

Generation Interconnection Feasibility Study Report Queue Position AE2-021

The Interconnection Customer (IC) has proposed a 604.8 MW Energy (106.4 MW Capacity) offshore wind generating facility to be located at Latitude: 39.4145000, Longitude: -74.0521000 in the Atlantic Ocean off the coast of Atlantic County, New Jersey. At the IC's request, PJM studied the AE2-021 project at both a Primary and Secondary Point of Interconnection. The project was studied at a commercial probability of 53% with the results provided below. The planned in-service date, as requested by the IC during the project kick-off call, is December 31, 2025. This date is dependent on completion of PJM studies (System Impact and Facilities) and the Transmission Owner's construction schedule for network upgrades.

Point(s) of Interconnection

The Interconnection Customer requested a Primary and Secondary Point of Interconnection (POI) be evaluated for the AE2-021 project.

Primary Point of Interconnection

PJM studied the AE2-021 project as an injection into the Atlantic City Electric Company (ACE) transmission system as a tap of the Cardiff (PSSE bus #227900) to Cedar (PSSE bus #227955) 230 kV circuit and evaluated it for compliance with reliability criteria for summer peak conditions in 2022. The AE2-021 project will connect with the ACE transmission system at a new terminal position at ACE's 230 kV substation constructed for prior queue project AE2-020, adjacent to the Cardiff – Cedar 230 kV line.

Transmission Owner Scope of Direct Connection and Attachment Facilities Work

Substation Interconnection Estimate

Scope: Build a new position onto the 230 kV bus at AE2-020 "Cardiff – Cedar 230 kV I" Substation. The new position will be connected to the AE2-021 generator. The project will require the addition of one (1) 230 kV breaker, three (3) 230 kV disconnect switches, three (3) CT/VT combination units, and substation bus.

NOTE: AE2-021 is a capacity and energy increase to PJM Queue Project AE2-020. AE2-021 will incur the costs for the interconnection facilities of AE2-020 in the event of a cancellation to AE2-020. Any delay in construction to the interconnection facilities for AE2-020 will subsequently delay AE2-021.

Estimate: \$3,800,000

Construction Time: 24-42 months

Major Equipment Included in Estimate:

- 3000A Power Circuit Breaker, 230 kV, 3 cycle Qty. 1
- Disconnect Switch, 230 kV Motor Operated Device Qty. 3

- Double 1590 ACSR (325') Qty. 1
- Insulators, 230 kV Qty. 3
- Disconnect Switch Stand, Low, 230 kV, Steel Qty. 1
- Relay Panel, Transmission Bus, FL/BU (20") Qty. 1
- Control Panel, 230 kV Circuit Breaker (10") Qty. 1
- Take-off structure, 230 kV Qty. 2
- 230 kV Lightning Arresters Qty. 3
- 230 kV Lightning Arresters Stands Qty. 3
- Potential Transformers Qty. 3

Estimate Assumptions:

- Room in Control Enclosure for New Relay Panel.
- Fiber optic cable necessary is 1,000 linear feet.
- Developer to purchase additional land for substation expansion.
- Land purchase for the substation is not included.
- Existing AC & DC systems are adequate.
- Existing Ground grid and storm water management will need to be expanded.

Required Relaying and Communications

New protection relays are required for the new terminals.

Front line and back-up line protection will be required. One relay panel for each generator terminal will be required for front line and back-up protection.

A breaker control relay on a breaker control panel will be required for the control and operation of each new 230 kV circuit breaker (1 total).

The project will require re-wiring and adjustment of existing relay schemes to accommodate the new 230 kV position.

Metering

A three phase 230 kV revenue metering point will need to be established within the IC facility between the POI disconnect switch and the IC generation breaker.

The metering instrument transformers will be specified by ACE but all equipment and labor will be supplied by the IC. The ACE scope would include the programming and installation of the meters, both primary and backup, and all required wiring work needed to connect the secondary wiring conductors at the metering enclosure. The materials that ACE's Meter Department provides will be the meter enclosures, control cable, the meters, the output devices, and miscellaneous material at the cabinet.

The IC will purchase and install all metering instrument transformers, as well as construct a metering structure per ACE's specifications. The secondary wiring connections at the instrument transformers will be completed by the IC's contractors and inspected by ACE, while the secondary wiring work at the metering enclosure will be completed by ACE's meter technicians. The metering control cable and meter cabinets will be supplied by ACE and installed by the IC's contractors. ACE's meter technicians will program and install two solid state multi-function meters (Primary & Backup) for each new metering position. Each meter will be equipped with load profile, telemetry, and DNP outputs. The IC will be provided with one (1) meter DNP output.

The IC will be required to make provisions for a POTS (plain old telephone service) line within approximately three (3) feet of each ACE metering position to facilitate remote interrogation and data collection.

Interconnection Customer Scope of Direct Connection Work

The IC is responsible for all design and construction related to activities on their side of the Point of Interconnection. Site preparation, including grading and an access road, as necessary, is assumed to be by the IC. Route selection, line design, and right-of-way acquisition of the direct connect facilities is not included in this report, and is the responsibility of the IC. Protective relaying and metering design and installation must comply with ACE's applicable standards. The IC is also required to provide revenue metering and real-time telemetering data to PJM in conformance with the requirements contained in PJM Manuals M-01 and M-14 and the PJM Tariff.

ACE Interconnection Customer Scope of Direct Connection Work Requirements:

- ACE requires that an IC circuit breaker is located within 500 feet of the ACE substation to facilitate the relay protection scheme between ACE and the IC at the Point of Interconnection (POI).

Special Operating Requirements

1. ACE will require the capability to remotely disconnect the generator from the grid by communication from its System Operations facility. Such disconnection may be facilitated by a generator breaker, or other method depending upon the specific circumstances and the evaluation by ACE.
2. ACE reserves the right to charge the Interconnection Customer operation and maintenance expenses to maintain the Interconnection Customer attachment facilities, including metering and telecommunications facilities, owned by ACE.

Additional Interconnection Customer Responsibilities:

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 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.

- The Interconnection Customer seeking to interconnect a wind generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per item 5.IV of Schedule H to the Interconnection Service Agreement.

Summer Peak Analysis - 2022

Transmission Network Impacts

Potential transmission network impacts are as follows:

Generator Deliverability

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977965	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	single	311.0	98.36	100.41	DC	6.39

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278326	206318	28VANHIS VL	JCP&L	206294	28LARRAB EE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	98.79	114.05	DC	132.63
8278303	206319	28WHITIN GS	JCP&L	206720	28MANC HSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	93.17	111.86	DC	162.37
8278316	206720	28MANCH STR	JCP&L	206318	28VANHIS VL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	91.43	110.12	DC	162.37
8278268	227900	CARDIFF	AE	219100	NEWFRD M	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	83.74	119.9	DC	250.19

Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278273	206297	28MANIT OU	JCP&L	206319	28WHITIN GS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	120.17	139.04	DC	154.16
8278274	206297	28MANIT OU	JCP&L	206319	28WHITIN GS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	111.76	131.87	DC	164.32

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8277857	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	100.53	105.09	DC	37.23
8278325	206318	28VANHIS VL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	105.26	119.71	DC	125.5
8278302	206319	28WHITINGS	JCP&L	206720	28MANC HSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	102.62	120.38	DC	154.33
8277582	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	130.29	150.1	DC	161.75
8278315	206720	28MANC HSTR	JCP&L	206318	28VANHIS VL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	100.88	118.64	DC	154.33
1977961	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OYCK-CEDAR	single	311.0	111.03	114.43	DC	10.6
1977962	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 CARD-CEDAR-B	single	311.0	111.9	114.99	DC	9.61
1978182	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P7-1 AE6TOWER	tower	311.0	132.19	138.23	DC	41.65
8278283	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	129.55	137.93	DC	57.81
8278223	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	152.34	208.42	DC	553.39

Summer Peak Load Flow Analysis Reinforcements

System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

ID	Index	Facility	Upgrade Description	Cost
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ID	Index	Facility	Upgrade Description	Cost
8278268	5	CARDIFF 230.0 kV - NEWFRDM 230.0 kV Ckt 1	<p>at2310r0001 (42) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require increasing the emergency rating of the Cardiff to New Freedom 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor.</p> <p>Project Type : FAC Cost : \$63,200,000 Time Estimate : 36-60 Months</p> <p>r_PS_AE2_FES_09_Nfreed (751) : Replace Line Drops</p> <p>Project Type : FAC Cost : \$88,298 Time Estimate : 1.0 Months</p>	\$63,288,298
1977965,8278283,1977961,1977962,1978182	1	MNOTLA 2 138.0 kV - MNOTLA 1 138.0 kV Ckt 1	<p>asminotolar0001 (17) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require substation reinforcements at Minotola Substation.</p> <p>Project Type : FAC Cost : \$1,300,000 Time Estimate : 18.0 Months</p>	\$1,300,000
8277857	7	28OYSTER C 230.0 kV - 28MANITOU 230.0 kV Ckt 1	<p>JCP&L-008B (581) : Reconductor existing sections of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7.</p> <p>Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7.</p> <p>Project Type : FAC Cost : \$43,550,000 Time Estimate : 36.0 Months</p>	\$43,550,000
8277582	8	28LAKEWOOD 230.0 kV - 28LARRABEE 230.0 kV Ckt 2	<p>JCP&L-020C (641) : Reconductor existing sections of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7.</p> <p>Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7.</p> <p>Replace 1600 Amp Generic Z2026 LN and 2000 Amp CL Price V2-CA Z2026_LB Disconnect Switches.</p> <p>Replace 2000 Amp Generic Wave Trap.</p> <p>All new terminal equipment should be rated above 1227 MVA (Rate B).</p> <p>Project Type : FAC Cost : \$20,150,000 Time Estimate : 24.0 Months</p>	\$20,150,000

ID	Index	Facility	Upgrade Description	Cost
8278223	9	AE2-020 TAP 230.0 kV - CARDIFF 230.0 kV Ckt 1	<p>at2317r0001 (30) : To mitigate the (ACE) Cardiff Cedar 230 kV line (from bus 940360 to bus 227955 ckt 1) 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 Time Estimate : 48-60 Months</p> <p>as2317r0003 (36) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227955 ckt 1) overload, various terminal reinforcements are required at Cardiff. Project Type : FAC Cost : \$200,000 Time Estimate : 24-36 Months</p> <p>as2317r0005 (39) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227955 ckt 1) overload, various terminal reinforcements are required at Cardiff. Project Type : FAC Cost : \$1,500,000 Time Estimate : 24-36 Months</p> <p>at2317r0003 (40) : To mitigate the (ACE) AE2-020 TAP Cardiff 230 kV line (from bus 940360 to bus 227900 ckt 1) overload, it will require increasing the emergency rating of the AE2-020 TAP to Cardiff 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. In Addition, terminal reinforcement is required at Cardiff. Project Type : FAC Cost : \$33,000,000 Time Estimate : 48-60 Months</p>	\$100,700,000
8278274,8278273	6	28MANITOU 230.0 kV - 28WHITINGS 230.0 kV Ckt 1	<p>JCP&L-007E (568) : Reconductor existing sections of 1590 ACSR 45/7 Miscellaneous TDL (MTDL) with 1590 ACSS 45/7.</p> <p>Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7.</p> <p>Replace 2000 Amp Generic Wave Trap.</p> <p>Replace 10 Amp DFR (Older) VN a Relay.</p> <p>Replace 10 Amp BV B Meter.</p> <p>Replace Generic 2000 Amp Circuit Breaker.</p> <p>All new terminal equipment should be rated above 1136 MVA (Rate B). Project Type : FAC Cost : \$35,035,000 Time Estimate : 30.0 Months</p>	\$35,035,000

ID	Index	Facility	Upgrade Description	Cost
8278326,8278325	2	28VANHISVL 230.0 kV - 28LARRABEE 230.0 kV Ckt 1	JCP&L-018C (615) : Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Replace 2000 Amp Generic Wave Trap. Replace 10 Amp DFR (Older) and KD-4 (0.73) Relay (3 Total). Replace 10 Amp Meter. All new terminal equipment should be rated above 1041 MVA (Rate B). Project Type : FAC Cost : \$29,575,000 Time Estimate : 30.0 Months	\$29,575,000
8278303,8278302	3	28WHITINGS 230.0 kV - 28MANCHSTR 230.0 kV Ckt 1	JCP&L-019C (629) : Reconductor existing sections of 1590 ACSR 45/7 with 1590 ACSS 45/7. Replace 2000 Amp Generic Wave Trap. Replace 10 Amp W/V XDUC, DFR Meters. Replace SEL-321 Z2, SEL-321 Z3, SEL-321 Z4 Impedance Relays. Replace 2000 Amp MITSUBISHI Circuit Breaker. All new terminal equipment should be rated above 1047 MVA (Rate B). Project Type : FAC Cost : \$50,180,000 Time Estimate : 36.0 Months	\$50,180,000
8278316,8278315	4	28MANCHSTR 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	JCP&L-024A (654) : Reconductor existing section of 1590 ACSR 45/7 with 1590 ACSS 45/7. Project Type : FAC Cost : \$23,400,000 Time Estimate : 24.0 Months	\$23,400,000
			TOTAL COST	\$367,178,298

Steady-State Voltage Requirements

To be performed during later study phases as required.

Short Circuit

No issues identified.

Stability and Reactive Power Requirement

To be performed during later study phases as required.

Light Load Analysis - 2022

To be performed during later study phases (as required by PJM Manual 14B).

Delivery of Energy Portion of Interconnection Request

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. Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8277981	206296	28LEISUR U	JCP&L	206323	28LAKEWOOD	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	88.05	106.8	DC	153.24
8277946	206297	28MANITOU	JCP&L	206296	28LEISUR U	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	101.47	120.51	DC	155.54
8277952	206297	28MANITOU	JCP&L	206295	28LEISUR D	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	100.83	119.87	DC	155.54
8277852	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	operation	817.0	173.26	199.15	DC	211.55
8277854	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	Base Case	operation	650.0	117.13	134.7	DC	114.18
8277874	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2-JCC-230-021	operation	869.0	162.93	187.28	DC	211.58
8277876	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	Base Case	operation	709.0	107.53	123.65	DC	114.32
8277897	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P1-2-JCC-230-014	operation	817.0	129.9	149.71	DC	161.81
8277899	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	Base Case	operation	650.0	90.11	103.73	DC	88.48
8277929	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P1-2-JCC-230-013	operation	869.0	123.3	141.93	DC	161.83
1978112	219100	NEWFR965DM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P1-2_5014/* \$ CHESCO \$ PECO_P1-2_5014 \$ L	operation	740.0	98.12	101.3	DC	51.06
1977845	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	Base Case	operation	464.0	125.93	175.76	DC	231.22
8277881	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	AE_P1-2 CARD-CEDAR-A	operation	564.0	101.72	183.66	DC	547.85
1977922	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P1-2 OY CK-CEDAR	operation	286.0	128.01	137.5	DC	60.2
1977924	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	Base Case	operation	230.0	144.17	151.28	DC	36.31

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977958	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OY CK- CEDAR	operation	311.0	121.32	130.04	DC	60.21
1977963	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	operation	311.0	106.7	111.96	DC	36.32
1977896	940360	AE2-020 TAP	AE	227955	CEDAR	AE	1	Base Case	operation	650.0	109.44	145.99	DC	237.53
1977918	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	AE_P1-2 CARD- CEDAR-B	operation	805.0	75.17	150.16	DC	604.8
1977921	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	Base Case	operation	650.0	86.3	135.64	DC	367.27
8277903	940360	AE2-020 TAP	AE	227955	CEDAR	AE	1	AE_P1-2 CARD- CEDAR-A	operation	805.0	75.17	150.16	DC	604.8

Atlantic City Electric Costs

Cost estimates will further be refined as a part of the Impact Study and Facilities Study for this project. The Interconnection Customer will be responsible for all costs incurred by ACE in connection with the AE2-021 project.

Secondary Point of Interconnection

PJM studied the AE2-021 project into the Atlantic City Electric Company (ACE) system at the Cardiff 230 kV Substation (PSSE bus #227955) and evaluated it for compliance with reliability criteria for summer peak conditions in 2022.

Summer Peak Analysis - 2022

Transmission Network Impacts

Potential transmission network impacts are as follows:

Generator Deliverability

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977965	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	single	311.0	98.83	101.36	DC	7.87

Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978252	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PS_P7- 1_V2274+P2242_LT	tower	740.0	97.22	100.86	DC	59.79

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978198	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	62.75	104.15	DC	286.48
14083871	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE7	breaker	805.0	81.97	105.54	DC	189.7
14083872	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE6	breaker	805.0	81.96	105.52	DC	189.67

Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977802	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH215/* \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK	breaker	740.0	104.48	112.73	DC	60.82
1977803	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH205/* \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK	breaker	740.0	103.2	111.45	DC	60.81
1977625	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002D	breaker	564.0	111.41	136.48	DC	141.42
1977626	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002B	breaker	564.0	109.3	134.54	DC	142.38
1977925	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P1-2 OY CK-CEDAR	single	286.0	118.77	122.39	DC	10.36
1977926	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	Base Case	single	230.0	131.25	134.67	DC	7.86
1978174	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P7-1 AE6TOWER	tower	286.0	145.24	153.32	DC	51.17
8278257	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	286.0	124.82	133.87	DC	57.45
1977961	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OY CK-CEDAR	single	311.0	110.95	114.28	DC	10.37
1978182	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P7-1 AE6TOWER	tower	311.0	133.61	141.04	DC	51.18
8278283	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	118.31	126.64	DC	57.46
14084223	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 CARD-CEDAR	single	311.0	111.94	115.03	DC	9.61

Delivery of Energy Portion of Interconnection Request

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. Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8277852	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2- JCC-230- 022	operation	817.0	93.79	109.17	DC	125.65
8277874	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	2	JC-P1-2- JCC-230- 021	operation	869.0	88.19	102.65	DC	125.68

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978112	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P1-2_5014/* \$ CHESCO \$ PECO_P1-2_5014 \$ L	operation	740.0	103.19	111.45	DC	60.82
1978113	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308_LT	operation	758.0	100.5	103.79	DC	54.44
14084211	227900	CARDIFF	AE	227955	CEDAR	AE	1	PS_P1-2_2310A	operation	805.0	81.86	105.21	DC	188.0
14084212	227900	CARDIFF	AE	227955	CEDAR	AE	1	Base Case	operation	650.0	93.1	112.9	DC	128.69
1977845	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	Base Case	operation	464.0	105.42	135.03	DC	137.4
1977846	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	PECO_P1-2_5038/* \$ CHESCO \$ PECO_P1-2_5038 \$ L	operation	564.0	108.7	134.01	DC	142.75
1977922	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P1-2 OY CK-CEDAR	operation	286.0	127.8	137.08	DC	58.88
1977924	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	Base Case	operation	230.0	145.81	154.56	DC	44.69
1977958	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P1-2 OY CK-CEDAR	operation	311.0	121.13	129.66	DC	58.9
1977963	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	Base Case	operation	311.0	107.91	114.39	DC	44.7

Primary POI Flow Gate Details

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

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978182	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P7-1 AE6TOWER	tower	311.0	132.19	138.23	DC	41.65

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.51
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.18
228014	PVILLEG	0.07
293404	V3-036	0.79
902432	W2-030 E	0.83
913341	Y1-077	8.38
915022	Y3-012 E	1.07
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
931191	AB1-169A	349.68
933962	AD1-019 E	1.09
938311	AE1-046 C	1.27
938312	AE1-046 E	0.64
938421	AE1-061 C	1.8
938422	AE1-061 E	1.8
938781	AE1-104 C O1	21.46
938782	AE1-104 E O1	54.89
939301	AE1-161 C	3.99
939302	AE1-161 E	5.98
940361	AE2-020 C O1	7.33
940362	AE2-020 E O1	34.32
940371	AE2-021 C O1	7.33
940372	AE2-021 E O1	34.32
940381	AE2-022 C O1	4.28
940382	AE2-022 E O1	20.02
940391	AE2-023 C O1	12.06
940392	AE2-023 E O1	56.46
940973	AE2-088 BAT	0.12
942101	AE2-222 C O1	12.22
942102	AE2-222 E O1	30.69
942941	AE2-314 C	3.66
942942	AE2-314 E	2.44
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.01
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.09
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	1.2
GIBSON	GIBSON	0.01

Bus #	Bus	MW Impact
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.06
NYISO	NYISO	0.32
PRAIRIE	PRAIRIE	0.1
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.07
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	1.07

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
8278325	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	105.26	119.71	DC	125.5

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.47
206306	28LKWD G1	4.04
206308	28LKWD G2	4.04
206312	28LKWD G3	2.49
206325	28O C GEN	228.42
206360	28O CRK C1	1.54
206361	28O CRK C2	0.86
206366	28LKWD CT1	7.66
206367	28LKWD CT2	7.66
207207	28JCB_W1-129	0.07
207208	28JCB_W4-025	0.1
227801	ONTC&DCT	5.04
227842	MARINGEN	0.06
227843	MARINGEN E	0.52
227927	V4-067C	0.02
227928	V4-067E	0.22
228014	PVILLEG	0.06
292063	V1-021 E	0.03
292099	V1-030 E3	0.1
293404	V3-036	0.72
901981	W1-119 C	0.28
901982	W1-119 E	3.71
901991	W1-120C	2.53
901992	W1-120E	4.12
902082	W1-129E	1.0
902321	W2-019 C	0.09
902322	W2-019 E	1.18
902432	W2-030 E	0.8
902691	W2-056 C	0.07

Bus #	Bus	MW Impact
902692	W2-056 E	0.89
902842	W2-071E	0.18
902951	W2-082 C OP1	0.25
902952	W2-082 E OP1	3.39
903152	W2-102 E	0.55
904042	V4-005 E	0.23
904431	W3-124 C	0.02
904432	W3-124 E	0.24
905252	W4-025 E	1.42
905791	W4-103 C	0.04
905792	W4-103 E	0.6
907272	X1-085 E	0.34
912101	X4-015 C	0.07
912102	X4-015 E	1.0
913332	Y1-075 E	0.21
915022	Y3-012 E	0.98
917611	Z2-102 C	0.2
917612	Z2-102 E	2.71
917682	Z2-109 E	2.06
918452	AA1-060 E	4.89
919672	AA2-049 E	0.43
924701	AB2-122 C	0.09
924702	AB2-122 E	0.16
930001	AB1-001 C	0.01
930002	AB1-001 E	0.19
930102	AB1-025 E	0.54
930891	AB1-138 C	0.98
930892	AB1-138 E	1.63
931122	AB1-163 E	0.82
932361	AC2-050 C O1	0.42
932362	AC2-050 E O1	0.68
933962	AD1-019 E	0.99
934351	AD1-059	0.72
936541	AD2-069 C	0.21
936542	AD2-069 E	0.1
938781	AE1-104 C O1	15.87
938782	AE1-104 E O1	40.58
939121	AE1-142 C O1	3.22
939122	AE1-142 E O1	4.63
940161	AE2-000 C O1	85.07
940162	AE2-000 E O1	217.67
940311	AE2-015 C O1	1.07
940312	AE2-015 E O1	0.53
940361	AE2-020 C O1	22.09
940362	AE2-020 E O1	103.41
940371	AE2-021 C O1	22.09
940372	AE2-021 E O1	103.41
940381	AE2-022 C O1	12.88
940382	AE2-022 E O1	60.33
940391	AE2-023 C O1	8.92
940392	AE2-023 E O1	41.75
940951	AE2-085 C	0.23

Bus #	Bus	MW Impact
940952	AE2-085 E	0.22
941091	AE2-103 C	0.32
941092	AE2-103 E	0.45
941441	AE2-141 C	0.13
941442	AE2-141 E	0.2
942101	AE2-222 C O1	11.15
942102	AE2-222 E O1	28.02
942201	AE2-232 C O1	41.7
942202	AE2-232 E O1	106.7
942941	AE2-314 C	6.02
942942	AE2-314 E	4.01
BLUEG	BLUEG	0.91
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.05
CARR	CARR	0.96
CATAWBA	CATAWBA	0.04
CHEOAH	CHEOAH	0.08
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.1
COTTONWOOD	COTTONWOOD	0.34
DUCKCREEK	DUCKCREEK	0.21
EDWARDS	EDWARDS	0.1
ELMERSMITH	ELMERSMITH	0.09
FARMERCITY	FARMERCITY	0.06
G-007	G-007	9.97
GIBSON	GIBSON	0.04
HAMLET	HAMLET	0.07
NEWTON	NEWTON	0.25
O-066	O-066	25.98
PRAIRIE	PRAIRIE	0.45
RENSELAER	RENSELAER	0.76
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.04
TATANKA	TATANKA	0.11
TILTON	TILTON	0.12
TRIMBLE	TRIMBLE	0.1
TVA	TVA	0.28
UNIONPOWER	UNIONPOWER	0.12

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278302	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	102.62	120.38	DC	154.33

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.64

Bus #	Bus	MW Impact
206306	28LKWD G1	5.61
206308	28LKWD G2	5.61
206312	28LKWD G3	3.45
206325	28O C GEN	312.99
206360	28O CRK C1	2.11
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.63
206367	28LKWD CT2	10.63
227801	ONTC&DCT	5.26
227842	MARINGEN	0.06
227843	MARINGEN E	0.55
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83
915022	Y3-012 E	1.02
917612	Z2-102 E	0.76
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	1.34
930892	AB1-138 E	2.24
931122	AB1-163 E	0.78
933962	AD1-019 E	1.04
934351	AD1-059	1.0
938781	AE1-104 C O1	15.65
938782	AE1-104 E O1	40.02
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.39
940161	AE2-000 C O1	116.56
940162	AE2-000 E O1	298.25
940361	AE2-020 C O1	27.16
940362	AE2-020 E O1	127.17
940371	AE2-021 C O1	27.16
940372	AE2-021 E O1	127.17
940381	AE2-022 C O1	15.84
940382	AE2-022 E O1	74.18
940391	AE2-023 C O1	8.8
940392	AE2-023 E O1	41.17
942101	AE2-222 C O1	11.65
942102	AE2-222 E O1	29.26
942201	AE2-232 C O1	57.14
942202	AE2-232 E O1	146.2
942941	AE2-314 C	6.46
942942	AE2-314 E	4.31
BLUEG	BLUEG	1.21
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.39

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.17
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.13
NEWTON	NEWTON	0.33
O-066	O-066	9.77
PRAIRIE	PRAIRIE	0.62
RENSSELAER	RENSSELAER	0.31
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	0.18

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278315	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-10A	tower	869.0	100.88	118.64	DC	154.33

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.64
206306	28LKWD G1	5.61
206308	28LKWD G2	5.61
206312	28LKWD G3	3.45
206325	28O C GEN	312.99
206360	28O CRK C1	2.11
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.63
206367	28LKWD CT2	10.63
227801	ONTC&DCT	5.26
227842	MARINGEN	0.06
227843	MARINGEN E	0.55
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83

Bus #	Bus	MW Impact
915022	Y3-012 E	1.02
917612	Z2-102 E	0.76
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	1.34
930892	AB1-138 E	2.24
931122	AB1-163 E	0.78
933962	AD1-019 E	1.04
934351	AD1-059	1.0
938781	AE1-104 C O1	15.65
938782	AE1-104 E O1	40.02
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.39
940161	AE2-000 C O1	116.56
940162	AE2-000 E O1	298.25
940361	AE2-020 C O1	27.16
940362	AE2-020 E O1	127.17
940371	AE2-021 C O1	27.16
940372	AE2-021 E O1	127.17
940381	AE2-022 C O1	15.84
940382	AE2-022 E O1	74.18
940391	AE2-023 C O1	8.8
940392	AE2-023 E O1	41.17
942101	AE2-222 C O1	11.65
942102	AE2-222 E O1	29.26
942201	AE2-232 C O1	57.14
942202	AE2-232 E O1	146.2
942941	AE2-314 C	6.46
942942	AE2-314 E	4.31
BLUEG	BLUEG	1.21
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.39
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.12
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.13
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.17
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.13
NEWTON	NEWTON	0.33
O-066	O-066	9.77
PRAIRIE	PRAIRIE	0.62
RENSSELAER	RENSSELAER	0.31
SANTEETLA	SANTEETLA	0.03

Bus #	Bus	MW Impact
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	0.18

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278268	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	83.74	119.9	DC	250.19

Bus #	Bus	MW Impact
206360	280 CRK C1	1.63
206361	280 CRK C2	0.91
227801	ONTC&DCT	13.18
227842	MARINGEN	0.16
227843	MARINGEN E	1.37
227927	V4-067C	0.04
227928	V4-067E	0.61
228261	V4-054E	0.69
228712	V2-041E	0.42
228721	V2-035E	0.1
292063	V1-021 E	0.07
293404	V3-036	1.88
902092	W1-130E	0.94
902431	W2-030 C	0.16
902432	W2-030 E	2.12
915022	Y3-012 E	2.56
924531	AB2-102 C	38.92
924532	AB2-102 E	0.86
924701	AB2-122 C	0.26
924702	AB2-122 E	0.45
930002	AB1-001 E	0.49
931191	AB1-169A	84.08
933962	AD1-019 E	2.6
936411	AD2-052 C	0.54
936412	AD2-052 E	0.26
938311	AE1-046 C	0.31
938312	AE1-046 E	0.15
938421	AE1-061 C	0.4
938422	AE1-061 E	0.4
938781	AE1-104 C O1	39.83
938782	AE1-104 E O1	101.88
939301	AE1-161 C	0.93
939302	AE1-161 E	1.39
939501	AE1-179 C O1	4.6
939502	AE1-179 E O1	3.24

Bus #	Bus	MW Impact
940001	AE1-240 C O1	3.83
940002	AE1-240 E O1	2.74
940161	AE2-000 C O1	90.07
940162	AE2-000 E O1	230.47
940361	AE2-020 C O1	44.03
940362	AE2-020 E O1	206.16
940371	AE2-021 C O1	44.03
940372	AE2-021 E O1	206.16
940381	AE2-022 C O1	25.69
940382	AE2-022 E O1	120.26
940391	AE2-023 C O1	22.39
940392	AE2-023 E O1	104.81
940961	AE2-087 C	0.16
940962	AE2-087 E	0.23
940963	AE2-087 BAT	0.06
941001	AE2-091 C O1	2.82
941002	AE2-091 E O1	1.47
941121	AE2-106 C	0.18
941122	AE2-106 E	0.25
941123	AE2-106 BAT	0.06
941931	AE2-205 C O1	8.1
941932	AE2-205 E O1	5.4
942101	AE2-222 C O1	29.17
942102	AE2-222 E O1	73.27
942201	AE2-232 C O1	44.15
942202	AE2-232 E O1	112.97
942941	AE2-314 C	18.32
942942	AE2-314 E	12.21
BLUEG	BLUEG	0.75
CALDERWOOD	CALDERWOOD	0.08
CANNELTON	CANNELTON	0.05
CARR	CARR	0.1
CATAWBA	CATAWBA	0.05
CHEOAH	CHEOAH	0.07
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.08
COTTONWOOD	COTTONWOOD	0.31
DUCKCREEK	DUCKCREEK	0.17
EDWARDS	EDWARDS	0.08
ELMERSMITH	ELMERSMITH	0.08
FARMERCITY	FARMERCITY	0.05
G-007	G-007	0.31
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.08
NEWTON	NEWTON	0.21
O-066	O-066	2.17
PRAIRIE	PRAIRIE	0.38
RENSSELAER	RENSSELAER	0.08
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.09
TILTON	TILTON	0.09

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.08
TVA	TVA	0.26
UNIONPOWER	UNIONPOWER	0.12

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278273	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-10A	tower	817.0	120.17	139.04	DC	154.16

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.25
206306	28LKWD G1	5.65
206308	28LKWD G2	5.65
206312	28LKWD G3	3.48
206325	28O C GEN	312.75
206360	28O CRK C1	2.1
206361	28O CRK C2	1.18
206366	28LKWD CT1	10.71
206367	28LKWD CT2	10.71
227801	ONTC&DCT	5.25
227842	MARINGEN	0.06
227843	MARINGEN E	0.54
227927	V4-067C	0.02
227928	V4-067E	0.23
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.75
902432	W2-030 E	0.83
915022	Y3-012 E	1.02
924701	AB2-122 C	0.1
924702	AB2-122 E	0.17
930001	AB1-001 C	0.01
930002	AB1-001 E	0.2
930891	AB1-138 C	0.52
930892	AB1-138 E	0.87
933962	AD1-019 E	1.03
934351	AD1-059	1.01
938781	AE1-104 C O1	15.62
938782	AE1-104 E O1	39.95
939121	AE1-142 C O1	3.93
939122	AE1-142 E O1	5.66
940161	AE2-000 C O1	116.48
940162	AE2-000 E O1	298.02
940361	AE2-020 C O1	27.13
940362	AE2-020 E O1	127.03
940371	AE2-021 C O1	27.13
940372	AE2-021 E O1	127.03
940381	AE2-022 C O1	15.83

Bus #	Bus	MW Impact
940382	AE2-022 E O1	74.1
940391	AE2-023 C O1	8.78
940392	AE2-023 E O1	41.1
942101	AE2-222 C O1	11.63
942102	AE2-222 E O1	29.21
942201	AE2-232 C O1	57.09
942202	AE2-232 E O1	146.09
942941	AE2-314 C	6.45
942942	AE2-314 E	4.3
BLUEG	BLUEG	1.2
CALDERWOOD	CALDERWOOD	0.13
CANNELTON	CANNELTON	0.07
CARR	CARR	0.38
CATAWBA	CATAWBA	0.08
CHEOAH	CHEOAH	0.11
CHILHOWEE	CHILHOWEE	0.04
COFFEEN	COFFEEN	0.13
COTTONWOOD	COTTONWOOD	0.49
DUCKCREEK	DUCKCREEK	0.28
EDWARDS	EDWARDS	0.13
ELMERSMITH	ELMERSMITH	0.12
FARMERCITY	FARMERCITY	0.08
G-007	G-007	3.14
GIBSON	GIBSON	0.05
HAMLET	HAMLET	0.12
NEWTON	NEWTON	0.33
O-066	O-066	9.67
PRAIRIE	PRAIRIE	0.61
RENSELAER	RENSELAER	0.3
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.05
TATANKA	TATANKA	0.15
TILTON	TILTON	0.15
TRIMBLE	TRIMBLE	0.13
TVA	TVA	0.41
UNIONPOWER	UNIONPOWER	0.18

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8277857	206302	28OYSTER C	JCP&L	206297	28MANITOU	JCP&L	1	JC-P1-2-JCC-230-022	single	817.0	100.53	105.09	DC	37.23

Bus #	Bus	MW Impact
206325	28O C GEN	425.09
206360	28O CRK C1	2.86
206361	28O CRK C2	1.61

Bus #	Bus	MW Impact
227801	ONTC&DCT	7.33
227842	MARINGEN	0.09
227927	V4-067C	0.02
228014	PVILLEG	0.09
228201	CARL#2CT	0.24
228202	CUMB CT	0.69
228203	P06	0.73
228206	SHRMN CT	0.63
228251	CARLLS#4	0.03
228260	V4-054C	0.07
228702	WEST CT	0.28
228711	V2-041C	0.02
228717	S121	0.38
228727	W2-039G	0.69
292062	V1-021 C	0.03
902091	W1-130C	0.05
902431	W2-030 C	0.09
913341	Y1-077	8.57
924531	AB2-102 C	23.48
924701	AB2-122 C	0.14
930001	AB1-001 C	0.02
931191	AB1-169A	55.59
938311	AE1-046 C	0.2
938421	AE1-061 C	0.5
938781	AE1-104 C O1	21.94
939501	AE1-179 C O1	3.06
940001	AE1-240 C O1	2.55
940161	AE2-000 C O1	158.31
940361	AE2-020 C O1	37.23
940371	AE2-021 C O1	37.23
940381	AE2-022 C O1	21.72
940391	AE2-023 C O1	12.33
940961	AE2-087 C	0.12
940963	AE2-087 BAT	0.08
941001	AE2-091 C O1	1.92
941121	AE2-106 C	0.13
941123	AE2-106 BAT	0.08
941931	AE2-205 C O1	4.88
942101	AE2-222 C O1	16.22
942201	AE2-232 C O1	77.6
942941	AE2-314 C	8.98
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.01
CARR	CARR	0.48
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.06
CPL	CPL	0.0
DUCKCREEK	DUCKCREEK	0.05

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.0
NEWTON	NEWTON	0.05
PRAIRIE	PRAIRIE	0.09
RENSELAER	RENSELAER	0.38
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.05
UNIONPOWER	UNIONPOWER	0.02

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8277582	206323	28LAKEWOOD	JCP&L	206294	28LARRABEE	JCP&L	2	JC-P2-3-JCC-230-13D	breaker	817.0	130.29	150.1	DC	161.75

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.57
206306	28LKWD G1	7.36
206308	28LKWD G2	7.36
206312	28LKWD G3	4.53
206325	28O C GEN	321.99
206360	28O CRK C1	2.17
206361	28O CRK C2	1.22
206366	28LKWD CT1	13.94
206367	28LKWD CT2	13.94
227801	ONTC&DCT	5.69
227842	MARINGEN	0.07
227843	MARINGEN E	0.59
227927	V4-067C	0.02
227928	V4-067E	0.24
228014	PVILLEG	0.07
292063	V1-021 E	0.03
293404	V3-036	0.81
901982	W1-119 E	1.2
901991	W1-120C	0.82
901992	W1-120E	1.33
902432	W2-030 E	0.9
915022	Y3-012 E	1.11
917612	Z2-102 E	0.97
924701	AB2-122 C	0.11

Bus #	Bus	MW Impact
924702	AB2-122 E	0.18
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
930891	AB1-138 C	1.19
930892	AB1-138 E	1.99
931122	AB1-163 E	0.72
933962	AD1-019 E	1.12
934351	AD1-059	1.31
938781	AE1-104 C O1	17.12
938782	AE1-104 E O1	43.8
939121	AE1-142 C O1	4.44
939122	AE1-142 E O1	6.38
940161	AE2-000 C O1	119.91
940162	AE2-000 E O1	306.82
940361	AE2-020 C O1	28.47
940362	AE2-020 E O1	133.28
940371	AE2-021 C O1	28.47
940372	AE2-021 E O1	133.28
940381	AE2-022 C O1	16.61
940382	AE2-022 E O1	77.75
940391	AE2-023 C O1	9.63
940392	AE2-023 E O1	45.06
942101	AE2-222 C O1	12.6
942102	AE2-222 E O1	31.65
942201	AE2-232 C O1	58.78
942202	AE2-232 E O1	150.4
942941	AE2-314 C	6.95
942942	AE2-314 E	4.63
BLUEG	BLUEG	1.5
CALDERWOOD	CALDERWOOD	0.15
CANNELTON	CANNELTON	0.09
CARR	CARR	0.58
CATAWBA	CATAWBA	0.09
CHEOAH	CHEOAH	0.14
CHILHOWEE	CHILHOWEE	0.05
COFFEEN	COFFEEN	0.16
COTTONWOOD	COTTONWOOD	0.61
DUCKCREEK	DUCKCREEK	0.35
EDWARDS	EDWARDS	0.16
ELMERSMITH	ELMERSMITH	0.16
FARMERCITY	FARMERCITY	0.1
G-007	G-007	5.18
GIBSON	GIBSON	0.06
HAMLET	HAMLET	0.15
NEWTON	NEWTON	0.41
O-066	O-066	14.98
PRAIRIE	PRAIRIE	0.76
RENSSELAER	RENSSELAER	0.46
SANTEETLA	SANTEETLA	0.04
SMITHLAND	SMITHLAND	0.06
TATANKA	TATANKA	0.19
TILTON	TILTON	0.19

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.17
TVA	TVA	0.5
UNIONPOWER	UNIONPOWER	0.22

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
8278223	940360	AE2-020 TAP	AE	227900	CARDIFF	AE	1	JC-P7-1-JCC-230-13	tower	805.0	152.34	208.42	DC	553.39

Bus #	Bus	MW Impact
206360	280 CRK C1	3.43
206361	280 CRK C2	1.93
940161	AE2-000 C O1	189.65
940162	AE2-000 E O1	485.25
940361	AE2-020 C O1	97.39
940362	AE2-020 E O1	455.99
940371	AE2-021 C O1	97.39
940372	AE2-021 E O1	455.99
940381	AE2-022 C O1	56.81
940382	AE2-022 E O1	266.0
942201	AE2-232 C O1	92.96
942202	AE2-232 E O1	237.87
BLUEG	BLUEG	0.18
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.01
CBM-N	CBM-N	0.06
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.08
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	0.91
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.05
NYISO	NYISO	0.27
PRAIRIE	PRAIRIE	0.09
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.06

Bus #	Bus	MW Impact
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	0.9

Contingency Name	Contingency Definition
AE_P1-2 CARD-CEDAR-B	CONTINGENCY 'AE_P1-2 CARD-CEDAR-B' OPEN LINE FROM BUS 940360 TO BUS 227955 CIRCUIT 1 / END
AE_P1-2 OY CK-CEDAR	CONTINGENCY 'AE_P1-2 OY CK-CEDAR' OPEN LINE FROM BUS 206302 TO BUS 227955 CIRCUIT 1 / END
Base Case	
JC-P2-3-JCC-230-13D	CONTINGENCY 'JC-P2-3-JCC-230-13D' /* LARRABEE SE BUS & LARRABEE-LAKEWOOD (K2011) 230 KV DISCONNECT BRANCH FROM BUS 206294 TO BUS 206274 CKT 4 /* 28LARRABEE 230 28LARR AB 35 REMOVE SWSHUNT FROM BUS 206294 BLOCK 1 STEP 1 DISCONNECT BRANCH FROM BUS 206294 TO BUS 206323 CKT 1 /* 28LARRABEE 230 28LAKEWOOD 230 END
AE_P7-1 AE6TOWER	CONTINGENCY 'AE_P7-1 AE6TOWER' DISCONNECT BRANCH FROM BUS 228197 TO BUS 228106 CKT 1 /* MERION TO CORSON 138 KV DISCONNECT BUS 228111 /* BLE TO CORSON 138 KV END
JC-P7-1-JCC-230-12	CONTINGENCY 'JC-P7-1-JCC-230-12' /* LEISURE VILLAGE-MANITOU A2027 & C2029 DISCONNECT BRANCH FROM BUS 206295 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206277 CKT 7 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206297 CKT 1 DISCONNECT BRANCH FROM BUS 206296 TO BUS 206276 CKT 3 SET BUS 206296 LOAD TO 0 MW END
JC-P7-1-JCC-230-13	CONTINGENCY 'JC-P7-1-JCC-230-13' /* MANITOU-OYSTER CREEK 230 LINES & OYSTER GEN DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 DISCONNECT BRANCH FROM BUS 206302 TO BUS 206325 CKT 1 END
JC-P1-2-JCC-230-022	CONTINGENCY 'JC-P1-2-JCC-230-022' /* MANITOU - OYSTER CREEK (O1019) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 END

Contingency Name	Contingency Definition
JC-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

Secondary POI Flow Gate Details

Td	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977802	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PECO_P4_PEACH215/* \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK	breaker	740.0	104.48	112.73	DC	60.82

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

Bus #	Bus	MW Impact
917432	Z2-076 E	0.16
917442	Z2-077 E	0.16
919831	AA2-069	37.74
923921	AB2-032 C	0.96
923922	AB2-032 E	0.45
923951	AB2-036 C	2.55
923952	AB2-036 E	4.18
923961	AB2-037 C	5.78
923962	AB2-037 E	9.45
924051	AB2-049 C	0.45
924052	AB2-049 E	0.74
924191	AB2-063 C	0.54
924192	AB2-063 E	0.89
924531	AB2-102 C	18.67
924532	AB2-102 E	0.41
924681	AB2-120 C	3.0
924682	AB2-120 E	4.9
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
924781	AB2-130 C O1	2.55
924782	AB2-130 E O1	4.17
924801	AB2-133 C O1	1.73
924802	AB2-133 E O1	2.2
924821	AB2-135 C	2.17
924822	AB2-135 E	2.47
924831	AB2-136 C	1.92
924832	AB2-136 E	2.04
924971	AB2-153 C	0.54
924972	AB2-153 E	0.87
925151	AB2-172 C	1.46
925152	AB2-172 E	2.39
925251	AB2-179 C	2.39
925252	AB2-179 E	0.79
925261	AB2-180 C	1.1
925262	AB2-180 E	0.47
925271	AB2-185 C	1.02
925272	AB2-185 E	0.44
926131	AC1-091 C	0.63
926132	AC1-091 E	1.03
926141	AC1-092 C	0.63
926142	AC1-092 E	1.03
926151	AC1-093 C	0.6
926152	AC1-093 E	0.98
926161	AC1-094 C	0.5
926162	AC1-094 E	0.83
926171	AC1-095 C	0.32
926172	AC1-095 E	0.51
926911	AC1-177	0.32
927031	AC1-190 C	2.7
927032	AC1-190 E	1.16
927191	AC1-213 C	0.25
927192	AC1-213 E	0.17

Bus #	Bus	MW Impact
930002	AB1-001 E	0.13
930202	AB1-056 E O1	14.66
930722	AB1-116 E	0.08
930732	AB1-119 E	0.09
930881	AB1-137 C	0.34
930882	AB1-137 E	0.14
930921	AB1-141 C	0.95
930922	AB1-141 E	0.44
930931	AB1-142 C	0.95
930932	AB1-142 E	0.44
931111	AB1-162 C	0.45
931112	AB1-162 E	0.74
931191	AB1-169A	46.43
931261	AB1-176 C	0.24
931262	AB1-176 E	0.4
932082	AC2-018 E1	2.35
932092	AC2-018 E2	2.35
932161	AC2-023 C	2.08
932162	AC2-023 E	1.51
932361	AC2-050 C O1	0.25
932362	AC2-050 E O1	0.42
933631	AC2-185 C	1.28
933632	AC2-185 E	2.09
933641	AC2-186 C	1.52
933642	AC2-186 E	2.48
933962	AD1-019 E	0.72
936491	AD2-064 C	0.07
936492	AD2-064 E	0.09
936501	AD2-065 C	0.25
936502	AD2-065 E	0.35
936611	AD2-076 C O1	1.32
936612	AD2-076 E O1	2.16
936691	AD2-088 C O1	1.42
936692	AD2-088 E O1	0.95
937011	AD2-135 C	0.09
937012	AD2-135 E	0.15
937281	AD2-167	4.71
938251	AE1-038 C O1	0.7
938252	AE1-038 E O1	0.97
938311	AE1-046 C	0.17
938312	AE1-046 E	0.08
938421	AE1-061 C	0.22
938422	AE1-061 E	0.22
938431	AE1-062 C	1.23
938432	AE1-062 E	1.23
938651	AE1-087 C	0.65
938652	AE1-087 E	0.16
938781	AE1-104 C O1	12.65
938782	AE1-104 E O1	32.36
938811	AE1-107 C	1.96
938812	AE1-107 E	1.4
938891	AE1-117 C O1	3.83

Bus #	Bus	MW Impact
938892	AE1-117 E O1	10.22
938901	AE1-118 C O1	3.83
938902	AE1-118 E O1	10.22
939151	AE1-145 C1	0.95
939152	AE1-145 C2	0.63
939153	AE1-145 E	0.02
939301	AE1-161 C	0.86
939302	AE1-161 E	1.29
939361	AE1-167 C O1	0.47
939362	AE1-167 E O1	0.4
939501	AE1-179 C O1	2.66
939502	AE1-179 E O1	1.88
939621	AE1-192 C O1	3.71
939622	AE1-192 E O1	1.82
939821	AE1-218 C O1	0.08
939822	AE1-218 E O1	0.12
939831	AE1-219 C O1	0.18
939832	AE1-219 E O1	0.25
940001	AE1-240 C O1	2.18
940002	AE1-240 E O1	1.55
940281	AE2-011 C	0.16
940282	AE2-011 E	0.22
940361	AE2-020 C O2	10.7
940362	AE2-020 E O2	50.12
940371	AE2-021 C O2	10.7
940372	AE2-021 E O2	50.12
940381	AE2-022 C O2	6.24
940382	AE2-022 E O2	29.23
940391	AE2-023 C O2	7.42
940392	AE2-023 E O2	34.74
940411	AE2-025 C O2	4.94
940412	AE2-025 E O2	23.11
940741	AE2-061	0.63
940961	AE2-087 C	0.1
940962	AE2-087 E	0.13
940963	AE2-087 BAT	0.04
940971	AE2-088 C	0.06
940972	AE2-088 E	0.08
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	1.62
941002	AE2-091 E O2	0.84
941021	AE2-093 C	1.47
941022	AE2-093 E	2.34
941121	AE2-106 C	0.11
941122	AE2-106 E	0.15
941123	AE2-106 BAT	0.04
941181	AE2-112 C	0.54
941182	AE2-112 E	0.88
941441	AE2-141 C	0.08
941442	AE2-141 E	0.12
941472	AE2-144 E	0.08
941931	AE2-205 C O2	3.89

Bus #	Bus	MW Impact
941932	AE2-205 E O2	2.59
941971	AE2-209 C	2.56
941972	AE2-209 E	1.79
942012	AE2-213 E	0.02
942101	AE2-222 C O2	8.05
942102	AE2-222 E O2	20.23
942201	AE2-232 C O2	11.3
942202	AE2-232 E O2	28.92
942261	AE2-238 C	0.24
942262	AE2-238 E	0.33
942381	AE2-251 C O2	33.91
942382	AE2-251 E O2	86.76
942441	AE2-257 C O2	2.63
942442	AE2-257 E O2	6.94
942701	AE2-286 C	0.62
942702	AE2-286 E	0.9
942821	AE2-301 C	0.32
942822	AE2-301 E	0.48
942941	AE2-314 C	4.34
942942	AE2-314 E	2.9
943071	AE2-334 C	2.61
943072	AE2-334 E	1.39
943081	AE2-335 C O2	3.48
943082	AE2-335 E O2	1.55
BLUEG	BLUEG	2.56
CALDERWOOD	CALDERWOOD	0.28
CANNELTON	CANNELTON	0.16
CATAWBA	CATAWBA	0.18
CBM-N	CBM-N	0.34
CHEOAH	CHEOAH	0.26
CHILHOWEE	CHILHOWEE	0.09
COFFEEN	COFFEEN	0.27
COTTONWOOD	COTTONWOOD	1.08
DUCKCREEK	DUCKCREEK	0.59
EDWARDS	EDWARDS	0.27
ELMERSMITH	ELMERSMITH	0.27
FARMERCITY	FARMERCITY	0.18
G-007A	G-007A	4.12
GIBSON	GIBSON	0.11
HAMLET	HAMLET	0.3
NEWTON	NEWTON	0.71
NYISO	NYISO	1.45
PRAIRIE	PRAIRIE	1.33
SANTEETLA	SANTEETLA	0.08
SMITHLAND	SMITHLAND	0.11
TATANKA	TATANKA	0.32
TILTON	TILTON	0.32
TRIMBLE	TRIMBLE	0.28
TVA	TVA	0.9
UNIONPOWER	UNIONPOWER	0.4
VFT	VFT	6.1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1977625	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	JC-P2-3-JCC-500-002D	breaker	564.0	111.41	136.48	DC	141.42

Bus #	Bus	MW Impact
227801	ONTC&DCT	8.28
227842	MARINGEN	0.1
227843	MARINGEN E	0.86
227927	V4-067C	0.03
227928	V4-067E	0.36
228014	PVILLEG	0.11
228202	CUMB CT	0.82
228261	V4-054E	0.59
228357	V2-046E	0.89
228712	V2-041E	0.31
228721	V2-035E	0.1
292062	V1-021 C	0.04
292063	V1-021 E	0.05
293404	V3-036	1.18
902092	W1-130E	0.73
902431	W2-030 C	0.1
902432	W2-030 E	1.31
913341	Y1-077	9.82
915022	Y3-012 E	1.61
918452	AA1-060 E	1.43
919662	AA2-048 E	0.78
919672	AA2-049 E	0.28
924531	AB2-102 C	27.97
924532	AB2-102 E	0.62
924701	AB2-122 C	0.15
924702	AB2-122 E	0.26
930001	AB1-001 C	0.02
930002	AB1-001 E	0.31
931191	AB1-169A	65.66
933962	AD1-019 E	1.63
936411	AD2-052 C	0.52
936412	AD2-052 E	0.26
938311	AE1-046 C	0.24
938312	AE1-046 E	0.12
938421	AE1-061 C	0.31
938422	AE1-061 E	0.31
938781	AE1-104 C O1	25.13
938782	AE1-104 E O1	64.28
938871	AE1-115 C	0.36
938872	AE1-115 E	0.36
939301	AE1-161 C	0.94
939302	AE1-161 E	1.41
939501	AE1-179 C O1	3.69

Bus #	Bus	MW Impact
939502	AE1-179 E O1	2.61
939931	AE1-229 C O1	7.03
939932	AE1-229 E O1	4.77
940001	AE1-240 C O1	3.07
940002	AE1-240 E O1	2.19
940361	AE2-020 C O2	24.89
940362	AE2-020 E O2	116.53
940371	AE2-021 C O2	24.89
940372	AE2-021 E O2	116.53
940381	AE2-022 C O2	14.52
940382	AE2-022 E O2	67.98
940391	AE2-023 C O2	16.3
940392	AE2-023 E O2	76.32
940411	AE2-025 C O2	45.79
940412	AE2-025 E O2	214.38
940961	AE2-087 C	0.14
940962	AE2-087 E	0.19
940963	AE2-087 BAT	0.05
940971	AE2-088 C	0.06
940972	AE2-088 E	0.08
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	2.3
941002	AE2-091 E O2	1.2
941121	AE2-106 C	0.16
941122	AE2-106 E	0.21
941123	AE2-106 BAT	0.05
941931	AE2-205 C O2	5.96
941932	AE2-205 E O2	3.97
942101	AE2-222 C O2	18.33
942102	AE2-222 E O2	46.06
942201	AE2-232 C O2	26.28
942202	AE2-232 E O2	67.25
942381	AE2-251 C O2	78.85
942382	AE2-251 E O2	201.75
942571	AE2-272	0.1
942941	AE2-314 C	10.1
942942	AE2-314 E	6.73
943081	AE2-335 C O2	3.22
943082	AE2-335 E O2	1.44
BLUEG	BLUEG	0.03
CANNELTON	CANNELTON	0.0
CARR	CARR	0.73
CBM-S1	CBM-S1	0.03
CBM-S2	CBM-S2	0.07
CBM-W2	CBM-W2	0.07
COFFEEN	COFFEEN	0.0
CPL	CPL	0.04
DUCKCREEK	DUCKCREEK	0.01
EDWARDS	EDWARDS	0.0
ELMERSMITH	ELMERSMITH	0.0
FARMERCITY	FARMERCITY	0.0
G-007	G-007	6.33

Bus #	Bus	MW Impact
GIBSON	GIBSON	0.0
NEWTON	NEWTON	0.01
O-066	O-066	19.64
PRAIRIE	PRAIRIE	0.0
RENSELAER	RENSELAER	0.58
TATANKA	TATANKA	0.0
TILTON	TILTON	0.01
TRIMBLE	TRIMBLE	0.0

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978182	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	AE_P7-1 AE6TOWER	tower	311.0	133.61	141.04	DC	51.18

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.51
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.18
228014	PVILLEG	0.07
293404	V3-036	0.79
902432	W2-030 E	0.83
913341	Y1-077	8.38
915022	Y3-012 E	1.07
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
931191	AB1-169A	349.68
933962	AD1-019 E	1.09
938311	AE1-046 C	1.27
938312	AE1-046 E	0.64
938421	AE1-061 C	1.8
938422	AE1-061 E	1.8
938781	AE1-104 C O1	21.46
938782	AE1-104 E O1	54.89
939301	AE1-161 C	3.99
939302	AE1-161 E	5.98
940361	AE2-020 C O2	9.01
940362	AE2-020 E O2	42.18
940371	AE2-021 C O2	9.01
940372	AE2-021 E O2	42.18
940381	AE2-022 C O2	5.25
940382	AE2-022 E O2	24.6
940391	AE2-023 C O2	12.63
940392	AE2-023 E O2	59.11
940973	AE2-088 BAT	0.12
942101	AE2-222 C O2	12.2
942102	AE2-222 E O2	30.64

Bus #	Bus	MW Impact
942201	AE2-232 C O2	9.51
942202	AE2-232 E O2	24.34
942381	AE2-251 C O2	28.54
942382	AE2-251 E O2	73.02
942941	AE2-314 C	3.66
942942	AE2-314 E	2.44
BLUEG	BLUEG	0.2
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.01
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.09
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	1.2
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.02
NEWTON	NEWTON	0.06
NYISO	NYISO	0.32
PRAIRIE	PRAIRIE	0.1
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.07
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	1.07

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978252	219702	HILLTOP_1	PSE&G	219101	BEAVERBK_1	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	97.22	100.86	DC	59.79

Bus #	Bus	MW Impact
227801	ONTC&DCT	3.8
227843	MARINGEN E	0.39
227928	V4-067E	0.16
228260	V4-054C	0.09
228261	V4-054E	0.63
228357	V2-046E	1.3
228702	WEST CT	0.33
228712	V2-041E	0.25
228717	S121	0.47

Bus #	Bus	MW Impact
228720	V2-035C	0.01
228721	V2-035E	0.13
228727	W2-039G	0.79
291996	U4-036 E	0.3
292063	V1-021 E	0.03
292105	V1-030 E6	0.09
293404	V3-036	0.54
902091	W1-130C	0.05
902092	W1-130E	0.69
902432	W2-030 E	0.61
909032	X2-013 E	0.19
915022	Y3-012 E	0.74
924051	AB2-049 C	0.47
924052	AB2-049 E	0.77
924531	AB2-102 C	21.84
924532	AB2-102 E	0.49
924701	AB2-122 C	0.07
924702	AB2-122 E	0.12
930002	AB1-001 E	0.14
930722	AB1-116 E	0.1
930732	AB1-119 E	0.09
931191	AB1-169A	60.9
933962	AD1-019 E	0.75
936411	AD2-052 C	0.66
936412	AD2-052 E	0.33
936491	AD2-064 C	0.06
936492	AD2-064 E	0.09
936501	AD2-065 C	0.24
936502	AD2-065 E	0.33
937011	AD2-135 C	0.08
937012	AD2-135 E	0.14
938311	AE1-046 C	0.22
938312	AE1-046 E	0.11
938421	AE1-061 C	0.55
938422	AE1-061 E	0.55
938431	AE1-062 C	1.13
938432	AE1-062 E	1.13
938781	AE1-104 C O1	13.77
938782	AE1-104 E O1	35.21
938871	AE1-115 C	0.52
938872	AE1-115 E	0.52
939301	AE1-161 C	2.29
939302	AE1-161 E	3.44
939501	AE1-179 C O1	3.57
939502	AE1-179 E O1	2.52
939821	AE1-218 C O1	0.1
939822	AE1-218 E O1	0.15
939831	AE1-219 C O1	0.22
939832	AE1-219 E O1	0.32
939931	AE1-229 C O1	9.24
939932	AE1-229 E O1	6.26
940001	AE1-240 C O1	2.95

Bus #	Bus	MW Impact
940002	AE1-240 E O1	2.1
940281	AE2-011 C	0.16
940282	AE2-011 E	0.22
940361	AE2-020 C O2	10.52
940362	AE2-020 E O2	49.27
940371	AE2-021 C O2	10.52
940372	AE2-021 E O2	49.27
940381	AE2-022 C O2	6.14
940382	AE2-022 E O2	28.74
940391	AE2-023 C O2	7.79
940392	AE2-023 E O2	36.46
940781	AE2-065 C	0.07
940782	AE2-065 E	0.1
940961	AE2-087 C	0.15
940962	AE2-087 E	0.21
940963	AE2-087 BAT	0.06
940971	AE2-088 C	0.09
940972	AE2-088 E	0.12
940973	AE2-088 BAT	0.09
941001	AE2-091 C O2	2.34
941002	AE2-091 E O2	1.22
941071	AE2-101 C	0.16
941072	AE2-101 E	0.23
941121	AE2-106 C	0.17
941122	AE2-106 E	0.23
941123	AE2-106 BAT	0.06
941471	AE2-144 C	0.14
941472	AE2-144 E	0.13
941931	AE2-205 C O2	4.61
941932	AE2-205 E O2	3.08
942011	AE2-213 C	0.11
942012	AE2-213 E	0.1
942101	AE2-222 C O2	8.42
942102	AE2-222 E O2	21.14
942201	AE2-232 C O2	11.11
942202	AE2-232 E O2	28.43
942381	AE2-251 C O2	33.34
942382	AE2-251 E O2	85.3
942571	AE2-272	0.14
942941	AE2-314 C	4.27
942942	AE2-314 E	2.85
943071	AE2-334 C	3.44
943072	AE2-334 E	1.84
943081	AE2-335 C O2	4.9
943082	AE2-335 E O2	2.19
BLUEG	BLUEG	0.62
CALDERWOOD	CALDERWOOD	0.06
CANNELTON	CANNELTON	0.04
CARR	CARR	0.26
CATAWBA	CATAWBA	0.03
CHEOAH	CHEOAH	0.05
CHILHOWEE	CHILHOWEE	0.02

Bus #	Bus	MW Impact
COFFEEN	COFFEEN	0.07
COTTONWOOD	COTTONWOOD	0.23
DUCKCREEK	DUCKCREEK	0.14
EDWARDS	EDWARDS	0.07
ELMERSMITH	ELMERSMITH	0.06
FARMERCITY	FARMERCITY	0.04
G-007	G-007	0.15
GIBSON	GIBSON	0.03
HAMLET	HAMLET	0.05
NEWTON	NEWTON	0.17
O-066	O-066	5.67
PRAIRIE	PRAIRIE	0.31
RENSSELAER	RENSSELAER	0.2
SANTEETLA	SANTEETLA	0.02
SMITHLAND	SMITHLAND	0.02
TATANKA	TATANKA	0.08
TILTON	TILTON	0.08
TRIMBLE	TRIMBLE	0.07
TVA	TVA	0.19
UNIONPOWER	UNIONPOWER	0.08

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978198	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	62.75	104.15	DC	286.48

Bus #	Bus	MW Impact
206325	280 C GEN	88.62
227801	ONTC&DCT	14.87
227842	MARINGEN	0.18
227843	MARINGEN E	1.54
227927	V4-067C	0.05
227928	V4-067E	0.68
228014	PVILLEG	0.19
228712	V2-041E	0.34
292062	V1-021 C	0.06
292063	V1-021 E	0.07
293404	V3-036	2.12
902091	W1-130C	0.18
902092	W1-130E	2.45
902431	W2-030 C	0.18
902432	W2-030 E	2.38
913341	Y1-077	16.67
915022	Y3-012 E	2.89
924531	AB2-102 C	29.11
924532	AB2-102 E	0.65
924701	AB2-122 C	0.29
924702	AB2-122 E	0.5
930001	AB1-001 C	0.04

Bus #	Bus	MW Impact
930002	AB1-001 E	0.55
931191	AB1-169A	217.57
933962	AD1-019 E	2.93
938311	AE1-046 C	0.79
938312	AE1-046 E	0.4
938421	AE1-061 C	1.98
938422	AE1-061 E	1.98
938781	AE1-104 C O1	42.67
938782	AE1-104 E O1	109.16
939121	AE1-142 C O1	0.79
939122	AE1-142 E O1	1.14
939501	AE1-179 C O1	3.39
939502	AE1-179 E O1	2.39
940001	AE1-240 C O1	2.82
940002	AE1-240 E O1	2.01
940361	AE2-020 C O2	50.42
940362	AE2-020 E O2	236.06
940371	AE2-021 C O2	50.42
940372	AE2-021 E O2	236.06
940381	AE2-022 C O2	29.41
940382	AE2-022 E O2	137.7
940391	AE2-023 C O2	31.0
940392	AE2-023 E O2	145.14
940401	AE2-024 C O2	22.34
940402	AE2-024 E O2	104.6
940411	AE2-025 C O2	19.17
940412	AE2-025 E O2	89.73
941931	AE2-205 C O2	6.76
941932	AE2-205 E O2	4.51
942101	AE2-222 C O2	32.92
942102	AE2-222 E O2	82.69
942201	AE2-232 C O2	53.24
942202	AE2-232 E O2	136.23
942381	AE2-251 C O2	159.72
942382	AE2-251 E O2	408.69
942941	AE2-314 C	20.46
942942	AE2-314 E	13.64
BLUEG	BLUEG	0.82
CALDERWOOD	CALDERWOOD	0.09
CANNELTON	CANNELTON	0.05
CATAWBA	CATAWBA	0.06
CBM-N	CBM-N	0.41
CHEOAH	CHEOAH	0.09
CHILHOWEE	CHILHOWEE	0.03
COFFEEN	COFFEEN	0.09
COTTONWOOD	COTTONWOOD	0.36
DUCKCREEK	DUCKCREEK	0.19
EDWARDS	EDWARDS	0.09
ELMERSMITH	ELMERSMITH	0.09
FARMERCITY	FARMERCITY	0.06
G-007A	G-007A	6.08
GIBSON	GIBSON	0.03

Bus #	Bus	MW Impact
HAMLET	HAMLET	0.11
NEWTON	NEWTON	0.23
NYISO	NYISO	1.79
PRAIRIE	PRAIRIE	0.43
SANTEETLA	SANTEETLA	0.03
SMITHLAND	SMITHLAND	0.03
TATANKA	TATANKA	0.1
TILTON	TILTON	0.1
TRIMBLE	TRIMBLE	0.09
TVA	TVA	0.3
UNIONPOWER	UNIONPOWER	0.13
VFT	VFT	5.72

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
14083872	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE6	breaker	805.0	81.96	105.52	DC	189.67

Bus #	Bus	MW Impact
227801	ONTC&DCT	8.49
227842	MARINGEN	0.1
227843	MARINGEN E	0.88
227927	V4-067C	0.03
227928	V4-067E	0.4
228014	PVILLEG	0.11
228202	CUMB CT	0.87
228261	V4-054E	0.59
228357	V2-046E	0.81
228712	V2-041E	0.32
228721	V2-035E	0.1
292062	V1-021 C	0.04
292063	V1-021 E	0.05
293404	V3-036	1.21
902092	W1-130E	0.74
902431	W2-030 C	0.1
902432	W2-030 E	1.4
913341	Y1-077	10.88
915022	Y3-012 E	1.65
919662	AA2-048 E	0.53
924531	AB2-102 C	29.86
924532	AB2-102 E	0.66
924701	AB2-122 C	0.17
924702	AB2-122 E	0.3
930001	AB1-001 C	0.02
930002	AB1-001 E	0.31
931191	AB1-169A	66.67
933962	AD1-019 E	1.67
936411	AD2-052 C	0.5
936412	AD2-052 E	0.25

Bus #	Bus	MW Impact
938311	AE1-046 C	0.24
938312	AE1-046 E	0.12
938421	AE1-061 C	0.32
938422	AE1-061 E	0.32
938781	AE1-104 C O1	27.84
938782	AE1-104 E O1	71.22
938871	AE1-115 C	0.34
938872	AE1-115 E	0.34
939301	AE1-161 C	0.87
939302	AE1-161 E	1.3
939501	AE1-179 C O1	3.75
939502	AE1-179 E O1	2.65
939931	AE1-229 C O1	6.61
939932	AE1-229 E O1	4.48
940001	AE1-240 C O1	3.12
940002	AE1-240 E O1	2.23
940361	AE2-020 C O2	33.38
940362	AE2-020 E O2	156.29
940371	AE2-021 C O2	33.38
940372	AE2-021 E O2	156.29
940381	AE2-022 C O2	19.47
940382	AE2-022 E O2	91.17
940391	AE2-023 C O2	18.37
940392	AE2-023 E O2	85.99
940961	AE2-087 C	0.14
940962	AE2-087 E	0.19
940963	AE2-087 BAT	0.05
940971	AE2-088 C	0.05
940972	AE2-088 E	0.07
940973	AE2-088 BAT	0.03
941001	AE2-091 C O2	2.31
941002	AE2-091 E O2	1.21
941121	AE2-106 C	0.15
941122	AE2-106 E	0.21
941123	AE2-106 BAT	0.05
941931	AE2-205 C O2	6.34
941932	AE2-205 E O2	4.23
942101	AE2-222 C O2	18.79
942102	AE2-222 E O2	47.21
942201	AE2-232 C O2	35.25
942202	AE2-232 E O2	90.19
942381	AE2-251 C O2	105.75
942382	AE2-251 E O2	270.57
942571	AE2-272	0.09
942941	AE2-314 C	13.55
942942	AE2-314 E	9.03
943081	AE2-335 C O2	2.79
943082	AE2-335 E O2	1.24
BLUEG	BLUEG	0.19
CALDERWOOD	CALDERWOOD	0.01
CANNELTON	CANNELTON	0.01
CARR	CARR	0.42

Bus #	Bus	MW Impact
CATAWBA	CATAWBA	0.0
CHEOAH	CHEOAH	0.01
CHILHOWEE	CHILHOWEE	0.0
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.06
DUCKCREEK	DUCKCREEK	0.04
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007	G-007	4.03
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.0
NEWTON	NEWTON	0.05
O-066	O-066	11.32
PRAIRIE	PRAIRIE	0.09
RENSSELAER	RENSSELAER	0.33
SANTEETLA	SANTEETLA	0.0
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.02
TILTON	TILTON	0.02
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.05
UNIONPOWER	UNIONPOWER	0.02

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
1978174	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	AE_P7-1 AE6TOWER	tower	286.0	145.24	153.32	DC	51.17

Bus #	Bus	MW Impact
227801	ONTC&DCT	5.51
227842	MARINGEN	0.07
227843	MARINGEN E	0.57
227928	V4-067E	0.18
228014	PVILLEG	0.07
293404	V3-036	0.79
902091	W1-130C	0.3
902092	W1-130E	3.97
902432	W2-030 E	0.83
913341	Y1-077	8.38
915022	Y3-012 E	1.07
924701	AB2-122 C	0.08
924702	AB2-122 E	0.14
930001	AB1-001 C	0.02
930002	AB1-001 E	0.21
931191	AB1-169A	349.67
933962	AD1-019 E	1.09
938311	AE1-046 C	1.27
938312	AE1-046 E	0.64

Bus #	Bus	MW Impact
938421	AE1-061 C	3.2
938422	AE1-061 E	3.2
938781	AE1-104 C O1	21.45
938782	AE1-104 E O1	54.88
939301	AE1-161 C	3.99
939302	AE1-161 E	5.98
940361	AE2-020 C O2	9.01
940362	AE2-020 E O2	42.17
940371	AE2-021 C O2	9.01
940372	AE2-021 E O2	42.17
940381	AE2-022 C O2	5.25
940382	AE2-022 E O2	24.6
940391	AE2-023 C O2	12.62
940392	AE2-023 E O2	59.1
940973	AE2-088 BAT	0.12
942101	AE2-222 C O2	12.2
942102	AE2-222 E O2	30.64
942201	AE2-232 C O2	9.51
942202	AE2-232 E O2	24.33
942381	AE2-251 C O2	28.53
942382	AE2-251 E O2	73.0
942941	AE2-314 C	3.66
942942	AE2-314 E	2.44
BLUEG	BLUEG	0.21
CALDERWOOD	CALDERWOOD	0.02
CANNELTON	CANNELTON	0.01
CATAWBA	CATAWBA	0.02
CBM-N	CBM-N	0.07
CHEOAH	CHEOAH	0.02
CHILHOWEE	CHILHOWEE	0.01
COFFEEN	COFFEEN	0.02
COTTONWOOD	COTTONWOOD	0.09
DUCKCREEK	DUCKCREEK	0.05
EDWARDS	EDWARDS	0.02
ELMERSMITH	ELMERSMITH	0.02
FARMERCITY	FARMERCITY	0.01
G-007A	G-007A	1.19
GIBSON	GIBSON	0.01
HAMLET	HAMLET	0.03
NEWTON	NEWTON	0.06
NYISO	NYISO	0.31
PRAIRIE	PRAIRIE	0.11
SANTEETLA	SANTEETLA	0.01
SMITHLAND	SMITHLAND	0.01
TATANKA	TATANKA	0.03
TILTON	TILTON	0.03
TRIMBLE	TRIMBLE	0.02
TVA	TVA	0.08
UNIONPOWER	UNIONPOWER	0.03
VFT	VFT	1.06

Contingency Name	Contingency Definition
AE_P1-2 OY CK-CEDAR	CONTINGENCY 'AE_P1-2 OY CK-CEDAR' OPEN LINE FROM BUS 206302 TO BUS 227955 CIRCUIT 1 / END
PS_P7-1_V2274+P2242_LT	CONTINGENCY 'PS_P7-1_V2274+P2242_LT' /* EAGLE POINT - GLOUCESTER & DEPTFORD - GLOUCESTER DISCONNECT BUS 219757 /* DEPTFORD SECTION 2 DISCONNECT BUS 219760 /* EAGLE POINT SECTION 4 TRIP LINE FROM BUS 219110 TO BUS 219128 CKT 1 /* DISCONNECT TRANSFORMER 26KV CKT 1 CLOSE LINE FROM BUS 219255 TO BUS 219256 CKT Z /* DEPTFORD CLOSE LINE FROM BUS 219180 TO BUS 219181 CKT Z /* DEPTFORD MOVE 8 MW LOAD FROM BUS 219180 TO BUS 219162 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T1 MOVE 8 MW LOAD FROM BUS 219181 TO BUS 219163 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T2 MOVE 8 MW LOAD FROM BUS 219255 TO BUS 219162 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T1 MOVE 8 MW LOAD FROM BUS 219256 TO BUS 219163 /* INTERSTATION TIE TRANSFER LOAD FROM DEPTFORD TO BEAVERBK T2 END
AE_P7-1 AE13TOWER	CONTINGENCY 'AE_P7-1 AE13TOWER' DISCONNECT BRANCH FROM BUS 228500 TO BUS 228502 CKT 1 /* LANDIS TO MINO 138 KV DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* ORCH TO CARD 230 KV END
AE_P7-1 AE6TOWER	CONTINGENCY 'AE_P7-1 AE6TOWER' DISCONNECT BRANCH FROM BUS 228197 TO BUS 228106 CKT 1 /* MERION TO CORSON 138 KV DISCONNECT BUS 228111 /* BLE TO CORSON 138 KV END
PECO_P4_PEACH205/* \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK	CONTINGENCY 'PECO_P4_PEACH205/* \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK' TRIP BRANCH FROM BUS 200065 TO BUS 200066 CKT 1 /* PCHBTM2S 500.00 PCHBTM1N 500.00 \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK TRIP BRANCH FROM BUS 200064 TO BUS 200065 CKT Z1 /* PCHBTM1S 500.00 PCHBTM2S 500.00 \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK TRIP BRANCH FROM BUS 200013 TO BUS 200066 CKT Z1 /* PCHBTM2N 500.00 PCHBTM1N 500.00 \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 \$ CHESCO \$ PECO_P4_PEACH205 \$ STBK END
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
Base Case	

Contingency Name	Contingency Definition
JC-P2-3-JCC-500-002B	CONTINGENCY 'JC-P2-3-JCC-500-002B' /* E.WINDSOR CB10 DISCONNECT BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NEWFRDM - WINDSOR 500.00 LINE DISCONNECT BRANCH FROM BUS 200028 TO BUS 206326 CKT 2 /* WINDSOR 500.00 - 28E WINDSR 230.00 XFMR END
AE_P4-2 AE7	CONTINGENCY 'AE_P4-2 AE7' /*CARDIFF TO NEW FREEDOM BREAKER V DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227910 CKT 1 /*CARDIFF CARDIFF 230 69 T1 END
PECO_P4_PEACH215/* \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK PECO_P4_PEACH215 \$ STBK	CONTINGENCY 'PECO_P4_PEACH215/* \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK' TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK REMOVE MACHINE 1 FROM BUS 200034 /* PCHBTM 2 22.00 \$ CHESCO \$ PECO_P4_PEACH215 \$ STBK END
AE_P1-2 CARD-CEDAR	CONTINGENCY 'AE_P1-2 CARD-CEDAR' OPEN LINE FROM BUS 227900 TO BUS 227955 CIRCUIT 1 / END
AE_P4-2 AE6	CONTINGENCY 'AE_P4-2 AE6' /*CARDIFF TO NEW FREEDOM BREAKER W DISCONNECT BRANCH FROM BUS 219100 TO BUS 227900 CKT 1 /*NEW FREEDOM TO CARDIFF 230 230 DISCONNECT BRANCH FROM BUS 227900 TO BUS 227911 CKT 1 /*CARDIFF CARDIFF 230 69 T2 END
JC-P2-3-JCC-500-002D	CONTINGENCY 'JC-P2-3-JCC-500-002D' /* E.WINDSOR CB16 DISCONNECT BRANCH FROM BUS 200006 TO BUS 200028 CKT 1 /* DEANS - WINDSOR 500.00 LINE DISCONNECT BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NEWFRDM - WINDSOR 500.00 LINE END