.8494	80/20	0.8494
945742	AF1-239 E	1.2740	80/20	1.2740

12.7.5 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
71701528	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	JC-P1-2-JCC-230-020	single	817.0	91.71	119.45	AC	230.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	112.4607	80/20	112.4607
938421	AE1-061 C	0.2119	80/20	0.2119
938422	AE1-061 E	0.2119	80/20	0.2119
938781	AE1-104 C O1	11.6709	80/20	11.6709
938782	AE1-104 E O1	29.8598	80/20	29.8598
939301	AE1-161 C	1.2138	80/20	1.2138
939302	AE1-161 E	1.8207	80/20	1.8207
940161	AE2-000 C O1	91.7695	80/20	91.7695
940162	AE2-000 E O1	234.8067	80/20	234.8067
940361	AE2-020 C	13.2531	80/20	13.2531
940362	AE2-020 E	62.0518	80/20	62.0518
940371	AE2-021 C	13.2531	80/20	13.2531
940372	AE2-021 E	62.0518	80/20	62.0518
940381	AE2-022 C	7.7309	80/20	7.7309
940382	AE2-022 E	36.1969	80/20	36.1969
942101	AE2-222 C O1	9.8219	80/20	9.8219
942102	AE2-222 E O1	24.6733	80/20	24.6733
942381	AE2-251 C	41.9854	80/20	41.9854
942382	AE2-251 E	107.4290	80/20	107.4290
944332	AF1-101 E O1	230.2043	80/20	230.2043
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5821	80/20	0.5821
945731	AF1-238 C	3.6103	80/20	3.6103
945732	AF1-238 E	5.4154	80/20	5.4154
945741	AF1-239 C	0.8495	80/20	0.8495
945742	AF1-239 E	1.2742	80/20	1.2742

12.7.6 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
42422095	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	141.35	180.04	AC	317.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	155.1615	80/20	155.1615
938421	AE1-061 C	0.2671	80/20	0.2671
938422	AE1-061 E	0.2671	80/20	0.2671
938781	AE1-104 C O1	15.3654	80/20	15.3654
938782	AE1-104 E O1	39.3120	80/20	39.3120
938871	AE1-115 C	0.5422	80/20	0.5422
938872	AE1-115 E	0.5422	80/20	0.5422
939301	AE1-161 C	1.4820	80/20	1.4820
939302	AE1-161 E	2.2230	80/20	2.2230
940161	AE2-000 C O1	126.6140	80/20	126.6140
940162	AE2-000 E O1	323.9617	80/20	323.9617
940361	AE2-020 C	17.6742	80/20	17.6742
940362	AE2-020 E	82.7517	80/20	82.7517
940371	AE2-021 C	17.6742	80/20	17.6742
940372	AE2-021 E	82.7517	80/20	82.7517
940381	AE2-022 C	10.3099	80/20	10.3099
940382	AE2-022 E	48.2718	80/20	48.2718
942101	AE2-222 C O1	13.0460	80/20	13.0460
942102	AE2-222 E O1	32.7724	80/20	32.7724
942381	AE2-251 C	55.9914	80/20	55.9914
942382	AE2-251 E	143.2662	80/20	143.2662
944332	AF1-101 E O1	317.6116	80/20	317.6116
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.7142	80/20	0.7142
945731	AF1-238 C	4.5395	80/20	4.5395
945732	AF1-238 E	6.8093	80/20	6.8093
945741	AF1-239 C	1.0681	80/20	1.0681
945742	AF1-239 E	1.6022	80/20	1.6022

12.7.7 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
42422116	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	single	869.0	132.91	169.29	AC	317.67

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	155.1907	80/20	155.1907
938421	AE1-061 C	0.2671	80/20	0.2671
938422	AE1-061 E	0.2671	80/20	0.2671
938781	AE1-104 C O1	15.3683	80/20	15.3683
938782	AE1-104 E O1	39.3195	80/20	39.3195
938871	AE1-115 C	0.5423	80/20	0.5423
938872	AE1-115 E	0.5423	80/20	0.5423
939301	AE1-161 C	1.4822	80/20	1.4822
939302	AE1-161 E	2.2233	80/20	2.2233
940161	AE2-000 C O1	126.6378	80/20	126.6378
940162	AE2-000 E O1	324.0227	80/20	324.0227
940361	AE2-020 C	17.6767	80/20	17.6767
940362	AE2-020 E	82.7636	80/20	82.7636
940371	AE2-021 C	17.6767	80/20	17.6767
940372	AE2-021 E	82.7636	80/20	82.7636
940381	AE2-022 C	10.3114	80/20	10.3114
940382	AE2-022 E	48.2788	80/20	48.2788
942101	AE2-222 C O1	13.0488	80/20	13.0488
942102	AE2-222 E O1	32.7792	80/20	32.7792
942381	AE2-251 C	55.9995	80/20	55.9995
942382	AE2-251 E	143.2869	80/20	143.2869
944332	AF1-101 E O1	317.6715	80/20	317.6715
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.7143	80/20	0.7143
945731	AF1-238 C	4.5405	80/20	4.5405
945732	AF1-238 E	6.8108	80/20	6.8108
945741	AF1-239 C	1.0684	80/20	1.0684
945742	AF1-239 E	1.6025	80/20	1.6025

12.7.8 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138092	206314	28RED OAKA	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	95.73	103.94	AC	72.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	35.3813	50/50	35.3813
938781	AE1-104 C O1	4.5073	Adder	5.3
938782	AE1-104 E O1	11.5320	Adder	13.57
939981	AE1-238 C	53.8650	50/50	53.8650
939982	AE1-238 E	141.4854	50/50	141.4854
940161	AE2-000 C O1	28.8716	50/50	28.8716
940162	AE2-000 E O1	73.8726	50/50	73.8726
940361	AE2-020 C	4.6750	Adder	5.5
940362	AE2-020 E	21.8886	Adder	25.75
940371	AE2-021 C	4.6750	Adder	5.5
940372	AE2-021 E	21.8886	Adder	25.75
940381	AE2-022 C	2.7271	Adder	3.21
940382	AE2-022 E	12.7683	Adder	15.02
940401	AE2-024 C O1	23.4782	50/50	23.4782
940402	AE2-024 E O1	109.9225	50/50	109.9225
940411	AE2-025 C	11.8518	50/50	11.8518
940412	AE2-025 E	55.4838	50/50	55.4838
942101	AE2-222 C O1	3.5572	Adder	4.18
942102	AE2-222 E O1	8.9358	Adder	10.51
942381	AE2-251 C	14.8102	Adder	17.42
942382	AE2-251 E	37.8952	Adder	44.58
943561	AF1-027	0.2162	50/50	0.2162
944332	AF1-101 E O1	72.4246	50/50	72.4246
944611	AF1-126 C O1	5.7640	50/50	5.7640
944612	AF1-126 E O1	23.0560	50/50	23.0560
945571	AF1-222 C	33.5759	50/50	33.5759
945572	AF1-222 E	88.5182	50/50	88.5182

12.7.9 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42138087	206315	28RED OAKB	JCP&L	206305	28RAR RVR	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	97.04	105.12	AC	72.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	35.2104	50/50	35.2104
938781	AE1-104 C O1	4.4776	Adder	5.27
938782	AE1-104 E O1	11.4559	Adder	13.48
939981	AE1-238 C	53.6256	50/50	53.6256
939982	AE1-238 E	140.8566	50/50	140.8566
940161	AE2-000 C O1	28.7322	50/50	28.7322
940162	AE2-000 E O1	73.5159	50/50	73.5159
940361	AE2-020 C	4.6460	Adder	5.47
940362	AE2-020 E	21.7530	Adder	25.59
940371	AE2-021 C	4.6460	Adder	5.47
940372	AE2-021 E	21.7530	Adder	25.59
940381	AE2-022 C	2.7102	Adder	3.19
940382	AE2-022 E	12.6893	Adder	14.93
940401	AE2-024 C O1	23.3689	50/50	23.3689
940402	AE2-024 E O1	109.4109	50/50	109.4109
940411	AE2-025 C	11.7966	50/50	11.7966
940412	AE2-025 E	55.2256	50/50	55.2256
942101	AE2-222 C O1	3.5345	Adder	4.16
942102	AE2-222 E O1	8.8789	Adder	10.45
942381	AE2-251 C	14.7185	Adder	17.32
942382	AE2-251 E	37.6605	Adder	44.31
943561	AF1-027	0.2151	50/50	0.2151
944332	AF1-101 E O1	72.0749	50/50	72.0749
944611	AF1-126 C O1	5.7345	50/50	5.7345
944612	AF1-126 E O1	22.9380	50/50	22.9380
945571	AF1-222 C	33.4266	50/50	33.4266
945572	AF1-222 E	88.1247	50/50	88.1247

12.7.10 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
71702095	206316	28WINDSOR	JCP&L	219752	CLRKSVLL_1	PSE&G	1	PJM500_PS_P1-2_5022	single	813.0	82.96	90.34	AC	61.03

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	29.8130	80/20	29.8130
937523	AD2-213 BAT	1.8078	80/20	1.8078
938781	AE1-104 C O1	5.6815	80/20	5.6815
938782	AE1-104 E O1	14.5361	80/20	14.5361
939981	AE1-238 C	24.7554	80/20	24.7554
939982	AE1-238 E	65.0242	80/20	65.0242
940161	AE2-000 C O1	24.3278	80/20	24.3278
940162	AE2-000 E O1	62.2465	80/20	62.2465
940361	AE2-020 C	5.6490	80/20	5.6490
940362	AE2-020 E	26.4490	80/20	26.4490
940371	AE2-021 C	5.6490	80/20	5.6490
940372	AE2-021 E	26.4490	80/20	26.4490
940381	AE2-022 C	3.2952	80/20	3.2952
940382	AE2-022 E	15.4286	80/20	15.4286
940401	AE2-024 C O1	19.3876	80/20	19.3876
940402	AE2-024 E O1	90.7707	80/20	90.7707
940411	AE2-025 C	9.7869	80/20	9.7869
940412	AE2-025 E	45.8168	80/20	45.8168
942101	AE2-222 C O1	4.3004	80/20	4.3004
942102	AE2-222 E O1	10.8028	80/20	10.8028
942381	AE2-251 C	17.8959	80/20	17.8959
942382	AE2-251 E	45.7905	80/20	45.7905
943561	AF1-027	0.2992	80/20	0.2992
944332	AF1-101 E O1	61.0264	80/20	61.0264
944432	AF1-108 BAT	1.8658	80/20	1.8658
944442	AF1-109 BAT	5.2358	80/20	5.2358
944611	AF1-126 C O1	4.6165	80/20	4.6165
944612	AF1-126 E O1	18.4660	80/20	18.4660
945201	AF1-185 1	0.2916	80/20	0.2916
945211	AF1-185 2	0.0648	80/20	0.0648
945571	AF1-222 C	15.4309	80/20	15.4309
945572	AF1-222 E	40.6814	80/20	40.6814
945723	AF1-237 BAT	38.0920	80/20	38.0920

12.7.11 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42422139	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P1-2-JCC-230-013	single	869.0	94.46	121.43	AC	241.23

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	117.8447	80/20	117.8447
938421	AE1-061 C	0.2179	80/20	0.2179
938422	AE1-061 E	0.2179	80/20	0.2179
938781	AE1-104 C O1	12.0982	80/20	12.0982
938782	AE1-104 E O1	30.9532	80/20	30.9532
939301	AE1-161 C	1.2406	80/20	1.2406
939302	AE1-161 E	1.8609	80/20	1.8609
940161	AE2-000 C O1	96.1629	80/20	96.1629
940162	AE2-000 E O1	246.0479	80/20	246.0479
940361	AE2-020 C	13.7836	80/20	13.7836
940362	AE2-020 E	64.5356	80/20	64.5356
940371	AE2-021 C	13.7836	80/20	13.7836
940372	AE2-021 E	64.5356	80/20	64.5356
940381	AE2-022 C	8.0404	80/20	8.0404
940382	AE2-022 E	37.6458	80/20	37.6458
942101	AE2-222 C O1	10.2053	80/20	10.2053
942102	AE2-222 E O1	25.6363	80/20	25.6363
942381	AE2-251 C	43.6661	80/20	43.6661
942382	AE2-251 E	111.7292	80/20	111.7292
944332	AF1-101 E O1	241.2251	80/20	241.2251
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5941	80/20	0.5941
945731	AF1-238 C	3.7052	80/20	3.7052
945732	AF1-238 E	5.5577	80/20	5.5577
945741	AF1-239 C	0.8718	80/20	0.8718
945742	AF1-239 E	1.3077	80/20	1.3077

12.7.12 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
71702122	206326	28E WINDSR	JCP&L	206316	28WINDSOR	JCP&L	1	PJM500_PS_P1-2_5022	single	869.0	84.42	91.02	AC	58.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	28.3877	80/20	28.3877
937523	AD2-213 BAT	1.7910	80/20	1.7910
938781	AE1-104 C O1	5.6650	80/20	5.6650
938782	AE1-104 E O1	14.4938	80/20	14.4938
939981	AE1-238 C	23.1534	80/20	23.1534
939982	AE1-238 E	60.8163	80/20	60.8163
940161	AE2-000 C O1	23.1648	80/20	23.1648
940162	AE2-000 E O1	59.2708	80/20	59.2708
940361	AE2-020 C	5.5843	80/20	5.5843
940362	AE2-020 E	26.1460	80/20	26.1460
940371	AE2-021 C	5.5843	80/20	5.5843
940372	AE2-021 E	26.1460	80/20	26.1460
940381	AE2-022 C	3.2575	80/20	3.2575
940382	AE2-022 E	15.2518	80/20	15.2518
940401	AE2-024 C O1	18.4997	80/20	18.4997
940402	AE2-024 E O1	86.6135	80/20	86.6135
940411	AE2-025 C	9.3386	80/20	9.3386
940412	AE2-025 E	43.7185	80/20	43.7185
942101	AE2-222 C O1	4.2601	80/20	4.2601
942102	AE2-222 E O1	10.7015	80/20	10.7015
942381	AE2-251 C	17.6909	80/20	17.6909
942382	AE2-251 E	45.2659	80/20	45.2659
944332	AF1-101 E O1	58.1090	80/20	58.1090
944432	AF1-108 BAT	1.8470	80/20	1.8470
944442	AF1-109 BAT	5.0882	80/20	5.0882
944611	AF1-126 C O1	4.0240	80/20	4.0240
944612	AF1-126 E O1	16.0960	80/20	16.0960
945201	AF1-185 1	0.2324	80/20	0.2324
945211	AF1-185 2	0.0516	80/20	0.0516
945571	AF1-222 C	14.4323	80/20	14.4323
945572	AF1-222 E	38.0488	80/20	38.0488
945723	AF1-237 BAT	37.0800	80/20	37.0800

12.7.13 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
42138212	206410	28R11RINGB	JCP&L	206315	28RED OAKB	JCP&L	1	JC-P2-3-JCC-230-26D	breaker	869.0	82.98	91.2	AC	72.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	35.5409	50/50	35.5409
938781	AE1-104 C O1	4.5981	Adder	5.41
938782	AE1-104 E O1	11.7643	Adder	13.84
939981	AE1-238 C	53.8902	50/50	53.8902
939982	AE1-238 E	141.5516	50/50	141.5516
940161	AE2-000 C O1	29.0019	50/50	29.0019
940162	AE2-000 E O1	74.2058	50/50	74.2058
940361	AE2-020 C	4.7524	Adder	5.59
940362	AE2-020 E	22.2512	Adder	26.18
940371	AE2-021 C	4.7524	Adder	5.59
940372	AE2-021 E	22.2512	Adder	26.18
940381	AE2-022 C	2.7722	Adder	3.26
940382	AE2-022 E	12.9799	Adder	15.27
940401	AE2-024 C O1	23.5503	50/50	23.5503
940402	AE2-024 E O1	110.2597	50/50	110.2597
940411	AE2-025 C	11.8882	50/50	11.8882
940412	AE2-025 E	55.6540	50/50	55.6540
942101	AE2-222 C O1	3.6199	Adder	4.26
942102	AE2-222 E O1	9.0934	Adder	10.7
942381	AE2-251 C	15.0556	Adder	17.71
942382	AE2-251 E	38.5230	Adder	45.32
943561	AF1-027	0.2180	50/50	0.2180
944332	AF1-101 E O1	72.7513	50/50	72.7513
944611	AF1-126 C O1	5.8080	50/50	5.8080
944612	AF1-126 E O1	23.2320	50/50	23.2320
945571	AF1-222 C	33.5916	50/50	33.5916
945572	AF1-222 E	88.5596	50/50	88.5596

12.7.14 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
42138203	206411	28R11RINGA	JCP&L	206314	28RED OAKA	JCP&L	1	JC-P2-3-JCC-230-26B	breaker	869.0	84.79	93.03	AC	72.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	35.6555	50/50	35.6555
938781	AE1-104 C O1	4.6081	Adder	5.42
938782	AE1-104 E O1	11.7896	Adder	13.87
939981	AE1-238 C	54.0846	50/50	54.0846
939982	AE1-238 E	142.0622	50/50	142.0622
940161	AE2-000 C O1	29.0954	50/50	29.0954
940162	AE2-000 E O1	74.4452	50/50	74.4452
940361	AE2-020 C	4.7633	Adder	5.6
940362	AE2-020 E	22.3020	Adder	26.24
940371	AE2-021 C	4.7633	Adder	5.6
940372	AE2-021 E	22.3020	Adder	26.24
940381	AE2-022 C	2.7786	Adder	3.27
940382	AE2-022 E	13.0095	Adder	15.31
940401	AE2-024 C O1	23.6297	50/50	23.6297
940402	AE2-024 E O1	110.6318	50/50	110.6318
940411	AE2-025 C	11.9283	50/50	11.9283
940412	AE2-025 E	55.8419	50/50	55.8419
942101	AE2-222 C O1	3.6280	Adder	4.27
942102	AE2-222 E O1	9.1138	Adder	10.72
942381	AE2-251 C	15.0900	Adder	17.75
942382	AE2-251 E	38.6110	Adder	45.42
943561	AF1-027	0.2186	50/50	0.2186
944332	AF1-101 E O1	72.9860	50/50	72.9860
944611	AF1-126 C O1	5.8250	50/50	5.8250
944612	AF1-126 E O1	23.3000	50/50	23.3000
945571	AF1-222 C	33.7127	50/50	33.7127
945572	AF1-222 E	88.8790	50/50	88.8790

12.7.15 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
49460248	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	Base Case	single	760.0	84.4	93.25	AC	52.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	280 C GEN (Deactivation : 17/09/2018)	25.5822	80/20	25.5822
937563	AD2-077 BAT	14.0360	80/20	14.0360
938231	AE1-037 FTIR (Withdrawn : 01/24/2020)	59.4960	Merchant Transmission	59.4960
938421	AE1-061 C	0.5515	80/20	0.5515
938422	AE1-061 E	0.5515	80/20	0.5515
938431	AE1-062 C	2.1187	80/20	2.1187
938432	AE1-062 E	2.1187	80/20	2.1187
938781	AE1-104 C O1	16.8756	80/20	16.8756
938782	AE1-104 E O1	43.1759	80/20	43.1759
938871	AE1-115 C	2.1471	80/20	2.1471
938872	AE1-115 E	2.1471	80/20	2.1471
939301	AE1-161 C	4.1554	80/20	4.1554
939302	AE1-161 E	6.2331	80/20	6.2331
939981	AE1-238 C	14.5782	80/20	14.5782
939982	AE1-238 E	38.2921	80/20	38.2921
940161	AE2-000 C O1	20.8755	80/20	20.8755
940162	AE2-000 E O1	53.4132	80/20	53.4132
940361	AE2-020 C	14.3413	80/20	14.3413
940362	AE2-020 E	67.1470	80/20	67.1470
940371	AE2-021 C	14.3413	80/20	14.3413
940372	AE2-021 E	67.1470	80/20	67.1470
940381	AE2-022 C	8.3658	80/20	8.3658
940382	AE2-022 E	39.1691	80/20	39.1691
940401	AE2-024 C O1	11.5603	80/20	11.5603
940402	AE2-024 E O1	54.1240	80/20	54.1240
940411	AE2-025 C	5.8356	80/20	5.8356
940412	AE2-025 E	27.3193	80/20	27.3193
942101	AE2-222 C O1	11.7914	80/20	11.7914
942102	AE2-222 E O1	29.6206	80/20	29.6206
942381	AE2-251 C	45.4330	80/20	45.4330
942382	AE2-251 E	116.2502	80/20	116.2502
943561	AF1-027	0.2650	80/20	0.2650
944332	AF1-101 E O1	52.3662	80/20	52.3662
944611	AF1-126 C O1	8.1965	80/20	8.1965
944612	AF1-126 E O1	32.7860	80/20	32.7860
944951	AF1-160 C	2.1187	80/20	2.1187
944952	AF1-160 E	2.1187	80/20	2.1187
945201	AF1-185 1	0.2623	80/20	0.2623
945211	AF1-185 2	0.0583	80/20	0.0583
945431	AF1-208 C O1	0.0002	80/20	0.0002

945432	AF1-208 E O1	2.0203	80/20	2.0203
945571	AF1-222 C	9.0871	80/20	9.0871
945572	AF1-222 E	23.9568	80/20	23.9568
945721	AF1-237 C	10.6780	80/20	10.6780
945722	AF1-237 E	0.0001	80/20	0.0001
945731	AF1-238 C	9.5788	80/20	9.5788
945732	AF1-238 E	14.3682	80/20	14.3682
945741	AF1-239 C	2.2538	80/20	2.2538
945742	AF1-239 E	3.3808	80/20	3.3808

12.7.16 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
71702088	214010	WANEETA2	PECO	213817	N PHILA	PECO	1	PJM500_PS_P1-2_5015	single	621.0	73.04	81.7	AC	36.92

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	280 C GEN (Deactivation : 17/09/2018)	18.0357	80/20	18.0357
938231	AE1-037 FTIR (Withdrawn : 01/24/2020)	55.7760	Merchant Transmission	55.7760
938421	AE1-061 C	0.3302	80/20	0.3302
938422	AE1-061 E	0.3302	80/20	0.3302
938431	AE1-062 C	1.2866	80/20	1.2866
938432	AE1-062 E	1.2866	80/20	1.2866
938781	AE1-104 C O1	10.6793	80/20	10.6793
938782	AE1-104 E O1	27.3229	80/20	27.3229
938871	AE1-115 C	1.2386	80/20	1.2386
938872	AE1-115 E	1.2386	80/20	1.2386
939301	AE1-161 C	2.4566	80/20	2.4566
939302	AE1-161 E	3.6849	80/20	3.6849
939981	AE1-238 C	11.3886	80/20	11.3886
939982	AE1-238 E	29.9141	80/20	29.9141
940161	AE2-000 C O1	14.7174	80/20	14.7174
940162	AE2-000 E O1	37.6568	80/20	37.6568
940361	AE2-020 C	9.1768	80/20	9.1768
940362	AE2-020 E	42.9666	80/20	42.9666
940371	AE2-021 C	9.1768	80/20	9.1768
940372	AE2-021 E	42.9666	80/20	42.9666
940381	AE2-022 C	5.3532	80/20	5.3532
940382	AE2-022 E	25.0639	80/20	25.0639
940401	AE2-024 C O1	8.6631	80/20	8.6631
940402	AE2-024 E O1	40.5596	80/20	40.5596
940411	AE2-025 C	4.3731	80/20	4.3731
940412	AE2-025 E	20.4726	80/20	20.4726
942101	AE2-222 C O1	7.4657	80/20	7.4657
942102	AE2-222 E O1	18.7543	80/20	18.7543
942381	AE2-251 C	29.0720	80/20	29.0720
942382	AE2-251 E	74.3872	80/20	74.3872
943561	AF1-027	0.1803	80/20	0.1803
944332	AF1-101 E O1	36.9186	80/20	36.9186
944611	AF1-126 C O1	5.2980	80/20	5.2980
944612	AF1-126 E O1	21.1920	80/20	21.1920
944951	AF1-160 C	1.2866	80/20	1.2866
944952	AF1-160 E	1.2866	80/20	1.2866
945201	AF1-185 1	0.2280	80/20	0.2280
945211	AF1-185 2	0.0507	80/20	0.0507
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	1.2001	80/20	1.2001

945571	AF1-222 C	7.0989	80/20	7.0989
945572	AF1-222 E	18.7153	80/20	18.7153
945721	AF1-237 C	8.1480	80/20	8.1480
945722	AF1-237 E	0.0001	80/20	0.0001
945731	AF1-238 C	5.8946	80/20	5.8946
945732	AF1-238 E	8.8419	80/20	8.8419
945741	AF1-239 C	1.3870	80/20	1.3870
945742	AF1-239 E	2.0804	80/20	2.0804

12.7.17 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
42704350	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	98.3	128.0	AC	247.81

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	121.0593	50/50	121.0593
938421	AE1-061 C	0.1716	Adder	0.2
938422	AE1-061 E	0.1716	Adder	0.2
938781	AE1-104 C O1	11.7991	50/50	11.7991
938782	AE1-104 E O1	30.1878	50/50	30.1878
939301	AE1-161 C	0.9409	Adder	1.11
939302	AE1-161 E	1.4114	Adder	1.66
940161	AE2-000 C O1	98.7861	50/50	98.7861
940162	AE2-000 E O1	252.7597	50/50	252.7597
940361	AE2-020 C	13.6328	50/50	13.6328
940362	AE2-020 E	63.8299	50/50	63.8299
940371	AE2-021 C	13.6328	50/50	13.6328
940372	AE2-021 E	63.8299	50/50	63.8299
940381	AE2-022 C	7.9525	50/50	7.9525
940382	AE2-022 E	37.2341	50/50	37.2341
942101	AE2-222 C O1	10.0495	50/50	10.0495
942102	AE2-222 E O1	25.2449	50/50	25.2449
942381	AE2-251 C	43.1886	50/50	43.1886
942382	AE2-251 E	110.5074	50/50	110.5074
944332	AF1-101 E O1	247.8054	50/50	247.8054
945431	AF1-208 C O1	0.0000	Adder	0.0
945432	AF1-208 E O1	0.4542	Adder	0.53
945731	AF1-238 C	2.9144	Adder	3.43
945732	AF1-238 E	4.3716	Adder	5.14
945741	AF1-239 C	0.6857	Adder	0.81
945742	AF1-239 E	1.0286	Adder	1.21

12.7.18 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
42138284	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	Y	JC-P2-3-JCC-230-47C	breaker	869.0	65.63	68.86	AC	33.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	14.0788	Adder	16.56
939981	AE1-238 C	119.9394	50/50	119.9394
939982	AE1-238 E	315.0408	50/50	315.0408
940161	AE2-000 C O1	11.4885	Adder	13.52
940162	AE2-000 E O1	29.3951	Adder	34.58
940401	AE2-024 C O1	9.4304	Adder	11.09
940402	AE2-024 E O1	44.1522	Adder	51.94
940411	AE2-025 C	4.7605	Adder	5.6
940412	AE2-025 E	22.2860	Adder	26.22
944332	AF1-101 E O1	28.8189	Adder	33.9
944611	AF1-126 C O1	2.2483	Adder	2.65
944612	AF1-126 E O1	8.9930	Adder	10.58
945571	AF1-222 C	74.7622	50/50	74.7622
945572	AF1-222 E	197.1004	50/50	197.1004

12.7.19 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
42138342	206300	28OCEANVW	JCP&L	206286	28ATLANTIC	JCP&L	X	JC-P2-3-JCC-230-47E	breaker	869.0	65.52	68.74	AC	33.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	14.0482	Adder	16.53
939981	AE1-238 C	119.8548	50/50	119.8548
939982	AE1-238 E	314.8186	50/50	314.8186
940161	AE2-000 C O1	11.4635	Adder	13.49
940162	AE2-000 E O1	29.3312	Adder	34.51
940401	AE2-024 C O1	9.4125	Adder	11.07
940402	AE2-024 E O1	44.0681	Adder	51.84
940411	AE2-025 C	4.7514	Adder	5.59
940412	AE2-025 E	22.2436	Adder	26.17
944332	AF1-101 E O1	28.7563	Adder	33.83
944611	AF1-126 C O1	2.2431	Adder	2.64
944612	AF1-126 E O1	8.9726	Adder	10.56
945571	AF1-222 C	74.7095	50/50	74.7095
945572	AF1-222 E	196.9614	50/50	196.9614

12.7.20 Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40978935	206302	28OYSTER C	JCP&L	227955	CEDAR	AE	1	JC-P7-1-JCC-230-13	tower	564.0	93.45	168.45	AC	425.68

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940161	AE2-000 C O1	169.6948	50/50	169.6948
940162	AE2-000 E O1	434.1909	50/50	434.1909
944332	AF1-101 E O1	425.6802	50/50	425.6802

12.7.21 Index 22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704372	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	85.95	105.29	AC	180.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	88.2565	50/50	88.2565
919663	AA2-048 BAT	1.0057	50/50	1.0057
938421	AE1-061 C	0.2165	Adder	0.25
938422	AE1-061 E	0.2165	Adder	0.25
938431	AE1-062 C	0.6592	Adder	0.78
938432	AE1-062 E	0.6592	Adder	0.78
938781	AE1-104 C O1	11.7370	50/50	11.7370
938782	AE1-104 E O1	30.0288	50/50	30.0288
938871	AE1-115 C	0.5736	Adder	0.67
938872	AE1-115 E	0.5736	Adder	0.67
939301	AE1-161 C	1.3829	Adder	1.63
939302	AE1-161 E	2.0744	Adder	2.44
940161	AE2-000 C O1	72.0185	50/50	72.0185
940162	AE2-000 E O1	184.2707	50/50	184.2707
940361	AE2-020 C	12.5420	50/50	12.5420
940362	AE2-020 E	58.7228	50/50	58.7228
940371	AE2-021 C	12.5420	50/50	12.5420
940372	AE2-021 E	58.7228	50/50	58.7228
940381	AE2-022 C	7.3162	50/50	7.3162
940382	AE2-022 E	34.2549	50/50	34.2549
942101	AE2-222 C O1	9.4755	50/50	9.4755
942102	AE2-222 E O1	23.8029	50/50	23.8029
942381	AE2-251 C	39.7330	50/50	39.7330
942382	AE2-251 E	101.6655	50/50	101.6655
943561	AF1-027	0.4823	50/50	0.4823
944332	AF1-101 E O1	180.6588	50/50	180.6588
944611	AF1-126 C O1	20.0190	50/50	20.0190
944612	AF1-126 E O1	80.0760	50/50	80.0760
944951	AF1-160 C	0.6592	Adder	0.78
944952	AF1-160 E	0.6592	Adder	0.78
945431	AF1-208 C O1	0.0001	Adder	0.0
945432	AF1-208 E O1	0.6525	Adder	0.77
945731	AF1-238 C	3.7212	Adder	4.38
945732	AF1-238 E	5.5817	Adder	6.57
945741	AF1-239 C	0.8756	Adder	1.03
945742	AF1-239 E	1.3134	Adder	1.55

12.7.22 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
42704362	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	85.67	112.62	AC	244.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	119.5891	50/50	119.5891
938421	AE1-061 C	0.1697	Adder	0.2
938422	AE1-061 E	0.1697	Adder	0.2
938781	AE1-104 C O1	11.6612	50/50	11.6612
938782	AE1-104 E O1	29.8350	50/50	29.8350
939301	AE1-161 C	0.9307	Adder	1.09
939302	AE1-161 E	1.3961	Adder	1.64
940161	AE2-000 C O1	97.5864	50/50	97.5864
940162	AE2-000 E O1	249.6901	50/50	249.6901
940361	AE2-020 C	13.4719	50/50	13.4719
940362	AE2-020 E	63.0764	50/50	63.0764
940371	AE2-021 C	13.4719	50/50	13.4719
940372	AE2-021 E	63.0764	50/50	63.0764
940381	AE2-022 C	7.8586	50/50	7.8586
940382	AE2-022 E	36.7946	50/50	36.7946
942101	AE2-222 C O1	9.9313	50/50	9.9313
942102	AE2-222 E O1	24.9479	50/50	24.9479
942381	AE2-251 C	42.6787	50/50	42.6787
942382	AE2-251 E	109.2029	50/50	109.2029
944332	AF1-101 E O1	244.7959	50/50	244.7959
945431	AF1-208 C O1	0.0000	Adder	0.0
945432	AF1-208 E O1	0.4493	Adder	0.53
945731	AF1-238 C	2.8819	Adder	3.39
945732	AF1-238 E	4.3229	Adder	5.09
945741	AF1-239 C	0.6781	Adder	0.8
945742	AF1-239 E	1.0171	Adder	1.2

12.7.23 Index 24

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704365	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	84.89	111.55	AC	244.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	119.5891	50/50	119.5891
938421	AE1-061 C	0.1697	Adder	0.2
938422	AE1-061 E	0.1697	Adder	0.2
938781	AE1-104 C O1	11.6612	50/50	11.6612
938782	AE1-104 E O1	29.8350	50/50	29.8350
939301	AE1-161 C	0.9307	Adder	1.09
939302	AE1-161 E	1.3961	Adder	1.64
940161	AE2-000 C O1	97.5864	50/50	97.5864
940162	AE2-000 E O1	249.6901	50/50	249.6901
940361	AE2-020 C	13.4719	50/50	13.4719
940362	AE2-020 E	63.0764	50/50	63.0764
940371	AE2-021 C	13.4719	50/50	13.4719
940372	AE2-021 E	63.0764	50/50	63.0764
940381	AE2-022 C	7.8586	50/50	7.8586
940382	AE2-022 E	36.7946	50/50	36.7946
942101	AE2-222 C O1	9.9313	50/50	9.9313
942102	AE2-222 E O1	24.9479	50/50	24.9479
942381	AE2-251 C	42.6787	50/50	42.6787
942382	AE2-251 E	109.2029	50/50	109.2029
944332	AF1-101 E O1	244.7959	50/50	244.7959
945431	AF1-208 C O1	0.0000	Adder	0.0
945432	AF1-208 E O1	0.4493	Adder	0.53
945731	AF1-238 C	2.8819	Adder	3.39
945732	AF1-238 E	4.3229	Adder	5.09
945741	AF1-239 C	0.6781	Adder	0.8
945742	AF1-239 E	1.0171	Adder	1.2

12.7.24 Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
42704375	227900	CARDIFF	AE	228002	ORCHARD	AE	1	JC-P7-1-JCC-230-13	tower	805.0	93.67	109.89	AC	128.59

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938421	AE1-061 C	0.2021	Adder	0.24
938422	AE1-061 E	0.2021	Adder	0.24
938781	AE1-104 C O1	14.5865	50/50	14.5865
938782	AE1-104 E O1	37.3192	50/50	37.3192
939301	AE1-161 C	0.8510	Adder	1.0
939302	AE1-161 E	1.2765	Adder	1.5
940161	AE2-000 C O1	51.2623	50/50	51.2623
940162	AE2-000 E O1	131.1627	50/50	131.1627
940361	AE2-020 C	25.8164	50/50	25.8164
940362	AE2-020 E	120.8742	50/50	120.8742
940371	AE2-021 C	25.8164	50/50	25.8164
940372	AE2-021 E	120.8742	50/50	120.8742
940381	AE2-022 C	15.0596	50/50	15.0596
940382	AE2-022 E	70.5100	50/50	70.5100
942101	AE2-222 C O1	15.2847	50/50	15.2847
942102	AE2-222 E O1	38.3961	50/50	38.3961
942381	AE2-251 C	81.7858	50/50	81.7858
942382	AE2-251 E	209.2670	50/50	209.2670
944332	AF1-101 E O1	128.5917	50/50	128.5917

12.7.25 Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40978940	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	99.81	114.83	AC	46.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938423	AE1-061 BAT	3.3647	50/50	3.3647
938781	AE1-104 C O1	12.2876	50/50	12.2876
938782	AE1-104 E O1	31.4377	50/50	31.4377
939303	AE1-161 BAT	10.2095	50/50	10.2095
940161	AE2-000 C O1	18.4155	50/50	18.4155
940162	AE2-000 E O1	47.1191	50/50	47.1191
940361	AE2-020 C	8.5731	50/50	8.5731
940362	AE2-020 E	40.1399	50/50	40.1399
940371	AE2-021 C	8.5731	50/50	8.5731
940372	AE2-021 E	40.1399	50/50	40.1399
940381	AE2-022 C	5.0010	50/50	5.0010
940382	AE2-022 E	23.4149	50/50	23.4149
942101	AE2-222 C O1	10.3488	50/50	10.3488
942102	AE2-222 E O1	25.9968	50/50	25.9968
942381	AE2-251 C	27.1594	50/50	27.1594
942382	AE2-251 E	69.4934	50/50	69.4934
944332	AF1-101 E O1	46.1955	50/50	46.1955

12.7.26 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
42422133	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P1-2-JCC-230-014	single	817.0	100.13	128.8	AC	241.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
206325	28O C GEN (Deactivation : 17/09/2018)	117.8334	80/20	117.8334
938421	AE1-061 C	0.2179	80/20	0.2179
938422	AE1-061 E	0.2179	80/20	0.2179
938781	AE1-104 C O1	12.0963	80/20	12.0963
938782	AE1-104 E O1	30.9482	80/20	30.9482
939301	AE1-161 C	1.2404	80/20	1.2404
939302	AE1-161 E	1.8606	80/20	1.8606
940161	AE2-000 C O1	96.1537	80/20	96.1537
940162	AE2-000 E O1	246.0244	80/20	246.0244
940361	AE2-020 C	13.7819	80/20	13.7819
940362	AE2-020 E	64.5276	80/20	64.5276
940371	AE2-021 C	13.7819	80/20	13.7819
940372	AE2-021 E	64.5276	80/20	64.5276
940381	AE2-022 C	8.0394	80/20	8.0394
940382	AE2-022 E	37.6411	80/20	37.6411
942101	AE2-222 C O1	10.2039	80/20	10.2039
942102	AE2-222 E O1	25.6329	80/20	25.6329
942381	AE2-251 C	43.6607	80/20	43.6607
942382	AE2-251 E	111.7154	80/20	111.7154
944332	AF1-101 E O1	241.2021	80/20	241.2021
945431	AF1-208 C O1	0.0001	80/20	0.0001
945432	AF1-208 E O1	0.5941	80/20	0.5941
945731	AF1-238 C	3.7046	80/20	3.7046
945732	AF1-238 E	5.5570	80/20	5.5570
945741	AF1-239 C	0.8717	80/20	0.8717
945742	AF1-239 E	1.3075	80/20	1.3075

12.7.27 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
40978930	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	166.74	193.03	AC	180.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938421	AE1-061 C	0.3972	50/50	0.3972
938422	AE1-061 E	0.3972	50/50	0.3972
938781	AE1-104 C O1	27.9385	50/50	27.9385
938782	AE1-104 E O1	71.4802	50/50	71.4802
938871	AE1-115 C	0.5413	Adder	0.64
938872	AE1-115 E	0.5413	Adder	0.64
939301	AE1-161 C	1.5643	Adder	1.84
939302	AE1-161 E	2.3465	Adder	2.76
940161	AE2-000 C O1	71.9837	50/50	71.9837
940162	AE2-000 E O1	184.1816	50/50	184.1816
940361	AE2-020 C	36.0746	50/50	36.0746
940362	AE2-020 E	168.9042	50/50	168.9042
940371	AE2-021 C	36.0746	50/50	36.0746
940372	AE2-021 E	168.9042	50/50	168.9042
940381	AE2-022 C	21.0435	50/50	21.0435
940382	AE2-022 E	98.5274	50/50	98.5274
942101	AE2-222 C O1	23.3265	50/50	23.3265
942102	AE2-222 E O1	58.5975	50/50	58.5975
942381	AE2-251 C	114.2838	50/50	114.2838
942382	AE2-251 E	292.4202	50/50	292.4202
944332	AF1-101 E O1	180.5714	50/50	180.5714
945431	AF1-208 C O1	0.0001	Adder	0.0
945432	AF1-208 E O1	0.8347	Adder	0.98
945731	AF1-238 C	6.8524	50/50	6.8524
945732	AF1-238 E	10.2785	50/50	10.2785
945741	AF1-239 C	1.6123	50/50	1.6123
945742	AF1-239 E	2.4185	50/50	2.4185

12.8 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA2-048	Allenwood-Larrabee 34kV	Engineering and Procurement
AD2-077	Buxmont 69 kV	Active
AD2-213	East Flemington-Lebanon 34.5 kV	Active
AE1-037	Deans 500kV	Withdrawn
AE1-061	Minotola 12 kV	Active
AE1-062	Silver Lake 69 kV	Active
AE1-104	BL England 138 kV	Active
AE1-115	Churchtown 69 kV	Active
AE1-161	Landis 138 kV	Active
AE1-238	Oceanview Wind 230 kV	Active
AE2-000	N/A	N/A
AE2-020	Cardiff 230 kV I	Active
AE2-021	Cardiff 230 kV II	Active
AE2-022	Cardiff 230 kV III	Active
AE2-024	Larrabee 230 kV I	Active
AE2-025	Larrabee 230 kV II	Active
AE2-222	Higbee 69 kV	Active
AE2-251	Cardiff 230 kV	Active
AF1-027	Plumsted 537 Energy Storage (CIRs)	Active
AF1-101	Oyster Creek 230 kV III	Active
AF1-108	East Flemington 34.5 kV	Active
AF1-109	Pleasant Valley 230 kV	Active
AF1-126	Cookstown 230 kV	Active
AF1-160	Silver Lake 69 kV	Active
AF1-185	Sayreville 1-2-3 230 kV	In Service
AF1-208	Quinton-Roadstown 69 kV	Active
AF1-222	Oceanview Wind 2 230 kV	Active
AF1-237	Mercer 230 kV	Active
AF1-238	Sherman Ave. 69 kV	Active
AF1-239	Sherman Ave-Vineland 69 kV	Active

12.9 Contingency Descriptions

Contingency Name	Contingency Definition
AE_P7-1 AE15TOWER	CONTINGENCY 'AE_P7-1 AE15TOWER' DISCONNECT BRANCH FROM BUS 227901 TO BUS 227949 CKT 1 /* DOR TO LEW 138 KV DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* ORCH TO CARD 230 KV END
JC-P1-2-JCC-230-016	CONTINGENCY 'JC-P1-2-JCC-230-016' /* LAKEWOOD - LEISURE VILLAGE (D2030) 230 KV DISCONNECT BRANCH FROM BUS 206323 TO BUS 206295 CKT 1 DISCONNECT BRANCH FROM BUS 206295 TO BUS 206276 CKT 4 SET BUS 206295 LOAD TO 0 MW END
JC-P1-2-JCC-230-018	CONTINGENCY 'JC-P1-2-JCC-230-018' /* LARRABEE - SMITHBURG (H2008) 230 KV DISCONNECT BRANCH FROM BUS 206309 TO BUS 206294 CKT 2 DISCONNECT BRANCH FROM BUS 200017 TO BUS 206309 CKT 4 /* SMITHBURG SMITHBURG 500 230 END
JC-P1-2-JCC-230-019	CONTINGENCY 'JC-P1-2-JCC-230-019' /* LEISURE VILLAGE - MANITOU (A2027) 230 KV DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 END
PJM500_PS_P1-2_5015	CONTINGENCY 'PJM500_PS_P1-2_5015' /* HOPE CREEK TO RED LION TRIP LINE FROM BUS 200027 TO BUS 200029 CKT 1 /* HOPE CREEK TO RED LION 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
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-P1-2-JCC-230-015	CONTINGENCY 'JC-P1-2-JCC-230-015' /* LAKEWOOD - LEISURE VILLAGE (U2021) 230 KV DISCONNECT BRANCH FROM BUS 206323 TO BUS 206296 CKT 1 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206282 CKT 6 DISCONNECT BUS 206999 DISCONNECT BUS 207110 DISCONNECT BUS 207010 DISCONNECT BUS 207111 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-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-P2-3-JCC-230-47E	CONTINGENCY 'JC-P2-3-JCC-230-47E' /* OCEANVIEW BK2 230 KV FUTURE OCEANVIEW RING BUS & ATLANTIC - OCEANVIEW (Y2025) DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT Y /* ATLANTIC - OCEANVIEW (Y2025) DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* OCEANVIEW BK2 REDUCE BUS 206273 SHUNT BY 50 PERCENT /* OCEANVIEW CAPS ON 34.5 KV BUS B END
JC-P2-3-JCC-230-47C	CONTINGENCY 'JC-P2-3-JCC-230-47C' /* ATLANTIC - OCEANVIEW (X2024) & OCEANVIEW BK2 230 KV FUTURE OCEANVIEW RING BUS DISCONNECT BRANCH FROM BUS 206286 TO BUS 206300 CKT X /* ATLANTIC - OCEANVIEW (X2024) DISCONNECT BRANCH FROM BUS 206300 TO BUS 206273 CKT 2 /* OCEANVIEW BK2 REDUCE BUS 206273 SHUNT BY 50 PERCENT /* OCEANVIEW CAPS ON 34.5 KV BUS B DISCONNECT BRANCH FROM BUS 206273 TO BUS 206929 CKT 1 /* OCEANVIEW - ALLENHURST (H216) 34.5KV END

JC-P2-3-JCC-230-15G	CONTINGENCY 'JC-P2-3-JCC-230-15G' /* LARRABEE-SMITHBURG (H2008) 230 KV & LARRABEE NW BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* LARRABEE-SMITHBURG (H2008) REMOVE LOAD 7 FROM BUS 206294 /* LARRABEE BK7 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* LARRABEE BK9 END
JC-P2-3-JCC-230-15F	CONTINGENCY 'JC-P2-3-JCC-230-15F' /* LARRABEE - SMITHBURG (D2004) & LARRABEE NW BUS 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 1 /* LARRABEE-SMITHBURG (D2004) REMOVE LOAD 7 FROM BUS 206294 /* LARRABEE BK7 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206275 CKT 9 /* LARRABEE BK9 END
JC-P2-3-JCC-230-15A	CONTINGENCY 'JC-P2-3-JCC-230-15A' /* LAKEWOOD-LARRABEE (K2011) & LARRABEE-SMITHBURG (H2008) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 1 /* LARRABEE - LAKEWOOD (K2011) DISCONNECT BRANCH FROM BUS 206294 TO BUS 206309 CKT 2 /* LARRABEE-SMITHBURG (H2008) END
JC-P2-3-JCC-230-26B	CONTINGENCY 'JC-P2-3-JCC-230-26B' /* RARITAN RIVER B144 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 13 /* RARITAN RIVER #13 230/115 KV TRANSFORMER DISCONNECT BUS 206403 /* WOODBRIDGE GENERATOR END
JC-P7-1-JCC-230-12	CONTINGENCY 'JC-P7-1-JCC-230-12' /* LEISURE VILLAGE-MANITOU A2027 & C2029 DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
JC-P7-1-JCC-230-13	CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES & OYSTER GEN DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 DISCONNECT BRANCH FROM BUS 206302 TO BUS 206325 CKT 1 END

PS_P7-1_1LINE+2LINE	CONTINGENCY 'PS_P7-1_1LINE+2LINE' /* LAKE NELSON - RARITAN X2 DISCONNECT BUS 218331 /* REMOVE KILMER 1 DISCONNECT BUS 218332 /* REMOVE KILMER 2 MOVE 8 MW LOAD FROM BUS 218384 TO BUS 218383 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO GREENBK T1 MOVE 8 MW LOAD FROM BUS 218387 TO BUS 218399 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO NEWDOVR T2 MOVE 8 MW LOAD FROM BUS 218385 TO BUS 218393 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO MDWRD T2 MOVE 8 MW LOAD FROM BUS 218386 TO BUS 218347 /* INTERSTATION TIE TRANSFER LOAD FROM KILMER TO BNNTLANE T2 END
PJM500_PS_P2-3_DEAN5_5-6	CONTINGENCY 'PJM500_PS_P2-3_DEAN5_5-6' DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 2/* BRANCHBURG TX -2 TRIP LINE FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS TO WINSOR END
PS_P7-1_I1023+GBK-LN_LT	CONTINGENCY 'PS_P7-1_I1023+GBK-LN_LT' /* LAKE NELSON - GILLETE BRIDGEWATER & LAKE NELSON -GREENBROOK DISCONNECT BUS 218312 /* GREENBROOK I DISCONNECT BUS 218301 /* MIDDLESEX I DISCONNECT BUS 218333 /* LAKE NELSON I DISCONNECT BUS 218334 /* LAKE NELSON W DISCONNECT BUS 218522 /* MIDDLESEX W 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 SOMRVLE 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 218384 /* INTERSTATION TIE TRANSFER LOAD FROM GREENBK TO KILMER T2 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-P1-2-JCC-230-027	CONTINGENCY 'JC-P1-2-JCC-230-027' /* RARITAN RIVER - RED OAK - R11 (G1047) 230 KV LINE DISCONNECT BRANCH FROM BUS 206305 TO BUS 206315 CKT 1 DISCONNECT BRANCH FROM BUS 206315 TO BUS 206410 CKT 1 DISCONNECT BUS 206315 DISCONNECT BUS 206362 DISCONNECT BUS 206365 END
JC-P1-2-JCC-230-022	CONTINGENCY 'JC-P1-2-JCC-230-022' /* MANITOU - OYSTER CREEK (O1019) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 END

JC-P1-2-JCC-230-021	CONTINGENCY 'JC-P1-2-JCC-230-021' /* MANITOU - OYSTER CREEK (N1028) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 END
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	
AE_P1-2 DOR-LEWIS	CONTINGENCY 'AE_P1-2 DOR-LEWIS' OPEN LINE FROM BUS 227901 TO BUS 227949 CIRCUIT 1 / END
PJM500_PS_P1-2_5022	CONTINGENCY 'PJM500_PS_P1-2_5022' /* DEANS TO WINDSOR TRIP LINE FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS TO WINDSOR END
JC-P1-2-JCC-230-028	CONTINGENCY 'JC-P1-2-JCC-230-028' /* RARITAN RIVER - RED OAK - SOUTH RIVER JCT(T1034) 230 KV DISCONNECT BRANCH FROM BUS 206305 TO BUS 206314 CKT 1 /* 28RAR RVR 230.00 28RED OAKA 230.00 DISCONNECT BRANCH FROM BUS 206314 TO BUS 206411 CKT 1 /* 28RED OAKA 230.00 28R11RINGA 230.00 . DISCONNECT BUS 206314 /* 28RED OAKA 230.00 DISCONNECT BUS 206363 /* 28RDOAKCT2 18.00 DISCONNECT BUS 206364 /* 28RDOAKCT3 18.00 END
AE_P1-2 ORCH-CARD	CONTINGENCY 'AE_P1-2 ORCH-CARD' OPEN LINE FROM BUS 228002 TO BUS 227900 CIRCUIT 1 / 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

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
PJM_P4_P484B	CONTINGENCY 'PJM_P4_P484B' /* VALID FROM 2009 DISCONNECT BRANCH FROM BUS 200028 TO BUS 200006 CKT 1 /* WINDSOR DEANS 500500 DISCONNECT BRANCH FROM BUS 200006 TO BUS 218306 CKT 1 /* DEANS XF 2 500230 END
AE_P4-2 AE46	CONTINGENCY 'AE_P4-2 AE46' /*ORCHARD 230 BUS BREAKER D DISCONNECT BRANCH FROM BUS 228002 TO BUS 228310 CKT 1 /* ORCHARD TO CHURCHTOWN 230 230 DISCONNECT BRANCH FROM BUS 200063 TO BUS 228002 CKT 1 /*ORCHARD ORCHARD 500 230 T1 END
JC-P2-3-JCC-230-026A	CONTINGENCY 'JC-P2-3-JCC-230-026A' /* RARITAN RIVER B143 STUCK BREAKER DISCONNECT BUS 206315 /* RED OAK 230 KV B TAP DISCONNECT BUS 206362 /* RED OAK 230 KV #1 DISCONNECT BUS 206365 /* RED OAK 230 KV #4 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END
JC-P2-3-JCC-230-026C	CONTINGENCY 'JC-P2-3-JCC-230-026C' /* RARITAN RIVER B145 STUCK BREAKER DISCONNECT BUS 206314 /* RED OAK 230 KV A TAP DISCONNECT BUS 206363 /* RED OAK 230 KV #2 DISCONNECT BUS 206364 /* RED OAK 230 KV #3 DISCONNECT BRANCH FROM BUS 206305 TO BUS 206303 CKT 17 /* RARITAN RIVER #17 230/115 KV TRANSFORMER DISCONNECT BUS 206350 /* SAYREVILLE GENERATOR DISCONNECT BUS 206351 /* SAYREVILLE GENERATOR END

13 Short Circuit Analysis

The following Breakers are overdutied;

None

14 Stability and Reactive Power

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined in the Facilities Study Phase.

15 Affected Systems

Not required.

16 Attachment 1: One Line Diagram

