



**Generation Interconnection
Feasibility Study Report
for
Queue Project AF1-081
CUMBERLAND 230 KV
96 MW Capacity / 160 MW Energy**

January 2020

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1 Preface

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

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

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

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

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

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

2 General

The Interconnection Customer (IC), has proposed an uprate to an existing Solar generating facility located in Cumberland County, NJ. This projects requests an increase to the install capability of 160 of uprate MW with 96 MW of this being recognized by PJM as Capacity. The installed facilities will have a total capability of 238 MW with 142.8 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 30, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF1-081
Project Name	CUMBERLAND 230 KV
State	New Jersey
County	Cumberland
Transmission Owner	AEC
MFO	238
MWE	160
MWC	96
Fuel	Solar
Basecase Study Year	2023

2.1 Primary Point of Interconnection

AF1-081 will interconnect with the AEC transmission system as an uprate to AE2-205 Cumberland 230 kv.

2.2 Cost Summary

The AF1-081 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 0
Direct Connection Network Upgrade	\$ 0
Non Direct Connection Network Upgrades	\$ 0
Total Costs	\$ 0

In addition, the AF1-081 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	\$ 1,296,852,722

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

3 Transmission Owner Scope of Work

None.

4 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Total Attachment Facility Costs	\$ 0

5 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Total Direct Connection Facility Costs	\$ 0

6 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Total Non-Direct Connection Facility Costs	\$ 0

7 Schedule

None

8 Transmission Owner Analysis

None

9 Interconnection Customer Requirements

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.

The IC will be required to make provisions for a voice quality phone ("plain old telephone" or "POT") line within approximately 3 feet of each ACE metering position to facilitate remote interrogation and data collection.

The IC shall provide a protection and interrupting device deemed acceptable by ACE to protect the Facility. The protection and interrupting device shall be located at a mutually agreeable location on the Interconnection Customer side of the Point of Interconnection.

A mutually acceptable means of interrupting and disconnecting the generator with a visible break, able to be tagged and locked out, shall be worked out with ACE Distribution Engineering.

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.

11 Network Impacts

The Queue Project AF1-081 was evaluated as a 160.0 MW (Capacity 96.0 MW) injection as an uprate to AE2-205 Cumberland 230 kV in the AEC area. Project AF1-081 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-081 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

12 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 IMPAC T
49440035	219110	GLOUCSTER	230.0	PSE&G	219753	CUTHBERT_2	230.0	PSE&G	1	PS_P1-2_D-2282_LT	single	771.0	99.96	100.57	DC	10.33

13 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 IMPAC T
42695471	228207	CUMB	230.0	AE	228002	ORCHARD	230.0	AE	1	AE_P7-1 AE13TOWER	tower	799.0	88.67	100.29	DC	96.72
41506906	228218	LAUREL	69.0	AE	228360	WOODTWN2	69.0	AE	1	AE_P4-2 AE47	breaker	107.0	94.25	101.03	DC	16.63
40971382	228402	MONROE	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	PS_P7-1_W2275+O2241_LT	tower	804.0	99.53	100.86	DC	23.28

14 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 PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
42695390	206297	28MANITU	230.0	JCP&L	206319	28WHITIN GS	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	162.78	163.48	DC	12.67
42695391	206297	28MANITU	230.0	JCP&L	206319	28WHITIN GS	230.0	JCP&L	1	JC-P7-1-JCC-230-11A	tower	817.0	140.24	140.9	DC	11.89
42695412	206318	28VANHIS VL	230.0	JCP&L	206294	28LARRAB EE	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	144.18	144.94	DC	14.71
42695413	206318	28VANHIS VL	230.0	JCP&L	206294	28LARRAB EE	230.0	JCP&L	1	JC-P7-1-JCC-230-11A	tower	869.0	124.5	125.23	DC	14.16
42695402	206319	28WHITIN GS	230.0	JCP&L	206720	28MANCH STR	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	140.62	141.27	DC	12.52
42695403	206319	28WHITIN GS	230.0	JCP&L	206720	28MANCH STR	230.0	JCP&L	1	JC-P7-1-JCC-230-11A	tower	869.0	121.73	122.34	DC	11.91
42695405	206720	28MANCH STR	230.0	JCP&L	206318	28VANHIS VL	230.0	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	139.05	139.7	DC	12.52
42695406	206720	28MANCH STR	230.0	JCP&L	206318	28VANHIS VL	230.0	JCP&L	1	JC-P7-1-JCC-230-11A	tower	869.0	120.16	120.78	DC	11.91
41953189	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	bus	1180.0	144.57	145.76	DC	31.15
42124508	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	breaker	1180.0	144.56	145.75	DC	31.15

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS T LOAD %	POST PROJECTIONS T LOAD %	AC/D C	MW IMPACT
42124509	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	breaker	1180.0	134.28	135.65	DC	35.84
49439661	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	Base Case	single	760.0	108.05	109.03	DC	16.36
46552242	214010	WANEETA2	230.0	PECO	213817	N PHILA	230.0	PECO	1	PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	bus	621.0	104.36	105.52	DC	15.88
46745095	214010	WANEETA2	230.0	PECO	213817	N PHILA	230.0	PECO	1	PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	breaker	621.0	104.32	105.48	DC	15.88
41953229	214206	RICHRE29	230.0	PECO	213922	RICHMOND	230.0	PECO	1	PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	bus	1336.0	140.98	142.1	DC	33.05
42124356	214206	RICHRE29	230.0	PECO	213922	RICHMOND	230.0	PECO	1	PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	breaker	1336.0	131.61	132.92	DC	38.16
42124358	214206	RICHRE29	230.0	PECO	213922	RICHMOND	230.0	PECO	1	PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	breaker	1336.0	140.97	142.1	DC	33.05
42124415	219100	NEWFRDM	230.0	PSE&G	219704	HILLTOP_3	230.0	PSE&G	1	PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	breaker	740.0	132.06	132.84	DC	12.65
42695475	219100	NEWFRDM	230.0	PSE&G	219704	HILLTOP_3	230.0	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	141.13	141.98	DC	16.53
42695477	219100	NEWFRDM	230.0	PSE&G	219704	HILLTOP_3	230.0	PSE&G	1	PS_P7-1_W2275+O2241_LT	tower	740.0	134.72	135.56	DC	16.6
42124782	219108	CUTHBERT	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P2-3_CAMD_5-6_LT	breaker	771.0	119.07	120.13	DC	17.78
42124676	219110	GLOUCSTR	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P2-3_CUTB_1-4_LT	breaker	771.0	127.09	128.16	DC	17.9
42124677	219110	GLOUCSTR	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P2-3_CUTB_3-4_LT	breaker	771.0	125.36	126.4	DC	17.64
42405948	219110	GLOUCSTR	230.0	PSE&G	219755	CUTHBERT_4	230.0	PSE&G	1	PS_P1-2_C-2308	single	758.0	107.96	108.62	DC	10.9
42405949	219110	GLOUCSTR	230.0	PSE&G	219755	CUTHBERT_4	230.0	PSE&G	1	PS_P1-2_C-2308_LT	single	758.0	107.24	107.89	DC	10.9
49439940	219110	GLOUCSTR	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	Base Case	single	500.0	103.66	104.32	DC	7.22
49440034	219110	GLOUCSTR	230.0	PSE&G	219753	CUTHBERT_2	230.0	PSE&G	1	PS_P1-2_D-2282	single	771.0	100.65	101.26	DC	10.33
41506744	219125	CAMDEN	230.0	PSE&G	214206	RICHRE29	230.0	PECO	1	PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	breaker	1336.0	131.64	132.94	DC	38.16
41506746	219125	CAMDEN	230.0	PSE&G	214206	RICHRE29	230.0	PECO	1	PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	breaker	1336.0	140.99	142.12	DC	33.05
41780774	219125	CAMDEN	230.0	PSE&G	214206	RICHRE29	230.0	PECO	1	PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	bus	1336.0	141.0	142.13	DC	33.05
42124578	219702	HILLTOP_1	230.0	PSE&G	219101	BEAVERBK_1	230.0	PSE&G	1	PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	breaker	740.0	107.98	108.7	DC	11.8
42695551	219702	HILLTOP_1	230.0	PSE&G	219101	BEAVERBK_1	230.0	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	125.35	126.14	DC	15.54
42695553	219702	HILLTOP_1	230.0	PSE&G	219101	BEAVERBK_1	230.0	PSE&G	1	PS_P7-1_W2275+O2241_LT	tower	740.0	119.25	120.05	DC	15.61
42124935	219754	CUTHBERT_3	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P2-3_CAMD_5-6_LT	breaker	792.0	105.38	106.31	DC	16.16

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECTIONS LOADING %	POST PROJECTIONS LOADING %	AC/D C	MW IMPACT
42695919	219756	BEAVERBK_2	230.0	PSE&G	219110	GLOUCSTR	230.0	PSE&G	1	PS_P7-1_V2274+P2242_L T	tower	740.0	113.92	114.71	DC	15.54
42695920	219756	BEAVERBK_2	230.0	PSE&G	219110	GLOUCSTR	230.0	PSE&G	1	AE_P7-1 W2275_O2241	tower	740.0	111.69	112.49	DC	15.6
40971170	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	289.72	291.5	DC	27.38
40971171	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P7-1 AE13TOWER	tower	692.0	272.07	273.4	DC	20.4
41506480	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE46	breaker	692.0	258.61	266.81	DC	56.71
41506481	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE45	breaker	692.0	231.29	234.97	DC	25.46
41506482	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE9	breaker	692.0	227.88	228.92	DC	15.96
41506483	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P4-2 AE8	breaker	692.0	226.91	228.03	DC	17.17
42124225	227900	CARDIFF	230.0	AE	227955	CEDAR	230.0	AE	1	AE_P4-2 AE7	breaker	805.0	186.42	189.04	DC	21.08
42124226	227900	CARDIFF	230.0	AE	227955	CEDAR	230.0	AE	1	AE_P4-2 AE6	breaker	805.0	186.41	189.03	DC	21.08
40971346	227901	DOROTHY	138.0	AE	228503	MNOTLA 2	138.0	AE	1	JC-P7-1-JCC-230-13	tower	478.0	113.68	114.56	DC	9.25
41507106	227901	DOROTHY	138.0	AE	228503	MNOTLA 2	138.0	AE	1	AE_P4-2 AE46	breaker	478.0	103.13	107.19	DC	19.43
41506813	227902	LEWIS #1	138.0	AE	227949	LEWIS #3	138.0	AE	1	AE_P4-2 AE46	breaker	478.0	125.59	130.04	DC	21.27
41506814	227902	LEWIS #1	138.0	AE	227949	LEWIS #3	138.0	AE	1	AE_P4-2 AE7	breaker	478.0	121.33	122.38	DC	11.13
41506815	227902	LEWIS #1	138.0	AE	227949	LEWIS #3	138.0	AE	1	AE_P4-2 AE6	breaker	478.0	121.29	122.34	DC	11.13
41166873	227903	MILL #1	138.0	AE	227902	LEWIS #1	138.0	AE	1	AE_P1-2 BLE-ML-LEW2	single	306.0	119.25	124.62	DC	16.42
41507028	227903	MILL #1	138.0	AE	227904	MILL #2	138.0	AE	1	AE_P4-2 AE29	breaker	478.0	111.26	112.38	DC	11.93
41506500	227904	MILL #2	138.0	AE	227945	LEWIS #2	138.0	AE	1	AE_P4-2 AE33	breaker	282.0	201.31	209.21	DC	24.26
41166845	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	AE_P1-2 BLE-SC-ML2	single	306.0	135.53	141.42	DC	18.02
41166846	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	AE_P1-2 BLE-ML-LEW2	single	306.0	119.28	124.65	DC	16.42
41166847	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	Base Case	single	218.0	106.25	110.99	DC	10.33
41506465	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	AE_P4-2 AE29	breaker	306.0	292.02	299.29	DC	23.66
41166835	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	AE_P1-2 BLE-SC-ML1	single	306.0	137.08	142.97	DC	18.04
41166836	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	AE_P1-2 BLE-ML-LEW1	single	306.0	131.75	137.36	DC	17.17
41166837	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	Base Case	single	218.0	107.86	112.61	DC	10.36
41506475	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	AE_P4-2 AE28	breaker	306.0	282.5	290.72	DC	26.76
41506881	227945	LEWIS #2	138.0	AE	227902	LEWIS #1	138.0	AE	1	AE_P4-2 AE33	breaker	286.8	127.68	129.16	DC	9.47
40971340	227946	MILL#2	69.0	AE	227922	MILL #1	69.0	AE	1	AE_P7-1 AE2TOWER	tower	239.0	109.07	119.35	DC	25.54
41506861	227946	MILL#2	69.0	AE	227922	MILL #1	69.0	AE	1	AE_P4-2 AE22	breaker	239.0	108.79	119.26	DC	25.53
41506863	227946	MILL#2	69.0	AE	227922	MILL #1	69.0	AE	1	AE_P4-2 AE23	breaker	239.0	108.22	118.43	DC	24.9
40971323	227949	LEWIS #3	138.0	AE	227901	DOROTHY	138.0	AE	1	JC-P7-1-JCC-230-13	tower	478.0	117.43	118.3	DC	9.25
40971324	227949	LEWIS #3	138.0	AE	227901	DOROTHY	138.0	AE	1	PS_P7-1_R2244+M2213	tower	478.0	101.88	102.83	DC	10.15

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/D C	MW IMPACT
41507056	227949	LEWIS #3	138.0	AE	227901	DOROTHY	138.0	AE	1	AE_P4-2 AE46	breaker	478.0	106.87	110.94	DC	19.43
41506485	227955	CEDAR	230.0	AE	206302	28OYSTER C	230.0	JCP&L	1	AE_P4-2 AE7	breaker	564.0	261.79	266.12	DC	24.4
41506486	227955	CEDAR	230.0	AE	206302	28OYSTER C	230.0	JCP&L	1	AE_P4-2 AE6	breaker	564.0	261.79	266.12	DC	24.4
41166815	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	AE_P1-2 BLE-SC-ML2	single	306.0	142.78	148.67	DC	18.02
41166816	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	AE_P1-2 BLE-ML-LEW2	single	306.0	126.54	131.91	DC	16.42
41166817	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	Base Case	single	218.0	116.39	121.12	DC	10.33
41166825	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	AE_P1-2 BLE-SC-ML1	single	306.0	142.24	148.13	DC	18.04
41166826	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	AE_P1-2 BLE-ML-LEW1	single	306.0	136.91	142.52	DC	17.17
41166827	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	Base Case	single	218.0	115.1	119.85	DC	10.36
41506460	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	AE_P4-2 AE29	breaker	306.0	299.24	306.51	DC	23.66
41506470	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	AE_P4-2 AE28	breaker	306.0	287.66	295.88	DC	26.76
40971228	228130	TUCKAHOE	69.0	AE	227946	MILL#2	69.0	AE	1	AE_P7-1 AE7TOWER	tower	146.0	162.4	166.62	DC	13.68
42695470	228207	CUMB	230.0	AE	228002	ORCHARD	230.0	AE	1	AE_P7-1 AE7TOWER	tower	799.0	119.39	133.9	DC	118.39
40971217	228217	DENNIS	69.0	AE	228130	TUCKAHOE	69.0	AE	1	AE_P7-1 AE7TOWER	tower	146.0	167.13	171.35	DC	13.68
42124392	228311	CHAMBERS	230.0	AE	228312	PEDRKTWN	230.0	AE	1	AE_P4-2 AE45	breaker	552.0	112.27	123.38	DC	61.26
42124440	228313	BRIDGPRT	230.0	AE	228401	MCKLTON	230.0	AE	1	AE_P4-2 AE45	breaker	804.0	115.35	122.96	DC	60.97
40971380	228402	MONROE	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	PS_P7-1_V2274+P2242_L T	tower	804.0	107.69	109.01	DC	23.19
40971205	228502	MNOTLA 1	138.0	AE	228500	LANDIS	138.0	AE	1	JC-P7-1-JCC-230-13	tower	478.0	186.65	187.52	DC	9.24
40971206	228502	MNOTLA 1	138.0	AE	228500	LANDIS	138.0	AE	1	PS_P7-1_R2244+M2213	tower	478.0	171.49	172.45	DC	10.15
40971180	228503	MNOTLA 2	138.0	AE	228502	MNOTLA 1	138.0	AE	1	JC-P7-1-JCC-230-13	tower	311.0	286.86	288.19	DC	9.25
41166866	228503	MNOTLA 2	138.0	AE	228502	MNOTLA 1	138.0	AE	1	AE_P1-2 CARD-CEDAR	single	311.0	136.37	138.05	DC	5.22
41166867	228503	MNOTLA 2	138.0	AE	228502	MNOTLA 1	138.0	AE	1	JC-P1-2-JCC-230-002T	single	311.0	136.89	138.71	DC	5.67
40971278	228504	SHLDLY T	69.0	AE	228511	LANDIS T	69.0	AE	1	AE_P7-1 AE7TOWER	tower	158.0	133.91	136.08	DC	15.76
40971282	228511	LANDIS T	69.0	AE	228409	MONROE#3	69.0	AE	1	AE_P7-1 AE7TOWER	tower	158.0	133.91	136.08	DC	15.76
40971239	228714	CNTRL N	69.0	AE	228504	SHLDLY T	69.0	AE	1	AE_P7-1 AE7TOWER	tower	143.0	147.96	150.35	DC	15.76
40971275	228716	S121TAP	69.0	AE	228714	CNTRL N	69.0	AE	1	AE_P7-1 AE7TOWER	tower	107.0	132.72	136.22	DC	8.31

15 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 PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
42405787	200051	ROCKSPGS	500.0	PJM	200065	PCHBTM2S	500.0	PJM	1	PECO_P1-2_5038/* \$ CHESCO \$ 5038 \$ L	operation	2905.0	133.0	133.9	DC	56.55
42405584	206295	28LEISUR D	230.0	JCP&L	206323	28LAKEWOD	230.0	JCP&L	1	JC-P1-2-JCC-230-020	operation	869.0	122.2	122.87	DC	12.9
42405490	206296	28LEISUR U	230.0	JCP&L	206323	28LAKEWOD	230.0	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	138.57	139.28	DC	12.84
42405462	206297	28MANITO U	230.0	JCP&L	206296	28LEISUR U	230.0	JCP&L	1	JC-P1-2-JCC-230-019	operation	817.0	151.53	152.25	DC	13.02
42405468	206297	28MANITO U	230.0	JCP&L	206295	28LEISUR D	230.0	JCP&L	1	JC-P1-2-JCC-230-020	operation	817.0	150.97	151.69	DC	13.03
42405370	206302	28OYSTER C	230.0	JCP&L	206297	28MANITO U	230.0	JCP&L	1	JC-P1-2-JCC-230-022	operation	817.0	239.22	240.14	DC	16.67
42405371	206302	28OYSTER C	230.0	JCP&L	206297	28MANITO U	230.0	JCP&L	1	Base Case	operation	650.0	158.66	159.28	DC	9.0
42405391	206302	28OYSTER C	230.0	JCP&L	206297	28MANITO U	230.0	JCP&L	2	JC-P1-2-JCC-230-021	operation	869.0	224.95	225.81	DC	16.67
42405392	206302	28OYSTER C	230.0	JCP&L	206297	28MANITO U	230.0	JCP&L	2	Base Case	operation	709.0	145.64	146.21	DC	9.01
42405775	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	Base Case	operation	760.0	160.58	162.2	DC	27.27
42405777	213922	RICHMOND	230.0	PECO	214012	WANEETA3	230.0	PECO	1	PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	operation	1180.0	131.35	132.73	DC	35.84
42405727	214206	RICHRE29	230.0	PECO	213922	RICHMOND	230.0	PECO	1	PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	operation	1336.0	129.28	130.58	DC	38.16
42405728	214206	RICHRE29	230.0	PECO	213922	RICHMOND	230.0	PECO	1	Base Case	operation	1075.0	127.74	128.98	DC	29.14
42405780	219100	NEWFRDM	230.0	PSE&G	219704	HILLTOP_3	230.0	PSE&G	1	PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	operation	740.0	130.85	131.64	DC	12.65
42406229	219108	CUTHBERT	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P1-2_Y-2304	operation	771.0	118.05	119.08	DC	17.33

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
42405943	219110	GLOUCSTR	230.0	PSE&G	219755	CUTHBERT_4	230.0	PSE&G	1	PS_P1-2_C-2308	operation	758.0	136.17	137.26	DC	18.17
42405947	219110	GLOUCSTR	230.0	PSE&G	219755	CUTHBERT_4	230.0	PSE&G	1	Base Case	operation	550.0	121.71	122.7	DC	11.79
42406009	219110	GLOUCSTR	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	Base Case	operation	500.0	132.0	133.1	DC	12.04
42406010	219110	GLOUCSTR	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P1-2_D-2282	operation	771.0	116.06	117.02	DC	16.18
42406089	219110	GLOUCSTR	230.0	PSE&G	219753	CUTHBERT_2	230.0	PSE&G	1	PS_P1-2_D-2282	operation	771.0	126.93	127.96	DC	17.22
42406091	219110	GLOUCSTR	230.0	PSE&G	219753	CUTHBERT_2	230.0	PSE&G	1	Base Case	operation	500.0	117.1	118.04	DC	10.3
41167267	219125	CAMDEN	230.0	PSE&G	214206	RICHRE29	230.0	PECO	1	PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	operation	1336.0	129.3	130.6	DC	38.16
41167268	219125	CAMDEN	230.0	PSE&G	214206	RICHRE29	230.0	PECO	1	Base Case	operation	1075.0	127.76	129.0	DC	29.14
42405996	219702	HILLTOP_1	230.0	PSE&G	219101	BEAVERBK_1	230.0	PSE&G	1	PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	operation	740.0	106.87	107.59	DC	11.8
42406356	219754	CUTHBERT_3	230.0	PSE&G	219125	CAMDEN	230.0	PSE&G	1	PS_P1-2_Y-2304	operation	792.0	104.48	105.39	DC	15.75
41166855	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	AE_P1-2 ORCH-CARD	operation	692.0	226.19	227.33	DC	17.59
41166860	227900	CARDIFF	230.0	AE	219100	NEWFRDM	230.0	PSE&G	1	Base Case	operation	650.0	192.84	195.97	DC	20.33
42405485	227900	CARDIFF	230.0	AE	227955	CEDAR	230.0	AE	1	PS_P1-2_2310	operation	805.0	185.93	188.58	DC	21.31
42405486	227900	CARDIFF	230.0	AE	227955	CEDAR	230.0	AE	1	Base Case	operation	650.0	179.08	180.14	DC	15.4
41167496	227902	LEWIS #1	138.0	AE	227949	LEWIS #3	138.0	AE	1	PS_P1-2_2310	operation	478.0	119.91	120.98	DC	11.36
41167535	227902	LEWIS #1	138.0	AE	227945	LEWIS #2	138.0	AE	1	AE_P1-2 BLE-ML-LEW2	operation	286.8	114.58	116.1	DC	9.67
41166868	227903	MILL #1	138.0	AE	227902	LEWIS #1	138.0	AE	1	AE_P1-2 BLE-ML-LEW2	operation	306.0	230.6	239.01	DC	27.37
41166871	227903	MILL #1	138.0	AE	227902	LEWIS #1	138.0	AE	1	Base Case	operation	218.0	158.45	161.63	DC	15.4
41166907	227904	MILL #2	138.0	AE	227945	LEWIS #2	138.0	AE	1	AE_P1-2 BLE-ML-LEW1	operation	282.0	191.59	199.24	DC	23.6
41166910	227904	MILL #2	138.0	AE	227945	LEWIS #2	138.0	AE	1	Base Case	operation	218.0	156.36	159.52	DC	15.29
41166840	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	AE_P1-2 BLE-SC-ML2	operation	306.0	259.43	268.65	DC	30.03
41166842	227905	SCULL#1	138.0	AE	227903	MILL #1	138.0	AE	1	Base Case	operation	218.0	204.76	212.64	DC	17.21
41166830	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	AE_P1-2 BLE-SC-ML1	operation	306.0	260.99	270.22	DC	30.07

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 IMPAC T
41166832	227906	SCULL#2	138.0	AE	227904	MILL #2	138.0	AE	1	Base Case	operation	218.0	206.83	214.73	DC	17.26
41167479	227945	LEWIS #2	138.0	AE	227902	LEWIS #1	138.0	AE	1	AE_P1-2 BLE-ML-LEW1	operation	286.8	120.33	122.72	DC	15.23
41167419	227946	MILL#2	69.0	AE	227922	MILL #1	69.0	AE	1	AE_P1-2 ORCH-CUMB	operation	239.0	107.96	118.03	DC	24.57
41167732	227949	LEWIS #3	138.0	AE	227901	DOROTHY	138.0	AE	1	PS_P1-2_2310	operation	478.0	101.86	102.82	DC	10.16
41166850	227955	CEDAR	230.0	AE	206302	28OYSTER C	230.0	JCP&L	1	PS_P1-2_2310	operation	564.0	261.37	265.72	DC	24.53
41166851	227955	CEDAR	230.0	AE	206302	28OYSTER C	230.0	JCP&L	1	Base Case	operation	464.0	243.07	247.01	DC	18.25
41166810	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	AE_P1-2 BLE-SC-ML2	operation	306.0	266.68	275.9	DC	30.03
41166812	228110	BLE	138.0	AE	227905	SCULL#1	138.0	AE	1	Base Case	operation	218.0	214.89	222.77	DC	17.21
41166820	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	AE_P1-2 BLE-SC-ML1	operation	306.0	266.16	275.39	DC	30.07
41166822	228110	BLE	138.0	AE	227906	SCULL#2	138.0	AE	1	Base Case	operation	218.0	214.08	221.98	DC	17.26
42405733	228311	CHAMBERS	230.0	AE	228312	PEDRKTWN	230.0	AE	1	AE_P1-2 ORCHAR D XF	operation	552.0	119.94	124.07	DC	50.43
42405638	228312	PEDRKTWN	230.0	AE	228313	BRIDGPRT	230.0	AE	1	AE_P1-2 ORCHAR D XF	operation	552.0	137.23	141.35	DC	50.32
42405643	228312	PEDRKTWN	230.0	AE	228313	BRIDGPRT	230.0	AE	1	Base Case	operation	552.0	98.84	100.93	DC	25.46
42405818	228313	BRIDGPRT	230.0	AE	228401	MCKLTON	230.0	AE	1	AE_P1-2 ORCHAR D XF	operation	804.0	120.3	123.13	DC	50.13
42405819	228313	BRIDGPRT	230.0	AE	228401	MCKLTON	230.0	AE	1	Base Case	operation	650.0	115.33	117.11	DC	25.27
41167071	228502	MNOTLA 1	138.0	AE	228500	LANDIS	138.0	AE	1	JC-P1-2-JCC-230-002T	operation	478.0	164.65	165.54	DC	9.44
41166861	228503	MNOTLA 2	138.0	AE	228502	MNOTLA 1	138.0	AE	1	JC-P1-2-JCC-230-002T	operation	311.0	253.06	254.43	DC	9.45
41167189	228504	SHLDLY T	69.0	AE	228511	LANDIS T	69.0	AE	1	AE_P1-2 ORCH-CUMB	operation	158.0	105.34	113.53	DC	29.4
41167206	228511	LANDIS T	69.0	AE	228409	MONROE#3	69.0	AE	1	AE_P1-2 ORCH-CUMB	operation	158.0	105.34	113.53	DC	29.4
41167109	228714	CNTRL N	69.0	AE	228504	SHLDLY T	69.0	AE	1	AE_P1-2 ORCH-CUMB	operation	143.0	116.39	125.43	DC	29.4

16 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
41507106,40971346	22	DOROTHY 138.0 kV - MNOTLA 2 138.0 kV Ckt 1	<u>AE</u> at1421r0001_af1f (97) : To mitigate the (ACE) Dorothy - Minotola 69 kV line (from bus 227901 to bus 228503 ckt 1) overload, it will require increasing the emergency rating of the Dorothy to Minotola 69 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$21,000,000 Time Estimate : 24-48 Months	\$21,000,000
41506746,41780774, 41506744	16	CAMDEN 230.0 kV - RICHRE29 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_CamdRich (518) : Wreck and Rebuild (PSEG Portion) Project Type : FAC Cost : \$45,000,000 Time Estimate : 25.0 Months <u>PECO</u> pe002 (2143) : Rebuild the Camden-Richmond 230 kV line with six wires bundled (2-1590 kcmil) aerial conductors and rebuild the Richmond 230 kV substation ring bus to increase bus rating (Does not include permitting or ROW acquisition). Cost & Ratings for PECO portion of tieline only. Project Type : FAC Cost : \$24,700,000 Time Estimate : 84.0 Months	\$69,700,000
49439940,42124676, 42124677	14	GLOUCSTR 230.0 kV - CAMDEN 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_GlouCamd (522) : New U/G Cable Project Type : CON Cost : \$193,809,119 Time Estimate : 48.0 Months	\$193,809,119
42405948,42405949	15	GLOUCSTR 230.0 kV - CUTHBERT_4 230.0 kV Ckt 1	<u>AE</u> r_PS_AE2_SIS_GlouCamd (522) : New U/G Cable Project Type : CON Cost : \$193,809,119 Time Estimate : 48.0 Months	\$193,809,119

ID	Index	Facility	Upgrade Description	Cost
42695471,42695470	2	CUMB 230.0 kV - ORCHARD 230.0 kV Ckt 1	<u>AE</u> at2314r0001 (65) : To mitigate the (ACE) Orchard Cumberland 230 kV line (from bus 228012 to bus 228207 ckt 1) overload, it will require increasing the emergency rating of the Orchard to Cumberland 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 Cumberland. Project Type : FAC Cost : \$46,600,000 Time Estimate : 36-60 Months as2314r0001 (66) : To mitigate the (ACE) Orchard Cumberland 230 kV line (from bus 228012 to bus 228207 ckt 1) overload, it will require reinforcement of terminal equipment at Cumberland. Project Type : FAC Cost : \$300,000 Time Estimate : 12-24 Months as2314r0002 (72) : To mitigate the (ACE) Orchard Cumberland 230 kV line (from bus 228012 to bus 228207 ckt 1) overload, it will require reinforcement of terminal equipment at Cumberland. Project Type : FAC Cost : \$500,000 Time Estimate : 12-24 Months	\$47,400,000
42124782	13	CUTHBERT 230.0 kV - CAMDEN 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_GlouCamd (522) : New U/G Cable Project Type : CON Cost : \$193,809,119 Time Estimate : 48.0 Months	\$193,809,119
49440034,49440035	1	GLOUCSTR 230.0 kV - CUTHBERT_2 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_GlouCamd (522) : New U/G Cable Project Type : CON Cost : \$193,809,119 Time Estimate : 48.0 Months	\$193,809,119
42124935	18	CUTHBERT_3 230.0 kV - CAMDEN 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_GlouCamd (522) : New U/G Cable Project Type : CON Cost : \$193,809,119 Time Estimate : 48.0 Months	\$193,809,119
42695477,42124415, 42695475	12	NEWFRDM 230.0 kV - HILLTOP_3 230.0 kV Ckt 1	<u>PSEG</u> r_PS_AE2_SIS_NFreedHill1590 (524) : Reconductor Project Type : FAC Cost : \$5,105,546 Time Estimate : 11.0 Months	\$5,105,546

ID	Index	Facility	Upgrade Description	Cost
40971380,40971382	4	MONROE 230.0 kV - NEWFRDM 230.0 kV Ckt 1	<u>AE</u> at2305r0001 (85) : To mitigate the (ACE) Monroe to New Freedom 230 kV line (from bus 228402 to bus 219100 ckt 1) overload, it will require increasing the emergency rating of the Monroe to New Freedom 69 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$13,400,000 Time Estimate : 30-60 Months	\$13,400,000
41506485,41506486	32	CEDAR 230.0 kV - 28OYSTER C 230.0 kV Ckt 1	<u>AE</u> at2318r0001 (42) : 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 : \$63,000,000 Time Estimate : 60.0 Months as2318r0001 (43) : To mitigate the (ACE) Cedar Oyster Creek 230 kV line (from bus 227955 to bus 206302 ckt 1) overload, it will require various terminal reinforcements at Cedar. Project Type : FAC Cost : \$700,000 Time Estimate : 24-48 Months <u>JCPL</u> JCP&L-AF1-F-0012a (2435) : Reconductor line (~0.08 miles) Upgrade terminal equipment 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 : \$281,400 Time Estimate : 9.0 Months JCP&L-AF1-F-0012b (2436) : Upgrade terminal equipment at Oyster Creek. Replace substation conductor at Oyster Creek Project Type : FAC Cost : \$670,000 Time Estimate : 12.0 Months	\$64,651,400

ID	Index	Facility	Upgrade Description	Cost
41506460,41166815, 41166817,41166816	33	BLE 138.0 kV - SCULL#1 138.0 kV Ckt 1	<u>AE</u> at1407r0001 (15) : To mitigate the (ACE) B.L. England Scull#1 138 kV line (from bus 228110 to bus 227905 ckt 1) overload, it will require increasing the emergency rating of the B.L. England to Scull#1 138 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 both B.L. England and Scull#1 Project Type : FAC Cost : \$5,900,000 Time Estimate : 36-60 Months at1407r0002 (16) : To mitigate the (ACE) B.L. England Scull#1 138 kV line (from bus 228110 to bus 227905 ckt 1) overload, it will require increasing the emergency rating of the B.L. England to Scull#1 138 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 B.L. England#1. Project Type : FAC Cost : \$5,300,000 Time Estimate : 36-60 Months	\$11,200,000
41506465,41166846, 41166847,41166845	27	SCULL#1 138.0 kV - MILL #1 138.0 kV Ckt 1	<u>AE</u> at1407r0003 (17) : To mitigate the (ACE) Scull#1-Mill#1 - 138 kV line (from bus 227905 to bus 227903 ckt 1) overload, it will require increasing the emergency rating of the Scull#1 to Mill#1 138 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. In addition, various terminal reinforcements at both, Mill#1 & Scull#1. Project Type : FAC Cost : \$12,800,000 Time Estimate : 36-60 Months at1407r0004 (18) : To mitigate the (ACE) Scull#1-Mill#1 - 138 kV line (from bus 227905 to bus 227903 ckt 1) overload, it will require increasing the emergency rating of the Scull#1 to Mill#1 138 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. In addition, various terminal reinforcements at Mill#1. Project Type : FAC Cost : \$12,500,000 Time Estimate : 36-60 Months	\$25,300,000
42124358,42124356, 41953229	11	RICHRE29 230.0 kV - RICHMOND 230.0 kV Ckt 1	<u>PECO</u> pe002 (2143) : Rebuild the Camden-Richmond 230 kV line with six wires bundled (2-1590 kcmil) aerial conductors and rebuild the Richmond 230 kV substation ring bus to increase bus rating (Does not include permitting or ROW acquisition). Cost & Ratings for PECO portion of tieline only. Project Type : FAC Cost : \$24,700,000 Time Estimate : 84.0 Months	\$24,700,000

ID	Index	Facility	Upgrade Description	Cost
41953189,42124509, 49439661,42124508	9	RICHMOND 230.0 kV - WANEETA3 230.0 kV Ckt 1	<u>PECO</u> pe003 (2144) : Add a second pair of underground cables in parallel with the underground portion of the line and rebuild the aerial portion of the Richmond-Waneeta 230 kV line with bundled (2-1590 kcmil) conductors (Does not include permitting) Project Type : FAC Cost : \$30,000,000 Time Estimate : 84.0 Months	\$30,000,000
41506500	26	MILL #2 138.0 kV - LEWIS #2 138.0 kV Ckt 1	<u>AE</u> at1424r0001 (13) : To mitigate the (ACE) Mill#2 Lewis#2 138 kV line (from bus 228904 to bus 227945 ckt 1) overload, it will require increasing the emergency rating of the Mill#2 to Lewis#2 138 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 Lewis#2. Project Type : FAC Cost : \$12,500,000 Time Estimate : 36-60 Months as1424r0001 (14) : To mitigate the (ACE) Mill#2 Lewis#2 138 kV line (from bus 228904 to bus 227945 ckt 1) overload will require substation reinforcements at both, Mill#2 & Lewis#2 Substation. Project Type : FAC Cost : \$1,000,000 Time Estimate : 24-36 Months	\$13,500,000
41506815,41506814, 41506813	23	LEWIS #1 138.0 kV - LEWIS #3 138.0 kV Ckt 1	<u>AE</u> aslewisr0002_ae2i (107) : To mitigate the (ACE) Lewis #1 to Lewis #3 138 kV line (from bus 227902 to bus 227949 ckt 1) overload, terminal reinforcement is required at Lewis substation. Project Type : FAC Cost : \$300,000 Time Estimate : 12-24 Months aslewisr0003_ae2i (108) : To mitigate the (ACE) Lewis #1 to Lewis #3 138 kV line (from bus 227902 to bus 227949 ckt 1) overload, terminal reinforcement is required at Lewis substation. Project Type : FAC Cost : \$300,000 Time Estimate : 12-24 Months aslewisr0004_ae2i (109) : To mitigate the (ACE) Lewis #1 to Lewis #3 138 kV line (from bus 227902 to bus 227949 ckt 1) overload, terminal reinforcement is required at Lewis substation. Project Type : FAC Cost : \$250,000 Time Estimate : 12-24 Months	\$850,000

ID	Index	Facility	Upgrade Description	Cost
42695390,42695391	5	28MANITOU 230.0 kV - 28WHITINGS 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-AF1-F-0007a (2428) : Upgrade terminal equipment at at Manitou and Whitings. Reconductor line (~9 miles). Replace Wave Trap at Whitings Project Type : FAC Cost : \$25,460,000 Time Estimate : 30.0 Months JCP&L-AF1-F-0007b (2429) : Upgrade terminal equipment at Whitings. Upgrade terminal equipment at Manitou Project Type : FAC Cost : \$469,000 Time Estimate : 9.0 Months	\$25,929,000

41506483,41506480, 41506481,40971171, 40971170,41506482	20	CARDIFF 230.0 kV - NEWFRDM 230.0 kV Ckt 1	<u>AE</u> at2310r0001 (59) : 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 : \$105,000,000 Time Estimate : 60.0 Months as2310r0001 (60) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements are required at Cardiff. Project Type : FAC Cost : \$400,000 Time Estimate : 24-36 Months as2310r0002 (61) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements at Cardiff. Project Type : FAC Cost : \$600,000 Time Estimate : 24-36 Months as2310r0003 (62) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements at Cardiff. Project Type : FAC Cost : \$600,000 Time Estimate : 24-36 Months at2310r0002_af1f (64) : 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 Time Estimate : 60-72 Months as2310r0004_af1f (63) : To mitigate the (ACE) Cardiff New Freedom 230 kV line (from bus 227900 to bus 219100 ckt 1) overload, it will require various terminal reinforcements at Cardiff. Project Type : FAC Cost : \$600,000 Time Estimate : 24-36 Months <u>PSEG</u> r_PS_AE2_SIS_Nfreed1 (2133) : Upgrade New Freedom terminal equipment to a minimum of 2000MVA SER Project Type : FAC Cost : \$29,246,746 Time Estimate : 17.0 Months r_PS_AE2_SIS_Nfreed2 (2134) : Upgrade New Freedom terminal equipment to a minimum of 2450MVA SER Project Type : FAC Cost : \$33,826,720	\$330,273,466
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ID	Index	Facility	Upgrade Description	Cost
			Time Estimate : 17.0 Months	
42124578,42695551, 42695553	17	HILLTOP_1 230.0 kV - BEAVERBK_1 230.0 kV Ckt 1	PSEG r_PS_AE2_SIS_HillBeaver1590 (523) : Reconductor Project Type : FAC Cost : \$20,093,191 Time Estimate : 55.0 Months	\$20,093,191
40971282	42	LANDIS T 69.0 kV - MONROE#3 69.0 kV Ckt 1	AE at0711r0002 (76) : To mitigate the (ACE) Landis Tap - Monroe 69 kV line (from bus 228511 to bus 228409 ckt 1) overload,it will require increasing the emergency rating of the Sheildalloy Tap to Central North (Vineland) 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$11,300,000 Time Estimate : 36-48 Months as0711r0002 (77) : To mitigate the (ACE) Landis Tap - Monroe 69 kV line (from bus 228511 to bus 228409 ckt 1) overload, terminal reinforcement is required at Monroe#3 substation. Project Type : FAC Cost : \$200,000 Time Estimate : 12-24 Months as0711r0003 (78) : To mitigate the (ACE) Landis Tap - Monroe 69 kV line (from bus 228511 to bus 228409 ckt 1) overload, terminal reinforcement is required at Monroe#3 substation. Project Type : FAC Cost : \$100,000 Time Estimate : 12-24 Months as0711r0004 (79) : To mitigate the (ACE) Landis Tap - Monroe 69 kV line (from bus 228511 to bus 228409 ckt 1) overload, terminal reinforcement is required at Monroe#3 substation. Project Type : FAC Cost : \$100,000 Time Estimate : 12-24 Months	\$11,700,000

ID	Index	Facility	Upgrade Description	Cost
40971205,40971206	39	MNOTLA 1 138.0 kV - LANDIS 138.0 kV Ckt 1	<u>AE</u> asminotolar0002_ae2i (26) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require terminal reinforcements at Minotola Substation. Project Type : FAC Cost : \$400,000 Time Estimate : 12-18 Months asminotolar0003_ae2i (27) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require terminal reinforcements at Minotola Substation. Project Type : FAC Cost : \$600,000 Time Estimate : 12-24 Months at1409r0001 (87) : To mitigate the (AE - AE) MNOTLA 1-LANDIS 138 kV line (from bus 228502 to bus 228500 ckt 1) overload will include rebuilding the Minotola to Landis 138 kV transmission line. Also, upgrades to the terminals at Minotola and Landis Substation will be required. Project Type : FAC Cost : \$12,800,000 Time Estimate : 36-48 Months as1409r0001_ae2i (88) : 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 Time Estimate : 12-24 Months as1409r0002_ae2i (89) : 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 Time Estimate : 12-24 Months as1409r0003_ae2i (90) : 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 Time Estimate : 12-24 Months as1409r0004_ae2i (91) : 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 Time Estimate : 24-48 Months as1409r0005_ae2i (92) : 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 Time Estimate : 12-24 Months as1409r0006_af1f (93) : 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 Time Estimate : 12-24 Months	\$15,700,000

ID	Index	Facility	Upgrade Description	Cost
40971278	41	SHLDLY T 69.0 kV - LANDIS T 69.0 kV Ckt 1	<u>AE</u> at0711r0003 (81) : To mitigate the (ACE) Sheildalloy Tap - Landis Tap 69 kV line (from bus 228504 to bus 228511 ckt 1) overload,it will require increasing the emergency rating of the Sheildalloy Tap to Landis Tap 69 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$1,600,000 Time Estimate : 24-48 Months	\$1,600,000
42124392	37	CHAMBERS 230.0 kV - PEDRKTN 230.0 kV Ckt 1	<u>AE</u> as2312r0001_af1f (183) : 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 Time Estimate : 12-32 Months	\$1,000,000
40971180,41166867, 41166866	40	MNOTLA 2 138.0 kV - MNOTLA 1 138.0 kV Ckt 1	<u>AE</u> asminotolar0001 (25) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require substation reinforcements at Minotola Substation. Project Type : FAC Cost : \$1,300,000 Time Estimate : 18.0 Months asminotolar0002_ae2i (26) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require terminal reinforcements at Minotola Substation. Project Type : FAC Cost : \$400,000 Time Estimate : 12-18 Months asminotolar0003_ae2i (27) : To mitigate the (AE - AE) MNOTLA 2-MNOTLA 1 138 kV line (from bus 228503 to bus 228502 ckt 1) overload will require terminal reinforcements at Minotola Substation. Project Type : FAC Cost : \$600,000 Time Estimate : 12-24 Months	\$1,300,000

ID	Index	Facility	Upgrade Description	Cost
41166873	24	MILL #1 138.0 kV - LEWIS #1 138.0 kV Ckt 1	<u>AE</u> at1423r0001 (19) : To mitigate the (ACE) Mill#1 - Lewis#1 138 kV line (from bus 228903 to bus 227902 ckt 1) overload, it will require increasing the emergency rating of the Mill#1 to Lewis#1 138 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$11,300,000 Time Estimate : 36-60 Months as1423r0001 (20) : To mitigate the (ACE) Mill#1 - Lewis#1 138 kV line (from bus 228903 to bus 227902 ckt 1) overload, will require substation reinforcements at Lewis#1 Substation. Project Type : FAC Cost : \$500,000 Time Estimate : 12-24 Months	\$11,800,000
41506470,41166825, 41166826,41166827	34	BLE 138.0 kV - SCULL#2 138.0 kV Ckt 1	<u>AE</u> at1408r0001 (4) : To mitigate the (ACE) B.L. England Scull#2 138 kV line (from bus 228110 to bus 227906 ckt 1) overload, it will require increasing the emergency rating of the B.L. England to Scull#2 138 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 both B.L. England and Scull#2 Project Type : FAC Cost : \$6,000,000 Time Estimate : 36-60 Months at1408r0002 (5) : To mitigate the (ACE) B.L. England Scull#2 138 kV line (from bus 228110 to bus 227906 ckt 1) overload, it will require increasing the emergency rating of the B.L. England to Scull#2 138 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 both B.L. England and Scull#2 Project Type : FAC Cost : \$5,600,000 Time Estimate : 36-60 Months as1408r0001_af1f (6) : To mitigate the (ACE) B.L. England Scull#2 138 kV line (from bus 228110 to bus 227906 ckt 1) overload, it will require substation reinforcements at both substations. Project Type : FAC Cost : \$2,500,000 Time Estimate : 12 to 24 Months	\$14,100,000
41507028	25	MILL #1 138.0 kV - MILL #2 138.0 kV Ckt 1	<u>AE</u> asmillr0001 (50) : To mitigate the (ACE) Mill#1 138kV Mill#2 138kV line (from bus 227903 to bus 227904 ckt 1) overload, terminal reinforcement is required at Mill. Project Type : FAC Cost : \$200,000 Time Estimate : 24.0 Months	\$200,000

ID	Index	Facility	Upgrade Description	Cost
41506475,41166837, 41166836,41166835	28	SCULL#2 138.0 kV - MILL #2 138.0 kV Ckt 1	<u>AE</u> at1408r0003 (7) : To mitigate the (ACE) Mill#2 Scull#2 138 kV line (from bus 228904 to bus 227906 ckt 1) overload, it will require increasing the emergency rating of the Mill#2 to Scull#2 138 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 both Mill#2 to Scull#2. Project Type : FAC Cost : \$12,800,000 Time Estimate : 36-60 Months at1408r0004 (8) : To mitigate the (ACE) Mill#2 Scull#2 138 kV line (from bus 228904 to bus 227906 ckt 1) overload, it will require increasing the emergency rating of the Mill#2 to Scull#2 138 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 Mill#2. Project Type : FAC Cost : \$12,500,000 Time Estimate : 36-60 Months	\$25,300,000
40971217	36	DENNIS 69.0 kV - TUCKAHOE 69.0 kV Ckt 1	<u>AE</u> at0750r0001 (29) : To mitigate the (ACE) Dennis Tuckahoe 69 kV line (from bus 228217 to bus 228130 ckt 1) overload, it will require increasing the emergency rating of the Dennis to Tuckahoe 69 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 Tuckahoe. Project Type : FAC Cost : \$7,000,000 Time Estimate : 36-60 Months as0750r0001 (30) : To mitigate the (AE - AE) Dennis Tuckahoe 69 kV line (from bus 228217 to bus 228130 ckt 1) overload will require substation reinforcements at Tuckahoe 69 kv Substation. Project Type : FAC Cost : \$800,000 Time Estimate : 24-32 Months	\$7,800,000

ID	Index	Facility	Upgrade Description	Cost
40971228	35	TUCKAHOE 69.0 kV - MILL#2 69.0 kV Ckt 1	<u>AE</u> at0750r0002 (31) : To mitigate the (ACE) Tuckahoe Mill#2 69 kV line (from bus 228130 to bus 227946 ckt 1) overload, it will require increasing the emergency rating of the Tuckahoe to Mill#2 69 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$20,000,000 Time Estimate : 36-60 Months as0750r0002 (32) : To mitigate the (ACE) Tuckahoe Mill#2 69 kV line (from bus 228130 to bus 227946 ckt 1) overload ,will require terminal reinforcements at Tuckahoe 69 kv Substation. Project Type : FAC Cost : \$400,000 Time Estimate : 24-32 Months	\$20,400,000
46745095,46552242	10	WANEETA2 230.0 kV - N PHILA 230.0 kV Ckt 1	<u>PECO</u> pe004 (2151) : Rebuild the Waneeta-North Philadelphia 230 kV line with 2-1590 kcmil aerial conductors (Does not include permitting) Project Type : FAC Cost : \$13,000,000 Time Estimate : 84.0 Months	\$13,000,000
40971324,40971323, 41507056	31	LEWIS #3 138.0 kV - DOROTHY 138.0 kV Ckt 1	<u>AE</u> as1422r0001_af1f (99) : To mitigate the (ACE) Dorothy to Lewis #3 138 kV line (from bus 227901 to bus 227949 ckt 1) overload, terminal reinforcement is required at both Dorothy & Lewis #3 substations. Project Type : FAC Cost : \$500,000 Time Estimate : 24-48 Months at1422r0001_af1f (100) : To mitigate the (ACE) Dorothy - Lewis 138 kV line (from bus 227901 to bus 227949 ckt 1) overload, it will require increasing the emergency rating of the Dorothy to Lewis 138 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$25,000,000 Time Estimate : 36-48 Months	\$25,500,000
40971275	44	S121TAP 69.0 kV - CNTRL N 69.0 kV Ckt 1	<u>AE</u> as0712r0001_ae2i (179) : To mitigate the (ACE) S121 to Central North 69 kV line (from bus 228716 to bus 228714 ckt 1) overload, it will require increasing the emergency rating of the Vineland G-10 to Central North 69 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 Central North & Vineland G-10. Project Type : FAC Cost : \$1,250,000 Time Estimate : 24-48 Months	\$1,250,000

ID	Index	Facility	Upgrade Description	Cost
40971239	43	CNTRL N 69.0 kV - SHLDLY T 69.0 kV Ckt 1	<u>AE</u> as0711r0001 (74) : To mitigate the (ACE) Sheildalloy Tap Central Tap 69 kV line (from bus 228504 to bus 228714 ckt 1) overload, terminal reinforcement is required at Central North (Vineland). Project Type : FAC Cost : \$200,000 Time Estimate : 24-36 Months at0711r0001 (75) : To mitigate the (ACE) Sheildalloy Tap Central Tap 69 kV line (from bus 228504 to bus 228714 ckt 1) overload,it will require increasing the emergency rating of the Sheildalloy Tap to Central North (Vineland) 69 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Project Type : FAC Cost : \$1,300,000 Time Estimate : 24-48 Months at0711r0004 (82) : To mitigate the (ACE) Sheildalloy Tap Central Tap 69 kV line (from bus 228504 to bus 228714 ckt 1) overload,it will require increasing the emergency rating of the Sheildalloy Tap to Central North (Vineland) 230 kV line by rebuilding the circuit. The rebuild will include the installation of new poles, foundations, insulators, and conductor. Also, upgrades to the terminal equipement at Central North Substation will be required. Project Type : FAC Cost : \$4,600,000 Time Estimate : 24-48 Months	\$6,100,000
41506881	29	LEWIS #2 138.0 kV - LEWIS #1 138.0 kV Ckt 1	<u>AE</u> aslewisr0001_ae2i (106) : To mitigate the (ACE) Lewis #2 to Lewis #1 138 kV line (from bus 227945 to bus 227902 ckt 1) overload, terminal reinforcement is required at Lewis substation. Project Type : FAC Cost : \$250,000 Time Estimate : 12-24 Months	\$250,000
42124440	38	BRIDGPRT 230.0 kV - MCKLTON 230.0 kV Ckt 1	<u>AE</u> at2315r0001_af1f (181) : 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 Time Estimate : 36-60 Months	\$18,000,000

ID	Index	Facility	Upgrade Description	Cost
42124226,42124225	21	CARDIFF 230.0 kV - CEDAR 230.0 kV Ckt 1	<u>AE</u> at2317r0001 (46) : 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 : \$120,000,000 Time Estimate : 60.0 Months as2317r0001 (47) : To mitigate the (ACE) AE2-020 TAP Cedar 230 kV line (from bus 940360 to bus 227955 ckt 1) overload, various terminal reinforcements are required at Cedar. Project Type : FAC Cost : \$300,000 Time Estimate : 24-36 Months	\$120,300,000
40971340,41506863, 41506861	30	MILL#2 69.0 kV - MILL #1 69.0 kV Ckt 1	<u>AE</u> asmillr0003_ae2i (52) : To mitigate the (ACE) Mill#1 69kV Mill#2 69kV bus (from bus 227946 to bus 227922 ckt 1) overload, terminal reinforcement is required at Mill. Project Type : FAC Cost : \$200,000 Time Estimate : 12-24 Months asmillr0004_af1f (53) : To mitigate the (ACE) Mill#1 69kV Mill#2 69kV bus (from bus 227946 to bus 227922 ckt 1) overload, terminal reinforcement is required at Mill. Project Type : FAC Cost : \$200,000 Time Estimate : 12-24 Months	\$400,000
41506906	3	LAUREL 69.0 kV - WOODTWN2 69.0 kV Ckt 1	<u>AE</u> as0740r0001_af1f (184) : To mitigate the (ACE) Laurel to Woodstown 69 kV line (from bus 228218 to bus 228360 ckt 1) overload, it will require reinforcement of terminal equipment at Woodstown #2 substation. Project Type : FAC Cost : \$100,000 Time Estimate : 12-24 Months	\$100,000
42695413,42695412	6	28VANHISVL 230.0 kV - 28LARRABEE 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-AF1-F-0020a (2445) : Reconductor line (~9 miles). Upgrade terminal equipment at Larrabee Project Type : FAC Cost : \$24,790,000 Time Estimate : 30.0 Months	\$24,790,000
42695402,42695403	7	28WHITINGS 230.0 kV - 28MANCHSTR 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-AF1-F-0029a (2459) : Reconductor line (~12.2 miles). Upgrade terminal equipment at Manchester and Whitings Project Type : FAC Cost : \$83,415,000 Time Estimate : 36.0 Months	\$83,415,000

ID	Index	Facility	Upgrade Description	Cost
42695406,42695405	8	28MANCHSTR 230.0 kV - 28VANHISVL 230.0 kV Ckt 1	<u>JCPL</u> JCP&L-AF1-F-0027a (2455) : Reconductor line (~7.5 miles) Project Type : FAC Cost : \$20,100,000 Time Estimate : 30.0 Months JCP&L-AF1-F-0027b (2456) : Replace substation conductor at Van Hiseville. Upgrade terminal equipment at Manchester Project Type : FAC Cost : \$536,000 Time Estimate : 9.0 Months	\$20,636,000
			TOTAL COST	\$1,296,852,722

17 Primary Point of Interconnection Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, 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.

17.1 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
49440034	219110	GLOUCSTR	PSE&G	219753	CUTHBERT_2	PSE&G	1	PS_P1-2_D-2282	single	771.0	100.65	101.26	DC	10.33

Bus #	Bus	MW Impact
213400	COVANTA DELA	1.5870
219124	CAMDEN_STG	2.8434
219126	CAMDEN_CTG	3.4932
219128	GLOUCSTR_26	1.4435
219229	EAGLEPT_G3	1.7763
219230	EAGLEPT_G1	3.3526
219231	EAGLEPT_G2	3.3492
219235	EAGLEPT_ST2	1.2119
219258	KINSLEYDEP C	0.0761
219259	KINSLEYDEP E	0.8891
219384	DEPTFDSP1_C	0.0010
219388	DEPTFDSP2_C	0.0010
219393	DEPTFDSP3_C	0.0025
219408	DEPTFDSP4_C	0.0010
219623	KINSLEYBEA C	0.0548
219662	THOROFSP1_C	0.0036
219665	THOROFSP2_C	0.0037
219683	THOSOLAR C	0.0201
219706	BEAVBRSP1_C	0.0040
219708	BEAVBRSP2_C	0.0039
219718	GLOUCSP1_C	0.0078
219766	PARADISE C	0.0829
228100	BLE DIES	0.6780
228200	CARL#1CT	0.5168
228201	CARL#2CT	0.5471
228251	CARLLS#4	0.0578
228260	V4-054C	0.1416
228304	LOGAN	5.9863
228306	PCLP STM	1.5404
228307	PCLP GT	1.5404
228309	CCLP NUG	5.4488
228343	QUINTN#1	0.0356
228351	V2-046C	0.1547
228400	MICK 1CT	1.3188
228423	Q-090 2	22.9154
228471	VALERO1	0.4479
228472	VALERO2	0.2944
228473	VALERO3	0.2944
228484	VALERO4	0.2634
228702	WEST CT	0.4080
228717	S121	0.9901

Bus #	Bus	MW Impact
228720	V2-035C	0.0151
228728	W1-130C	0.0626
913341	Y1-077 (Withdrawn : 12/18/2019)	37.8848
917471	Z2-083	2.3182
923532	AB1-169AC	70.2680
924051	AB2-049 C	0.3615
924531	AB2-102 C	20.5823
924701	AB2-122 C	0.0547
925391	AC1-010 C	0.6873
930001	AB1-001 C	0.0648
936491	AD2-064 C	0.0458
936501	AD2-065 C	0.0803
937011	AD2-135 C	0.0541
938421	AE1-061 C	0.6405
938431	AE1-062 C	0.7408
938781	AE1-104 C O1	10.2891
938871	AE1-115 C	1.6117
939301	AE1-161 C	2.7342
939501	AE1-179 C O1	4.3081
939821	AE1-218 C O1	0.1073
939831	AE1-219 C O1	0.2414
939931	AE1-229 C O1	13.1141
940001	AE1-240 C O1	3.5798
940361	AE2-020 C	4.2125
940371	AE2-021 C	4.2125
940381	AE2-022 C	2.4573
940391	AE2-023 C	6.6413
940771	AE2-064 C	0.2382
940781	AE2-065 C	0.2008
941001	AE2-091 C O1	2.9389
941931	AE2-205 C O1	4.2811
942101	AE2-222 C O1	6.8599
942381	AE2-251 C	25.1796
942571	AE2-272	0.1267
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.2259
943071	AE2-334 C	3.8676
943081	AE2-335 C O1	5.7884
944131	AF1-081 C O1	4.6543
944951	AF1-160 C	0.3926
945431	AF1-208 C O1	3.7940
945731	AF1-238 C O1	3.0693
945741	AF1-239 C	0.6438
945971	AF1-262	0.1280
945991	AF1-264	0.2360
DUCKCREEK	DUCKCREEK	0.3270
NEWTON	NEWTON	0.3030
FARMERCITY	FARMERCITY	0.0157
NY	NY	0.5265
PRAIRIE	PRAIRIE	0.7181
COFFEEN	COFFEEN	0.1490
EDWARDS	EDWARDS	0.0998
CHEOAH	CHEOAH	0.1306

Bus #	Bus	MW Impact
TILTON	TILTON	0.1789
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.1545
CALDERWOOD	CALDERWOOD	0.1297
BLUEG	BLUEG	0.4896
TRIMBLE	TRIMBLE	0.1575
CATAWBA	CATAWBA	0.0854

17.2 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
42695470	228207	CUMB	AE	228002	ORCHARD	AE	1	AE_P7-1 AE7TOWER	tower	799.0	119.39	133.9	DC	118.39

Bus #	Bus	MW Impact
228100	BLE DIES	5.2958
228202	CUMB CT	5.9894
228203	P06	7.0509
228206	SHRMN CT	5.1979
228261	V4-054E	1.8514
228711	V2-041C	0.1348
228712	V2-041E	1.5759
228732	V1-021 C	0.1780
913341	Y1-077 (Withdrawn : 12/18/2019)	295.9006
924531	AB2-102 C	166.4865
924532	AB2-102 E	3.6997
938781	AE1-104 C O1	80.3632
938782	AE1-104 E O1	205.6079
939501	AE1-179 C O1	13.7341
939502	AE1-179 E O1	9.6923
940001	AE1-240 C O1	11.4078
940002	AE1-240 E O1	8.1428
940391	AE2-023 C	51.8720
940392	AE2-023 E	242.8371
941001	AE2-091 C O1	8.0472
941002	AE2-091 E O1	4.1985
941931	AE2-205 C O1	34.6292
941932	AE2-205 E O1	23.0861
944131	AF1-081 C O1	71.0342
944132	AF1-081 E O1	47.3562
945431	AF1-208 C O1	3.3035
945432	AF1-208 E O1	2.2023
945731	AF1-238 C O1	16.2864
945732	AF1-238 E O1	54.2277
945741	AF1-239 C	2.6577
945742	AF1-239 E	3.9865
DUCKCREEK	DUCKCREEK	0.1911
NEWTON	NEWTON	0.1784
FARMERCITY	FARMERCITY	0.0094
G-007A	G-007A	0.1654
NY	NY	0.0326
PRAIRIE	PRAIRIE	0.4314
O-066	O-066	0.0739
COFFEEN	COFFEEN	0.0877
EDWARDS	EDWARDS	0.0581
CHEOAH	CHEOAH	0.0846
TILTON	TILTON	0.1046

Bus #	Bus	MW Impact
GIBSON	GIBSON	0.0906
CALDERWOOD	CALDERWOOD	0.0840
BLUEG	BLUEG	0.2882
TRIMBLE	TRIMBLE	0.0924
CATAWBA	CATAWBA	0.0595

17.3 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
41506906	228218	LAUREL	AE	228360	WOODTWN2	AE	1	AE_P4-2 AE47	breaker	107.0	94.25	101.03	DC	16.63

Bus #	Bus	MW Impact
228100	BLE DIES	0.3775
228200	CARL#1CT	1.2385
228201	CARL#2CT	1.3109
228206	SHRMN CT	1.1396
228251	CARLLS#4	0.1381
228260	V4-054C	0.3345
228261	V4-054E	1.9551
228334	MANNMILG	-0.9755
228343	QUINTN#1	0.0331
228702	WEST CT	0.4786
228712	V2-041E	0.2576
228717	S121	1.1212
228727	W2-039G	1.4010
913341	Y1-077 (Withdrawn : 12/18/2019)	21.0910
924531	AB2-102 C	19.8728
924532	AB2-102 E	0.4416
938781	AE1-104 C O1	5.7281
938782	AE1-104 E O1	14.6552
939501	AE1-179 C O1	7.0812
939502	AE1-179 E O1	4.9973
940001	AE1-240 C O1	6.1097
940002	AE1-240 E O1	4.3611
940391	AE2-023 C	3.6973
940392	AE2-023 E	17.3088
941001	AE2-091 C O1	5.8316
941002	AE2-091 E O1	3.0426
941931	AE2-205 C O1	4.1335
941932	AE2-205 E O1	2.7557
944131	AF1-081 C O1	4.4939
944132	AF1-081 E O1	2.9959
945431	AF1-208 C O1	7.7844
945432	AF1-208 E O1	5.1896
945731	AF1-238 C O1	3.5717
945732	AF1-238 E O1	5.3576
945741	AF1-239 C	1.7731
945742	AF1-239 E	2.6597
DUCKCREEK	DUCKCREEK	0.0415
NEWTON	NEWTON	0.0387
FARMERCITY	FARMERCITY	0.0020
G-007A	G-007A	0.1654
NY	NY	0.0072
PRAIRIE	PRAIRIE	0.0930

Bus #	Bus	MW Impact
COFFEEN	COFFEEN	0.0190
EDWARDS	EDWARDS	0.0126
CHEOAH	CHEOAH	0.0180
TILTON	TILTON	0.0227
GIBSON	GIBSON	0.0197
CALDERWOOD	CALDERWOOD	0.0179
BLUEG	BLUEG	0.0625
TRIMBLE	TRIMBLE	0.0200
CATAWBA	CATAWBA	0.0126

17.4 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
40971380	228402	MONROE	AE	219100	NEWFRDM	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	804.0	107.69	109.01	DC	23.19

Bus #	Bus	MW Impact
219229	EAGLEPT_G3	2.5419
219230	EAGLEPT_G1	4.7950
219231	EAGLEPT_G2	4.7950
219235	EAGLEPT_ST2	1.7331
219258	KINSLEYDEP C	0.1098
219259	KINSLEYDEP E	1.2830
219384	DEPTFDSP1_C	0.0014
219385	DEPTFDSP1_E	0.0170
219388	DEPTFDSP2_C	0.0014
219390	DEPTFDSP2_E	0.0170
219393	DEPTFDSP3_C	0.0036
219394	DEPTFDSP3_E	0.0426
219408	DEPTFDSP4_C	0.0014
219416	DEPTFDSP4_E	0.0170
219662	THOROFSP1_C	0.0060
219664	THOROFSP1_E	0.0695
219665	THOROFSP2_C	0.0060
219666	THOROFSP2_E	0.0695
219683	THOSOLAR C	0.0329
219684	THOSOLAR E	0.3849
227881	GRENWCHG	0.6141
228100	BLE DIES	0.8871
228261	V4-054E	1.2744
228304	LOGAN	10.7816
228334	MANNMILG	2.1524
228357	V2-046E	3.3396
228400	MICK 1CT	2.4769
228423	Q-090 2	42.2591
228471	VALERO1	0.8405
228472	VALERO2	0.5526
228473	VALERO3	0.5526
228484	VALERO4	0.4944
228712	V2-041E	0.3583
228720	V2-035C	0.0413
228721	V2-035E	0.4823
228728	W1-130C	0.1811
228731	V3-036	0.5556
228733	AB1-119 E	0.0865
902092	W1-130E	2.1129
902432	W2-030 E	0.5825
913341	Y1-077 (Withdrawn : 12/18/2019)	49.5683
917471	Z2-083	4.2750

Bus #	Bus	MW Impact
923153	AB1-116 E	0.1619
923532	AB1-169AC	202.4220
924051	AB2-049 C	0.5863
924052	AB2-049 E	0.9566
924531	AB2-102 C	27.7198
924532	AB2-102 E	0.6160
930001	AB1-001 C	0.0805
930002	AB1-001 E	0.1322
933962	AD1-019 E	0.7678
936491	AD2-064 C	0.0628
936492	AD2-064 E	0.0865
938421	AE1-061 C	1.8534
938422	AE1-061 E	1.8534
938781	AE1-104 C O1	13.4622
938782	AE1-104 E O1	34.4427
938871	AE1-115 C	2.4566
938872	AE1-115 E	2.4566
939301	AE1-161 C	8.7294
939302	AE1-161 E	13.0941
939501	AE1-179 C O1	6.5274
939502	AE1-179 E O1	4.6065
939821	AE1-218 C O1	0.2703
939822	AE1-218 E O1	0.4055
939831	AE1-219 C O1	0.6083
939832	AE1-219 E O1	0.8786
939931	AE1-229 C O1	30.6765
939932	AE1-229 E O1	20.7842
940001	AE1-240 C O1	5.3717
940002	AE1-240 E O1	3.8343
940391	AE2-023 C	8.6894
940392	AE2-023 E	40.6793
940781	AE2-065 C	0.2897
940782	AE2-065 E	0.4553
941001	AE2-091 C O1	4.4881
941002	AE2-091 E O1	2.3416
941931	AE2-205 C O1	5.7657
941932	AE2-205 E O1	3.8438
942101	AE2-222 C O1	8.7186
942102	AE2-222 E O1	21.9018
942571	AE2-272	0.2071
943071	AE2-334 C	10.7702
943072	AE2-334 E	5.7416
943081	AE2-335 C O1	20.3819
943082	AE2-335 E O1	9.0859
943732	AF1-041 E	0.1256
944131	AF1-081 C O1	6.2684
944132	AF1-081 E O1	4.1789
945431	AF1-208 C O1	3.1028
945432	AF1-208 E O1	2.0685
945731	AF1-238 C O1	4.8781
945732	AF1-238 E O1	7.3172
945741	AF1-239 C	1.1711

Bus #	Bus	MW Impact
945742	AF1-239 E	1.7567
945971	AF1-262	0.3501
999905	MARINGEN 2	0.4011
999906	PVILLEG 2	0.1751
DUCKCREEK	DUCKCREEK	0.5113
NEWTON	NEWTON	0.4760
FARMERCITY	FARMERCITY	0.0248
NY	NY	0.5712
PRAIRIE	PRAIRIE	1.1391
O-066	O-066	8.6352
COFFEEN	COFFEEN	0.2341
EDWARDS	EDWARDS	0.1554
CHEOAH	CHEOAH	0.2172
TILTON	TILTON	0.2797
G-007	G-007	1.3156
MADISON	MADISON	0.0040
GIBSON	GIBSON	0.2419
CALDERWOOD	CALDERWOOD	0.2157
BLUEG	BLUEG	0.7690
TRIMBLE	TRIMBLE	0.2465
CATAWBA	CATAWBA	0.1491

17.5 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
42695390	206297	28MANITOU	JCP&L	206319	28WHITINGS	JCP&L	1	JC-P7-1-JCC-230-12	tower	817.0	162.78	163.48	DC	12.67

Bus #	Bus	MW Impact
206325	28O C GEN (Deactivation : 09/17/18)	121.2099
206360	28O CRK C1	2.5589
206361	28O CRK C2	1.7182
227842	MARINGEN	0.0774
227927	V4-067C	0.0206
227928	V4-067E	0.2441
228014	PVILLEG	0.0269
228100	BLE DIES	0.9758
228712	V2-041E	0.1657
228729	W2-030 C	0.0730
228731	V3-036	0.8066
228732	V1-021 C	0.0287
902092	W1-130E	0.3579
902432	W2-030 E	0.8599
913341	Y1-077 (Withdrawn : 12/18/2019)	54.5206
923292	AB1-138 C	0.2115
923293	AB1-138 E	0.3525
923532	AB1-169AC	34.8802
924531	AB2-102 C	15.1413
924532	AB2-102 E	0.3365
924701	AB2-122 C	0.1054
924702	AB2-122 E	0.1808
930001	AB1-001 C	0.1596
930002	AB1-001 E	0.2623
933962	AD1-019 E	1.1146
938421	AE1-061 C	0.3140
938422	AE1-061 E	0.3140
938781	AE1-104 C O1	14.8072
938782	AE1-104 E O1	37.8839
939121	AE1-142 C O1	3.8946
939122	AE1-142 E O1	5.6044
939501	AE1-179 C O1	1.9555
939502	AE1-179 E O1	1.3800
940001	AE1-240 C O1	1.6249
940002	AE1-240 E O1	1.1599
940161	AE2-000 C O1	123.6363
940162	AE2-000 E O1	316.3428
940361	AE2-020 C	17.0932
940362	AE2-020 E	80.0316
940371	AE2-021 C	17.0932
940372	AE2-021 E	80.0316

Bus #	Bus	MW Impact
940381	AE2-022 C	9.9710
940382	AE2-022 E	46.6851
940391	AE2-023 C	9.5576
940392	AE2-023 E	44.7435
941001	AE2-091 C O1	1.2219
941002	AE2-091 E O1	0.6375
941931	AE2-205 C O1	3.1494
941932	AE2-205 E O1	2.0996
942101	AE2-222 C O1	12.6037
942102	AE2-222 E O1	31.6613
942201	AE2-232 C O1	60.6050
942202	AE2-232 E O1	155.0710
942381	AE2-251 C	54.1509
942382	AE2-251 E	138.5571
942941	AE2-314 C (Withdrawn : 12/16/2019)	6.9375
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.6250
943732	AF1-041 E	0.3577
944131	AF1-081 C O1	3.4239
944132	AF1-081 E O1	2.2826
944332	AF1-101 E O1	310.1421
944613	AF1-126 BAT	16.0150
945731	AF1-238 C O1	2.0478
945732	AF1-238 E O1	3.0717
945741	AF1-239 C	0.3642
945742	AF1-239 E	0.5463
999905	MARINGEN 2	0.5840
999906	PVILLEG 2	0.2521
DUCKCREEK	DUCKCREEK	0.0265
NEWTON	NEWTON	0.0226
CPL	CPL	0.0086
FARMERCITY	FARMERCITY	0.0011
NY	NY	0.4767
PRAIRIE	PRAIRIE	0.0491
O-066	O-066	8.6016
COFFEEN	COFFEEN	0.0111
CBM-S2	CBM-S2	0.0289
EDWARDS	EDWARDS	0.0081
CHEOAH	CHEOAH	0.0040
TILTON	TILTON	0.0145
G-007	G-007	3.0077
MADISON	MADISON	0.0060
GIBSON	GIBSON	0.0120
CALDERWOOD	CALDERWOOD	0.0040
BLUEG	BLUEG	0.0382
TRIMBLE	TRIMBLE	0.0122

17.6 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
42695412	206318	28VANHISVL	JCP&L	206294	28LARRABEE	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	144.18	144.94	DC	14.71

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.3957
206325	28O C GEN (Deativation : 09/17/18)	88.7690
206360	28O CRK C1	1.8740
206361	28O CRK C2	1.2583
206414	28X4-005E	-1.5264
207149	28UPF_X1-085	0.0507
207150	28HAN_X4-015	0.0852
207157	28PEM_W1-119	0.1567
207158	28PEM_W1-120	0.1567
207160	28EGP_W2-019	0.1020
207164	28NHV_W2-082	0.2929
207171	28DIX_Z2-102	0.2316
207207	28JCB_W1-129	0.0849
207208	28JCB_W4-025	0.1161
207400	28AA1-060 E	4.3843
207419	AB2-139 E	-0.0341
218660	EHAMPSOLAR C	0.0188
218661	EHAMPSOLAR E	0.2208
219273	CLEANLIGHT E	0.1614
219287	REEVES ST C	0.0847
219288	REEVES ST E	0.9900
219292	REEVESSO E	0.0633
219582	COXSCOSP1_E	0.0075
219614	COXSCOSP2_E	0.0075
219628	LUMB23SP1_C	0.0026
219652	LUMB23SP1_E	0.0302
219653	LUMB23SP2_C	0.0026
219656	LUMB23SP2_E	0.0302
219686	LUMSOLAR_N C	0.0263
219687	LUMSOLAR_N E	0.3048
219689	LUMSOLAR_S E	0.1863
227842	MARINGEN	0.0739
227927	V4-067C	0.0195
227928	V4-067E	0.2305
228014	PVILLEG	0.0256
228100	BLE DIES	0.8331
228712	V2-041E	0.1958
228729	W2-030 C	0.0700
228731	V3-036	0.7685
901982	W1-119 E	1.8357
901992	W1-120E	1.8357

Bus #	Bus	MW Impact
902082	W1-129E	0.9920
902092	W1-130E	0.4564
902322	W2-019 E	1.1754
902432	W2-030 E	0.8241
902691	W2-056 C	0.0737
902692	W2-056 E	0.1203
902952	W2-082 E OP1	3.3896
905252	W4-025 E	1.4080
907272	X1-085 E	0.5926
912102	X4-015 E	0.9957
913341	Y1-077 (Withdrawn : 12/18/2019)	54.7620
917612	Z2-102 E	2.7070
919663	AA2-048 BAT	0.9846
921744	AA2-049 BAT	0.4425
923292	AB1-138 C	0.7238
923293	AB1-138 E	1.2063
923463	AB1-163 E	0.4934
923532	AB1-169AC	44.2535
924531	AB2-102 C	17.5854
924532	AB2-102 E	0.3908
924701	AB2-122 C	0.0996
924702	AB2-122 E	0.1708
930001	AB1-001 C	0.1424
930002	AB1-001 E	0.2341
932361	AC2-050 C O1	0.3500
932362	AC2-050 E O1	0.5711
933962	AD1-019 E	1.0619
938421	AE1-061 C	0.4004
938422	AE1-061 E	0.4004
938781	AE1-104 C O1	14.8727
938782	AE1-104 E O1	38.0516
939121	AE1-142 C O1	3.3006
939122	AE1-142 E O1	4.7496
939501	AE1-179 C O1	2.5570
939502	AE1-179 E O1	1.8045
940001	AE1-240 C O1	2.1189
940002	AE1-240 E O1	1.5125
940161	AE2-000 C O1	90.5460
940162	AE2-000 E O1	231.6761
940361	AE2-020 C	15.8606
940362	AE2-020 E	74.2606
940371	AE2-021 C	15.8606
940372	AE2-021 E	74.2606
940381	AE2-022 C	9.2520
940382	AE2-022 E	43.3187
940391	AE2-023 C	9.5999
940392	AE2-023 E	44.9416
941931	AE2-205 C O1	3.6578
941932	AE2-205 E O1	2.4385
942101	AE2-222 C O1	11.9896
942102	AE2-222 E O1	30.1185
942201	AE2-232 C O1	44.3845

Bus #	Bus	MW Impact
942202	AE2-232 E O1	113.5675
942381	AE2-251 C	50.2462
942382	AE2-251 E	128.5658
942941	AE2-314 C (Withdrawn : 12/16/2019)	6.4372
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.2915
943561	AF1-027	0.4871
943732	AF1-041 E	0.3392
944131	AF1-081 C O1	3.9767
944132	AF1-081 E O1	2.6511
944332	AF1-101 E O1	227.1350
944611	AF1-126 C O1	20.1325
944612	AF1-126 E O1	80.5300
945731	AF1-238 C O1	2.4700
945732	AF1-238 E O1	3.7050
945741	AF1-239 C	0.4718
945742	AF1-239 E	0.7078
999905	MARINGEN 2	0.5570
999906	PVILLEG 2	0.2395
LGEE	LGEE	0.0023
CPL	CPL	0.0635
CBM-W2	CBM-W2	0.1392
NY	NY	1.3217
TVA	TVA	0.0420
O-066	O-066	24.2525
CBM-S2	CBM-S2	0.4335
EDWARDS	EDWARDS	0.0003
CBM-S1	CBM-S1	0.2130
G-007	G-007	9.3382
MADISON	MADISON	0.0202
MEC	MEC	0.0095

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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
42695402	206319	28WHITINGS	JCP&L	206720	28MANCHSTR	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	140.62	141.27	DC	12.52

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.5942
206325	28O C GEN (Deactivation : 09/17/18)	119.7285
206360	28O CRK C1	2.5276
206361	28O CRK C2	1.6972
227842	MARINGEN	0.0765
227927	V4-067C	0.0204
227928	V4-067E	0.2411
228014	PVILLEG	0.0266
228100	BLE DIES	0.9641
228712	V2-041E	0.1637
228729	W2-030 C	0.0721
228731	V3-036	0.7969
228732	V1-021 C	0.0284
901982	W1-119 E	0.4539
901992	W1-120E	0.4539
902092	W1-130E	0.3538
902432	W2-030 E	0.8495
913341	Y1-077 (Withdrawn : 12/18/2019)	53.8680
917612	Z2-102 E	0.6565
923292	AB1-138 C	1.0868
923293	AB1-138 E	1.8114
923463	AB1-163 E	0.5520
923532	AB1-169AC	34.4734
924531	AB2-102 C	14.9634
924532	AB2-102 E	0.3325
924701	AB2-122 C	0.1042
924702	AB2-122 E	0.1786
930001	AB1-001 C	0.1576
930002	AB1-001 E	0.2591
933962	AD1-019 E	1.1012
938421	AE1-061 C	0.3103
938422	AE1-061 E	0.3103
938781	AE1-104 C O1	14.6299
938782	AE1-104 E O1	37.4304
939121	AE1-142 C O1	4.5155
939122	AE1-142 E O1	6.4979
939501	AE1-179 C O1	1.9326
939502	AE1-179 E O1	1.3638
940001	AE1-240 C O1	1.6059
940002	AE1-240 E O1	1.1463
940161	AE2-000 C O1	122.1252

Bus #	Bus	MW Impact
940162	AE2-000 E O1	312.4764
940361	AE2-020 C	16.8878
940362	AE2-020 E	79.0698
940371	AE2-021 C	16.8878
940372	AE2-021 E	79.0698
940381	AE2-022 C	9.8512
940382	AE2-022 E	46.1240
940391	AE2-023 C	9.4432
940392	AE2-023 E	44.2079
941931	AE2-205 C O1	3.1124
941932	AE2-205 E O1	2.0749
942101	AE2-222 C O1	12.4525
942102	AE2-222 E O1	31.2815
942201	AE2-232 C O1	59.8642
942202	AE2-232 E O1	153.1758
942381	AE2-251 C	53.5002
942382	AE2-251 E	136.8919
942941	AE2-314 C (Withdrawn : 12/16/2019)	6.8541
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.5694
943732	AF1-041 E	0.3534
944131	AF1-081 C O1	3.3837
944132	AF1-081 E O1	2.2558
944332	AF1-101 E O1	306.3515
945731	AF1-238 C O1	2.0237
945732	AF1-238 E O1	3.0356
945741	AF1-239 C	0.3599
945742	AF1-239 E	0.5399
999905	MARINGEN 2	0.5770
999906	PVILLEG 2	0.2491
DUCKCREEK	DUCKCREEK	0.0299
NEWTON	NEWTON	0.0258
CPL	CPL	0.0060
FARMERCITY	FARMERCITY	0.0013
NY	NY	0.4750
PRAIRIE	PRAIRIE	0.0568
O-066	O-066	8.5546
COFFEEN	COFFEEN	0.0127
CBM-S2	CBM-S2	0.0116
EDWARDS	EDWARDS	0.0091
CHEOAH	CHEOAH	0.0055
TILTON	TILTON	0.0164
G-007	G-007	2.9838
MADISON	MADISON	0.0060
GIBSON	GIBSON	0.0137
CALDERWOOD	CALDERWOOD	0.0055
BLUEG	BLUEG	0.0434
TRIMBLE	TRIMBLE	0.0139

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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
42695405	206720	28MANCHSTR	JCP&L	206318	28VANHISVL	JCP&L	1	JC-P7-1-JCC-230-12	tower	869.0	139.05	139.7	DC	12.52

Bus #	Bus	MW Impact
206280	28LAKEHURS	0.5942
206325	28O C GEN (Deactivation : 09/17/18)	119.7285
206360	28O CRK C1	2.5276
206361	28O CRK C2	1.6972
227842	MARINGEN	0.0765
227927	V4-067C	0.0204
227928	V4-067E	0.2411
228014	PVILLEG	0.0266
228100	BLE DIES	0.9641
228712	V2-041E	0.1637
228729	W2-030 C	0.0721
228731	V3-036	0.7969
228732	V1-021 C	0.0284
901982	W1-119 E	0.4539
901992	W1-120E	0.4539
902092	W1-130E	0.3538
902432	W2-030 E	0.8495
913341	Y1-077 (Withdrawn : 12/18/2019)	53.8680
917612	Z2-102 E	0.6565
923292	AB1-138 C	1.0868
923293	AB1-138 E	1.8114
923463	AB1-163 E	0.5520
923532	AB1-169AC	34.4734
924531	AB2-102 C	14.9634
924532	AB2-102 E	0.3325
924701	AB2-122 C	0.1042
924702	AB2-122 E	0.1786
930001	AB1-001 C	0.1576
930002	AB1-001 E	0.2591
933962	AD1-019 E	1.1012
938421	AE1-061 C	0.3103
938422	AE1-061 E	0.3103
938781	AE1-104 C O1	14.6299
938782	AE1-104 E O1	37.4304
939121	AE1-142 C O1	4.5155
939122	AE1-142 E O1	6.4979
939501	AE1-179 C O1	1.9326
939502	AE1-179 E O1	1.3638
940001	AE1-240 C O1	1.6059
940002	AE1-240 E O1	1.1463
940161	AE2-000 C O1	122.1252

Bus #	Bus	MW Impact
940162	AE2-000 E O1	312.4764
940361	AE2-020 C	16.8878
940362	AE2-020 E	79.0698
940371	AE2-021 C	16.8878
940372	AE2-021 E	79.0698
940381	AE2-022 C	9.8512
940382	AE2-022 E	46.1240
940391	AE2-023 C	9.4432
940392	AE2-023 E	44.2079
941931	AE2-205 C O1	3.1124
941932	AE2-205 E O1	2.0749
942101	AE2-222 C O1	12.4525
942102	AE2-222 E O1	31.2815
942201	AE2-232 C O1	59.8642
942202	AE2-232 E O1	153.1758
942381	AE2-251 C	53.5002
942382	AE2-251 E	136.8919
942941	AE2-314 C (Withdrawn : 12/16/2019)	6.8541
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.5694
943732	AF1-041 E	0.3534
944131	AF1-081 C O1	3.3837
944132	AF1-081 E O1	2.2558
944332	AF1-101 E O1	306.3515
945731	AF1-238 C O1	2.0237
945732	AF1-238 E O1	3.0356
945741	AF1-239 C	0.3599
945742	AF1-239 E	0.5399
999905	MARINGEN 2	0.5770
999906	PVILLEG 2	0.2491
DUCKCREEK	DUCKCREEK	0.0299
NEWTON	NEWTON	0.0258
CPL	CPL	0.0060
FARMERCITY	FARMERCITY	0.0013
NY	NY	0.4750
PRAIRIE	PRAIRIE	0.0568
O-066	O-066	8.5546
COFFEEN	COFFEEN	0.0127
CBM-S2	CBM-S2	0.0116
EDWARDS	EDWARDS	0.0091
CHEOAH	CHEOAH	0.0055
TILTON	TILTON	0.0164
G-007	G-007	2.9838
MADISON	MADISON	0.0060
GIBSON	GIBSON	0.0137
CALDERWOOD	CALDERWOOD	0.0055
BLUEG	BLUEG	0.0434
TRIMBLE	TRIMBLE	0.0139

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
42124508	213922	RICHMOND	PECO	214012	WANEETA3	PECO	1	PECO_P4_CHICH045/ * \$ DELCO \$ CHICH045 \$ STBK	breaker	1180.0	144.56	145.75	DC	31.15

Bus #	Bus	MW Impact
213918	RICHMD91	3.2141
213919	RICHMD92	3.2141
214225	Y1-057 BAT	0.3395
218661	EHAMPSOLAR E	0.3664
219124	CAMDEN_STG	3.1826
219126	CAMDEN_C TG	3.9099
219128	GLOUCSTR_26	1.6157
219229	EAGLEPT_G3	2.0552
219230	EAGLEPT_G1	3.8780
219231	EAGLEPT_G2	3.8759
219235	EAGLEPT_ST2	1.4018
219236	SOUTHERNHQ C	0.0160
219237	SOUTHERNHQ E	0.1903
219240	MANTUACREK E	0.6994
219241	CAMDEN1	0.2364
219242	CAMDEN2	0.0256
219258	KINSLEYDEP C	0.0883
219259	KINSLEYDEP E	1.0325
219273	CLEANLIGHT E	0.3797
219288	REEVES ST E	1.3650
219292	REEVESSO E	0.1258
219305	NAMERICA E	0.9467
219340	CUTHBSP1_C	0.0051
219344	CUTHBSP1_E	0.0591
219345	CUTHBSP2_C	0.0051
219347	CUTHBSP2_E	0.0590
219349	LDSOLAR E	0.8289
219350	CUTHBSP3_C	0.0051
219351	CUTHBSP3_E	0.0591
219357	CUTHBSP4_C	0.0041
219379	CUTHBSP4_E	0.0475
219384	DEPTFDSP1_C	0.0012
219385	DEPTFDSP1_E	0.0136
219388	DEPTFDSP2_C	0.0012
219390	DEPTFDSP2_E	0.0137
219393	DEPTFDSP3_C	0.0029
219394	DEPTFDSP3_E	0.0343
219408	DEPTFDSP4_C	0.0012
219416	DEPTFDSP4_E	0.0137
219566	BURLINSP1_E	0.1136
219574	CAMDENSP1_C	0.0284

Bus #	Bus	MW Impact
219575	CAMDENSP1_E	0.3321
219582	COXSCOSP1_E	0.0157
219608	WPEMNERT E	0.9467
219611	FLORENCE E	2.7048
219614	COXSCOSP2_E	0.0157
219619	MILLCREEK E	0.5292
219623	KINSLEYBEA C	0.0646
219624	KINSLEYBEA E	0.7802
219647	COOPERSOLA E	0.1388
219652	LUMB23SP1_E	0.0416
219656	LUMB23SP2_E	0.0416
219662	THOROFSP1_C	0.0045
219664	THOROFSP1_E	0.0523
219665	THOROFSP2_C	0.0045
219666	THOROFSP2_E	0.0525
219683	THOSOLAR C	0.0248
219684	THOSOLAR E	0.2894
219687	LUMSOLAR_N E	0.4203
219689	LUMSOLAR_S E	0.4387
219706	BEAVBRSP1_C	0.0047
219707	BEAVBRSP1_E	0.0546
219708	BEAVBRSP2_C	0.0047
219709	BEAVBRSP2_E	0.0545
219710	CINNAMSP1_C	0.0027
219711	CINNAMSP1_E	0.0313
219712	CINNAMSP2_C	0.0016
219713	CINNAMSP2_E	0.0187
219714	CINNAMSP3_C	0.0027
219715	CINNAMSP3_E	0.0313
219716	CINNAMSP4_C	0.0027
219717	CINNAMSP4_E	0.0312
219718	GLOUCSP1_C	0.0087
219719	GLOUCSP1_E	0.1025
219726	BAT.STORG E	0.3400
219765	PARADISE E	1.1190
219766	PARADISE C	0.0927
227881	GRENWCHG	0.3877
227928	V4-067E	0.2576
228100	BLE DIES	1.3057
228261	V4-054E	1.1602
228334	MANNMILG	1.7210
228357	V2-046E	2.6446
228712	V2-041E	0.4218
228721	V2-035E	0.2431
228731	V3-036	0.8847
228733	AB1-119 E	0.1411
902092	W1-130E	1.0709
902432	W2-030 E	0.9648
910862	OWENSCORIN E	1.0060
913341	Y1-077 (Withdrawn : 12/18/2019)	72.9580
918622	AA1-079 E	7.0159
918632	AA1-079 E	7.0130

Bus #	Bus	MW Impact
923153	AB1-116 E	0.1555
923532	AB1-169AC	103.1819
924051	AB2-049 C	0.7430
924052	AB2-049 E	1.2123
924531	AB2-102 C	37.2326
924532	AB2-102 E	0.8274
924701	AB2-122 C	0.1113
924702	AB2-122 E	0.1908
925391	AC1-010 C	0.7693
925392	AC1-010 E	1.3289
925441	AC1-016 C	0.7285
925442	AC1-016 E	1.1888
925451	AC1-017 C	0.3438
925452	AC1-017 E	0.5633
925561	AC1-030 C	0.0436
925562	AC1-030 E	0.4937
930001	AB1-001 C	0.1350
930002	AB1-001 E	0.2219
930242	AB1-063 E	0.1388
932361	AC2-050 C O1	0.7611
932362	AC2-050 E O1	1.2418
933962	AD1-019 E	1.2224
936211	AD2-027 C	0.1942
936212	AD2-027 E	2.2699
936321	AD2-042 C	0.2555
936322	AD2-042 E	3.0021
936491	AD2-064 C	0.1025
936492	AD2-064 E	0.1411
936501	AD2-065 C	0.2096
936502	AD2-065 E	0.2891
937011	AD2-135 C	0.1138
937012	AD2-135 E	0.1934
938421	AE1-061 C	0.9394
938422	AE1-061 E	0.9394
938431	AE1-062 C	1.9306
938432	AE1-062 E	1.9306
938781	AE1-104 C O1	19.8145
938782	AE1-104 E O1	50.6952
938871	AE1-115 C	2.0438
938872	AE1-115 E	2.0438
939301	AE1-161 C	3.8962
939302	AE1-161 E	5.8443
939501	AE1-179 C O1	6.3037
939502	AE1-179 E O1	4.4486
939821	AE1-218 C O1	0.1619
939822	AE1-218 E O1	0.2428
939831	AE1-219 C O1	0.3643
939832	AE1-219 E O1	0.5262
939931	AE1-229 C O1	17.5576
939932	AE1-229 E O1	11.8958
940001	AE1-240 C O1	5.2241
940002	AE1-240 E O1	3.7289

Bus #	Bus	MW Impact
940361	AE2-020 C	8.8278
940362	AE2-020 E	41.3325
940371	AE2-021 C	8.8278
940372	AE2-021 E	41.3325
940381	AE2-022 C	5.1496
940382	AE2-022 E	24.1106
940391	AE2-023 C	12.7897
940392	AE2-023 E	59.8745
940771	AE2-064 C	0.2810
940772	AE2-064 E	0.3802
940781	AE2-065 C	0.2331
940782	AE2-065 E	0.3664
941001	AE2-091 C O1	4.2158
941002	AE2-091 E O1	2.1995
941931	AE2-205 C O1	7.7444
941932	AE2-205 E O1	5.1629
942101	AE2-222 C O1	13.7401
942102	AE2-222 E O1	34.5161
942381	AE2-251 C	52.7667
942382	AE2-251 E	135.0153
942571	AE2-272	0.1640
942941	AE2-314 C (Withdrawn : 12/16/2019)	6.7602
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.5068
943071	AE2-334 C	5.7484
943072	AE2-334 E	3.0645
943081	AE2-335 C O1	8.2265
943082	AE2-335 E O1	3.6672
943732	AF1-041 E	0.2041
944131	AF1-081 C O1	8.4195
944132	AF1-081 E O1	5.6130
944611	AF1-126 C O1	3.7290
944612	AF1-126 E O1	14.9161
944951	AF1-160 C	1.0232
944952	AF1-160 E	1.0744
945431	AF1-208 C O1	2.7430
945432	AF1-208 E O1	1.8287
945731	AF1-238 C O1	5.4682
945732	AF1-238 E O1	8.2023
945741	AF1-239 C	1.1316
945742	AF1-239 E	1.6975
945961	AF1-261	0.1040
945971	AF1-262	0.0935
945991	AF1-264	0.4359
999905	MARINGEN 2	0.6433
999906	PVILLEG 2	0.2735
DUCKCREEK	DUCKCREEK	1.4037
NEWTON	NEWTON	1.3098
FARMERCITY	FARMERCITY	0.0682
G-007A	G-007A	12.0618
VFT	VFT	22.9039
PRAIRIE	PRAIRIE	3.1461
COFFEEN	COFFEEN	0.6442

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.4267
CHEOAH	CHEOAH	0.6076
TILTON	TILTON	0.7680
MADISON	MADISON	0.0040
GIBSON	GIBSON	0.6656
CALDERWOOD	CALDERWOOD	0.6034
BLUEG	BLUEG	2.1162
TRIMBLE	TRIMBLE	0.6784
CATAWBA	CATAWBA	0.4235

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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
46745095	214010	WANEETA2	PECO	213817	N PHILA	PECO	1	PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	breaker	621.0	104.32	105.48	DC	15.88

Bus #	Bus	MW Impact
213606	FAIRLESS (Deactivation : 06/01/20)	5.5901
213878	PENNSBRY (Deactivation : 06/01/20)	0.4958
213918	RICHMD91	1.5536
213919	RICHMD92	1.5536
218661	EHAMPSOLAR E	0.1923
219124	CAMDEN_STG	1.5841
219126	CAMDEN_CTG	1.9461
219128	GLOUCSTR_26	0.8042
219229	EAGLEPT_G3	1.0241
219230	EAGLEPT_G1	1.9323
219231	EAGLEPT_G2	1.9313
219235	EAGLEPT_ST2	0.6985
219236	SOUTHERNHQ C	0.0082
219237	SOUTHERNHQ E	0.0975
219240	MANTUACREK E	0.3481
219241	CAMDEN1	0.1175
219242	CAMDEN2	0.0127
219258	KINSLEYDEP C	0.0440
219259	KINSLEYDEP E	0.5145
219273	CLEANLIGHT E	0.1970
219288	REEVES ST E	0.7154
219292	REEVESSO E	0.0660
219305	NAMERICA E	0.5241
219340	CUTHBSP1_C	0.0025
219344	CUTHBSP1_E	0.0294
219345	CUTHBSP2_C	0.0025
219347	CUTHBSP2_E	0.0293
219349	LDSOLAR E	0.4589
219350	CUTHBSP3_C	0.0025
219351	CUTHBSP3_E	0.0294
219357	CUTHBSP4_C	0.0020
219379	CUTHBSP4_E	0.0236
219384	DEPTFDSP1_C	0.0006
219385	DEPTFDSP1_E	0.0068
219388	DEPTFDSP2_C	0.0006
219390	DEPTFDSP2_E	0.0068
219393	DEPTFDSP3_C	0.0015
219394	DEPTFDSP3_E	0.0171
219408	DEPTFDSP4_C	0.0006
219416	DEPTFDSP4_E	0.0068
219566	BURLINSP1_E	0.0629

Bus #	Bus	MW Impact
219574	CAMDENSP1_C	0.0141
219575	CAMDENSP1_E	0.1650
219582	COXSCOSP1_E	0.0082
219608	WPEMNERT E	0.5241
219611	FLORENCE E	1.4975
219614	COXSCOSP2_E	0.0082
219615	MILLCREEK C	0.0256
219619	MILLCREEK E	0.3322
219623	KINSLEYBEA C	0.0322
219624	KINSLEYBEA E	0.3893
219647	COOPERSOLA E	0.0694
219652	LUMB23SP1_E	0.0218
219656	LUMB23SP2_E	0.0218
219662	THOROFSP1_C	0.0022
219664	THOROFSP1_E	0.0261
219665	THOROFSP2_C	0.0022
219666	THOROFSP2_E	0.0262
219683	THOSOLAR C	0.0124
219684	THOSOLAR E	0.1444
219687	LUMSOLAR_N E	0.2203
219689	LUMSOLAR_S E	0.2319
219706	BEAVBRSP1_C	0.0023
219707	BEAVBRSP1_E	0.0272
219708	BEAVBRSP2_C	0.0023
219709	BEAVBRSP2_E	0.0272
219710	CINNAMSP1_C	0.0014
219711	CINNAMSP1_E	0.0160
219712	CINNAMSP2_C	0.0008
219713	CINNAMSP2_E	0.0096
219714	CINNAMSP3_C	0.0014
219715	CINNAMSP3_E	0.0160
219716	CINNAMSP4_C	0.0014
219717	CINNAMSP4_E	0.0160
219718	GLOUCSP1_C	0.0043
219719	GLOUCSP1_E	0.0510
219726	BAT.STORG E	0.1698
219765	PARADISE E	0.5570
219766	PARADISE C	0.0462
227881	GRENWCHG	0.1946
227928	V4-067E	0.1327
228100	BLE DIES	0.6695
228261	V4-054E	0.5883
228334	MANNMILG	0.8682
228357	V2-046E	1.3343
228712	V2-041E	0.2150
228721	V2-035E	0.1231
228731	V3-036	0.4552
228733	AB1-119 E	0.0721
902092	W1-130E	0.5446
902432	W2-030 E	0.4962
910862	OWENSCORIN E	0.5023
913341	Y1-077 (Withdrawn : 12/18/2019)	37.4099

Bus #	Bus	MW Impact
918622	AA1-079 E	4.2803
918632	AA1-079 E	4.2788
923153	AB1-116 E	0.0791
923532	AB1-169AC	52.4722
924051	AB2-049 C	0.3787
924052	AB2-049 E	0.6179
924531	AB2-102 C	18.9873
924532	AB2-102 E	0.4219
924701	AB2-122 C	0.0573
924702	AB2-122 E	0.0983
925391	AC1-010 C	0.3829
925392	AC1-010 E	0.6614
925441	AC1-016 C	0.4034
925442	AC1-016 E	0.6582
925451	AC1-017 C	0.2159
925452	AC1-017 E	0.3537
925561	AC1-030 C	0.0223
925562	AC1-030 E	0.2527
930242	AB1-063 E	0.0694
932361	AC2-050 C O1	0.3965
932362	AC2-050 E O1	0.6468
933962	AD1-019 E	0.6289
936211	AD2-027 C	0.0965
936212	AD2-027 E	1.1282
936321	AD2-042 C	0.1270
936322	AD2-042 E	1.4922
936491	AD2-064 C	0.0524
936492	AD2-064 E	0.0721
936501	AD2-065 C	0.1075
936502	AD2-065 E	0.1483
937011	AD2-135 C	0.0580
937012	AD2-135 E	0.0987
938421	AE1-061 C	0.4777
938422	AE1-061 E	0.4777
938431	AE1-062 C	0.9896
938432	AE1-062 E	0.9896
938781	AE1-104 C O1	10.1601
938782	AE1-104 E O1	25.9944
938871	AE1-115 C	1.0303
938872	AE1-115 E	1.0303
939301	AE1-161 C	1.9764
939302	AE1-161 E	2.9646
939501	AE1-179 C O1	3.2038
939502	AE1-179 E O1	2.2610
939821	AE1-218 C O1	0.0821
939822	AE1-218 E O1	0.1232
939831	AE1-219 C O1	0.1848
939832	AE1-219 E O1	0.2669
939931	AE1-229 C O1	8.8775
939932	AE1-229 E O1	6.0148
940001	AE1-240 C O1	2.6548
940002	AE1-240 E O1	1.8950

Bus #	Bus	MW Impact
940391	AE2-023 C	6.5580
940392	AE2-023 E	30.7012
940771	AE2-064 C	0.1402
940772	AE2-064 E	0.1897
940781	AE2-065 C	0.1162
940782	AE2-065 E	0.1826
941001	AE2-091 C O1	2.1401
941002	AE2-091 E O1	1.1166
941931	AE2-205 C O1	3.9494
941932	AE2-205 E O1	2.6329
942101	AE2-222 C O1	7.0697
942102	AE2-222 E O1	17.7596
942571	AE2-272	0.0827
943071	AE2-334 C	2.9157
943072	AE2-334 E	1.5544
943081	AE2-335 C O1	4.1699
943082	AE2-335 E O1	1.8589
943732	AF1-041 E	0.1051
944131	AF1-081 C O1	4.2937
944132	AF1-081 E O1	2.8624
944951	AF1-160 C	0.5245
944952	AF1-160 E	0.5507
945431	AF1-208 C O1	1.3887
945432	AF1-208 E O1	0.9258
945731	AF1-238 C O1	2.7854
945732	AF1-238 E O1	4.1782
945741	AF1-239 C	0.5757
945742	AF1-239 E	0.8635
945961	AF1-261	0.0576
945971	AF1-262	0.0474
945991	AF1-264	0.2177
999905	MARINGEN 2	0.3310
999906	PVILLEG 2	0.1407
DUCKCREEK	DUCKCREEK	0.5838
NEWTON	NEWTON	0.5458
FARMERCITY	FARMERCITY	0.0285
G-007A	G-007A	7.8398
VFT	VFT	16.4862
PRAIRIE	PRAIRIE	1.3147
COFFEEN	COFFEEN	0.2685
EDWARDS	EDWARDS	0.1771
CHEOAH	CHEOAH	0.2588
TILTON	TILTON	0.3188
GIBSON	GIBSON	0.2768
CALDERWOOD	CALDERWOOD	0.2569
BLUEG	BLUEG	0.8802
TRIMBLE	TRIMBLE	0.2821
CATAWBA	CATAWBA	0.1837

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
42124358	214206	RICHRE29	PECO	213922	RICHMOND	PECO	1	PECO_P4_CHICH045/ * \$ DELCO \$ CHICH045 \$ STBK	breaker	1336.0	140.97	142.1	DC	33.05

Bus #	Bus	MW Impact
218661	EHAMPSOLAR E	0.3416
219124	CAMDEN_STG	3.5581
219126	CAMDEN_CTG	4.3713
219128	GLOUCSTR_26	1.8064
219229	EAGLEPT_G3	2.2910
219230	EAGLEPT_G1	4.3230
219231	EAGLEPT_G2	4.3204
219235	EAGLEPT_ST2	1.5627
219236	SOUTHERNHQ C	0.0161
219237	SOUTHERNHQ E	0.1908
219240	MANTUACREK E	0.7819
219241	CAMDEN1	0.2653
219242	CAMDEN2	0.0287
219258	KINSLEYDEP C	0.0984
219259	KINSLEYDEP E	1.1506
219273	CLEANLIGHT E	0.3700
219288	REEVES ST E	1.2889
219292	REEVESSO E	0.1180
219305	NAMERICA E	0.6453
219340	CUTHBSP1_C	0.0057
219344	CUTHBSP1_E	0.0662
219345	CUTHBSP2_C	0.0057
219347	CUTHBSP2_E	0.0661
219349	LDSOLAR E	0.5650
219350	CUTHBSP3_C	0.0057
219351	CUTHBSP3_E	0.0662
219357	CUTHBSP4_C	0.0046
219379	CUTHBSP4_E	0.0532
219384	DEPTFDSP1_C	0.0013
219385	DEPTFDSP1_E	0.0152
219388	DEPTFDSP2_C	0.0013
219390	DEPTFDSP2_E	0.0152
219393	DEPTFDSP3_C	0.0033
219394	DEPTFDSP3_E	0.0382
219408	DEPTFDSP4_C	0.0013
219416	DEPTFDSP4_E	0.0152
219566	BURLINSP1_E	0.0775
219574	CAMDENSP1_C	0.0319
219575	CAMDENSP1_E	0.3727
219582	COXSCOSP1_E	0.0149
219608	WPEMNERT E	0.6453

Bus #	Bus	MW Impact
219611	FLORENCE E	1.8437
219614	COXSCOSP2_E	0.0149
219619	MILLCREEK E	0.4430
219623	KINSLEYBEA C	0.0718
219624	KINSLEYBEA E	0.8670
219647	COOPERSOLA E	0.1528
219652	LUMB23SP1_E	0.0393
219656	LUMB23SP2_E	0.0393
219662	THOROFSP1_C	0.0050
219664	THOROFSP1_E	0.0580
219665	THOROFSP2_C	0.0050
219666	THOROFSP2_E	0.0583
219683	THOSOLAR C	0.0275
219684	THOSOLAR E	0.3209
219687	LUMSOLAR_N E	0.3969
219689	LUMSOLAR_S E	0.3938
219706	BEAVBRSP1_C	0.0052
219707	BEAVBRSP1_E	0.0606
219708	BEAVBRSP2_C	0.0052
219709	BEAVBRSP2_E	0.0605
219710	CINNAMSP1_C	0.0027
219711	CINNAMSP1_E	0.0315
219712	CINNAMSP2_C	0.0016
219713	CINNAMSP2_E	0.0188
219714	CINNAMSP3_C	0.0027
219715	CINNAMSP3_E	0.0315
219716	CINNAMSP4_C	0.0027
219717	CINNAMSP4_E	0.0313
219718	GLOUCSP1_C	0.0098
219719	GLOUCSP1_E	0.1146
219726	BAT.STORG E	0.3766
219765	PARADISE E	1.2511
219766	PARADISE C	0.1037
227881	GRENWCHG	0.4240
227928	V4-067E	0.2690
228100	BLE DIES	1.3730
228261	V4-054E	1.2436
228334	MANNMILG	1.8634
228357	V2-046E	2.8618
228400	MICK 1CT	1.9846
228423	Q-090 2	32.9717
228471	VALERO1	0.6778
228472	VALERO2	0.4456
228473	VALERO3	0.4456
228484	VALERO4	0.3987
228712	V2-041E	0.4478
228721	V2-035E	0.2611
228731	V3-036	0.9252
228733	AB1-119 E	0.1467
902092	W1-130E	1.1409
902432	W2-030 E	1.0095
910862	OWENSCORIN E	1.1140

Bus #	Bus	MW Impact
913341	Y1-077 (Withdrawn : 12/18/2019)	76.7157
917471	Z2-083	3.3355
919901	AB1-000 1	0.9042
919911	AB1-000 2	0.9042
919921	AB1-000 3	0.9042
923153	AB1-116 E	0.1641
923532	AB1-169AC	109.8999
924051	AB2-049 C	0.7788
924052	AB2-049 E	1.2708
924531	AB2-102 C	39.5103
924532	AB2-102 E	0.8780
924701	AB2-122 C	0.1162
924702	AB2-122 E	0.1992
925391	AC1-010 C	0.8601
925392	AC1-010 E	1.4857
925441	AC1-016 C	0.4966
925442	AC1-016 E	0.8103
925451	AC1-017 C	0.2878
925452	AC1-017 E	0.4715
925561	AC1-030 C	0.0439
925562	AC1-030 E	0.4967
930001	AB1-001 C	0.1403
930002	AB1-001 E	0.2307
930242	AB1-063 E	0.1528
932361	AC2-050 C O1	0.7332
932362	AC2-050 E O1	1.1963
933962	AD1-019 E	1.2785
934661	AD1-097 1	1.4587
934671	AD1-097 2	1.4587
934681	AD1-097 3	1.4587
934691	AD1-097 4	0.8635
936211	AD2-027 C	0.2179
936212	AD2-027 E	2.5475
936321	AD2-042 C	0.2868
936322	AD2-042 E	3.3692
936491	AD2-064 C	0.1065
936492	AD2-064 E	0.1467
936501	AD2-065 C	0.2150
936502	AD2-065 E	0.2967
937011	AD2-135 C	0.1190
937012	AD2-135 E	0.2023
938421	AE1-061 C	1.0007
938422	AE1-061 E	1.0007
938431	AE1-062 C	1.9847
938432	AE1-062 E	1.9847
938781	AE1-104 C O1	20.8351
938782	AE1-104 E O1	53.3063
938871	AE1-115 C	2.2176
938872	AE1-115 E	2.2176
939301	AE1-161 C	4.1665
939302	AE1-161 E	6.2498
939501	AE1-179 C O1	6.7238

Bus #	Bus	MW Impact
939502	AE1-179 E O1	4.7451
939821	AE1-218 C O1	0.1722
939822	AE1-218 E O1	0.2582
939831	AE1-219 C O1	0.3874
939832	AE1-219 E O1	0.5595
939931	AE1-229 C O1	18.9208
939932	AE1-229 E O1	12.8194
940001	AE1-240 C O1	5.5739
940002	AE1-240 E O1	3.9786
940361	AE2-020 C	9.1851
940362	AE2-020 E	43.0051
940371	AE2-021 C	9.1851
940372	AE2-021 E	43.0051
940381	AE2-022 C	5.3579
940382	AE2-022 E	25.0863
940391	AE2-023 C	13.4484
940392	AE2-023 E	62.9584
940771	AE2-064 C	0.3123
940772	AE2-064 E	0.4225
940781	AE2-065 C	0.2598
940782	AE2-065 E	0.4083
941001	AE2-091 C O1	4.5069
941002	AE2-091 E O1	2.3514
941931	AE2-205 C O1	8.2181
941932	AE2-205 E O1	5.4788
942101	AE2-222 C O1	14.3689
942102	AE2-222 E O1	36.0956
942381	AE2-251 C	54.9021
942382	AE2-251 E	140.4789
942571	AE2-272	0.1775
942941	AE2-314 C (Withdrawn : 12/16/2019)	7.0337
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.6891
943071	AE2-334 C	6.1229
943072	AE2-334 E	3.2641
943081	AE2-335 C O1	8.8018
943082	AE2-335 E O1	3.9237
943732	AF1-041 E	0.2134
944131	AF1-081 C O1	8.9346
944132	AF1-081 E O1	5.9564
944951	AF1-160 C	1.0519
944952	AF1-160 E	1.1045
945431	AF1-208 C O1	2.9496
945432	AF1-208 E O1	1.9664
945731	AF1-238 C O1	5.8106
945732	AF1-238 E O1	8.7160
945741	AF1-239 C	1.2043
945742	AF1-239 E	1.8064
945961	AF1-261	0.0709
945971	AF1-262	0.1004
945991	AF1-264	0.4828
999905	MARINGEN 2	0.6729
999906	PVILLEG 2	0.2860

Bus #	Bus	MW Impact
DUCKCREEK	DUCKCREEK	1.1930
NEWTON	NEWTON	1.1110
FARMERCITY	FARMERCITY	0.0578
G-007A	G-007A	9.4462
VFT	VFT	14.8092
PRAIRIE	PRAIRIE	2.6657
COFFEEN	COFFEEN	0.5470
EDWARDS	EDWARDS	0.3630
CHEOAH	CHEOAH	0.5100
TILTON	TILTON	0.6527
MADISON	MADISON	0.0081
GIBSON	GIBSON	0.5651
CALDERWOOD	CALDERWOOD	0.5069
BLUEG	BLUEG	1.7968
TRIMBLE	TRIMBLE	0.5760
CATAWBA	CATAWBA	0.3521

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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
42695475	219100	NEWFRDM	PSE&G	219704	HILLTOP_3	PSE&G	1	PS_P7-1_V2274+P2242_LT	tower	740.0	141.13	141.98	DC	16.53

Bus #	Bus	MW Impact
200062	SALEM G3	2.6373
219259	KINSLEYDEP E	0.2611
219385	DEPTFDSP1_E	0.0035
219390	DEPTFDSP2_E	0.0035
219394	DEPTFDSP3_E	0.0087
219416	DEPTFDSP4_E	0.0035
219664	THOROFSP1_E	0.0142
219666	THOROFSP2_E	0.0142
219684	THOSOLAR E	0.0783
219727	Z1-082 BAT	0.2594
227881	GRENWCHG	0.1504
227928	V4-067E	0.1451
228100	BLE DIES	0.7160
228261	V4-054E	0.5686
228334	MANNMILG	0.7629
228357	V2-046E	1.1803
228702	WEST CT	0.3779
228712	V2-041E	0.2228
228717	S121	0.9196
228720	V2-035C	0.0123
228721	V2-035E	0.1442
228728	W1-130C	0.0579
228731	V3-036	0.4913
228733	AB1-119 E	0.0946
902092	W1-130E	0.6759
902432	W2-030 E	0.5369
913341	Y1-077 (Withdrawn : 12/18/2019)	40.0049
918622	AA1-079 E	-3.1522
918632	AA1-079 E	-3.1513
923153	AB1-116 E	0.1012
923532	AB1-169AC	65.1475
924051	AB2-049 C	0.5017
924052	AB2-049 E	0.8186
924531	AB2-102 C	19.7580
924532	AB2-102 E	0.4391
924701	AB2-122 C	0.0627
924702	AB2-122 E	0.1074
930001	AB1-001 C	0.0729
930002	AB1-001 E	0.1198
930242	AB1-063 E	-0.0738
933962	AD1-019 E	0.6789
936212	AD2-027 E	-1.0092

Bus #	Bus	MW Impact
936322	AD2-042 E	-1.3347
936491	AD2-064 C	0.0687
936492	AD2-064 E	0.0946
936501	AD2-065 C	0.1254
936502	AD2-065 E	0.1730
937011	AD2-135 C	0.0873
937012	AD2-135 E	0.1485
938421	AE1-061 C	0.5929
938422	AE1-061 E	0.5929
938431	AE1-062 C	1.2052
938432	AE1-062 E	1.2052
938781	AE1-104 C O1	10.8649
938782	AE1-104 E O1	27.7976
938871	AE1-115 C	0.8814
938872	AE1-115 E	0.8814
939301	AE1-161 C	2.4382
939302	AE1-161 E	3.6573
939501	AE1-179 C O1	3.2317
939502	AE1-179 E O1	2.2807
939821	AE1-218 C O1	0.1028
939822	AE1-218 E O1	0.1542
939831	AE1-219 C O1	0.2313
939832	AE1-219 E O1	0.3342
939931	AE1-229 C O1	9.8763
939932	AE1-229 E O1	6.6915
940001	AE1-240 C O1	2.6686
940002	AE1-240 E O1	1.9048
940361	AE2-020 C	5.0574
940362	AE2-020 E	23.6792
940371	AE2-021 C	5.0574
940372	AE2-021 E	23.6792
940381	AE2-022 C	2.9502
940382	AE2-022 E	13.8129
940391	AE2-023 C	7.0129
940392	AE2-023 E	32.8309
940781	AE2-065 C	0.0590
940782	AE2-065 E	0.0926
941001	AE2-091 C O1	2.1173
941002	AE2-091 E O1	1.1047
941931	AE2-205 C O1	4.1097
941932	AE2-205 E O1	2.7398
942101	AE2-222 C O1	7.6274
942102	AE2-222 E O1	19.1604
942381	AE2-251 C	30.2298
942382	AE2-251 E	77.3496
942571	AE2-272	0.0732
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.8729
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.5819
943071	AE2-334 C	3.6768
943072	AE2-334 E	1.9601
943081	AE2-335 C O1	5.2249
943082	AE2-335 E O1	2.3292

Bus #	Bus	MW Impact
943732	AF1-041 E	0.1135
944131	AF1-081 C O1	4.4680
944132	AF1-081 E O1	2.9786
944951	AF1-160 C	1.2052
944952	AF1-160 E	1.2655
945431	AF1-208 C O1	1.3021
945432	AF1-208 E O1	0.8681
945731	AF1-238 C O1	2.8787
945732	AF1-238 E O1	4.3180
945741	AF1-239 C	0.5936
945742	AF1-239 E	1.9764
945971	AF1-262	0.1046
999905	MARINGEN 2	0.3575
999906	PVILLEG 2	0.1517
DUCKCREEK	DUCKCREEK	0.1232
NEWTON	NEWTON	0.1128
FARMERCITY	FARMERCITY	0.0058
NY	NY	0.3777
PRAIRIE	PRAIRIE	0.2609
O-066	O-066	5.5306
COFFEEN	COFFEEN	0.0555
EDWARDS	EDWARDS	0.0378
CHEOAH	CHEOAH	0.0410
TILTON	TILTON	0.0680
G-007	G-007	0.1342
MADISON	MADISON	0.0121
GIBSON	GIBSON	0.0579
CALDERWOOD	CALDERWOOD	0.0413
BLUEG	BLUEG	0.1840
TRIMBLE	TRIMBLE	0.0590
CATAWBA	CATAWBA	0.0224

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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
42124782	219108	CUTHBERT	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CAMD_5-6_LT	breaker	771.0	119.07	120.13	DC	17.78

Bus #	Bus	MW Impact
219124	CAMDEN_STG	2.7412
219126	CAMDEN_CTG	3.3676
219128	GLOUCSTR_26	1.3916
219229	EAGLEPT_G3	1.7167
219230	EAGLEPT_G1	3.2399
219231	EAGLEPT_G2	3.2368
219235	EAGLEPT_ST2	1.1712
219240	MANTUACREK E	0.6024
219258	KINSLEYDEP C	0.0735
219259	KINSLEYDEP E	0.8595
219340	CUTHBSP1_C	0.0049
219344	CUTHBSP1_E	0.0571
219345	CUTHBSP2_C	0.0046
219347	CUTHBSP2_E	0.0537
219350	CUTHBSP3_C	0.0043
219351	CUTHBSP3_E	0.0505
219357	CUTHBSP4_C	0.0037
219379	CUTHBSP4_E	0.0432
219384	DEPTFDSP1_C	0.0010
219385	DEPTFDSP1_E	0.0113
219388	DEPTFDSP2_C	0.0010
219390	DEPTFDSP2_E	0.0114
219393	DEPTFDSP3_C	0.0024
219394	DEPTFDSP3_E	0.0285
219408	DEPTFDSP4_C	0.0010
219416	DEPTFDSP4_E	0.0114
219623	KINSLEYBEA C	0.0531
219624	KINSLEYBEA E	0.6414
219662	THOROFSP1_C	0.0035
219664	THOROFSP1_E	0.0413
219665	THOROFSP2_C	0.0036
219666	THOROFSP2_E	0.0416
219683	THOSOLAR C	0.0195
219684	THOSOLAR E	0.2285
219706	BEAVBRSP1_C	0.0038
219707	BEAVBRSP1_E	0.0448
219708	BEAVBRSP2_C	0.0038
219709	BEAVBRSP2_E	0.0447
219718	GLOUCSP1_C	0.0075
219719	GLOUCSP1_E	0.0883
219726	BAT.STORG E	0.1239

Bus #	Bus	MW Impact
219765	PARADISE E	0.9638
219766	PARADISE C	0.0799
227881	GRENWCHG	0.2739
227928	V4-067E	0.1342
228100	BLE DIES	0.7101
228261	V4-054E	0.7147
228334	MANNMILG	1.1357
228357	V2-046E	1.7395
228400	MICK 1CT	1.2979
228423	Q-090 2	22.3558
228471	VALERO1	0.4412
228472	VALERO2	0.2901
228473	VALERO3	0.2901
228484	VALERO4	0.2595
228712	V2-041E	0.2427
228721	V2-035E	0.1521
228731	V3-036	0.4668
228733	AB1-119 E	0.0691
902092	W1-130E	0.6376
902432	W2-030 E	0.5101
910862	OWENSCORIN E	0.4382
913341	Y1-077 (Withdrawn : 12/18/2019)	39.6782
917471	Z2-083	2.2616
918622	AA1-079 E	-2.8006
918632	AA1-079 E	-2.7997
923153	AB1-116 E	0.0860
923532	AB1-169AC	61.3687
924051	AB2-049 C	0.3884
924052	AB2-049 E	0.6337
924531	AB2-102 C	21.2574
924532	AB2-102 E	0.4724
924701	AB2-122 C	0.0580
924702	AB2-122 E	0.0994
925391	AC1-010 C	0.6626
925392	AC1-010 E	1.1446
930001	AB1-001 C	0.0690
930002	AB1-001 E	0.1134
933962	AD1-019 E	0.6450
936212	AD2-027 E	-0.9498
936322	AD2-042 E	-1.2561
936491	AD2-064 C	0.0502
936492	AD2-064 E	0.0691
936501	AD2-065 C	0.0916
936502	AD2-065 E	0.1264
937011	AD2-135 C	0.0585
937012	AD2-135 E	0.0994
938421	AE1-061 C	0.5593
938422	AE1-061 E	0.5593
938431	AE1-062 C	0.8507
938432	AE1-062 E	0.8507
938781	AE1-104 C O1	10.7761
938782	AE1-104 E O1	27.5706

Bus #	Bus	MW Impact
938871	AE1-115 C	1.3662
938872	AE1-115 E	1.3662
939301	AE1-161 C	2.3754
939302	AE1-161 E	3.5631
939501	AE1-179 C O1	3.7521
939502	AE1-179 E O1	2.6479
939821	AE1-218 C O1	0.0946
939822	AE1-218 E O1	0.1418
939831	AE1-219 C O1	0.2128
939832	AE1-219 E O1	0.3073
939931	AE1-229 C O1	11.2371
939932	AE1-229 E O1	7.6134
940001	AE1-240 C O1	3.1158
940002	AE1-240 E O1	2.2240
940361	AE2-020 C	4.4954
940362	AE2-020 E	21.0479
940371	AE2-021 C	4.4954
940372	AE2-021 E	21.0479
940381	AE2-022 C	2.6223
940382	AE2-022 E	12.2780
940391	AE2-023 C	6.9557
940392	AE2-023 E	32.5627
940771	AE2-064 C	0.2310
940772	AE2-064 E	0.3126
940781	AE2-065 C	0.1941
940782	AE2-065 E	0.3050
941001	AE2-091 C O1	2.5499
941002	AE2-091 E O1	1.3304
941931	AE2-205 C O1	4.4215
941932	AE2-205 E O1	2.9477
942101	AE2-222 C O1	7.2469
942102	AE2-222 E O1	18.2046
942381	AE2-251 C	26.8706
942382	AE2-251 E	68.7544
942571	AE2-272	0.1079
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.4425
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.2950
943071	AE2-334 C	3.3960
943072	AE2-334 E	1.8104
943081	AE2-335 C O1	5.0302
943082	AE2-335 E O1	2.2424
943732	AF1-041 E	0.1074
944131	AF1-081 C O1	4.8070
944132	AF1-081 E O1	3.2047
944951	AF1-160 C	0.4509
944952	AF1-160 E	0.4734
945431	AF1-208 C O1	1.7278
945432	AF1-208 E O1	1.1519
945731	AF1-238 C O1	3.1639
945732	AF1-238 E O1	4.7458
945741	AF1-239 C	0.6626
945742	AF1-239 E	0.9938

Bus #	Bus	MW Impact
945971	AF1-262	0.0585
945991	AF1-264	0.1006
999905	MARINGEN 2	0.3396
999906	PVILLEG 2	0.1442
DUCKCREEK	DUCKCREEK	0.3362
NEWTON	NEWTON	0.3105
FARMERCITY	FARMERCITY	0.0161
NY	NY	0.4739
PRAIRIE	PRAIRIE	0.7387
O-066	O-066	6.6998
COFFEEN	COFFEEN	0.1527
EDWARDS	EDWARDS	0.1022
CHEOAH	CHEOAH	0.1346
TILTON	TILTON	0.1840
G-007	G-007	0.3099
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.1583
CALDERWOOD	CALDERWOOD	0.1337
BLUEG	BLUEG	0.5034
TRIMBLE	TRIMBLE	0.1614
CATAWBA	CATAWBA	0.0882

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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
42124676	219110	GLOUCSTR	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CUTB_1-4_LT	breaker	771.0	127.09	128.16	DC	17.9

Bus #	Bus	MW Impact
219124	CAMDEN_STG	2.9553
219126	CAMDEN_CTG	3.6307
219128	GLOUCSTR_26	1.5003
219229	EAGLEPT_G3	1.8463
219230	EAGLEPT_G1	3.4845
219231	EAGLEPT_G2	3.4812
219235	EAGLEPT_ST2	1.2597
219240	MANTUACREK E	0.6495
219258	KINSLEYDEP C	0.0791
219259	KINSLEYDEP E	0.9241
219384	DEPTFDSP1_C	0.0010
219385	DEPTFDSP1_E	0.0122
219388	DEPTFDSP2_C	0.0010
219390	DEPTFDSP2_E	0.0122
219393	DEPTFDSP3_C	0.0026
219394	DEPTFDSP3_E	0.0306
219408	DEPTFDSP4_C	0.0010
219416	DEPTFDSP4_E	0.0122
219623	KINSLEYBEA C	0.0569
219624	KINSLEYBEA E	0.6873
219662	THOROFSP1_C	0.0038
219664	THOROFSP1_E	0.0442
219665	THOROFSP2_C	0.0038
219666	THOROFSP2_E	0.0446
219683	THOSOLAR C	0.0209
219684	THOSOLAR E	0.2446
219706	BEAVBRSP1_C	0.0041
219707	BEAVBRSP1_E	0.0481
219708	BEAVBRSP2_C	0.0041
219709	BEAVBRSP2_E	0.0479
219718	GLOUCSP1_C	0.0081
219719	GLOUCSP1_E	0.0951
219726	BAT.STORG E	0.1382
219765	PARADISE E	1.0391
219766	PARADISE C	0.0861
227881	GRENWCHG	0.2884
227928	V4-067E	0.1315
228100	BLE DIES	0.7048
228261	V4-054E	0.7309
228334	MANNMILG	1.1794
228357	V2-046E	1.8047

Bus #	Bus	MW Impact
228400	MICK 1CT	1.3708
228423	Q-090 2	23.8180
228471	VALERO1	0.4655
228472	VALERO2	0.3060
228473	VALERO3	0.3060
228484	VALERO4	0.2738
228712	V2-041E	0.2444
228721	V2-035E	0.1558
228731	V3-036	0.4593
228733	AB1-119 E	0.0656
902092	W1-130E	0.6451
902432	W2-030 E	0.5022
910862	OWENSCORIN E	0.4812
913341	Y1-077 (Withdrawn : 12/18/2019)	39.3780
917471	Z2-083	2.4095
918622	AA1-079 E	-2.8632
918632	AA1-079 E	-2.8626
923153	AB1-116 E	0.0847
923532	AB1-169AC	62.0793
924051	AB2-049 C	0.3757
924052	AB2-049 E	0.6130
924531	AB2-102 C	21.3932
924532	AB2-102 E	0.4754
924701	AB2-122 C	0.0568
924702	AB2-122 E	0.0974
925391	AC1-010 C	0.7144
925392	AC1-010 E	1.2340
930001	AB1-001 C	0.0674
930002	AB1-001 E	0.1108
933962	AD1-019 E	0.6347
936212	AD2-027 E	-0.8913
936322	AD2-042 E	-1.1788
936491	AD2-064 C	0.0476
936492	AD2-064 E	0.0656
936501	AD2-065 C	0.0834
936502	AD2-065 E	0.1151
937011	AD2-135 C	0.0563
937012	AD2-135 E	0.0956
938421	AE1-061 C	0.5659
938422	AE1-061 E	0.5659
938431	AE1-062 C	0.7699
938432	AE1-062 E	0.7699
938781	AE1-104 C O1	10.6946
938782	AE1-104 E O1	27.3620
938871	AE1-115 C	1.4238
938872	AE1-115 E	1.4238
939301	AE1-161 C	2.4155
939302	AE1-161 E	3.6233
939501	AE1-179 C O1	3.8059
939502	AE1-179 E O1	2.6859
939821	AE1-218 C O1	0.0948
939822	AE1-218 E O1	0.1422

Bus #	Bus	MW Impact
939831	AE1-219 C O1	0.2132
939832	AE1-219 E O1	0.3080
939931	AE1-229 C O1	11.5858
939932	AE1-229 E O1	7.8497
940001	AE1-240 C O1	3.1626
940002	AE1-240 E O1	2.2574
940361	AE2-020 C	4.3784
940362	AE2-020 E	20.5001
940371	AE2-021 C	4.3784
940372	AE2-021 E	20.5001
940381	AE2-022 C	2.5541
940382	AE2-022 E	11.9584
940391	AE2-023 C	6.9030
940392	AE2-023 E	32.3164
940771	AE2-064 C	0.2475
940772	AE2-064 E	0.3349
940781	AE2-065 C	0.2087
940782	AE2-065 E	0.3279
941001	AE2-091 C O1	2.5964
941002	AE2-091 E O1	1.3547
941931	AE2-205 C O1	4.4498
941932	AE2-205 E O1	2.9665
942101	AE2-222 C O1	7.1300
942102	AE2-222 E O1	17.9110
942381	AE2-251 C	26.1713
942382	AE2-251 E	66.9649
942571	AE2-272	0.1119
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.3529
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.2353
943071	AE2-334 C	3.4170
943072	AE2-334 E	1.8216
943081	AE2-335 C O1	5.1138
943082	AE2-335 E O1	2.2797
943732	AF1-041 E	0.1055
944131	AF1-081 C O1	4.8377
944132	AF1-081 E O1	3.2251
944951	AF1-160 C	0.4081
944952	AF1-160 E	0.4285
945431	AF1-208 C O1	1.7765
945432	AF1-208 E O1	1.1843
945731	AF1-238 C O1	3.1901
945732	AF1-238 E O1	4.7851
945741	AF1-239 C	0.6692
945742	AF1-239 E	1.0037
945971	AF1-262	0.0599
945991	AF1-264	0.1105
999905	MARINGEN 2	0.3342
999906	PVILLEG 2	0.1418
DUCKCREEK	DUCKCREEK	0.3408
NEWTON	NEWTON	0.3148
FARMERCITY	FARMERCITY	0.0163
NY	NY	0.5469

Bus #	Bus	MW Impact
PRAIRIE	PRAIRIE	0.7491
O-066	O-066	8.0707
COFFEEN	COFFEEN	0.1549
EDWARDS	EDWARDS	0.1036
CHEOAH	CHEOAH	0.1356
TILTON	TILTON	0.1865
G-007	G-007	0.7155
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.1605
CALDERWOOD	CALDERWOOD	0.1352
BLUEG	BLUEG	0.5104
TRIMBLE	TRIMBLE	0.1636
CATAWBA	CATAWBA	0.0889

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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
42405948	219110	GLOUCSTR	PSE&G	219755	CUTHBERT_4	PSE&G	1	PS_P1-2_C-2308	single	758.0	107.96	108.62	DC	10.9

Bus #	Bus	MW Impact
213400	COVANTA DELA	1.6742
219124	CAMDEN_STG	2.9995
219126	CAMDEN_CTG	3.6850
219128	GLOUCSTR_26	1.5228
219229	EAGLEPT_G3	1.8740
219230	EAGLEPT_G1	3.5368
219231	EAGLEPT_G2	3.5333
219235	EAGLEPT_ST2	1.2786
219258	KINSLEYDEP C	0.0802
219259	KINSLEYDEP E	0.9380
219384	DEPTFDSP1_C	0.0011
219388	DEPTFDSP2_C	0.0011
219393	DEPTFDSP3_C	0.0027
219408	DEPTFDSP4_C	0.0011
219623	KINSLEYBEA C	0.0578
219662	THOROFSP1_C	0.0038
219665	THOROFSP2_C	0.0039
219683	THOSOLAR C	0.0212
219706	BEAVBRSP1_C	0.0042
219708	BEAVBRSP2_C	0.0042
219718	GLOUCSP1_C	0.0082
219766	PARADISE C	0.0874
228100	BLE DIES	0.7153
228200	CARL#1CT	0.5452
228201	CARL#2CT	0.5771
228251	CARLLS#4	0.0610
228260	V4-054C	0.1493
228304	LOGAN	6.3152
228306	PCLP STM	1.6250
228307	PCLP GT	1.6250
228309	CCLP NUG	5.7479
228343	QUINTN#1	0.0375
228351	V2-046C	0.1632
228400	MICK 1CT	1.3913
228423	Q-090 2	24.1743
228471	VALERO1	0.4725
228472	VALERO2	0.3106
228473	VALERO3	0.3106
228484	VALERO4	0.2779
228702	WEST CT	0.4304
228717	S121	1.0444

Bus #	Bus	MW Impact
228720	V2-035C	0.0159
228728	W1-130C	0.0660
913341	Y1-077 (Withdrawn : 12/18/2019)	39.9669
917471	Z2-083	2.4455
923532	AB1-169AC	74.1290
924051	AB2-049 C	0.3813
924531	AB2-102 C	21.7145
924701	AB2-122 C	0.0577
925391	AC1-010 C	0.7251
930001	AB1-001 C	0.0684
936491	AD2-064 C	0.0483
936501	AD2-065 C	0.0847
937011	AD2-135 C	0.0571
938421	AE1-061 C	0.6757
938431	AE1-062 C	0.7815
938781	AE1-104 C O1	10.8546
938871	AE1-115 C	1.7002
939301	AE1-161 C	2.8844
939501	AE1-179 C O1	4.5448
939821	AE1-218 C O1	0.1132
939831	AE1-219 C O1	0.2546
939931	AE1-229 C O1	13.8351
940001	AE1-240 C O1	3.7764
940361	AE2-020 C	4.4441
940371	AE2-021 C	4.4441
940381	AE2-022 C	2.5924
940391	AE2-023 C	7.0063
940771	AE2-064 C	0.2513
940781	AE2-065 C	0.2118
941001	AE2-091 C O1	3.1004
941931	AE2-205 C O1	4.5166
942101	AE2-222 C O1	7.2367
942381	AE2-251 C	26.5639
942571	AE2-272	0.1336
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.4032
943071	AE2-334 C	4.0803
943081	AE2-335 C O1	6.1063
944131	AF1-081 C O1	4.9104
944951	AF1-160 C	0.4142
945431	AF1-208 C O1	4.0025
945731	AF1-238 C O1	3.2379
945741	AF1-239 C	0.6792
945971	AF1-262	0.1350
945991	AF1-264	0.2490
DUCKCREEK	DUCKCREEK	0.3455
NEWTON	NEWTON	0.3202
FARMERCITY	FARMERCITY	0.0165
NY	NY	0.5552
PRAIRIE	PRAIRIE	0.7594
COFFEEN	COFFEEN	0.1575
EDWARDS	EDWARDS	0.1054
CHEOAH	CHEOAH	0.1376

Bus #	Bus	MW Impact
TILTON	TILTON	0.1890
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.1627
CALDERWOOD	CALDERWOOD	0.1372
BLUEG	BLUEG	0.5173
TRIMBLE	TRIMBLE	0.1664
CATAWBA	CATAWBA	0.0900

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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
41780774	219125	CAMDEN	PSE&G	214206	RICHRE29	PECO	1	PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	bus	1336.0	141.0	142.13	DC	33.05

Bus #	Bus	MW Impact
218661	EHAMPSOLAR E	0.3416
219124	CAMDEN_STG	3.5581
219126	CAMDEN_CTG	4.3713
219128	GLOUCSTR_26	1.8064
219229	EAGLEPT_G3	2.2910
219230	EAGLEPT_G1	4.3230
219231	EAGLEPT_G2	4.3204
219235	EAGLEPT_ST2	1.5627
219236	SOUTHERNHQ C	0.0161
219237	SOUTHERNHQ E	0.1908
219240	MANTUACREK E	0.7819
219241	CAMDEN1	0.2653
219242	CAMDEN2	0.0287
219258	KINSLEYDEP C	0.0984
219259	KINSLEYDEP E	1.1506
219273	CLEANLIGHT E	0.3700
219288	REEVES ST E	1.2889
219292	REEVESSO E	0.1180
219305	NAMERICA E	0.6453
219340	CUTHBSP1_C	0.0057
219344	CUTHBSP1_E	0.0662
219345	CUTHBSP2_C	0.0057
219347	CUTHBSP2_E	0.0661
219349	LDSOLAR E	0.5650
219350	CUTHBSP3_C	0.0057
219351	CUTHBSP3_E	0.0662
219357	CUTHBSP4_C	0.0046
219379	CUTHBSP4_E	0.0532
219384	DEPTFDSP1_C	0.0013
219385	DEPTFDSP1_E	0.0152
219388	DEPTFDSP2_C	0.0013
219390	DEPTFDSP2_E	0.0152
219393	DEPTFDSP3_C	0.0033
219394	DEPTFDSP3_E	0.0382
219408	DEPTFDSP4_C	0.0013
219416	DEPTFDSP4_E	0.0152
219566	BURLINSP1_E	0.0775
219574	CAMDENSP1_C	0.0319
219575	CAMDENSP1_E	0.3727
219582	COXSCOSP1_E	0.0149

Bus #	Bus	MW Impact
219608	WPEMNERT E	0.6453
219611	FLORENCE E	1.8437
219614	COXSCOSP2_E	0.0149
219619	MILLCREEK E	0.4430
219623	KINSLEYBEA C	0.0718
219624	KINSLEYBEA E	0.8670
219647	COOPERSOLA E	0.1528
219652	LUMB23SP1_E	0.0393
219656	LUMB23SP2_E	0.0393
219662	THOROFSP1_C	0.0050
219664	THOROFSP1_E	0.0580
219665	THOROFSP2_C	0.0050
219666	THOROFSP2_E	0.0583
219683	THOSOLAR C	0.0275
219684	THOSOLAR E	0.3209
219687	LUMSOLAR_N E	0.3969
219689	LUMSOLAR_S E	0.3938
219706	BEAVBRSP1_C	0.0052
219707	BEAVBRSP1_E	0.0606
219708	BEAVBRSP2_C	0.0052
219709	BEAVBRSP2_E	0.0605
219710	CINNAMSP1_C	0.0027
219711	CINNAMSP1_E	0.0315
219712	CINNAMSP2_C	0.0016
219713	CINNAMSP2_E	0.0188
219714	CINNAMSP3_C	0.0027
219715	CINNAMSP3_E	0.0315
219716	CINNAMSP4_C	0.0027
219717	CINNAMSP4_E	0.0313
219718	GLOUCSP1_C	0.0098
219719	GLOUCSP1_E	0.1146
219726	BAT.STORG E	0.3766
219765	PARADISE E	1.2511
219766	PARADISE C	0.1037
227881	GRENWCHG	0.4240
227928	V4-067E	0.2690
228100	BLE DIES	1.3730
228261	V4-054E	1.2436
228334	MANNMILG	1.8634
228357	V2-046E	2.8618
228400	MICK 1CT	1.9846
228423	Q-090 2	32.9717
228471	VALERO1	0.6778
228472	VALERO2	0.4456
228473	VALERO3	0.4456
228484	VALERO4	0.3987
228712	V2-041E	0.4478
228721	V2-035E	0.2611
228731	V3-036	0.9252
228733	AB1-119 E	0.1467
902092	W1-130E	1.1409
902432	W2-030 E	1.0095

Bus #	Bus	MW Impact
910862	OWENSCORIN E	1.1140
913341	Y1-077 (Withdrawn : 12/18/2019)	76.7157
917471	Z2-083	3.3355
919901	AB1-000 1	0.9042
919911	AB1-000 2	0.9042
919921	AB1-000 3	0.9042
923153	AB1-116 E	0.1641
923532	AB1-169AC	109.8999
924051	AB2-049 C	0.7788
924052	AB2-049 E	1.2708
924531	AB2-102 C	39.5103
924532	AB2-102 E	0.8780
924701	AB2-122 C	0.1162
924702	AB2-122 E	0.1992
925391	AC1-010 C	0.8601
925392	AC1-010 E	1.4857
925441	AC1-016 C	0.4966
925442	AC1-016 E	0.8103
925451	AC1-017 C	0.2878
925452	AC1-017 E	0.4715
925561	AC1-030 C	0.0439
925562	AC1-030 E	0.4967
930001	AB1-001 C	0.1403
930002	AB1-001 E	0.2307
930242	AB1-063 E	0.1528
932361	AC2-050 C O1	0.7332
932362	AC2-050 E O1	1.1963
933962	AD1-019 E	1.2785
934661	AD1-097 1	1.4587
934671	AD1-097 2	1.4587
934681	AD1-097 3	1.4587
934691	AD1-097 4	0.8635
936211	AD2-027 C	0.2179
936212	AD2-027 E	2.5475
936321	AD2-042 C	0.2868
936322	AD2-042 E	3.3692
936491	AD2-064 C	0.1065
936492	AD2-064 E	0.1467
936501	AD2-065 C	0.2150
936502	AD2-065 E	0.2967
937011	AD2-135 C	0.1190
937012	AD2-135 E	0.2023
938421	AE1-061 C	1.0007
938422	AE1-061 E	1.0007
938431	AE1-062 C	1.9847
938432	AE1-062 E	1.9847
938781	AE1-104 C O1	20.8351
938782	AE1-104 E O1	53.3063
938871	AE1-115 C	2.2176
938872	AE1-115 E	2.2176
939301	AE1-161 C	4.1665
939302	AE1-161 E	6.2498

Bus #	Bus	MW Impact
939501	AE1-179 C O1	6.7238
939502	AE1-179 E O1	4.7451
939821	AE1-218 C O1	0.1722
939822	AE1-218 E O1	0.2582
939831	AE1-219 C O1	0.3874
939832	AE1-219 E O1	0.5595
939931	AE1-229 C O1	18.9208
939932	AE1-229 E O1	12.8194
940001	AE1-240 C O1	5.5739
940002	AE1-240 E O1	3.9786
940361	AE2-020 C	9.1851
940362	AE2-020 E	43.0051
940371	AE2-021 C	9.1851
940372	AE2-021 E	43.0051
940381	AE2-022 C	5.3579
940382	AE2-022 E	25.0863
940391	AE2-023 C	13.4484
940392	AE2-023 E	62.9584
940771	AE2-064 C	0.3123
940772	AE2-064 E	0.4225
940781	AE2-065 C	0.2598
940782	AE2-065 E	0.4083
941001	AE2-091 C O1	4.5069
941002	AE2-091 E O1	2.3514
941931	AE2-205 C O1	8.2181
941932	AE2-205 E O1	5.4788
942101	AE2-222 C O1	14.3689
942102	AE2-222 E O1	36.0956
942381	AE2-251 C	54.9021
942382	AE2-251 E	140.4789
942571	AE2-272	0.1775
942941	AE2-314 C (Withdrawn : 12/16/2019)	7.0337
942942	AE2-314 E (Withdrawn : 12/16/2019)	4.6891
943071	AE2-334 C	6.1229
943072	AE2-334 E	3.2641
943081	AE2-335 C O1	8.8018
943082	AE2-335 E O1	3.9237
943732	AF1-041 E	0.2134
944131	AF1-081 C O1	8.9346
944132	AF1-081 E O1	5.9564
944951	AF1-160 C	1.0519
944952	AF1-160 E	1.1045
945431	AF1-208 C O1	2.9496
945432	AF1-208 E O1	1.9664
945731	AF1-238 C O1	5.8106
945732	AF1-238 E O1	8.7160
945741	AF1-239 C	1.2043
945742	AF1-239 E	1.8064
945961	AF1-261	0.0709
945971	AF1-262	0.1004
945991	AF1-264	0.4828
999905	MARINGEN 2	0.6729

Bus #	Bus	MW Impact
999906	PVILLEG 2	0.2860
DUCKCREEK	DUCKCREEK	1.1930
NEWTON	NEWTON	1.1110
FARMERCITY	FARMERCITY	0.0578
G-007A	G-007A	9.4462
VFT	VFT	14.8092
PRAIRIE	PRAIRIE	2.6657
COFFEEN	COFFEEN	0.5470
EDWARDS	EDWARDS	0.3630
CHEOAH	CHEOAH	0.5100
TILTON	TILTON	0.6527
MADISON	MADISON	0.0081
GIBSON	GIBSON	0.5651
CALDERWOOD	CALDERWOOD	0.5069
BLUEG	BLUEG	1.7968
TRIMBLE	TRIMBLE	0.5760
CATAWBA	CATAWBA	0.3521

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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 LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
4269555 1	21970 2	HILLTOP_ 1	PSE& G	21910 1	BEAVERBK_ 1	PSE& G	1	PS_P7- 1_V2274+P2242_L T	tower	740.0	125.35	126.14	DC	15.54

Bus #	Bus	MW Impact
200062	SALEM G3	2.4790
219259	KINSLEYDEP E	0.2455
219385	DEPTFDSP1_E	0.0032
219390	DEPTFDSP2_E	0.0032
219394	DEPTFDSP3_E	0.0082
219416	DEPTFDSP4_E	0.0032
219664	THOROFSP1_E	0.0133
219666	THOROFSP2_E	0.0133
219684	THOSOLAR E	0.0736
227881	GRENWCHG	0.1414
227928	V4-067E	0.1364
228100	BLE DIES	0.6733
228261	V4-054E	0.5347
228334	MANNMILG	0.7173
228357	V2-046E	1.1098
228702	WEST CT	0.3554
228712	V2-041E	0.2095
228717	S121	0.8649
228720	V2-035C	0.0116
228721	V2-035E	0.1355
228728	W1-130C	0.0545
228731	V3-036	0.4621
228733	AB1-119 E	0.0891
902092	W1-130E	0.6355
902432	W2-030 E	0.5050
913341	Y1-077 (Withdrawn : 12/18/2019)	37.6226
918622	AA1-079 E	-2.9513
918632	AA1-079 E	-2.9506
923153	AB1-116 E	0.0952
923532	AB1-169AC	61.2535
924051	AB2-049 C	0.4721
924052	AB2-049 E	0.7703
924531	AB2-102 C	18.5799
924532	AB2-102 E	0.4129
924701	AB2-122 C	0.0589
924702	AB2-122 E	0.1010
930001	AB1-001 C	0.0686
930002	AB1-001 E	0.1127
930242	AB1-063 E	-0.0374
933962	AD1-019 E	0.6385
936212	AD2-027 E	-0.9514

Bus #	Bus	MW Impact
936322	AD2-042 E	-1.2584
936491	AD2-064 C	0.0647
936492	AD2-064 E	0.0891
936501	AD2-065 C	0.1183
936502	AD2-065 E	0.1632
937011	AD2-135 C	0.0822
937012	AD2-135 E	0.1397
938421	AE1-061 C	0.5575
938422	AE1-061 E	0.5575
938431	AE1-062 C	1.1354
938432	AE1-062 E	1.1354
938781	AE1-104 C O1	10.2179
938782	AE1-104 E O1	26.1423
938871	AE1-115 C	0.8286
938872	AE1-115 E	0.8286
939301	AE1-161 C	2.2924
939302	AE1-161 E	3.4386
939501	AE1-179 C O1	3.0387
939502	AE1-179 E O1	2.1444
939821	AE1-218 C O1	0.0967
939822	AE1-218 E O1	0.1451
939831	AE1-219 C O1	0.2176
939832	AE1-219 E O1	0.3143
939931	AE1-229 C O1	9.2863
939932	AE1-229 E O1	6.2917
940001	AE1-240 C O1	2.5094
940002	AE1-240 E O1	1.7912
940361	AE2-020 C	4.7563
940362	AE2-020 E	22.2693
940371	AE2-021 C	4.7563
940372	AE2-021 E	22.2693
940381	AE2-022 C	2.7745
940382	AE2-022 E	12.9904
940391	AE2-023 C	6.5953
940392	AE2-023 E	30.8758
940781	AE2-065 C	0.0554
940782	AE2-065 E	0.0871
941001	AE2-091 C O1	1.9910
941002	AE2-091 E O1	1.0388
941931	AE2-205 C O1	3.8646
941932	AE2-205 E O1	2.5764
942101	AE2-222 C O1	7.1728
942102	AE2-222 E O1	18.0186
942381	AE2-251 C	28.4298
942382	AE2-251 E	72.7440
942571	AE2-272	0.0688
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.6423
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.4282
943071	AE2-334 C	3.4581
943072	AE2-334 E	1.8435
943081	AE2-335 C O1	4.9124
943082	AE2-335 E O1	2.1898

Bus #	Bus	MW Impact
943732	AF1-041 E	0.1068
944131	AF1-081 C O1	4.2015
944132	AF1-081 E O1	2.8010
944951	AF1-160 C	1.1354
944952	AF1-160 E	1.1922
945431	AF1-208 C O1	1.2243
945432	AF1-208 E O1	0.8162
945731	AF1-238 C O1	2.7071
945732	AF1-238 E O1	4.0606
945741	AF1-239 C	0.5582
945742	AF1-239 E	1.8585
945971	AF1-262	0.0984
999905	MARINGEN 2	0.3362
999906	PVILLEG 2	0.1427
DUCKCREEK	DUCKCREEK	0.1175
NEWTON	NEWTON	0.1075
FARMERCITY	FARMERCITY	0.0055
NY	NY	0.3528
PRAIRIE	PRAIRIE	0.2506
O-066	O-066	5.1542
COFFEEN	COFFEEN	0.0529
EDWARDS	EDWARDS	0.0361
CHEOAH	CHEOAH	0.0395
TILTON	TILTON	0.0643
G-007	G-007	0.1165
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.0551
CALDERWOOD	CALDERWOOD	0.0393
BLUEG	BLUEG	0.1753
TRIMBLE	TRIMBLE	0.0562
CATAWBA	CATAWBA	0.0213

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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
42124935	219754	CUTHBERT_3	PSE&G	219125	CAMDEN	PSE&G	1	PS_P2-3_CAMD_5-6_LT	breaker	792.0	105.38	106.31	DC	16.16

Bus #	Bus	MW Impact
219124	CAMDEN_STG	2.4912
219126	CAMDEN_CTG	3.0605
219128	GLOUCSTR_26	1.2647
219229	EAGLEPT_G3	1.5602
219230	EAGLEPT_G1	2.9444
219231	EAGLEPT_G2	2.9416
219235	EAGLEPT_ST2	1.0644
219240	MANTUACREK E	0.5475
219258	KINSLEYDEP C	0.0668
219259	KINSLEYDEP E	0.7811
219340	CUTHBSP1_C	0.0039
219344	CUTHBSP1_E	0.0456
219345	CUTHBSP2_C	0.0042
219347	CUTHBSP2_E	0.0488
219350	CUTHBSP3_C	0.0045
219351	CUTHBSP3_E	0.0522
219357	CUTHBSP4_C	0.0034
219379	CUTHBSP4_E	0.0393
219384	DEPTFDSP1_C	0.0009
219385	DEPTFDSP1_E	0.0103
219388	DEPTFDSP2_C	0.0009
219390	DEPTFDSP2_E	0.0103
219393	DEPTFDSP3_C	0.0022
219394	DEPTFDSP3_E	0.0259
219408	DEPTFDSP4_C	0.0009
219416	DEPTFDSP4_E	0.0103
219623	KINSLEYBEA C	0.0483
219624	KINSLEYBEA E	0.5829
219662	THOROFSP1_C	0.0032
219664	THOROFSP1_E	0.0375
219665	THOROFSP2_C	0.0032
219666	THOROFSP2_E	0.0378
219683	THOSOLAR C	0.0178
219684	THOSOLAR E	0.2076
219706	BEAVBRSP1_C	0.0035
219707	BEAVBRSP1_E	0.0408
219708	BEAVBRSP2_C	0.0035
219709	BEAVBRSP2_E	0.0406
219718	GLOUCSP1_C	0.0068
219719	GLOUCSP1_E	0.0802
219726	BAT.STORG E	0.1126

Bus #	Bus	MW Impact
219765	PARADISE E	0.8759
219766	PARADISE C	0.0726
227881	GRENWCHG	0.2489
227928	V4-067E	0.1219
228100	BLE DIES	0.6453
228261	V4-054E	0.6495
228334	MANNMILG	1.0322
228357	V2-046E	1.5809
228400	MICK 1CT	1.1795
228423	Q-090 2	20.3168
228471	VALERO1	0.4010
228472	VALERO2	0.2636
228473	VALERO3	0.2636
228484	VALERO4	0.2359
228712	V2-041E	0.2205
228721	V2-035E	0.1382
228731	V3-036	0.4243
228733	AB1-119 E	0.0628
902092	W1-130E	0.5795
902432	W2-030 E	0.4635
910862	OWENSCORIN E	0.3982
913341	Y1-077 (Withdrawn : 12/18/2019)	36.0573
917471	Z2-083	2.0553
918622	AA1-079 E	-2.5452
918632	AA1-079 E	-2.5443
923153	AB1-116 E	0.0781
923532	AB1-169AC	55.7728
924051	AB2-049 C	0.3530
924052	AB2-049 E	0.5759
924531	AB2-102 C	19.3201
924532	AB2-102 E	0.4293
924701	AB2-122 C	0.0527
924702	AB2-122 E	0.0903
925391	AC1-010 C	0.6022
925392	AC1-010 E	1.0402
930001	AB1-001 C	0.0627
930002	AB1-001 E	0.1031
933962	AD1-019 E	0.5862
936212	AD2-027 E	-0.8632
936322	AD2-042 E	-1.1416
936491	AD2-064 C	0.0456
936492	AD2-064 E	0.0628
936501	AD2-065 C	0.0832
936502	AD2-065 E	0.1148
937011	AD2-135 C	0.0531
937012	AD2-135 E	0.0904
938421	AE1-061 C	0.5083
938422	AE1-061 E	0.5083
938431	AE1-062 C	0.7732
938432	AE1-062 E	0.7732
938781	AE1-104 C O1	9.7927
938782	AE1-104 E O1	25.0545

Bus #	Bus	MW Impact
938871	AE1-115 C	1.2417
938872	AE1-115 E	1.2417
939301	AE1-161 C	2.1588
939302	AE1-161 E	3.2382
939501	AE1-179 C O1	3.4099
939502	AE1-179 E O1	2.4064
939821	AE1-218 C O1	0.0859
939822	AE1-218 E O1	0.1289
939831	AE1-219 C O1	0.1934
939832	AE1-219 E O1	0.2793
939931	AE1-229 C O1	10.2120
939932	AE1-229 E O1	6.9189
940001	AE1-240 C O1	2.8315
940002	AE1-240 E O1	2.0211
940361	AE2-020 C	4.0854
940362	AE2-020 E	19.1283
940371	AE2-021 C	4.0854
940372	AE2-021 E	19.1283
940381	AE2-022 C	2.3832
940382	AE2-022 E	11.1582
940391	AE2-023 C	6.3209
940392	AE2-023 E	29.5911
940771	AE2-064 C	0.2100
940772	AE2-064 E	0.2841
940781	AE2-065 C	0.1764
940782	AE2-065 E	0.2772
941001	AE2-091 C O1	2.3173
941002	AE2-091 E O1	1.2090
941931	AE2-205 C O1	4.0186
941932	AE2-205 E O1	2.6791
942101	AE2-222 C O1	6.5862
942102	AE2-222 E O1	16.5449
942381	AE2-251 C	24.4200
942382	AE2-251 E	62.4840
942571	AE2-272	0.0980
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.1285
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.0857
943071	AE2-334 C	3.0865
943072	AE2-334 E	1.6454
943081	AE2-335 C O1	4.5716
943082	AE2-335 E O1	2.0380
943732	AF1-041 E	0.0976
944131	AF1-081 C O1	4.3689
944132	AF1-081 E O1	2.9126
944951	AF1-160 C	0.4098
944952	AF1-160 E	0.4303
945431	AF1-208 C O1	1.5703
945432	AF1-208 E O1	1.0469
945731	AF1-238 C O1	2.8755
945732	AF1-238 E O1	4.3132
945741	AF1-239 C	0.6022
945742	AF1-239 E	0.9033

Bus #	Bus	MW Impact
945971	AF1-262	0.0532
945991	AF1-264	0.0915
999905	MARINGEN 2	0.3087
999906	PVILLEG 2	0.1310
DUCKCREEK	DUCKCREEK	0.3051
NEWTON	NEWTON	0.2826
FARMERCITY	FARMERCITY	0.0146
NY	NY	0.4302
PRAIRIE	PRAIRIE	0.6716
O-066	O-066	6.0883
COFFEEN	COFFEEN	0.1390
EDWARDS	EDWARDS	0.0927
CHEOAH	CHEOAH	0.1221
TILTON	TILTON	0.1669
G-007	G-007	0.2808
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.1441
CALDERWOOD	CALDERWOOD	0.1218
BLUEG	BLUEG	0.4583
TRIMBLE	TRIMBLE	0.1469
CATAWBA	CATAWBA	0.0801

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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 LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
42695919	219756	BEAVERBK_2	PSE&G	219110	GLOUCST R	PSE&G	1	PS_P7-1_V2274+P2242_L T	tower	740.0	113.92	114.71	DC	15.54

Bus #	Bus	MW Impact
219259	KINSLEYDEP E	0.2454
219385	DEPTFDSP1_E	0.0032
219390	DEPTFDSP2_E	0.0032
219394	DEPTFDSP3_E	0.0082
219416	DEPTFDSP4_E	0.0032
219623	KINSLEYBEA C	0.1339
219624	KINSLEYBEA E	1.6165
219664	THOROFSP1_E	0.0133
219666	THOROFSP2_E	0.0133
219684	THOSOLAR E	0.0736
219706	BEAVBRSP1_C	0.0097
219707	BEAVBRSP1_E	0.1130
219708	BEAVBRSP2_C	0.0096
219709	BEAVBRSP2_E	0.1125
227881	GRENWCHG	0.1414
227928	V4-067E	0.1364
228100	BLE DIES	0.6733
228261	V4-054E	0.5346
228334	MANNMILG	0.7173
228357	V2-046E	1.1097
228702	WEST CT	0.3554
228712	V2-041E	0.2095
228717	S121	0.8648
228720	V2-035C	0.0116
228721	V2-035E	0.1355
228728	W1-130C	0.0545
228731	V3-036	0.4620
228733	AB1-119 E	0.0891
902092	W1-130E	0.6355
902432	W2-030 E	0.5049
913341	Y1-077 (Withdrawn : 12/18/2019)	37.6188
918622	AA1-079 E	-2.9516
918632	AA1-079 E	-2.9510
923153	AB1-116 E	0.0952
923532	AB1-169AC	61.2480
924051	AB2-049 C	0.4721
924052	AB2-049 E	0.7702
924531	AB2-102 C	18.5780
924532	AB2-102 E	0.4128
924701	AB2-122 C	0.0589
924702	AB2-122 E	0.1010

Bus #	Bus	MW Impact
930001	AB1-001 C	0.0685
930002	AB1-001 E	0.1127
930242	AB1-063 E	-0.0374
933962	AD1-019 E	0.6384
936212	AD2-027 E	-0.9514
936322	AD2-042 E	-1.2584
936491	AD2-064 C	0.0647
936492	AD2-064 E	0.0891
936501	AD2-065 C	0.1183
936502	AD2-065 E	0.1632
937011	AD2-135 C	0.0822
937012	AD2-135 E	0.1397
938421	AE1-061 C	0.5574
938422	AE1-061 E	0.5574
938431	AE1-062 C	1.1353
938432	AE1-062 E	1.1353
938781	AE1-104 C O1	10.2168
938782	AE1-104 E O1	26.1396
938871	AE1-115 C	0.8286
938872	AE1-115 E	0.8286
939301	AE1-161 C	2.2924
939302	AE1-161 E	3.4386
939501	AE1-179 C O1	3.0387
939502	AE1-179 E O1	2.1444
939821	AE1-218 C O1	0.0967
939822	AE1-218 E O1	0.1451
939831	AE1-219 C O1	0.2176
939832	AE1-219 E O1	0.3143
939931	AE1-229 C O1	9.2854
939932	AE1-229 E O1	6.2911
940001	AE1-240 C O1	2.5091
940002	AE1-240 E O1	1.7910
940361	AE2-020 C	4.7558
940362	AE2-020 E	22.2670
940371	AE2-021 C	4.7558
940372	AE2-021 E	22.2670
940381	AE2-022 C	2.7742
940382	AE2-022 E	12.9891
940391	AE2-023 C	6.5947
940392	AE2-023 E	30.8727
940771	AE2-064 C	0.5822
940772	AE2-064 E	0.7877
940781	AE2-065 C	0.0554
940782	AE2-065 E	0.0871
941001	AE2-091 C O1	1.9908
941002	AE2-091 E O1	1.0387
941931	AE2-205 C O1	3.8642
941932	AE2-205 E O1	2.5762
942101	AE2-222 C O1	7.1721
942102	AE2-222 E O1	18.0168
942381	AE2-251 C	28.4270
942382	AE2-251 E	72.7366

Bus #	Bus	MW Impact
942571	AE2-272	0.0688
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.6419
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.4279
943071	AE2-334 C	3.4578
943072	AE2-334 E	1.8433
943081	AE2-335 C O1	4.9119
943082	AE2-335 E O1	2.1897
943732	AF1-041 E	0.1068
944131	AF1-081 C O1	4.2011
944132	AF1-081 E O1	2.8007
944951	AF1-160 C	1.1353
944952	AF1-160 E	1.1921
945431	AF1-208 C O1	1.2243
945432	AF1-208 E O1	0.8162
945731	AF1-238 C O1	2.7068
945732	AF1-238 E O1	4.0602
945741	AF1-239 C	0.5581
945742	AF1-239 E	1.8583
945971	AF1-262	0.0984
999905	MARINGEN 2	0.3362
999906	PVILLEG 2	0.1427
DUCKCREEK	DUCKCREEK	0.1175
NEWTON	NEWTON	0.1075
FARMERCITY	FARMERCITY	0.0055
NY	NY	0.3534
PRAIRIE	PRAIRIE	0.2506
O-066	O-066	5.1542
COFFEEN	COFFEEN	0.0529
EDWARDS	EDWARDS	0.0361
CHEOAH	CHEOAH	0.0395
TILTON	TILTON	0.0643
G-007	G-007	0.1165
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.0551
CALDERWOOD	CALDERWOOD	0.0393
BLUEG	BLUEG	0.1753
TRIMBLE	TRIMBLE	0.0562
CATAWBA	CATAWBA	0.0213

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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
40971170	227900	CARDIFF	AE	219100	NEWFRDM	PSE&G	1	JC-P7-1-JCC-230-13	tower	692.0	289.72	291.5	DC	27.38

Bus #	Bus	MW Impact
206360	280 CRK C1	1.8601
206361	280 CRK C2	1.2490
227842	MARINGEN	0.1810
227927	V4-067C	0.0513
227928	V4-067E	0.6076
228014	PVILLEG	0.0618
228100	BLE DIES	2.2976
228202	CUMB CT	1.5367
228261	V4-054E	0.5803
228712	V2-041E	0.3530
228721	V2-035E	0.0903
228729	W2-030 C	0.1742
228731	V3-036	1.8761
228732	V1-021 C	0.0657
902092	W1-130E	0.6974
902432	W2-030 E	2.0519
913341	Y1-077 (Withdrawn : 12/18/2019)	128.3784
923532	AB1-169AC	68.2784
924531	AB2-102 C	32.7324
924532	AB2-102 E	0.7274
924701	AB2-122 C	0.2625
924702	AB2-122 E	0.4500
930001	AB1-001 C	0.3031
930002	AB1-001 E	0.4982
933962	AD1-019 E	2.5924
938421	AE1-061 C	0.6118
938422	AE1-061 E	0.6118
938781	AE1-104 C O1	34.8661
938782	AE1-104 E O1	89.2043
939301	AE1-161 C	1.5564
939302	AE1-161 E	2.3345
939501	AE1-179 C O1	3.8467
939502	AE1-179 E O1	2.7147
939931	AE1-229 C O1	6.0618
939932	AE1-229 E O1	4.1071
940001	AE1-240 C O1	3.2075
940002	AE1-240 E O1	2.2895
940161	AE2-000 C O1	89.8741
940162	AE2-000 E O1	229.9571
940361	AE2-020 C	45.0433
940362	AE2-020 E	210.8960

Bus #	Bus	MW Impact
940371	AE2-021 C	45.0433
940372	AE2-021 E	210.8960
940381	AE2-022 C	26.2752
940382	AE2-022 E	123.0227
940391	AE2-023 C	22.5050
940392	AE2-023 E	105.3564
941001	AE2-091 C O1	2.3577
941002	AE2-091 E O1	1.2301
941931	AE2-205 C O1	6.8083
941932	AE2-205 E O1	4.5389
942101	AE2-222 C O1	29.1180
942102	AE2-222 E O1	73.1460
942201	AE2-232 C O1	44.0552
942202	AE2-232 E O1	112.7248
942381	AE2-251 C	142.6963
942382	AE2-251 E	365.1197
942941	AE2-314 C (Withdrawn : 12/16/2019)	18.2814
942942	AE2-314 E (Withdrawn : 12/16/2019)	12.1876
943732	AF1-041 E	0.8330
944131	AF1-081 C O1	7.4019
944132	AF1-081 E O1	4.9346
944332	AF1-101 E O1	225.4497
945431	AF1-208 C O1	1.1887
945432	AF1-208 E O1	0.7925
945731	AF1-238 C O1	4.2951
945732	AF1-238 E O1	6.4426
945741	AF1-239 C	0.7183
945742	AF1-239 E	1.0774
945971	AF1-262	0.0347
999905	MARINGEN 2	1.3651
999906	PVILLEG 2	0.5792
DUCKCREEK	DUCKCREEK	0.0864
NEWTON	NEWTON	0.0806
FARMERCITY	FARMERCITY	0.0042
NY	NY	0.1112
PRAIRIE	PRAIRIE	0.1911
O-066	O-066	1.6666
COFFEEN	COFFEEN	0.0396
EDWARDS	EDWARDS	0.0263
CHEOAH	CHEOAH	0.0360
TILTON	TILTON	0.0473
G-007	G-007	0.2309
GIBSON	GIBSON	0.0409
CALDERWOOD	CALDERWOOD	0.0358
BLUEG	BLUEG	0.1302
TRIMBLE	TRIMBLE	0.0417
CATAWBA	CATAWBA	0.0245

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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
42124226	227900	CARDIFF	AE	227955	CEDAR	AE	1	AE_P4-2 AE6	breaker	805.0	186.41	189.03	DC	21.08

Bus #	Bus	MW Impact
227842	MARINGEN	0.1172
227927	V4-067C	0.0339
227928	V4-067E	0.4013
228014	PVILLEG	0.0393
228100	BLE DIES	1.6046
228202	CUMB CT	1.1785
228203	P06	1.2555
228261	V4-054E	0.4956
228334	MANNMILG	0.4482
228357	V2-046E	0.6848
228711	V2-041C	0.0274
228712	V2-041E	0.3208
228721	V2-035E	0.0845
228729	W2-030 C	0.1151
228731	V3-036	1.2088
228732	V1-021 C	0.0473
902092	W1-130E	0.5619
902432	W2-030 E	1.3555
913341	Y1-077 (Withdrawn : 12/18/2019)	89.6548
919663	AA2-048 BAT	0.5141
921744	AA2-049 BAT	0.1779
923532	AB1-169AC	54.8050
924531	AB2-102 C	29.6460
924532	AB2-102 E	0.6588
924701	AB2-122 C	0.1733
924702	AB2-122 E	0.2972
930001	AB1-001 C	0.1289
930002	AB1-001 E	0.2118
933962	AD1-019 E	1.6703
938421	AE1-061 C	0.4929
938422	AE1-061 E	0.4929
938781	AE1-104 C O1	24.3492
938782	AE1-104 E O1	62.2970
938871	AE1-115 C	0.5448
938872	AE1-115 E	0.5448
939301	AE1-161 C	1.4387
939302	AE1-161 E	2.1581
939501	AE1-179 C O1	3.1589
939502	AE1-179 E O1	2.2292
939931	AE1-229 C O1	5.7502
939932	AE1-229 E O1	3.8959
940001	AE1-240 C O1	2.6279

Bus #	Bus	MW Impact
940002	AE1-240 E O1	1.8758
940361	AE2-020 C	33.3328
940362	AE2-020 E	156.0664
940371	AE2-021 C	33.3328
940372	AE2-021 E	156.0664
940381	AE2-022 C	19.4441
940382	AE2-022 E	91.0387
940391	AE2-023 C	15.7167
940392	AE2-023 E	73.5771
941001	AE2-091 C O1	1.9683
941002	AE2-091 E O1	1.0269
941931	AE2-205 C O1	6.1664
941932	AE2-205 E O1	4.1109
942101	AE2-222 C O1	18.6344
942102	AE2-222 E O1	46.8106
942381	AE2-251 C	105.5976
942382	AE2-251 E	270.1945
942571	AE2-272	0.0425
942941	AE2-314 C (Withdrawn : 12/16/2019)	13.5285
942942	AE2-314 E (Withdrawn : 12/16/2019)	9.0190
943081	AE2-335 C O1	2.4230
943082	AE2-335 E O1	1.0802
943732	AF1-041 E	0.5327
944131	AF1-081 C O1	12.6490
944132	AF1-081 E O1	8.4326
945431	AF1-208 C O1	1.0481
945432	AF1-208 E O1	0.6988
945731	AF1-238 C O1	3.3574
945732	AF1-238 E O1	5.0361
945741	AF1-239 C	0.5874
945742	AF1-239 E	0.8811
945971	AF1-262	0.0325
999905	MARINGEN 2	0.8839
999906	PVILLEG 2	0.3686
DUCKCREEK	DUCKCREEK	0.0035
NEWTON	NEWTON	0.0011
CPL	CPL	0.0278
CBM-W2	CBM-W2	0.0409
NY	NY	0.5878
TVA	TVA	0.0154
O-066	O-066	10.6781
COFFEEN	COFFEEN	0.0005
CBM-S2	CBM-S2	0.1850
EDWARDS	EDWARDS	0.0010
CBM-S1	CBM-S1	0.0767
TILTON	TILTON	0.0019
G-007	G-007	3.7430
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.0011
BLUEG	BLUEG	0.0017
TRIMBLE	TRIMBLE	0.0011

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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
40971346	227901	DOROTHY	AE	228503	MNOTLA 2	AE	1	JC-P7-1-JCC-230-13	tower	478.0	113.68	114.56	DC	9.25

Bus #	Bus	MW Impact
206360	280 CRK C1	0.4763
206361	280 CRK C2	0.3198
227842	MARINGEN	0.0781
227927	V4-067C	0.0170
227928	V4-067E	0.2017
228014	PVILLEG	0.0279
228100	BLE DIES	1.0119
228712	V2-041E	0.1220
228729	W2-030 C	0.0712
228731	V3-036	0.8193
902432	W2-030 E	0.8388
913341	Y1-077 (Withdrawn : 12/18/2019)	56.5410
924531	AB2-102 C	11.0523
924532	AB2-102 E	0.2456
924701	AB2-122 C	0.0871
924702	AB2-122 E	0.1494
930001	AB1-001 C	0.1278
930002	AB1-001 E	0.2101
933962	AD1-019 E	1.1321
938423	AE1-061 BAT	3.3650
938781	AE1-104 C O1	15.3559
938782	AE1-104 E O1	39.2878
939303	AE1-161 BAT	10.2110
940161	AE2-000 C O1	23.0148
940162	AE2-000 E O1	58.8871
940361	AE2-020 C	10.7132
940362	AE2-020 E	50.1599
940371	AE2-021 C	10.7132
940372	AE2-021 E	50.1599
940381	AE2-022 C	6.2494
940382	AE2-022 E	29.2600
940391	AE2-023 C	9.9118
940392	AE2-023 E	46.4016
941931	AE2-205 C O1	2.2989
941932	AE2-205 E O1	1.5326
942101	AE2-222 C O1	12.9334
942102	AE2-222 E O1	32.4896
942201	AE2-232 C O1	11.2816
942202	AE2-232 E O1	28.8664
942381	AE2-251 C	33.9392
942382	AE2-251 E	86.8408

Bus #	Bus	MW Impact
942941	AE2-314 C (Withdrawn : 12/16/2019)	4.3481
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.8987
943732	AF1-041 E	0.3559
944131	AF1-081 C O1	2.4993
944132	AF1-081 E O1	1.6662
944332	AF1-101 E O1	57.7328
945731	AF1-238 C O1	1.4537
945732	AF1-238 E O1	2.1805
999905	MARINGEN 2	0.5886
999906	PVILLEG 2	0.2610
DUCKCREEK	DUCKCREEK	0.0092
NEWTON	NEWTON	0.0086
FARMERCITY	FARMERCITY	0.0004
NY	NY	0.0155
PRAIRIE	PRAIRIE	0.0181
O-066	O-066	0.2218
COFFEEN	COFFEEN	0.0042
EDWARDS	EDWARDS	0.0028
CHEOAH	CHEOAH	0.0035
TILTON	TILTON	0.0050
G-007	G-007	0.0073
GIBSON	GIBSON	0.0044
CALDERWOOD	CALDERWOOD	0.0035
BLUEG	BLUEG	0.0139
TRIMBLE	TRIMBLE	0.0045
CATAWBA	CATAWBA	0.0021

17.23 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
41506813	227902	LEWIS #1	AE	227949	LEWIS #3	AE	1	AE_P4-2 AE46	breaker	478.0	125.59	130.04	DC	21.27

Bus #	Bus	MW Impact
227928	V4-067E	0.1208
228100	BLE DIES	1.4736
228202	CUMB CT	1.1236
228203	P06	1.2670
228206	SHRMN CT	0.9602
228261	V4-054E	0.2825
228711	V2-041C	0.0253
228712	V2-041E	0.2958
228732	V1-021 C	0.0423
902432	W2-030 E	0.3811
913341	Y1-077 (Withdrawn : 12/18/2019)	82.3374
924531	AB2-102 C	29.9160
924532	AB2-102 E	0.6648
924701	AB2-122 C	0.0523
924702	AB2-122 E	0.0897
938423	AE1-061 BAT	3.1121
938781	AE1-104 C O1	22.3619
938782	AE1-104 E O1	57.2125
939303	AE1-161 BAT	9.6665
939501	AE1-179 C O1	2.3589
939502	AE1-179 E O1	1.6647
940001	AE1-240 C O1	1.9587
940002	AE1-240 E O1	1.3981
940361	AE2-020 C	13.3933
940362	AE2-020 E	62.7086
940371	AE2-021 C	13.3933
940372	AE2-021 E	62.7086
940381	AE2-022 C	7.8128
940382	AE2-022 E	36.5800
940391	AE2-023 C	14.4339
940392	AE2-023 E	67.5719
941001	AE2-091 C O1	1.3224
941002	AE2-091 E O1	0.6899
941931	AE2-205 C O1	6.2225
941932	AE2-205 E O1	4.1484
942381	AE2-251 C	42.4299
942382	AE2-251 E	108.5661
942941	AE2-314 C (Withdrawn : 12/16/2019)	5.4359
942942	AE2-314 E (Withdrawn : 12/16/2019)	3.6239
944131	AF1-081 C O1	12.7642
944132	AF1-081 E O1	8.5094
945731	AF1-238 C O1	3.0090

Bus #	Bus	MW Impact
945732	AF1-238 E O1	10.0188
945741	AF1-239 C	0.4677
945742	AF1-239 E	0.7016
DUCKCREEK	DUCKCREEK	0.0219
NEWTON	NEWTON	0.0204
FARMERCITY	FARMERCITY	0.0011
G-007A	G-007A	1.4601
VFT	VFT	1.5351
PRAIRIE	PRAIRIE	0.0517
COFFEEN	COFFEEN	0.0100
EDWARDS	EDWARDS	0.0067
CHEOAH	CHEOAH	0.0110
TILTON	TILTON	0.0120
GIBSON	GIBSON	0.0104
CALDERWOOD	CALDERWOOD	0.0109
BLUEG	BLUEG	0.0330
TRIMBLE	TRIMBLE	0.0106
CATAWBA	CATAWBA	0.0084

17.24 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
41166873	227903	MILL #1	AE	227902	LEWIS #1	AE	1	AE_P1-2 BLE-ML-LEW2	single	306.0	119.25	124.62	DC	16.42

Bus #	Bus	MW Impact
228100	BLE DIES	3.8677
228200	CARL#1CT	0.4023
228201	CARL#2CT	0.4259
228202	CUMB CT	1.6669
228203	P06	1.6298
228206	SHRMN CT	1.4804
228251	CARLLS#4	0.0452
228260	V4-054C	0.1109
228343	QUINTN#1	0.0136
228702	WEST CT	0.4517
228711	V2-041C	0.0389
228717	S121	1.0556
228727	W2-039G	1.2399
228732	V1-021 C	0.0792
913341	Y1-077 (Withdrawn : 12/18/2019)	216.1066
924531	AB2-102 C	38.4840
938781	AE1-104 C O1	58.6920
939501	AE1-179 C O1	4.6553
940001	AE1-240 C O1	3.8741
940391	AE2-023 C	37.8839
941001	AE2-091 C O1	2.7621
941931	AE2-205 C O1	8.0047
944131	AF1-081 C O1	16.4198
945431	AF1-208 C O1	2.2804
945731	AF1-238 C O1	10.3032
945741	AF1-239 C	1.6801
DUCKCREEK	DUCKCREEK	0.0461
NEWTON	NEWTON	0.0430
FARMERCITY	FARMERCITY	0.0022
NY	NY	0.1067
PRAIRIE	PRAIRIE	0.1033
COFFEEN	COFFEEN	0.0211
EDWARDS	EDWARDS	0.0140
CHEOAH	CHEOAH	0.0185
TILTON	TILTON	0.0252
MADISON	MADISON	0.0020
GIBSON	GIBSON	0.0218
CALDERWOOD	CALDERWOOD	0.0184
BLUEG	BLUEG	0.0694
TRIMBLE	TRIMBLE	0.0223
CATAWBA	CATAWBA	0.0122

17.25 Index 25

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41507028	227903	MILL #1	AE	227904	MILL #2	AE	1	AE_P4-2 AE29	breaker	478.0	111.26	112.38	DC	11.93

Bus #	Bus	MW Impact
227928	V4-067E	-0.1607
228100	BLE DIES	2.9358
228712	V2-041E	0.1705
228731	V3-036	-0.4549
228732	V1-021 C	0.0319
913341	Y1-077 (Withdrawn : 12/18/2019)	164.0356
924531	AB2-102 C	14.2615
924532	AB2-102 E	0.3169
938781	AE1-104 C O1	44.5502
938782	AE1-104 E O1	113.9809
939501	AE1-179 C O1	1.7514
939502	AE1-179 E O1	1.2360
940001	AE1-240 C O1	1.4573
940002	AE1-240 E O1	1.0402
940391	AE2-023 C	28.7558
940392	AE2-023 E	134.6193
941001	AE2-091 C O1	1.0406
941002	AE2-091 E O1	0.5429
941931	AE2-205 C O1	2.9664
941932	AE2-205 E O1	1.9776
944131	AF1-081 C O1	3.2250
944132	AF1-081 E O1	2.1500
945731	AF1-238 C O1	2.0478
945732	AF1-238 E O1	3.0717
945741	AF1-239 C	0.3347
945742	AF1-239 E	0.5021
999905	MARINGEN 2	-0.3884
999906	PVILLEG 2	-0.0769
DUCKCREEK	DUCKCREEK	0.0196
NEWTON	NEWTON	0.0183
FARMERCITY	FARMERCITY	0.0010
NY	NY	0.0503
PRAIRIE	PRAIRIE	0.0439
O-066	O-066	0.8467
COFFEEN	COFFEEN	0.0090
EDWARDS	EDWARDS	0.0059
CHEOAH	CHEOAH	0.0080
TILTON	TILTON	0.0107
G-007	G-007	0.2558
GIBSON	GIBSON	0.0093
CALDERWOOD	CALDERWOOD	0.0080
BLUEG	BLUEG	0.0295

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.0095
CATAWBA	CATAWBA	0.0053

17.26 Index 26

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41506500	227904	MILL #2	AE	227945	LEWIS #2	AE	1	AE_P4-2 AE33	breaker	282.0	201.31	209.21	DC	24.26

Bus #	Bus	MW Impact
228100	BLE DIES	3.2073
228202	CUMB CT	1.4675
228203	P06	1.4449
228261	V4-054E	0.4784
228711	V2-041C	0.0342
228712	V2-041E	0.3996
228732	V1-021 C	0.0730
902432	W2-030 E	0.5719
913341	Y1-077 (Withdrawn : 12/18/2019)	179.2068
924531	AB2-102 C	34.1167
924532	AB2-102 E	0.7581
938423	AE1-061 BAT	0.9339
938781	AE1-104 C O1	48.6705
938782	AE1-104 E O1	124.5226
939303	AE1-161 BAT	2.7355
939501	AE1-179 C O1	3.4564
939502	AE1-179 E O1	2.4392
940001	AE1-240 C O1	2.8769
940002	AE1-240 E O1	2.0535
940391	AE2-023 C	31.4153
940392	AE2-023 E	147.0698
941001	AE2-091 C O1	2.0463
941002	AE2-091 E O1	1.0676
941931	AE2-205 C O1	7.0963
941932	AE2-205 E O1	4.7309
944131	AF1-081 C O1	14.5565
944132	AF1-081 E O1	9.7043
945431	AF1-208 C O1	0.8870
945432	AF1-208 E O1	0.5913
945731	AF1-238 C O1	9.0474
945732	AF1-238 E O1	13.5711
945741	AF1-239 C	0.6616
945742	AF1-239 E	0.9924
999906	PVILLEG 2	-0.1873
DUCKCREEK	DUCKCREEK	0.0403
NEWTON	NEWTON	0.0376
FARMERCITY	FARMERCITY	0.0019
NY	NY	0.0846
PRAIRIE	PRAIRIE	0.0878
O-066	O-066	1.3978
COFFEEN	COFFEEN	0.0185
EDWARDS	EDWARDS	0.0122

Bus #	Bus	MW Impact
CHEOAH	CHEOAH	0.0160
TILTON	TILTON	0.0220
G-007	G-007	0.3942
GIBSON	GIBSON	0.0191
CALDERWOOD	CALDERWOOD	0.0164
BLUEG	BLUEG	0.0608
TRIMBLE	TRIMBLE	0.0195
CATAWBA	CATAWBA	0.0109

17.27 Index 27

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41506465	227905	SCULL#1	AE	227903	MILL #1	AE	1	AE_P4-2 AE29	breaker	306.0	292.02	299.29	DC	23.66

Bus #	Bus	MW Impact
227928	V4-067E	-0.1097
228100	BLE DIES	5.0907
228202	CUMB CT	1.4430
228203	P06	1.4093
228206	SHRMN CT	1.2819
228261	V4-054E	0.4774
228711	V2-041C	0.0337
228712	V2-041E	0.3938
228731	V3-036	-0.4709
228732	V1-021 C	0.0679
913341	Y1-077 (Withdrawn : 12/18/2019)	284.4440
924531	AB2-102 C	33.2775
924532	AB2-102 E	0.6286
938781	AE1-104 C O1	77.2517
938782	AE1-104 E O1	197.6472
939501	AE1-179 C O1	3.4281
939502	AE1-179 E O1	2.4193
940001	AE1-240 C O1	2.8525
940002	AE1-240 E O1	2.0361
940391	AE2-023 C	49.8636
940392	AE2-023 E	233.4350
941001	AE2-091 C O1	2.0342
941002	AE2-091 E O1	1.0613
941931	AE2-205 C O1	6.9217
941932	AE2-205 E O1	4.6145
944131	AF1-081 C O1	14.1984
944132	AF1-081 E O1	9.4656
945431	AF1-208 C O1	0.8909
945432	AF1-208 E O1	0.5939
945731	AF1-238 C O1	8.9220
945732	AF1-238 E O1	13.3830
945741	AF1-239 C	0.6556
945742	AF1-239 E	0.9835
999905	MARINGEN 2	-0.3394
999906	PVILLEG 2	-0.1489
DUCKCREEK	DUCKCREEK	0.0392
NEWTON	NEWTON	0.0365
FARMERCITY	FARMERCITY	0.0018
NY	NY	0.0935
PRAIRIE	PRAIRIE	0.0852
O-066	O-066	1.5590
COFFEEN	COFFEEN	0.0180

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.0119
CHEOAH	CHEOAH	0.0155
TILTON	TILTON	0.0214
G-007	G-007	0.4597
GIBSON	GIBSON	0.0186
CALDERWOOD	CALDERWOOD	0.0154
BLUEG	BLUEG	0.0590
TRIMBLE	TRIMBLE	0.0189
CATAWBA	CATAWBA	0.0105

17.28 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
41506475	227906	SCULL#2	AE	227904	MILL #2	AE	1	AE_P4-2 AE28	breaker	306.0	282.5	290.72	DC	26.76

Bus #	Bus	MW Impact
227928	V4-067E	-0.1248
228100	BLE DIES	4.7207
228202	CUMB CT	1.6326
228203	P06	1.5940
228206	SHRMN CT	1.4504
228261	V4-054E	0.5401
228711	V2-041C	0.0381
228712	V2-041E	0.4456
228731	V3-036	-0.5341
228732	V1-021 C	0.0765
913341	Y1-077 (Withdrawn : 12/18/2019)	263.7702
924531	AB2-102 C	37.6380
924532	AB2-102 E	0.7109
938781	AE1-104 C O1	71.6369
938782	AE1-104 E O1	183.2820
939501	AE1-179 C O1	3.8785
939502	AE1-179 E O1	2.7371
940001	AE1-240 C O1	3.2277
940002	AE1-240 E O1	2.3039
940391	AE2-023 C	46.2395
940392	AE2-023 E	216.4686
941001	AE2-091 C O1	2.3016
941002	AE2-091 E O1	1.2008
941931	AE2-205 C O1	7.8287
941932	AE2-205 E O1	5.2191
944131	AF1-081 C O1	16.0589
944132	AF1-081 E O1	10.7059
945431	AF1-208 C O1	1.0080
945432	AF1-208 E O1	0.6720
945731	AF1-238 C O1	10.0950
945732	AF1-238 E O1	15.1425
945741	AF1-239 C	0.7418
945742	AF1-239 E	1.1127
999905	MARINGEN 2	-0.3853
999906	PVILLEG 2	-0.1684
DUCKCREEK	DUCKCREEK	0.0449
NEWTON	NEWTON	0.0419
FARMERCITY	FARMERCITY	0.0022
NY	NY	0.1056
PRAIRIE	PRAIRIE	0.1007
O-066	O-066	1.7674
COFFEEN	COFFEEN	0.0206

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.0137
CHEOAH	CHEOAH	0.0180
TILTON	TILTON	0.0246
G-007	G-007	0.5210
GIBSON	GIBSON	0.0213
CALDERWOOD	CALDERWOOD	0.0179
BLUEG	BLUEG	0.0677
TRIMBLE	TRIMBLE	0.0217
CATAWBA	CATAWBA	0.0119

17.29 Index 29

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41506881	227945	LEWIS #2	AE	227902	LEWIS #1	AE	1	AE_P4-2 AE33	breaker	286.8	127.68	129.16	DC	9.47

Bus #	Bus	MW Impact
228100	BLE DIES	1.1820
228712	V2-041E	0.1265
228731	V3-036	-0.3662
913341	Y1-077 (Withdrawn : 12/18/2019)	66.0442
924531	AB2-102 C	11.3182
924532	AB2-102 E	0.2515
938423	AE1-061 BAT	2.8940
938781	AE1-104 C O1	17.9369
938782	AE1-104 E O1	45.8912
939303	AE1-161 BAT	8.8405
940361	AE2-020 C	3.4199
940362	AE2-020 E	16.0121
940371	AE2-021 C	3.4199
940372	AE2-021 E	16.0121
940381	AE2-022 C	1.9949
940382	AE2-022 E	9.3404
940391	AE2-023 C	11.5777
940392	AE2-023 E	54.2006
941931	AE2-205 C O1	2.3542
941932	AE2-205 E O1	1.5695
942381	AE2-251 C	20.4417
942382	AE2-251 E	52.3047
942941	AE2-314 C (Withdrawn : 12/16/2019)	2.6189
942942	AE2-314 E (Withdrawn : 12/16/2019)	1.7459
944131	AF1-081 C O1	2.5594
944132	AF1-081 E O1	1.7063
945731	AF1-238 C O1	1.4980
945732	AF1-238 E O1	2.2470
999905	MARINGEN 2	-0.2045
999906	PVILLEG 2	-0.1798
DUCKCREEK	DUCKCREEK	0.0092
NEWTON	NEWTON	0.0086
FARMERCITY	FARMERCITY	0.0004
G-007A	G-007A	0.5778
VFT	VFT	0.4644
PRAIRIE	PRAIRIE	0.0207
COFFEEN	COFFEEN	0.0042
EDWARDS	EDWARDS	0.0028
CHEOAH	CHEOAH	0.0040
TILTON	TILTON	0.0050
GIBSON	GIBSON	0.0044
CALDERWOOD	CALDERWOOD	0.0040

Bus #	Bus	MW Impact
BLUEG	BLUEG	0.0139
TRIMBLE	TRIMBLE	0.0045
CATAWBA	CATAWBA	0.0028

17.30 Index 30

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
41506861	227946	MILL#2	AE	227922	MILL #1	AE	1	AE_P4-2 AE22	breaker	239.0	108.79	119.26	DC	25.53

Bus #	Bus	MW Impact
227928	V4-067E	-0.2984
228100	BLE DIES	1.2905
228202	CUMB CT	1.2621
228203	P06	1.5204
228206	SHRMN CT	1.1047
228261	V4-054E	0.4027
228711	V2-041C	0.0287
228712	V2-041E	0.3358
228731	V3-036	-0.3237
228732	V1-021 C	0.0522
913341	Y1-077 (Withdrawn : 12/18/2019)	72.1056
924531	AB2-102 C	35.9010
924532	AB2-102 E	0.7978
938781	AE1-104 C O1	19.5830
938782	AE1-104 E O1	50.1029
939501	AE1-179 C O1	2.9438
939502	AE1-179 E O1	2.0775
940001	AE1-240 C O1	2.4460
940002	AE1-240 E O1	1.7460
940391	AE2-023 C	12.6403
940392	AE2-023 E	59.1750
941001	AE2-091 C O1	1.7349
941002	AE2-091 E O1	0.9051
941931	AE2-205 C O1	7.4674
941932	AE2-205 E O1	4.9783
944131	AF1-081 C O1	15.3178
944132	AF1-081 E O1	10.2118
945431	AF1-208 C O1	0.7329
945432	AF1-208 E O1	0.4886
945731	AF1-238 C O1	3.4620
945732	AF1-238 E O1	11.5272
945741	AF1-239 C	0.5674
945742	AF1-239 E	0.8510
999905	MARINGEN 2	-0.5408
DUCKCREEK	DUCKCREEK	0.0392
NEWTON	NEWTON	0.0365
FARMERCITY	FARMERCITY	0.0019
NY	NY	0.0348
PRAIRIE	PRAIRIE	0.0878
O-066	O-066	0.5242
COFFEEN	COFFEEN	0.0180
EDWARDS	EDWARDS	0.0119

Bus #	Bus	MW Impact
CHEOAH	CHEOAH	0.0170
TILTON	TILTON	0.0214
G-007	G-007	0.1529
GIBSON	GIBSON	0.0186
CALDERWOOD	CALDERWOOD	0.0169
BLUEG	BLUEG	0.0590
TRIMBLE	TRIMBLE	0.0189
CATAWBA	CATAWBA	0.0119

17.31 Index 31

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971323	227949	LEWIS #3	AE	227901	DOROTHY	AE	1	JC-P7-1-JCC-230-13	tower	478.0	117.43	118.3	DC	9.25

Bus #	Bus	MW Impact
206360	280 CRK C1	0.4763
206361	280 CRK C2	0.3198
227842	MARINGEN	0.0781
227927	V4-067C	0.0170
227928	V4-067E	0.2017
228014	PVILLEG	0.0279
228100	BLE DIES	1.0119
228712	V2-041E	0.1220
228729	W2-030 C	0.0712
228731	V3-036	0.8193
902432	W2-030 E	0.8388
913341	Y1-077 (Withdrawn : 12/18/2019)	56.5410
924531	AB2-102 C	11.0523
924532	AB2-102 E	0.2456
924701	AB2-122 C	0.0871
924702	AB2-122 E	0.1494
930001	AB1-001 C	0.1278
930002	AB1-001 E	0.2101
933962	AD1-019 E	1.1321
938423	AE1-061 BAT	3.3650
938781	AE1-104 C O1	15.3559
938782	AE1-104 E O1	39.2878
939303	AE1-161 BAT	10.2110
940161	AE2-000 C O1	23.0148
940162	AE2-000 E O1	58.8871
940361	AE2-020 C	10.7132
940362	AE2-020 E	50.1599
940371	AE2-021 C	10.7132
940372	AE2-021 E	50.1599
940381	AE2-022 C	6.2494
940382	AE2-022 E	29.2600
940391	AE2-023 C	9.9118
940392	AE2-023 E	46.4016
941931	AE2-205 C O1	2.2989
941932	AE2-205 E O1	1.5326
942101	AE2-222 C O1	12.9334
942102	AE2-222 E O1	32.4896
942201	AE2-232 C O1	11.2816
942202	AE2-232 E O1	28.8664
942381	AE2-251 C	33.9392
942382	AE2-251 E	86.8408

Bus #	Bus	MW Impact
942941	AE2-314 C (Withdrawn : 12/16/2019)	4.3481
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.8987
943732	AF1-041 E	0.3559
944131	AF1-081 C O1	2.4993
944132	AF1-081 E O1	1.6662
944332	AF1-101 E O1	57.7328
945731	AF1-238 C O1	1.4537
945732	AF1-238 E O1	2.1805
999905	MARINGEN 2	0.5886
999906	PVILLEG 2	0.2610
DUCKCREEK	DUCKCREEK	0.0092
NEWTON	NEWTON	0.0086
FARMERCITY	FARMERCITY	0.0004
NY	NY	0.0155
PRAIRIE	PRAIRIE	0.0181
O-066	O-066	0.2218
COFFEEN	COFFEEN	0.0042
EDWARDS	EDWARDS	0.0028
CHEOAH	CHEOAH	0.0035
TILTON	TILTON	0.0050
G-007	G-007	0.0073
GIBSON	GIBSON	0.0044
CALDERWOOD	CALDERWOOD	0.0035
BLUEG	BLUEG	0.0139
TRIMBLE	TRIMBLE	0.0045
CATAWBA	CATAWBA	0.0021

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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
41506486	227955	CEDAR	AE	206302	28OYSTER C	JCP&L	1	AE_P4-2 AE6	breaker	564.0	261.79	266.12	DC	24.4

Bus #	Bus	MW Impact
227842	MARINGEN	0.1508
227927	V4-067C	0.0403
227928	V4-067E	0.4767
228014	PVILLEG	0.0522
228100	BLE DIES	1.9186
228202	CUMB CT	1.3713
228203	P06	1.4530
228261	V4-054E	0.5737
228334	MANNMILG	0.5112
228357	V2-046E	0.7826
228711	V2-041C	0.0320
228712	V2-041E	0.3736
228721	V2-035E	0.0987
228729	W2-030 C	0.1427
228731	V3-036	1.5693
228732	V1-021 C	0.0560
902092	W1-130E	0.6692
902432	W2-030 E	1.6803
913341	Y1-077 (Withdrawn : 12/18/2019)	107.2040
919663	AA2-048 BAT	0.5818
921744	AA2-049 BAT	0.2013
923532	AB1-169AC	65.2911
924531	AB2-102 C	34.3080
924532	AB2-102 E	0.7624
924701	AB2-122 C	0.2059
924702	AB2-122 E	0.3530
930001	AB1-001 C	0.2904
930002	AB1-001 E	0.4774
933962	AD1-019 E	2.1684
938421	AE1-061 C	0.5871
938422	AE1-061 E	0.5871
938781	AE1-104 C O1	29.1154
938782	AE1-104 E O1	74.4912
938871	AE1-115 C	0.6159
938872	AE1-115 E	0.6159
939301	AE1-161 C	1.7003
939302	AE1-161 E	2.5505
939501	AE1-179 C O1	3.6709
939502	AE1-179 E O1	2.5906
939931	AE1-229 C O1	6.6269
939932	AE1-229 E O1	4.4899
940001	AE1-240 C O1	3.0531

Bus #	Bus	MW Impact
940002	AE1-240 E O1	2.1793
940361	AE2-020 C	35.4488
940362	AE2-020 E	165.9738
940371	AE2-021 C	35.4488
940372	AE2-021 E	165.9738
940381	AE2-022 C	20.6785
940382	AE2-022 E	96.8181
940391	AE2-023 C	18.7931
940392	AE2-023 E	87.9792
941001	AE2-091 C O1	2.2834
941002	AE2-091 E O1	1.1914
941931	AE2-205 C O1	7.1361
941932	AE2-205 E O1	4.7574
942101	AE2-222 C O1	24.4925
942102	AE2-222 E O1	61.5265
942381	AE2-251 C	112.3011
942382	AE2-251 E	287.3469
942571	AE2-272	0.0485
942941	AE2-314 C (Withdrawn : 12/16/2019)	14.3873
942942	AE2-314 E (Withdrawn : 12/16/2019)	9.5916
943081	AE2-335 C O1	2.8580
943082	AE2-335 E O1	1.2740
943732	AF1-041 E	0.6948
944131	AF1-081 C O1	14.6381
944132	AF1-081 E O1	9.7587
945431	AF1-208 C O1	1.2084
945432	AF1-208 E O1	0.8056
945731	AF1-238 C O1	3.9083
945732	AF1-238 E O1	5.8624
945741	AF1-239 C	0.6837
945742	AF1-239 E	1.0255
945971	AF1-262	0.0380
999905	MARINGEN 2	1.1371
999906	PVILLEG 2	0.4895
DUCKCREEK	DUCKCREEK	0.0058
NEWTON	NEWTON	0.0021
CPL	CPL	0.0304
FARMERCITY	FARMERCITY	0.0001
CBM-W2	CBM-W2	0.0328
NY	NY	0.6647
TVA	TVA	0.0154
O-066	O-066	12.0691
COFFEEN	COFFEEN	0.0016
CBM-S2	CBM-S2	0.2023
EDWARDS	EDWARDS	0.0017
CBM-S1	CBM-S1	0.0682
TILTON	TILTON	0.0031
G-007	G-007	4.2338
MADISON	MADISON	0.0101
GIBSON	GIBSON	0.0016
BLUEG	BLUEG	0.0052
TRIMBLE	TRIMBLE	0.0017

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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
41506460	228110	BLE	AE	227905	SCULL#1	AE	1	AE_P4-2 AE29	breaker	306.0	299.24	306.51	DC	23.66

Bus #	Bus	MW Impact
227928	V4-067E	-0.1097
228100	BLE DIES	5.0907
228202	CUMB CT	1.4430
228203	P06	1.4093
228206	SHRMN CT	1.2819
228261	V4-054E	0.4774
228711	V2-041C	0.0337
228712	V2-041E	0.3938
228731	V3-036	-0.4709
228732	V1-021 C	0.0679
913341	Y1-077 (Withdrawn : 12/18/2019)	284.4440
924531	AB2-102 C	33.2775
924532	AB2-102 E	0.6286
938781	AE1-104 C O1	77.2517
938782	AE1-104 E O1	197.6472
939501	AE1-179 C O1	3.4281
939502	AE1-179 E O1	2.4193
940001	AE1-240 C O1	2.8525
940002	AE1-240 E O1	2.0361
940391	AE2-023 C	49.8636
940392	AE2-023 E	233.4350
941001	AE2-091 C O1	2.0342
941002	AE2-091 E O1	1.0613
941931	AE2-205 C O1	6.9217
941932	AE2-205 E O1	4.6145
944131	AF1-081 C O1	14.1984
944132	AF1-081 E O1	9.4656
945431	AF1-208 C O1	0.8909
945432	AF1-208 E O1	0.5939
945731	AF1-238 C O1	8.9220
945732	AF1-238 E O1	13.3830
945741	AF1-239 C	0.6556
945742	AF1-239 E	0.9835
999905	MARINGEN 2	-0.3394
999906	PVILLEG 2	-0.1489
DUCKCREEK	DUCKCREEK	0.0392
NEWTON	NEWTON	0.0365
FARMERCITY	FARMERCITY	0.0018
NY	NY	0.0935
PRAIRIE	PRAIRIE	0.0852
O-066	O-066	1.5590
COFFEEN	COFFEEN	0.0180

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.0119
CHEOAH	CHEOAH	0.0155
TILTON	TILTON	0.0214
G-007	G-007	0.4597
GIBSON	GIBSON	0.0186
CALDERWOOD	CALDERWOOD	0.0154
BLUEG	BLUEG	0.0590
TRIMBLE	TRIMBLE	0.0189
CATAWBA	CATAWBA	0.0105

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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
41506470	228110	BLE	AE	227906	SCULL#2	AE	1	AE_P4-2 AE28	breaker	306.0	287.66	295.88	DC	26.76

Bus #	Bus	MW Impact
227928	V4-067E	-0.1248
228100	BLE DIES	4.7207
228202	CUMB CT	1.6326
228203	P06	1.5940
228206	SHRMN CT	1.4504
228261	V4-054E	0.5401
228711	V2-041C	0.0381
228712	V2-041E	0.4456
228731	V3-036	-0.5341
228732	V1-021 C	0.0765
913341	Y1-077 (Withdrawn : 12/18/2019)	263.7702
924531	AB2-102 C	37.6380
924532	AB2-102 E	0.7109
938781	AE1-104 C O1	71.6369
938782	AE1-104 E O1	183.2820
939501	AE1-179 C O1	3.8785
939502	AE1-179 E O1	2.7371
940001	AE1-240 C O1	3.2277
940002	AE1-240 E O1	2.3039
940391	AE2-023 C	46.2395
940392	AE2-023 E	216.4686
941001	AE2-091 C O1	2.3016
941002	AE2-091 E O1	1.2008
941931	AE2-205 C O1	7.8287
941932	AE2-205 E O1	5.2191
944131	AF1-081 C O1	16.0589
944132	AF1-081 E O1	10.7059
945431	AF1-208 C O1	1.0080
945432	AF1-208 E O1	0.6720
945731	AF1-238 C O1	10.0950
945732	AF1-238 E O1	15.1425
945741	AF1-239 C	0.7418
945742	AF1-239 E	1.1127
999905	MARINGEN 2	-0.3853
999906	PVILLEG 2	-0.1684
DUCKCREEK	DUCKCREEK	0.0449
NEWTON	NEWTON	0.0419
FARMERCITY	FARMERCITY	0.0022
NY	NY	0.1056
PRAIRIE	PRAIRIE	0.1007
O-066	O-066	1.7674
COFFEEN	COFFEEN	0.0206

Bus #	Bus	MW Impact
EDWARDS	EDWARDS	0.0137
CHEOAH	CHEOAH	0.0180
TILTON	TILTON	0.0246
G-007	G-007	0.5210
GIBSON	GIBSON	0.0213
CALDERWOOD	CALDERWOOD	0.0179
BLUEG	BLUEG	0.0677
TRIMBLE	TRIMBLE	0.0217
CATAWBA	CATAWBA	0.0119

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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
40971228	228130	TUCKAHOE	AE	227946	MILL#2	AE	1	AE_P7-1 AE7TOWER	tower	146.0	162.4	166.62	DC	13.68

Bus #	Bus	MW Impact
227928	V4-067E	-0.1189
228100	BLE DIES	1.1742
228261	V4-054E	0.2676
228712	V2-041E	0.1865
228731	V3-036	-0.3857
228732	V1-021 C	0.0509
913341	Y1-077 (Withdrawn : 12/18/2019)	65.6107
924531	AB2-102 C	16.3461
924532	AB2-102 E	0.3632
938781	AE1-104 C O1	17.8191
938782	AE1-104 E O1	45.5899
939501	AE1-179 C O1	1.9171
939502	AE1-179 E O1	1.3529
940001	AE1-240 C O1	1.5953
940002	AE1-240 E O1	1.1387
940391	AE2-023 C	11.5017
940392	AE2-023 E	53.8448
941001	AE2-091 C O1	1.1386
941002	AE2-091 E O1	0.5940
941931	AE2-205 C O1	3.4000
941932	AE2-205 E O1	2.2667
944131	AF1-081 C O1	3.6964
944132	AF1-081 E O1	2.4643
945731	AF1-238 C O1	2.2443
945732	AF1-238 E O1	3.3665
945741	AF1-239 C	0.3664
945742	AF1-239 E	0.5496
999905	MARINGEN 2	-0.3103
999906	PVILLEG 2	-0.0863
DUCKCREEK	DUCKCREEK	0.0219
NEWTON	NEWTON	0.0204
FARMERCITY	FARMERCITY	0.0011
NY	NY	0.0547
PRAIRIE	PRAIRIE	0.0491
O-066	O-066	0.9206
COFFEEN	COFFEEN	0.0100
EDWARDS	EDWARDS	0.0067
CHEOAH	CHEOAH	0.0090
TILTON	TILTON	0.0120
G-007	G-007	0.2756
GIBSON	GIBSON	0.0104
CALDERWOOD	CALDERWOOD	0.0089

Bus #	Bus	MW Impact
BLUEG	BLUEG	0.0330
TRIMBLE	TRIMBLE	0.0106
CATAWBA	CATAWBA	0.0059

17.36 Index 36

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971217	228217	DENNIS	AE	228130	TUCKAHOE	AE	1	AE_P7-1 AE7TOWER	tower	146.0	167.13	171.35	DC	13.68

Bus #	Bus	MW Impact
227928	V4-067E	-0.1189
228100	BLE DIES	1.1742
228261	V4-054E	0.2676
228712	V2-041E	0.1865
228731	V3-036	-0.3857
228732	V1-021 C	0.0509
913341	Y1-077 (Withdrawn : 12/18/2019)	65.6107
924531	AB2-102 C	16.3461
924532	AB2-102 E	0.3632
938781	AE1-104 C O1	17.8191
938782	AE1-104 E O1	45.5899
939501	AE1-179 C O1	1.9171
939502	AE1-179 E O1	1.3529
940001	AE1-240 C O1	1.5953
940002	AE1-240 E O1	1.1387
940391	AE2-023 C	11.5017
940392	AE2-023 E	53.8448
941001	AE2-091 C O1	1.1386
941002	AE2-091 E O1	0.5940
941931	AE2-205 C O1	3.4000
941932	AE2-205 E O1	2.2667
944131	AF1-081 C O1	3.6964
944132	AF1-081 E O1	2.4643
945731	AF1-238 C O1	2.2443
945732	AF1-238 E O1	3.3665
945741	AF1-239 C	0.3664
945742	AF1-239 E	0.5496
999905	MARINGEN 2	-0.3103
999906	PVILLEG 2	-0.0863
DUCKCREEK	DUCKCREEK	0.0219
NEWTON	NEWTON	0.0204
FARMERCITY	FARMERCITY	0.0011
NY	NY	0.0547
PRAIRIE	PRAIRIE	0.0491
O-066	O-066	0.9206
COFFEEN	COFFEEN	0.0100
EDWARDS	EDWARDS	0.0067
CHEOAH	CHEOAH	0.0090
TILTON	TILTON	0.0120
G-007	G-007	0.2756
GIBSON	GIBSON	0.0104
CALDERWOOD	CALDERWOOD	0.0089

Bus #	Bus	MW Impact
BLUEG	BLUEG	0.0330
TRIMBLE	TRIMBLE	0.0106
CATAWBA	CATAWBA	0.0059

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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
42124392	228311	CHAMBERS	AE	228312	PEDRKTWN	AE	1	AE_P4-2 AE45	breaker	552.0	112.27	123.38	DC	61.26

Bus #	Bus	MW Impact
227881	GRENWCHG	0.1916
227928	V4-067E	0.1805
228100	BLE DIES	1.4887
228203	P06	3.6483
228261	V4-054E	1.7608
228309	CCLP NUG	21.4075
228334	MANNMILG	2.5885
228343	QUINTN#1	0.0969
228357	V2-046E	3.6888
228712	V2-041E	0.7156
228721	V2-035E	0.3053
228731	V3-036	0.6795
902092	W1-130E	0.7825
902432	W2-030 E	0.7826
913341	Y1-077 (Withdrawn : 12/18/2019)	83.1787
923532	AB1-169AC	75.4264
924531	AB2-102 C	86.1435
924532	AB2-102 E	1.9143
924701	AB2-122 C	0.0780
924702	AB2-122 E	0.1337
930001	AB1-001 C	0.0963
930002	AB1-001 E	0.1582
933962	AD1-019 E	0.9389
938421	AE1-061 C	0.6864
938422	AE1-061 E	0.6864
938781	AE1-104 C O1	22.5904
938782	AE1-104 E O1	57.7971
938871	AE1-115 C	4.6733
938872	AE1-115 E	4.6733
939301	AE1-161 C	2.8155
939302	AE1-161 E	4.2233
939501	AE1-179 C O1	9.4120
939502	AE1-179 E O1	6.6422
939931	AE1-229 C O1	36.0886
939932	AE1-229 E O1	24.4510
940001	AE1-240 C O1	7.9117
940002	AE1-240 E O1	5.6473
940361	AE2-020 C	4.7918
940362	AE2-020 E	22.4354
940371	AE2-021 C	4.7918
940372	AE2-021 E	22.4354
940381	AE2-022 C	2.7952

Bus #	Bus	MW Impact
940382	AE2-022 E	13.0873
940391	AE2-023 C	14.5814
940392	AE2-023 E	68.2623
941001	AE2-091 C O1	6.3424
941002	AE2-091 E O1	3.3091
941931	AE2-205 C O1	17.9178
941932	AE2-205 E O1	11.9452
942101	AE2-222 C O1	10.3988
942102	AE2-222 E O1	26.1223
942381	AE2-251 C	28.6419
942382	AE2-251 E	73.2867
942571	AE2-272	0.2288
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.6694
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.4463
943071	AE2-334 C	2.2975
943072	AE2-334 E	1.2248
943081	AE2-335 C O1	4.2901
943082	AE2-335 E O1	1.9125
943732	AF1-041 E	0.1507
944131	AF1-081 C O1	36.7546
944132	AF1-081 E O1	24.5030
945431	AF1-208 C O1	4.3762
945432	AF1-208 E O1	2.9175
945731	AF1-238 C O1	8.9996
945732	AF1-238 E O1	13.4995
945741	AF1-239 C	1.6162
945742	AF1-239 E	2.4243
945971	AF1-262	0.1175
999905	MARINGEN 2	0.4994
999906	PVILLEG 2	0.2041
DUCKCREEK	DUCKCREEK	0.1555
NEWTON	NEWTON	0.1451
FARMERCITY	FARMERCITY	0.0076
G-007A	G-007A	1.2683
VFT	VFT	0.8578
PRAIRIE	PRAIRIE	0.3487
COFFEEN	COFFEEN	0.0713
EDWARDS	EDWARDS	0.0473
CHEOAH	CHEOAH	0.0681
TILTON	TILTON	0.0851
GIBSON	GIBSON	0.0737
CALDERWOOD	CALDERWOOD	0.0676
BLUEG	BLUEG	0.2344
TRIMBLE	TRIMBLE	0.0751
CATAWBA	CATAWBA	0.0483

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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
42124440	228313	BRIDGPRT	AE	228401	MCKLTON	AE	1	AE_P4-2 AE45	breaker	804.0	115.35	122.96	DC	60.97

Bus #	Bus	MW Impact
227881	GRENWCHG	0.1890
227928	V4-067E	0.1780
228100	BLE DIES	1.4763
228203	P06	3.6310
228261	V4-054E	1.7512
228304	LOGAN	24.7353
228306	PCLP STM	6.2919
228307	PCLP GT	6.2919
228309	CCLP NUG	21.3465
228334	MANNMILG	2.5755
228343	QUINTN#1	0.0965
228357	V2-046E	3.6689
228712	V2-041E	0.7118
228721	V2-035E	0.3034
228731	V3-036	0.6710
902092	W1-130E	0.7737
902432	W2-030 E	0.7734
913341	Y1-077 (Withdrawn : 12/18/2019)	82.4871
923532	AB1-169AC	74.5803
924531	AB2-102 C	85.7362
924532	AB2-102 E	1.9052
924701	AB2-122 C	0.0769
924702	AB2-122 E	0.1319
930001	AB1-001 C	0.0949
930002	AB1-001 E	0.1560
933962	AD1-019 E	0.9272
938421	AE1-061 C	0.6787
938422	AE1-061 E	0.6787
938781	AE1-104 C O1	22.4025
938782	AE1-104 E O1	57.3166
938871	AE1-115 C	4.6551
938872	AE1-115 E	4.6551
939301	AE1-161 C	2.7848
939302	AE1-161 E	4.1772
939501	AE1-179 C O1	9.3582
939502	AE1-179 E O1	6.6042
939931	AE1-229 C O1	35.9266
939932	AE1-229 E O1	24.3413
940001	AE1-240 C O1	7.8670
940002	AE1-240 E O1	5.6154
940361	AE2-020 C	4.7045
940362	AE2-020 E	22.0268

Bus #	Bus	MW Impact
940371	AE2-021 C	4.7045
940372	AE2-021 E	22.0268
940381	AE2-022 C	2.7443
940382	AE2-022 E	12.8490
940391	AE2-023 C	14.4602
940392	AE2-023 E	67.6948
941001	AE2-091 C O1	6.3068
941002	AE2-091 E O1	3.2905
941931	AE2-205 C O1	17.8331
941932	AE2-205 E O1	11.8888
942101	AE2-222 C O1	10.2666
942102	AE2-222 E O1	25.7904
942381	AE2-251 C	28.1203
942382	AE2-251 E	71.9519
942571	AE2-272	0.2275
942941	AE2-314 C (Withdrawn : 12/16/2019)	3.6026
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.4017
943081	AE2-335 C O1	4.2259
943082	AE2-335 E O1	1.8839
943732	AF1-041 E	0.1487
944131	AF1-081 C O1	36.5808
944132	AF1-081 E O1	24.3872
945431	AF1-208 C O1	4.3540
945432	AF1-208 E O1	2.9027
945731	AF1-238 C O1	8.9504
945732	AF1-238 E O1	13.4257
945741	AF1-239 C	1.6064
945742	AF1-239 E	2.4096
945971	AF1-262	0.1167
999905	MARINGEN 2	0.4932
999906	PVILLEG 2	0.2015
DUCKCREEK	DUCKCREEK	0.3639
NEWTON	NEWTON	0.3395
FARMERCITY	FARMERCITY	0.0177
G-007A	G-007A	0.8343
NY	NY	0.0829
PRAIRIE	PRAIRIE	0.8162
O-066	O-066	0.3360
COFFEEN	COFFEEN	0.1670
EDWARDS	EDWARDS	0.1106
CHEOAH	CHEOAH	0.1587
TILTON	TILTON	0.1991
GIBSON	GIBSON	0.1725
CALDERWOOD	CALDERWOOD	0.1575
BLUEG	BLUEG	0.5486
TRIMBLE	TRIMBLE	0.1759
CATAWBA	CATAWBA	0.1117

17.39 Index 39

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971205	228502	MNOTLA 1	AE	228500	LANDIS	AE	1	JC-P7-1-JCC-230-13	tower	478.0	186.65	187.52	DC	9.24

Bus #	Bus	MW Impact
206360	280 CRK C1	0.4762
206361	280 CRK C2	0.3198
227842	MARINGEN	0.0780
227927	V4-067C	0.0170
227928	V4-067E	0.2017
228014	PVILLEG	0.0279
228100	BLE DIES	1.0118
228712	V2-041E	0.1219
228728	W1-130C	0.3241
228729	W2-030 C	0.0712
228731	V3-036	0.8192
902092	W1-130E	3.7819
902432	W2-030 E	0.8387
913341	Y1-077 (Withdrawn : 12/18/2019)	56.5321
923532	AB1-169AC	361.9990
924531	AB2-102 C	11.0485
924532	AB2-102 E	0.2455
924701	AB2-122 C	0.0871
924702	AB2-122 E	0.1494
930001	AB1-001 C	0.1278
930002	AB1-001 E	0.2101
933962	AD1-019 E	1.1319
938421	AE1-061 C	3.3174
938422	AE1-061 E	3.3174
938781	AE1-104 C O1	15.3535
938782	AE1-104 E O1	39.2816
939303	AE1-161 BAT	10.2120
940161	AE2-000 C O1	23.0103
940162	AE2-000 E O1	58.8753
940361	AE2-020 C	10.7111
940362	AE2-020 E	50.1500
940371	AE2-021 C	10.7111
940372	AE2-021 E	50.1500
940381	AE2-022 C	6.2481
940382	AE2-022 E	29.2541
940391	AE2-023 C	9.9102
940392	AE2-023 E	46.3943
941931	AE2-205 C O1	2.2981
941932	AE2-205 E O1	1.5321
942101	AE2-222 C O1	12.9317
942102	AE2-222 E O1	32.4853

Bus #	Bus	MW Impact
942201	AE2-232 C O1	11.2793
942202	AE2-232 E O1	28.8607
942381	AE2-251 C	33.9324
942382	AE2-251 E	86.8236
942941	AE2-314 C (Withdrawn : 12/16/2019)	4.3472
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.8981
943732	AF1-041 E	0.3558
944131	AF1-081 C O1	2.4984
944132	AF1-081 E O1	1.6656
944332	AF1-101 E O1	57.7213
945731	AF1-238 C O1	1.4531
945732	AF1-238 E O1	2.1797
999905	MARINGEN 2	0.5886
999906	PVILLEG 2	0.2610
DUCKCREEK	DUCKCREEK	0.0115
NEWTON	NEWTON	0.0107
FARMERCITY	FARMERCITY	0.0005
NY	NY	0.0166
PRAIRIE	PRAIRIE	0.0232
O-066	O-066	0.2352
COFFEEN	COFFEEN	0.0053
EDWARDS	EDWARDS	0.0035
CHEOAH	CHEOAH	0.0045
TILTON	TILTON	0.0063
G-007	G-007	0.0094
GIBSON	GIBSON	0.0055
CALDERWOOD	CALDERWOOD	0.0045
BLUEG	BLUEG	0.0174
TRIMBLE	TRIMBLE	0.0056
CATAWBA	CATAWBA	0.0028

17.40 Index 40

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971180	228503	MNOTLA 2	AE	228502	MNOTLA 1	AE	1	JC-P7-1-JCC-230-13	tower	311.0	286.86	288.19	DC	9.25

Bus #	Bus	MW Impact
206360	280 CRK C1	0.4763
206361	280 CRK C2	0.3198
227842	MARINGEN	0.0781
227927	V4-067C	0.0170
227928	V4-067E	0.2017
228014	PVILLEG	0.0279
228100	BLE DIES	1.0119
228712	V2-041E	0.1220
228729	W2-030 C	0.0712
228731	V3-036	0.8193
902432	W2-030 E	0.8388
913341	Y1-077 (Withdrawn : 12/18/2019)	56.5410
923532	AB1-169AC	362.0100
924531	AB2-102 C	11.0523
924532	AB2-102 E	0.2456
924701	AB2-122 C	0.0871
924702	AB2-122 E	0.1494
930001	AB1-001 C	0.1278
930002	AB1-001 E	0.2101
933962	AD1-019 E	1.1321
938423	AE1-061 BAT	3.3650
938781	AE1-104 C O1	15.3559
938782	AE1-104 E O1	39.2878
939303	AE1-161 BAT	10.2110
940161	AE2-000 C O1	23.0148
940162	AE2-000 E O1	58.8871
940361	AE2-020 C	10.7132
940362	AE2-020 E	50.1599
940371	AE2-021 C	10.7132
940372	AE2-021 E	50.1599
940381	AE2-022 C	6.2494
940382	AE2-022 E	29.2600
940391	AE2-023 C	9.9118
940392	AE2-023 E	46.4016
941931	AE2-205 C O1	2.2989
941932	AE2-205 E O1	1.5326
942101	AE2-222 C O1	12.9334
942102	AE2-222 E O1	32.4896
942201	AE2-232 C O1	11.2816
942202	AE2-232 E O1	28.8664
942381	AE2-251 C	33.9392

Bus #	Bus	MW Impact
942382	AE2-251 E	86.8408
942941	AE2-314 C (Withdrawn : 12/16/2019)	4.3481
942942	AE2-314 E (Withdrawn : 12/16/2019)	2.8987
943732	AF1-041 E	0.3559
944131	AF1-081 C O1	2.4993
944132	AF1-081 E O1	1.6662
944332	AF1-101 E O1	57.7328
945731	AF1-238 C O1	1.4537
945732	AF1-238 E O1	2.1805
999905	MARINGEN 2	0.5886
999906	PVILLEG 2	0.2610
DUCKCREEK	DUCKCREEK	0.0092
NEWTON	NEWTON	0.0086
FARMERCITY	FARMERCITY	0.0004
NY	NY	0.0155
PRAIRIE	PRAIRIE	0.0181
O-066	O-066	0.2218
COFFEEN	COFFEEN	0.0042
EDWARDS	EDWARDS	0.0028
CHEOAH	CHEOAH	0.0035
TILTON	TILTON	0.0050
G-007	G-007	0.0073
GIBSON	GIBSON	0.0044
CALDERWOOD	CALDERWOOD	0.0035
BLUEG	BLUEG	0.0139
TRIMBLE	TRIMBLE	0.0045
CATAWBA	CATAWBA	0.0021

17.41 Index 41

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971278	228504	SHLDLY T	AE	228511	LANDIS T	AE	1	AE_P7-1 AE7TOWER	tower	158.0	133.91	136.08	DC	15.76

Bus #	Bus	MW Impact
228100	BLE DIES	0.7280
228201	CARL#2CT	0.6292
228206	SHRMN CT	1.4972
228251	CARLLS#4	0.0668
228260	V4-054C	0.1674
228261	V4-054E	0.9785
228702	WEST CT	1.0260
228712	V2-041E	0.3227
228717	S121	2.6618
228727	W2-039G	2.1575
913341	Y1-077 (Withdrawn : 12/18/2019)	40.6774
924531	AB2-102 C	18.8439
924532	AB2-102 E	0.4188
938781	AE1-104 C O1	11.0475
938782	AE1-104 E O1	28.2649
939501	AE1-179 C O1	7.4858
939502	AE1-179 E O1	5.2828
940001	AE1-240 C O1	5.8203
940002	AE1-240 E O1	4.1545
940391	AE2-023 C	7.1308
940392	AE2-023 E	33.3828
941001	AE2-091 C O1	4.3348
941002	AE2-091 E O1	2.2616
941931	AE2-205 C O1	3.9195
941932	AE2-205 E O1	2.6130
944131	AF1-081 C O1	4.2612
944132	AF1-081 E O1	2.8408
945431	AF1-208 C O1	1.4852
945432	AF1-208 E O1	0.9901
945731	AF1-238 C O1	10.4220
945732	AF1-238 E O1	15.6330
945741	AF1-239 C	3.1798
945742	AF1-239 E	4.7696
DUCKCREEK	DUCKCREEK	0.0599
NEWTON	NEWTON	0.0548
FARMERCITY	FARMERCITY	0.0029
NY	NY	0.0437
PRAIRIE	PRAIRIE	0.1317
O-066	O-066	0.5779
COFFEEN	COFFEEN	0.0270
EDWARDS	EDWARDS	0.0182
CHEOAH	CHEOAH	0.0255

Bus #	Bus	MW Impact
TILTON	TILTON	0.0328
G-007	G-007	0.0676
MADISON	MADISON	0.0020
GIBSON	GIBSON	0.0284
CALDERWOOD	CALDERWOOD	0.0253
BLUEG	BLUEG	0.0903
TRIMBLE	TRIMBLE	0.0289
CATAWBA	CATAWBA	0.0175

17.42 Index 42

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971282	228511	LANDIS T	AE	228409	MONROE#3	AE	1	AE_P7-1 AE7TOWER	tower	158.0	133.91	136.08	DC	15.76

Bus #	Bus	MW Impact
228100	BLE DIES	0.7280
228201	CARL#2CT	0.6292
228206	SHRMN CT	1.4972
228251	CARLLS#4	0.0668
228260	V4-054C	0.1674
228261	V4-054E	0.9785
228702	WEST CT	1.0260
228712	V2-041E	0.3227
228717	S121	2.6618
228727	W2-039G	2.1575
913341	Y1-077 (Withdrawn : 12/18/2019)	40.6774
924531	AB2-102 C	18.8439
924532	AB2-102 E	0.4188
938781	AE1-104 C O1	11.0475
938782	AE1-104 E O1	28.2649
939501	AE1-179 C O1	7.4858
939502	AE1-179 E O1	5.2828
940001	AE1-240 C O1	5.8203
940002	AE1-240 E O1	4.1545
940391	AE2-023 C	7.1308
940392	AE2-023 E	33.3828
941001	AE2-091 C O1	4.3348
941002	AE2-091 E O1	2.2616
941931	AE2-205 C O1	3.9195
941932	AE2-205 E O1	2.6130
944131	AF1-081 C O1	4.2612
944132	AF1-081 E O1	2.8408
945431	AF1-208 C O1	1.4852
945432	AF1-208 E O1	0.9901
945731	AF1-238 C O1	10.4220
945732	AF1-238 E O1	15.6330
945741	AF1-239 C	3.1798
945742	AF1-239 E	4.7696
DUCKCREEK	DUCKCREEK	0.0599
NEWTON	NEWTON	0.0548
FARMERCITY	FARMERCITY	0.0029
NY	NY	0.0437
PRAIRIE	PRAIRIE	0.1317
O-066	O-066	0.5779
COFFEEN	COFFEEN	0.0270
EDWARDS	EDWARDS	0.0182
CHEOAH	CHEOAH	0.0255

Bus #	Bus	MW Impact
TILTON	TILTON	0.0328
G-007	G-007	0.0676
MADISON	MADISON	0.0020
GIBSON	GIBSON	0.0284
CALDERWOOD	CALDERWOOD	0.0253
BLUEG	BLUEG	0.0903
TRIMBLE	TRIMBLE	0.0289
CATAWBA	CATAWBA	0.0175

17.43 Index 43

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971239	228714	CNTRL N	AE	228504	SHLDLY T	AE	1	AE_P7-1 AE7TOWER	tower	143.0	147.96	150.35	DC	15.76

Bus #	Bus	MW Impact
228100	BLE DIES	0.7280
228201	CARL#2CT	0.6292
228206	SHRMN CT	1.4972
228251	CARLLS#4	0.0668
228260	V4-054C	0.1674
228261	V4-054E	0.9785
228702	WEST CT	1.0260
228712	V2-041E	0.3227
228717	S121	2.6618
228727	W2-039G	2.1575
913341	Y1-077 (Withdrawn : 12/18/2019)	40.6774
924531	AB2-102 C	18.8439
924532	AB2-102 E	0.4188
938781	AE1-104 C O1	11.0475
938782	AE1-104 E O1	28.2649
939501	AE1-179 C O1	7.4858
939502	AE1-179 E O1	5.2828
940001	AE1-240 C O1	5.8203
940002	AE1-240 E O1	4.1545
940391	AE2-023 C	7.1308
940392	AE2-023 E	33.3828
941001	AE2-091 C O1	4.3348
941002	AE2-091 E O1	2.2616
941931	AE2-205 C O1	3.9195
941932	AE2-205 E O1	2.6130
944131	AF1-081 C O1	4.2612
944132	AF1-081 E O1	2.8408
945431	AF1-208 C O1	1.4852
945432	AF1-208 E O1	0.9901
945731	AF1-238 C O1	10.4220
945732	AF1-238 E O1	15.6330
945741	AF1-239 C	3.1798
945742	AF1-239 E	4.7696
DUCKCREEK	DUCKCREEK	0.0599
NEWTON	NEWTON	0.0548
FARMERCITY	FARMERCITY	0.0029
NY	NY	0.0437
PRAIRIE	PRAIRIE	0.1317
O-066	O-066	0.5779
COFFEEN	COFFEEN	0.0270
EDWARDS	EDWARDS	0.0182
CHEOAH	CHEOAH	0.0255

Bus #	Bus	MW Impact
TILTON	TILTON	0.0328
G-007	G-007	0.0676
MADISON	MADISON	0.0020
GIBSON	GIBSON	0.0284
CALDERWOOD	CALDERWOOD	0.0253
BLUEG	BLUEG	0.0903
TRIMBLE	TRIMBLE	0.0289
CATAWBA	CATAWBA	0.0175

17.44 Index 44

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
40971275	228716	S121TAP	AE	228714	CNTRL N	AE	1	AE_P7-1 AE7TOWER	tower	107.0	132.72	136.22	DC	8.31

Bus #	Bus	MW Impact
228100	BLE DIES	0.3841
228261	V4-054E	0.3346
228702	WEST CT	1.7021
228712	V2-041E	0.1704
228717	S121	5.0163
913341	Y1-077 (Withdrawn : 12/18/2019)	21.4596
924531	AB2-102 C	9.9335
924532	AB2-102 E	0.2207
938781	AE1-104 C O1	5.8282
938782	AE1-104 E O1	14.9113
939501	AE1-179 C O1	1.8838
939502	AE1-179 E O1	1.3294
940001	AE1-240 C O1	3.0499
940002	AE1-240 E O1	2.1770
940391	AE2-023 C	3.7619
940392	AE2-023 E	17.6113
941001	AE2-091 C O1	1.2395
941002	AE2-091 E O1	0.6467
941931	AE2-205 C O1	2.0662
941932	AE2-205 E O1	1.3774
944131	AF1-081 C O1	2.2463
944132	AF1-081 E O1	1.4975
945431	AF1-208 C O1	0.6720
945432	AF1-208 E O1	0.4480
945731	AF1-238 C O1	2.4819
945732	AF1-238 E O1	3.7228
945741	AF1-239 C	3.8296
945742	AF1-239 E	5.7443
DUCKCREEK	DUCKCREEK	0.0472
NEWTON	NEWTON	0.0441
FARMERCITY	FARMERCITY	0.0023
NY	NY	0.0304
PRAIRIE	PRAIRIE	0.1059
O-066	O-066	0.3965
COFFEEN	COFFEEN	0.0217
EDWARDS	EDWARDS	0.0144
CHEOAH	CHEOAH	0.0205
TILTON	TILTON	0.0258
G-007	G-007	0.0499
GIBSON	GIBSON	0.0224
CALDERWOOD	CALDERWOOD	0.0204
BLUEG	BLUEG	0.0712

Bus #	Bus	MW Impact
TRIMBLE	TRIMBLE	0.0228
CATAWBA	CATAWBA	0.0144

Affected Systems

18 Affected Systems

18.1 LG&E

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

18.2 MISO

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

18.3 TVA

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

18.4 Duke Energy Progress

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

18.5 NYISO

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

Contingency Name	Contingency Definition
PS_P1-2_D-2282_LT	CONTINGENCY 'PS_P1-2_D-2282_LT' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE END
AE_P4-2 AE22	CONTINGENCY 'AE_P4-2 AE22' /* CUMBERLAND TO ORCHARD BREAKER A DISCONNECT BRANCH FROM BUS 228002 TO BUS 228207 CKT 1 /* ORCHARD CUMBERLAND 230 230 DISCONNECT BRANCH FROM BUS 228207 TO BUS 228262 CKT 2 /* CUMB 230 138 T3 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 TRIP LINE FROM BUS 219110 TO BUS 219128 CKT 1 CLOSE LINE FROM BUS 219255 TO BUS 219256 CKT Z /* DEPTFORD CLOSE LINE FROM BUS 219180 TO BUS 219181 CKT Z /* DEPTFORD DISCONNECT BUS 219760 /* EAGLE POINT SECTION 4 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
PS_P2-3_CUTB_3-4_LT	CONTINGENCY 'PS_P2-3_CUTB_3-4_LT' DISCONNECT BUS 219754 /* CUTHBERTH SECTION 3 DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE END

Contingency Name	Contingency Definition
PS_P2-3_CUTB_1-4_LT	CONTINGENCY 'PS_P2-3_CUTB_1-4_LT' DISCONNECT BUS 219108 /* CUTBERTH SECTION 1 DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT CLOSE LINE FROM BUS 219176 TO BUS 219179 CKT Z /* CUTBERTH MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219170 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO CINN T2 MOVE 8 MW LOAD FROM BUS 219176 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219179 TO BUS 219629 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO LAWNSIDE END
JC-P1-2-JCC-230-020	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
AE_P4-2 AE28	CONTINGENCY 'AE_P4-2 AE28' /*ENGLAND TO MERION CITY BREAKER C DISCONNECT BRANCH FROM BUS 228110 TO BUS 228197 CKT 1 /*ENGLAND MERION 138 138 DISCONNECT BRANCH FROM BUS 228110 TO BUS 227905 CKT 1 /*ENGLAND #1 SCULL 138 138 END
AE_P4-2 AE29	CONTINGENCY 'AE_P4-2 AE29' /*ENGLAND TO CORSON BREAKER D DISCONNECT BRANCH FROM BUS 228110 TO BUS 228111 CKT 1 /*ENGLAND MIDDLE TAP 138 138 DISCONNECT BRANCH FROM BUS 228110 TO BUS 227906 CKT 1 /*ENGLAND #2 SCULL 138 138 END
PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK	CONTINGENCY 'PECO_P4_CHICH045/* \$ DELCO \$ CHICH045 \$ STBK' DISCONNECT BUS 213489 /* CHICHST1 230.00 \$ DELCO \$ CHICH045 \$ STBK DISCONNECT BUS 213627 /* FOULK8 230.00 \$ DELCO \$ CHICH045 \$ STBK 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-230-002T	CONTINGENCY 'JC-P1-2-JCC-230-002T' /** OYSTER CREEK - CEDAR (S2045) 230 KV DISCONNECT BRANCH FROM BUS 206302 TO BUS 227955 CKT 1 /* 28OYSTER C 230 CEDAR 230 END

Contingency Name	Contingency Definition
AE_P7-1 AE7TOWER	CONTINGENCY 'AE_P7-1 AE7TOWER' DISCONNECT BUS 227905 /* #1 BLE TO SCULL TO MILL 138 KV DISCONNECT BUS 227929 /* #1 SCULL 12 KV DISCONNECT BUS 227906 /* #2 BLE TO SCULL TO MILL 138 KV DISCONNECT BUS 227930 /* #2 SCULL 12 KV DISCONNECT BUS 227903 /* #1 MILL TO LEWIS 138 KV DISCONNECT BUS 227904 /* #2 MILL TO LEWIS 138 KV END
PS_P1-2_C-2308	CONTINGENCY 'PS_P1-2_C-2308' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219753 /* CUTHBERTH SECTOIN 2 CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT END
AE_P1-2 ORCH-CUMB	CONTINGENCY 'AE_P1-2 ORCH-CUMB' OPEN LINE FROM BUS 228002 TO BUS 228207 CIRCUIT 1 / END
AE_P7-1 AE13TOWER	CONTINGENCY 'AE_P7-1 AE13TOWER' DISCONNECT BRANCH FROM BUS 228500 TO BUS 228502 CKT 1 /* LANDIS TO MINO 138 KV DISCONNECT BRANCH FROM BUS 228002 TO BUS 227900 CKT 1 /* ORCH TO CARD 230 KV END
PS_P2-3_CAMD_5-6_LT	CONTINGENCY 'PS_P2-3_CAMD_5-6_LT' TRIP LINE FROM BUS 219110 TO BUS 219125 CKT 1 /* CAMDEN TO GLOUCESTER - Y-2304 DISCONNECT BRANCH FROM BUS 219110 TO BUS 219128 CKT 2 /* REMOVE 26KV -2 DISCONNECT BUS 219129 /* REMOVE LEVITOWN BUS M-2291 CLOSE LINE FROM BUS 219196 TO BUS 219198 CKT Z /* LEVITTOWN CLOSE LINE FROM BUS 219195 TO BUS 219197 CKT Z /* LEVITTOWN MOVE 8 MW LOAD FROM BUS 219195 TO BUS 219166 /* INTERSTATION TIE TRANSFER LOAD FROM LEVITN TO BUSLTN T1 MOVE 8 MW LOAD FROM BUS 219197 TO BUS 219165 /* INTERSTATION TIE TRANSFER LOAD FROM LEVITN TO BUSLTN T2 MOVE 8 MW LOAD FROM BUS 219196 TO BUS 219166 /* INTERSTATION TIE TRANSFER LOAD FROM LEVITN TO BUSLTN T1 MOVE 8 MW LOAD FROM BUS 219198 TO BUS 219165 /* INTERSTATION TIE TRANSFER LOAD FROM LEVITN TO BUSLTN T2 END
AE_P1-2 BLE-ML-LEW2	CONTINGENCY 'AE_P1-2 BLE-ML-LEW2' DISCONNECT BUS 227904 / DISCONNECT BUS 227906 / DISCONNECT BUS 227930 / 227930 CIRCUIT 1 / CLOSE LINE FROM BUS 227929 TO BUS 227930 CIRCUIT 1 / 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
AE_P1-2 ORCHARD XF	CONTINGENCY 'AE_P1-2 ORCHARD XF' OPEN LINE FROM BUS 200063 TO BUS 228002 CIRCUIT 1 / END

Contingency Name	Contingency Definition
AE_P7-1 W2275_O2241	CONTINGENCY 'AE_P7-1 W2275_O2241' /* DOUBLE CIRCUIT TOWER W-2275(MICKLETON - DEPTFORD) AND O-2241(MICKLETON - THOROFARE) DISCONNECT BUS 219762 DISCONNECT BUS 219121 CLOSE LINE FROM BUS 219211 TO BUS 219212 CKT Z /*THOROFARE 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
AE_P4-2 AE33	CONTINGENCY 'AE_P4-2 AE33' /*LEWIS TO CARDIFF BREAKER V DISCONNECT BRANCH FROM BUS 227902 TO BUS 227913 CKT 1 /*LEWIS CARDIFF 138 138 DISCONNECT BRANCH FROM BUS 227902 TO BUS 227903 CKT 1 /*LEWIS MILL #1 138 138 DISCONNECT BRANCH FROM BUS 227902 TO BUS 227918 CKT 1 /*LEWIS 138 69 T1 END
PS_P1-2_D-2282	CONTINGENCY 'PS_P1-2_D-2282' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219755 /* BUS SECTION 4 CUTHBERT CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT END
AE_P1-2 BLE-ML-LEW1	CONTINGENCY 'AE_P1-2 BLE-ML-LEW1' DISCONNECT BUS 227903 / DISCONNECT BUS 227905 / DISCONNECT BUS 227929 / CLOSE LINE FROM BUS 227929 TO BUS 227930 CIRCUIT 1 / END
PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK	CONTINGENCY 'PECO_P4_PEACH215/* \$ CHESCO \$ PEACH215 \$ STBK' TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 \$ CHESCO \$ PEACH215 \$ STBK REMOVE MACHINE 1 FROM BUS 200034 /* PCHBTM 2 22.00 \$ CHESCO \$ PEACH215 \$ STBK END

Contingency Name	Contingency Definition
PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B	CONTINGENCY 'PECO_P2-2_CHI230B1/* \$ DELCO \$ CHI230B1 \$ B' DISCONNECT BUS 213489 /* CHICHT1 230.00 \$ DELCO \$ CHI230B1 \$ B END
AE_P1-2 BLE-SC-ML1	CONTINGENCY 'AE_P1-2 BLE-SC-ML1' DISCONNECT BUS 227905 / DISCONNECT BUS 227929 / CLOSE LINE FROM BUS 227929 TO BUS 227930 CIRCUIT 1 / END
JC-P1-2-JCC-230-022	CONTINGENCY 'JC-P1-2-JCC-230-022' /* MANITOU - OYSTER CREEK (O1019) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 2 END
JC-P1-2-JCC-230-021	CONTINGENCY 'JC-P1-2-JCC-230-021' /* MANITOU - OYSTER CREEK (N1028) 230 KV DISCONNECT BRANCH FROM BUS 206297 TO BUS 206302 CKT 1 END
AE_P1-2 BLE-SC-ML2	CONTINGENCY 'AE_P1-2 BLE-SC-ML2' DISCONNECT BUS 227906 / DISCONNECT BUS 227930 / CLOSE LINE FROM BUS 227929 TO BUS 227930 CIRCUIT 1 / END
Base Case	
AE_P1-2 ORCH-CARD	CONTINGENCY 'AE_P1-2 ORCH-CARD' OPEN LINE FROM BUS 228002 TO BUS 227900 CIRCUIT 1 / 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
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

Contingency Name	Contingency Definition
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
PS_P1-2_C-2308_LT	CONTINGENCY 'PS_P1-2_C-2308_LT' /* CUTHBERT TO GLOUCESTER DISCONNECT BUS 219753 /* CUTHBERTH SECTOIN 2 CLOSE LINE FROM BUS 219177 TO BUS 219178 CKT Z /* CUTHBERT MOVE 8 MW LOAD FROM BUS 219178 TO BUS 219678 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE MOVE 8 MW LOAD FROM BUS 219177 TO BUS 219677 /* INTERSTATION TIE TRANSFER LOAD FROM CUTHBERT TO MAPLE SHADE END
JC-P7-1-JCC-230-11A	CONTINGENCY 'JC-P7-1-JCC-230-11A' /* LAKEWOOD - LEISURE V 230 KV LINES DISCONNECT BRANCH FROM BUS 206323 TO BUS 206295 CKT 1 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206296 CKT 1 DISCONNECT BRANCH FROM BUS 206323 TO BUS 206282 CKT 6 DISCONNECT BRANCH FROM BUS 206282 TO BUS 206999 CKT 1 SET BUS 206295 LOAD TO 0 MW DISCONNECT BUS 206999 DISCONNECT BUS 207110 DISCONNECT BUS 207010 DISCONNECT BUS 207111 END
AE_P7-1 AE2TOWER	CONTINGENCY 'AE_P7-1 AE2TOWER' / PJM FIXED DISCONNECT BRANCH FROM BUS 228262 TO BUS 228253 CKT 1 /* SHERMAN TO CUMBERLAND 138 KV DISCONNECT BRANCH FROM BUS 228207 TO BUS 228002 CKT 1 /* ORCHARD TO CUMBERLAND 230 KV 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
AE_P4-2 AE47	CONTINGENCY 'AE_P4-2 AE47' /*ORCHARD 230 BUS BREAKER NEW2 DISCONNECT BRANCH FROM BUS 228002 TO BUS 228310 CKT 1 /* ORCHARD TO CHURCHTOWN 230 230 DISCONNECT BRANCH FROM BUS 228002 TO BUS 228207 CKT 1 /* ORCHARD TO CUMBERLAND 230 230 END

Contingency Name	Contingency Definition
PS_P7-1_W2275+O2241_LT	CONTINGENCY 'PS_P7-1_W2275+O2241_LT' /* MICKLETON -DEPTFORD & MICKLETON - THOROFARE DISCONNECT BUS 219121 /* THOROFARE SECTION 1 DISCONNECT BUS 219109 /* DEPTFORD BUS SECTION 1 CLOSE LINE FROM BUS 219255 TO BUS 219256 CKT Z /* DEPTFORD T3 TO T4 CLOSE LINE FROM BUS 219180 TO BUS 219181 CKT Z /* DEPTFORD T1 TO T2 DISCONNECT BUS 219762 /* THOROFARE SECTION 2 DISCONNECT BUS 219759 /* EAGLE POINT BUS SECTION 3 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_P1-2 CARD-CEDAR	CONTINGENCY 'AE_P1-2 CARD-CEDAR' OPEN LINE FROM BUS 227900 TO BUS 227955 CIRCUIT 1 / END
PECO_P1-2_5038/* \$ CHESCO \$ 5038 \$ L	CONTINGENCY 'PECO_P1-2_5038/* \$ CHESCO \$ 5038 \$ L' TRIP BRANCH FROM BUS 200012 TO BUS 200028 CKT 1 /* NFREEDOM 500.00 WINDSOR 500.00 \$ CHESCO \$ 5038 \$ L END
AE_P4-2 AE23	CONTINGENCY 'AE_P4-2 AE23' /* CUMBERLAND TO ORCHARD BREAKER B DISCONNECT BRANCH FROM BUS 228002 TO BUS 228207 CKT 1 /* ORCHARD CUMBERLAND 230 230 DISCONNECT BRANCH FROM BUS 228207 TO BUS 228262 CKT 1 /* CUMB 230 138 T2 END
PS_P1-2_Y-2304	CONTINGENCY 'PS_P1-2_Y-2304' /* CAMDEN TO GLOUCESTER TRIP LINE FROM BUS 219110 TO BUS 219125 CKT 1 /* CAMDEN TO GLOUCESTER DISCONNECT BRANCH FROM BUS 219110 TO BUS 219128 CKT 2 /* REMOVE 26KV -2 END
PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L	CONTINGENCY 'PECO_P1-2_5014/* \$ CHESCO \$ 5014 \$ L' TRIP BRANCH FROM BUS 200065 TO BUS 200051 CKT 1 /* PCHBTM2S 500.00 ROCKSPGS 500.00 \$ CHESCO \$ 5014 \$ L END
PS_P7-1_R2244+M2213	CONTINGENCY 'PS_P7-1_R2244+M2213' TRIP LINE FROM BUS 219100 TO BUS 227900 CKT 1 /* NEW FREEDOM TO CARDIFF TRIP LINE FROM BUS 219100 TO BUS 228600 CKT 1 /* NEW FREEDOM TO SICKLER END

Short Circuit

19 Short Circuit

The following Breakers are overduty:

None.