



**Generation Interconnection
Feasibility Study Report
for**

Queue Project AF2-381

BEDFORD NORTH-CENTRAL CITY WEST 115 KV

81.9 MW Capacity / 125 MW Energy

July 2020

Table of Contents

1	Introduction.....	4
2	Preface.....	4
3	General	5
4	Point of Interconnection.....	6
5	Cost Summary	6
6	Transmission Owner Scope of Work	7
7	Schedule.....	7
8	Transmission Owner Analysis.....	8
9	Interconnection Customer Requirements.....	8
9.1	System Protection.....	8
9.2	Compliance Issues and Interconnection Customer Requirements	8
9.3	Power Factor Requirements.....	9
10	Revenue Metering and SCADA Requirements	9
10.1	PJM Requirements	9
10.2	Meteorological Data Reporting Requirements	9
10.3	Interconnected Transmission Owner Requirements.....	9
11	Summer Peak - Load Flow Analysis	10
11.1	Generation Deliverability	10
11.2	Multiple Facility Contingency	10
11.3	Contribution to Previously Identified Overloads.....	11
11.4	Potential Congestion due to Local Energy Deliverability.....	13
11.5	System Reinforcements - Summer Peak Load Flow	17
11.6	Flow Gate Details.....	25
11.6.1	Index 1	26
11.6.2	Index 2	28
11.6.3	Index 3	30
11.6.4	Index 4	32
11.6.5	Index 5	34
11.6.6	Index 6	36
11.6.7	Index 7	38
11.6.8	Index 8	40

11.6.9	Index 9	42
11.6.10	Index 10.....	45
11.6.11	Index 11.....	47
11.6.12	Index 12.....	50
11.6.13	Index 13.....	52
11.6.14	Index 14.....	54
11.6.15	Index 15.....	56
11.6.16	Index 16.....	58
11.6.17	Index 17.....	61
11.6.18	Index 18.....	64
11.6.19	Index 19.....	68
11.6.20	Index 20.....	74
11.6.21	Index 21.....	80
11.6.22	Index 22.....	86
11.6.23	Index 23.....	92
11.6.24	Index 24.....	94
11.6.25	Index 25.....	96
11.6.26	Index 26.....	98
11.6.27	Index 27.....	100
11.6.28	Index 28.....	102
11.6.29	Index 29.....	104
11.7	Queue Dependencies	110
11.8	Contingency Descriptions.....	114
12	Short Circuit Analysis.....	123
13	Affected Systems	123
13.1	NYISO	123
14	Attachment 1: One Line Diagram	124

1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Mid-Atlantic Interstate Transmission (MAIT) (PENELEC zone).

2 Preface

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

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Somerset County, Pennsylvania. The installed facilities will have a total capability of 125 MW with 81.9 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 30, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-381
Project Name	BEDFORD NORTH-CENTRAL CITY WEST 115 KV
State	Pennsylvania
County	Somerset
Transmission Owner	PENELEC
MFO	125
MWE	125
MWC	81.9
Fuel	Solar
Basecase Study Year	2023

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

4 Point of Interconnection

The interconnection of the project at the Primary POI will be accomplished by constructing a new 115 kV three (3) breaker ring bus substation and looping the Bedford North – Statler Hill 115 kV line into the new station. The new substation will be located approximately 14.9 miles from Bedford North Substation. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The IC will also be responsible for the rough grade of the property and an access road to the proposed three-breaker ring bus site. The project will also require Non-Direct Connection upgrades at Bedford North Substation and Statler Hill Substation.

Attachment 1 shows a one-line diagram of the proposed primary Direct Connection facilities for the AF2-381 generation project to connect to the FirstEnergy (“FE”) Transmission System. The IC will be responsible for constructing the facilities on its side of the POI, including the Attachment Facilities which connect the generator to the FE Transmission System’s Direct Connection facilities.

5 Cost Summary

The AF2-381 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$7,110,000
Total System Network Upgrade Costs	\$565,317,365 ¹
Total Costs	\$572,427,365

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

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

¹ This project currently causes and contributes to overloads of the Transmission System (see Summer Peak Load Flow Analysis section below) and therefore has potential to have cost allocation for the system reinforcements listed in the report. This will be re-evaluated in the System Impact phase. The results will likely vary with queue customers withdrawing from the queue and other generators deactivating over time. If a customer is the first to cause the need for a project (causes loading to exceed 100% of rating), then the customer is responsible. If a customer’s MW contribution to a facility that is already overloaded by a prior queue is less than 5 MW, then they will not receive cost allocation.

6 Transmission Owner Scope of Work

The interconnection of the project at the Primary POI will be accomplished by constructing a new 115 kV three (3) breaker ring bus substation and looping the Bedford North – Statler Hill 115 kV line into the new station. The new substation will be located approximately 14.9 miles from Bedford North Substation. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct both the new interconnection switching station and the associated facilities. The IC will also be responsible for the rough grade of the property and an access road to the proposed three-breaker ring bus site. The project will also require Non-Direct Connection upgrades at Bedford North Substation and Statler Hill Substation.

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

Description	Total Cost
Install disconnect switch, dead-end structure, and associated facilities for generator lead line exit at interconnection substation	\$275,000
Construct 115 kV three breaker ring bus interconnection substation	\$5,185,000
Loop the Bedford North - Statler Hill kV line into the new substation	\$790,000
Upgrade relaying at Bedford North	\$430,000
Upgrade relaying at Statler Hill	\$430,000
Total Physical Interconnection Costs	\$7,110,000

7 Schedule

Based on the scope of work for the interconnection facilities, it is expected to take a minimum of **24 months** to complete the installation after the signing of an Interconnection Construction Service Agreement and holding the construction kick-off call. This assumes that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined direct connection and network upgrades, and that all transmission system outages will be allowed when requested.

If the customer is ultimately responsible for network upgrades, then the schedule for those upgrades will be refined in future study phases. The customer would need to wait for those upgrades to be completed prior to commercial operation unless determined deliverable by an interim deliverability study. The elapsed time to complete any network upgrades is provided in the System Reinforcements table of this report. ¹

8 Transmission Owner Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AF2-381 project did not contribute to any overloads on the <100 kV FE transmission system.

9 Interconnection Customer Requirements

9.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in FE's "Requirements for Transmission Connected Facilities" document located at:

<http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>.

Preliminary Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

9.2 Compliance Issues and Interconnection Customer Requirements

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

1. The purchase and installation of a fully rated 115 kV circuit breaker to protect the AF2-381 generator lead line. A single circuit breaker must be used to protect this line; if the project has several GSU transformers, the individual GSU transformer breakers cannot be used to protect this line.
2. The purchase and installation of the minimum required FE generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.
3. The purchase and installation of supervisory control and data acquisition ("SCADA") equipment to provide information in a compatible format to the FE Transmission System Control Center.
4. Compliance with the FE and PJM generator power factor and voltage control requirements.
5. The execution of a back-up service agreement to serve the customer load supplied from the AF2-381 generation project metering point when the units are out-of-service. This assumes the intent of the IC is to net the generation with the load.

The IC will also be required to meet all PJM, ReliabilityFirst, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and ReliabilityFirst audits.

Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the FE Transmission System.

9.3 Power Factor Requirements

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

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

10.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit)
- Irradiance (Watts/meter²)
- Ambient air temperature (Fahrenheit) – (Accepted, not required)
- Wind speed (meters/second) – (Accepted, not required)
- Wind direction (decimal degrees from true north) – (Accepted, not required)

10.3 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

<https://pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>

11 Summer Peak - Load Flow Analysis

The Queue Project AF2-381 was evaluated as a 125.0 MW (Capacity 81.9 MW) injection tapping the Central City West to Bedford North 115 kV line in the PENELEC area. Project AF2-381 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-381 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
101402137	202650	26HIGHPOIN T	115.0	PENELE C	200747	26PENN -MAR	115.0	PENELE C	1	Base Case	singl e	137.0	94.45	100.41	DC	8.17

11.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPACT
101401961	200501	26BDFORD N	115.0	PENELE C	200523	26SNAKE SP	115.0	PENELE C	1	PN-P2-3-PN-115-11F	break er	152.0	97.58	110.41	DC	19.5
101402888	200505	26CLYSBUR G	115.0	PENELE C	960390	AF2-330 TAP	115.0	PENELE C	1	PN-P7-1-PN-230-001	tower	237.0	95.23	110.97	DC	37.32
101401997	200734	26SCALP L.	115.0	PENELE C	200749	26RACHEL H	115.0	PENELE C	1	PN-P2-3-PN-115-3A2	break er	190.0	91.73	105.69	DC	26.53
101401987	200743	26HOOVER SV	115.0	PENELE C	200734	26SCALP L.	115.0	PENELE C	1	PN-P2-3-PN-115-3A2	break er	190.0	93.07	107.04	DC	26.53
101401988	200743	26HOOVER SV	115.0	PENELE C	200734	26SCALP L.	115.0	PENELE C	1	PN-P2-3-PN-115-69A	break er	190.0	86.91	100.75	DC	26.3
101402036	200744	26SOMERS T	115.0	PENELE C	200746	26ROCKWO OD	115.0	PENELE C	1	PN-P2-3-PN-230-9G-A	break er	179.0	91.38	100.59	DC	16.47

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Ratin g MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC D C	MW IMPAC T
101402889	200744	26SOMERS T	115.0	PENELE C	200746	26ROCKWO OD	115.0	PENELE C	1	PN-P7-1-PN-230-001	tower	179.0	95.93	109.47	DC	24.24
101401879	200745	26ALLEGHE N	115.0	PENELE C	945670	AF1-232 TAP	115.0	PENELE C	1	PN-P2-3-PN-115-82B	break er	160.0	93.64	120.06	DC	42.27
101402922	200749	26RACHEL H	115.0	PENELE C	200751	26HILLCLAY	115.0	PENELE C	1	PN-P7-1-PN-230-001	tower	237.0	79.94	100.8	DC	49.44

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Ratin g MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC D C	MW IMPAC T
99688825	200513	26LEWIST WN	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	PN-P1-2-PN-230-012A-A	single	624.0	108.64	109.83	DC	7.42
99688826	200513	26LEWIST WN	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	200909 26LOBO+ 230 919490 AA2-000 TAP 230 1	single	624.0	108.63	109.82	DC	7.42
99688827	200513	26LEWIST WN	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	AP-P1-2-WP-230-324T_FSA_B	single	624.0	108.63	109.82	DC	7.42
101401772	200523	26SNAKE SP	115.0	PENEL EC	200521	26SAXTON	115.0	PENEL EC	1	PN-P2-3-PN-115-11F	break er	120.0	130.77	147.02	DC	19.5
101402841	200734	26SCALP L	115.0	PENEL EC	200749	26RACHEL H	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	190.0	115.87	141.89	DC	49.44
101401935	200741	26SEWARD	115.0	PENEL EC	200766	26FLOREN CE	115.0	PENEL EC	1	PN-P2-3-PN-230-9G-A	break er	282.0	107.81	113.36	DC	15.65
101401936	200741	26SEWARD	115.0	PENEL EC	200766	26FLOREN CE	115.0	PENEL EC	1	PN-P2-3-PN-230-9H-A	break er	282.0	106.48	111.55	DC	14.31
101402852	200743	26HOOVER SV	115.0	PENEL EC	200734	26SCALP L	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	190.0	115.57	141.58	DC	49.44
101401733	200746	26ROCKW OOD	115.0	PENEL EC	202650	26HIGHPOI NT	115.0	PENEL EC	1	PN-P2-3-PN-115-35E	break er	179.0	158.91	166.59	DC	13.75
101402826	200746	26ROCKW OOD	115.0	PENEL EC	202650	26HIGHPOI NT	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	179.0	142.54	156.07	DC	24.22
101401696	200747	26PENNMAR	115.0	PENEL EC	200762	26GARRET T	115.0	PENEL EC	1	PN-P2-3-PN-115-35E	break er	167.0	188.53	196.76	DC	13.74
101402858	200751	26HILLCLAY	115.0	PENEL EC	200752	26HILLTOP	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	237.0	112.49	135.62	DC	54.81
98923733	200762	26GARRETT	115.0	PENEL EC	235470	01GARRET T	115.0	AP	1	PN-P2-3-PN-115-35E	break er	160.0	207.12	215.7	DC	13.73
98924030	200763	26BLAIRSV L	138.0	PENEL EC	235253	01SOCIAL	138.0	AP	1	PN-P1_2-PN-230-0103	single	287.0	110.84	113.88	DC	8.71
98924031	200763	26BLAIRSV L	138.0	PENEL EC	235253	01SOCIAL	138.0	AP	1	PJM_P1_APS_B_G692	single	287.0	107.92	110.29	DC	6.8
98924032	200763	26BLAIRSV L	138.0	PENEL EC	235253	01SOCIAL	138.0	AP	1	Base Case	single	225.0	107.11	109.97	DC	6.45
101401940	200766	26FLORENC E	115.0	PENEL EC	200740	26BLRSVL E	115.0	PENEL EC	1	PN-P2-3-PN-230-9G-A	break er	282.0	107.7	113.25	DC	15.65
101401941	200766	26FLORENC E	115.0	PENEL EC	200740	26BLRSVL E	115.0	PENEL EC	1	PN-P2-3-PN-230-9H-A	break er	282.0	106.37	111.45	DC	14.31

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
99688764	200767	26HOMER CT	230.0	PENEL EC	200795	26SHELOCT A	230.0	PENEL EC	1	ATSI-P1-2-CEI-345-700T	single	917.0	150.84	153.02	DC	19.87
99688765	200767	26HOMER CT	230.0	PENEL EC	200795	26SHELOCT A	230.0	PENEL EC	1	PN-P1-2-PN-345-107T	single	917.0	150.84	153.02	DC	19.87
99688767	200767	26HOMER CT	230.0	PENEL EC	200795	26SHELOCT A	230.0	PENEL EC	1	Base Case	single	731.0	129.03	131.45	DC	18.23
99688562	200793	26SEWARD 2	230.0	PENEL EC	200912	26CONEM AGH	230.0	PENEL EC	1	PN-P2_3-PN-230-0252-C	breaker	1147.0	120.3	123.55	DC	38.66
99688563	200793	26SEWARD 2	230.0	PENEL EC	200912	26CONEM AGH	230.0	PENEL EC	1	PN-P2_3-PN-230-0252-B	breaker	1147.0	120.26	123.51	DC	38.66
99688564	200793	26SEWARD 2	230.0	PENEL EC	200912	26CONEM AGH	230.0	PENEL EC	1	PN-P2_3-PN-230-0252-A	breaker	1147.0	120.25	123.5	DC	38.66
99688333	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	ATSI-P2-3-CEI-345-004D	breaker	917.0	194.81	198.5	DC	33.35
99688779	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	PN-P1-2-PN-345-107T	single	917.0	146.49	148.79	DC	21.84
99688780	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	ATSI-P1-2-CEI-345-700T	single	917.0	146.49	148.79	DC	21.84
99688781	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	PN-P1-2-PN-230-025	single	917.0	121.5	124.53	DC	28.05
99688782	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	PN-P1-3-PN-230-001T	single	917.0	121.5	124.53	DC	28.05
99688783	200795	26SHELOCT A	230.0	PENEL EC	200810	26KEYSTO NE	230.0	PENEL EC	1	Base Case	single	731.0	120.24	122.92	DC	20.12
99688462	200810	26KEYSTON E	230.0	PENEL EC	999401	KEYSTONE	1.0	PJM	4	PJM500_PN_P4-500-001A	breaker	635.0	147.12	150.76	DC	22.76
99688463	200810	26KEYSTON E	230.0	PENEL EC	999401	KEYSTONE	1.0	PJM	4	PJM500_PN_P4-500-001D	breaker	635.0	147.12	150.76	DC	22.76
99688997	200810	26KEYSTON E	230.0	PENEL EC	999401	KEYSTONE	1.0	PJM	4	PN-P1-2-PN-345-107T	single	635.0	102.31	103.96	DC	10.84
99688998	200810	26KEYSTON E	230.0	PENEL EC	999401	KEYSTONE	1.0	PJM	4	ATSI-P1-2-CEI-345-700T	single	635.0	102.31	103.96	DC	10.84
99688512	200912	26CONEMA GH	230.0	PENEL EC	200005	CONEM-GH	500.0	PJM	3	PN-P2_3-PN-230-0252-C	breaker	1066.0	129.44	132.93	DC	38.66
99688513	200912	26CONEMA GH	230.0	PENEL EC	200005	CONEM-GH	500.0	PJM	3	PN-P2_3-PN-230-0252-B	breaker	1066.0	129.4	132.9	DC	38.66
99688514	200912	26CONEMA GH	230.0	PENEL EC	200005	CONEM-GH	500.0	PJM	3	PN-P2_3-PN-230-0252-A	breaker	1066.0	129.39	132.89	DC	38.66
101401701	202650	26HIGHPOI NT	115.0	PENEL EC	200747	26PENNMAR	115.0	PENEL EC	1	PN-P2-3-PN-115-35E	breaker	174.0	177.68	185.58	DC	13.75
101402821	202650	26HIGHPOI NT	115.0	PENEL EC	200747	26PENNMAR	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	174.0	157.8	171.72	DC	24.22
100806915	235449	01CARLOS	138.0	AP	237310	01DANSMT N	138.0	AP	1	AP-P2-3-MP-138-150	breaker	182.0	116.96	119.2	DC	9.06
100806916	235449	01CARLOS	138.0	AP	237310	01DANSMT N	138.0	AP	1	AP-P2-4-MP-138-200	breaker	182.0	116.81	119.09	DC	9.21
100806745	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P2-2-MP-138-101-A	bus	206.0	110.46	112.58	DC	9.7
100806933	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P2-3-MP-138-150	breaker	206.0	111.05	113.14	DC	9.54
100806934	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P2-4-MP-138-200	breaker	206.0	110.79	112.92	DC	9.69
100806935	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P2-3-MP-138-159	breaker	206.0	110.42	112.54	DC	9.68
100806936	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P2-3-MP-138-153	breaker	206.0	110.22	112.34	DC	9.68
100806834	235470	01GARRET	115.0	AP	235469	01GARRET	138.0	AP	1	PN-P2-3-PN-115-35E	breaker	196.0	169.08	176.08	DC	13.73
100807258	235596	01VASC T	138.0	AP	235173	01EDGEWT	138.0	AP	1	PN-P1_2-PN-230-0103	single	192.0	101.23	104.04	DC	5.4
100806873	237310	01DANSMT N	138.0	AP	235504	01RIDGLY	138.0	AP	1	AP-P2-4-MP-138-200	breaker	182.0	147.09	149.38	DC	9.21
101402859	960390	AF2-330 TAP	115.0	PENEL EC	200525	26SUMMIT	115.0	PENEL EC	1	PN-P7-1-PN-230-001	tower	237.0	115.03	130.78	DC	37.32
99688467	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	PJM500_PN_P4-500-001A	breaker	634.0	146.61	150.26	DC	22.76

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
99688468	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	PJM500_PN_P4-500-001D	breaker	634.0	146.61	150.26	DC	22.76
99689006	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	PN-P1-2-PN-345-107T	single	634.0	101.73	103.38	DC	10.84
99689007	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	ATSI-P1-2-CEI-345-700T	single	634.0	101.73	103.38	DC	10.84

11.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPAC T
101402383	200501	26BDFORD N	115.0	PENELE C	200523	26SNAKE SP	115.0	PENELE C	1	PN-P1-2-PN-115-080	operation	152.0	87.61	100.79	DC	20.04
101402350	200505	26CLYSBURG	115.0	PENELE C	960390	AF2-330 TAP	115.0	PENELE C	1	PN-P1-2-PN-115-082	operation	237.0	94.32	105.76	DC	27.12
101402351	200505	26CLYSBURG	115.0	PENELE C	960390	AF2-330 TAP	115.0	PENELE C	1	Base Case	operation	175.0	91.81	103.89	DC	21.12
101402180	200523	26SNAKE SP	115.0	PENELE C	200521	26SAXTON	115.0	PENELE C	1	PN-P1-2-PN-115-080	operation	120.0	120.49	137.19	DC	20.04
101402320	200740	26BLRSVL E	115.0	PENELE C	200763	26BLAIRSVL	138.0	PENELE C	1	PN-P1_2-PN-230-0103	operation	364.0	104.86	108.52	DC	13.3
101402310	200741	26SEWARD	115.0	PENELE C	200766	26FLORENCE	115.0	PENELE C	1	PN-P1_2-PN-230-0104	operation	282.0	105.17	110.08	DC	13.87
101402143	200742	26TOWER 51	115.0	PENELE C	200741	26SEWARD	115.0	PENELE C	1	AP-P1-3-PN-115-010	operation	185.0	128.15	148.74	DC	38.1
101402148	200742	26TOWER 51	115.0	PENELE C	200741	26SEWARD	115.0	PENELE C	1	Base Case	operation	147.0	106.83	129.88	DC	33.87

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Ratin g MVA	PRE PROJEC T LOADIN G %	POST PROJEC T LOADIN G %	AC D C	MW IMPAC T
101402096	200743	26HOOVERS V	115.0	PENELE C	200742	26TOWER 51	115.0	PENELE C	1	AP-P1-3-PN-115-010	operati on	172.0	151.44	173.84	DC	38.53
101402101	200743	26HOOVERS V	115.0	PENELE C	200742	26TOWER 51	115.0	PENELE C	1	Base Case	operati on	137.0	131.07	156.08	DC	34.25
101402384	200743	26HOOVERS V	115.0	PENELE C	200734	26SCALP L.	115.0	PENELE C	1	PN-P1-2-PN-115-065	operati on	190.0	86.79	100.64	DC	26.33
101402273	200745	26ALLEGHE N	115.0	PENELE C	945670	AF1-232 TAP	115.0	PENELE C	1	PN-P1-2-PN-115-110	operati on	160.0	93.52	119.94	DC	42.27
101402169	200746	26ROCKWO OD	115.0	PENELE C	202650	26HIGHPOI NT	115.0	PENELE C	1	PN-P1-3-PN-115-029	operati on	179.0	133.76	142.25	DC	15.19
101402170	200746	26ROCKWO OD	115.0	PENELE C	202650	26HIGHPOI NT	115.0	PENELE C	1	Base Case	operati on	148.0	137.32	141.12	DC	12.47
101402086	200747	26PENNMAR	115.0	PENELE C	200762	26GARRETT	115.0	PENELE C	1	Base Case	operati on	137.0	164.34	168.44	DC	12.47
101402367	200751	26HILLCLAY	115.0	PENELE C	200752	26HILLTOP	115.0	PENELE C	1	PN-P1-3-PN-115-014	operati on	237.0	89.41	102.13	DC	30.16
98923950	200762	26GARRETT	115.0	PENELE C	235470	01GARRET	115.0	AP	1	Base Case	operati on	133.0	181.4	185.63	DC	12.45
98924025	200763	26BLAIRSVL	138.0	PENELE C	235253	01SOCIAL	138.0	AP	1	PN-P1_2-PN-230-0103	operati on	287.0	132.79	137.43	DC	13.3
98924026	200763	26BLAIRSVL	138.0	PENELE C	235253	01SOCIAL	138.0	AP	1	Base Case	operati on	225.0	122.5	124.47	DC	9.84
101402313	200766	26FLORENC E	115.0	PENELE C	200740	26BLRSVL E	115.0	PENELE C	1	PN-P1_2-PN-230-0104	operati on	282.0	105.06	109.98	DC	13.87
99688759	200767	26HOMER CT	230.0	PENELE C	200795	26SHELOCT A	230.0	PENELE C	1	PN-P1-2-PN-345-107T	operati on	917.0	204.25	207.56	DC	30.32
99688760	200767	26HOMER CT	230.0	PENELE C	200795	26SHELOCT A	230.0	PENELE C	1	ATSI-P1-2-CEI-345-700T	operati on	917.0	204.25	207.56	DC	30.32
99688761	200767	26HOMER CT	230.0	PENELE C	200795	26SHELOCT A	230.0	PENELE C	1	Base Case	operati on	731.0	183.52	187.26	DC	27.82
99689132	200793	26SEWARD 2	230.0	PENELE C	200912	26CONEMA GH	230.0	PENELE C	1	PN-P1_2-PN-230-0103	operati on	1147.0	117.31	120.71	DC	38.51
99688774	200795	26SHELOCT A	230.0	PENELE C	200810	26KEYSTON E	230.0	PENELE C	1	PN-P1-2-PN-345-107T	operati on	917.0	193.87	197.55	DC	33.33

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
99688775	200795	26SHELOCT A	230.0	PENELE C	200810	26KEYSTON E	230.0	PENELE C	1	ATSI-P1-2-CEI-345-700T	operati on	917.0	193.87	197.55	DC	33.33
99688778	200795	26SHELOCT A	230.0	PENELE C	200810	26KEYSTON E	230.0	PENELE C	1	Base Case	operati on	731.0	170.1	174.37	DC	30.7
101402379	200799	26CEN.CTY	115.0	PENELE C	200836	26STATHILL	115.0	PENELE C	1	PN-P1-2-PN-115-074B -A	operati on	282.0	69.12	100.96	DC	89.77
99688991	200810	26KEYSTON E	230.0	PENELE C	999401	KEYSTONE	1.0	PJM	4	PN-P1-3-PN-500-001A T	operati on	635.0	140.82	144.47	DC	22.79
99688994	200810	26KEYSTON E	230.0	PENELE C	999401	KEYSTONE	1.0	PJM	4	Base Case	operati on	494.0	120.59	123.72	DC	15.24
101402138	200836	26STATHILL	115.0	PENELE C	200743	26HOOVERS V	115.0	PENELE C	1	PN-P1-2-PN-115-074B -A	operati on	201.0	108.53	153.19	DC	89.76
101402142	200836	26STATHILL	115.0	PENELE C	200743	26HOOVERS V	115.0	PENELE C	1	Base Case	operati on	158.0	57.64	110.98	DC	84.27
99689089	200912	26CONEMA GH	230.0	PENELE C	200005	CONEM-GH	500.0	PJM	3	PN-P1_2 -PN-230-0103	operati on	1066.0	126.22	129.88	DC	38.51
99689093	200912	26CONEMA GH	230.0	PENELE C	200005	CONEM-GH	500.0	PJM	3	Base Case	operati on	861.0	98.25	101.07	DC	28.06
101402129	202637	26PRIDE	115.0	PENELE C	200744	26SOMERST	115.0	PENELE C	1	Base Case	operati on	133.0	163.22	166.58	DC	9.92
101402126	202647	26KIMRUN TAP	115.0	PENELE C	202637	26PRIDE	115.0	PENELE C	1	Base Case	operati on	133.0	165.62	168.98	DC	9.92
101402132	202650	26HIGHPOIN T	115.0	PENELE C	200747	26PENN-MAR	115.0	PENELE C	1	Base Case	operati on	137.0	160.8	164.9	DC	12.47
100807233	235449	01CARLOS	138.0	AP	237310	01DANSMT N	138.0	AP	1	AP-P1-2-MP-138-160-A	operati on	182.0	116.64	118.93	DC	9.24
100807207	235469	01GARRET	138.0	AP	934440	AD1-068 TAP	138.0	AP	1	Base Case	operati on	164.0	110.16	112.43	DC	8.25
100807247	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	AP-P1-2-MP-138-160-A	operati on	206.0	109.84	111.97	DC	9.72
100807157	235470	01GARRET	115.0	AP	235469	01GARRET	138.0	AP	1	Base Case	operati on	169.0	142.76	146.09	DC	12.45
100807257	235596	01VASC T	138.0	AP	235173	01EDGEWT	138.0	AP	1	PN-P1_2 -PN-230-0103	operati on	192.0	106.2	108.14	DC	8.25

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CON T NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC DC	MW IMPACT
100807184	237310	01DANSMTN	138.0	AP	235504	01RIDGLY	138.0	AP	1	AP-P1-2-MP-138-160-A	operation	182.0	147.04	149.33	DC	9.24
100807147	934440	AD1-068 TAP	138.0	AP	235120	01ALBRIG	138.0	AP	1	Base Case	operation	164.0	145.64	147.91	DC	8.25
101402123	945670	AF1-232 TAP	115.0	PENELEC	202647	26KIMRUN TAP	115.0	PENELEC	1	Base Case	operation	133.0	165.62	168.98	DC	9.92
101402218	960390	AF2-330 TAP	115.0	PENELEC	200525	26SUMMIT	115.0	PENELEC	1	Base Case	operation	175.0	116.97	129.04	DC	21.12
101402219	960390	AF2-330 TAP	115.0	PENELEC	200525	26SUMMIT	115.0	PENELEC	1	PN-P1-2-PN-115-082	operation	237.0	115.8	127.24	DC	27.12
101402372	960900	AF2-381 TAP	115.0	PENELEC	200799	26CEN.CTY	115.0	PENELEC	1	PN-P1-2-PN-115-074B-A	operation	282.0	70.29	102.13	DC	89.77
99688999	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	PN-P1-3-PN-500-001A T	operation	634.0	140.32	143.97	DC	22.79
99689004	999401	KEYSTONE	1.0	PJM	200011	KEYSTONE	500.0	PJM	4	Base Case	operation	493.0	119.88	123.02	DC	15.24

11.5 System Reinforcements - Summer Peak Load Flow

ID	Idx	Facility	Upgrade Description	Cost
100806834	25	01GARRET 115.0 kV - 01GARRET 138.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0065A (728) : Replace transformer. Project Type : FAC Cost : \$5,502,600 Time Estimate : 24.0 Months PN-AF2-F-0065B (729) : Replace metering. Project Type : FAC Cost : \$489,120 Time Estimate : 12.0 Months PN-AF2-F-0065C (730) : Replace bus conductor. Project Type : FAC Cost : \$152,850 Time Estimate : 12.0 Months	\$6,144,570
99688512,9968 8513,99688514	22	26CONEMAGH 230.0 kV - CONEM-GH 500.0 kV Ckt 3		\$112,133,000
99688765,9968 8764,99688767	18	26HOMER CT 230.0 kV - 26SHELOCTA 230.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0005 (1703) : Construct 500 kV yard consisting of three-500 kV breakers configured in a breaker-and-a-half layout (initially a ring bus) Tap the Keystone - Conemaugh 500 kV line and loop into the new Homer City 500 kV yard. Install one 500/345 kV transformer. Install a new 345 kV breaker-and-a-half string using three new breakers Project Type : FAC Cost : \$85,596,000 Time Estimate : 48.0 Months	
99688333,9968 8779,99688783, 99688782,9968 8781,99688780	20	26SHELOCTA 230.0 kV - 26KEYSTONE 230.0 kV Ckt 1	PJM-AF1-F-0001a (1908) : Replace/ upgrade transformer detail. Reconductor existing section of 1033.5 AAC subconductor circular (SCCIR) Project Type : FAC Cost : \$26,180,000 Time Estimate : 24.0 Months	
99688563,9968 8562,99688564	19	26SEWARD 2 230.0 kV - 26CONEMAGH 230.0 kV Ckt 1	PJM-AF1-F-0001b (1909) : Replace 5.83 Amp BDD relay (thermal) Project Type : FAC Cost : \$357,000 Time Estimate : 12.0 Months	
99688997,9968 8462,99688463, 99688998	21	26KEYSTONE 230.0 kV - STAR592 1.0 kV Ckt 4		
99688467,9968 9007,99689006, 99688468	29	STAR592 1.0 kV - KEYSTONE 500.0 kV Ckt 4		

ID	Idx	Facility	Upgrade Description	Cost
98924032,98924031,98924030	16	26BLAIRSVL 138.0 kV - 01SOCIAL 138.0 kV Ckt 1	<u>APS</u> WP-AF2-F-0009A (696) : Replace 750 CU bus conductor at Social Hall substation. Project Type : FAC Cost : \$130,252 Time Estimate : 12.0 Months WP-AF2-F-0009B (697) : Replace relaying (CT, MT, RT) at Social Hall substation. Project Type : FAC Cost : \$455,884 Time Estimate : 12.0 Months WP-AF2-F-0009C (698) : Reconductor 372 ft of 636 ACSR from Social Hall substation to structure 42 (1 span). Project Type : FAC Cost : \$325,631 Time Estimate : 12.0 Months <u>PENELEC</u> PN-AF2-F-0033A (1771) : Reconductor 4.83 miles of transmission line Replace line relaying at Blairsville East Project Type : FAC Cost : \$14,765,310 Time Estimate : 30.0 Months	\$15,677,078
98923733	15	26GARRETT 115.0 kV - 01GARRET 115.0 kV Ckt 1	<u>APS</u> WP-AF1-F-0003 (636) : Reconductor Garrett Tap - Garrett (~2.0 miles) Project Type : FAC Cost : \$3,780,000 Time Estimate : 6.0 Months <u>PENELEC</u> PN-AF2-F-0042A (1788) : Replace line trap at Garrett. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0042B (1789) : Replace bus conductor at Garrett. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0042C (1790) : Replace line drops at Garrett. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0042D (1791) : Replace disconnect switch at Garrett. Project Type : FAC Cost : \$183,420 Time Estimate : 12.0 Months	\$4,330,260

ID	Idx	Facility	Upgrade Description	Cost
99688826,9968827,99688825	9	26LEWISTWN 230.0 kV - JUNI BU2 230.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0018B (1735) : Rebuild 24.59 miles of transmission line Project Type : FAC Cost : \$105,240,282 Time Estimate : 48.0 Months <u>PPL</u> R-PL-0006 (1929) : Rebuild PPL's ~0.9mi LEWI-JUNI 230kV Line and replace terminal equipment at Juniata 230kV Project Type : FAC Cost : \$7,000,000 Time Estimate : 24.0 Months R-PL-0007 (1930) : Replace two (2) CB's MOD switches Project Type : FAC Cost : \$600,000 Time Estimate : 24.0 Months	\$112,840,282
101402888	3	26CLYSBURG 115.0 kV - AF2-330 TAP 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0022 (1745) : Rebuild 10.3 miles of transmission line Project Type : FAC Cost : \$31,487,100 Time Estimate : 36.0 Months	\$31,487,100
101402858	14	26HILLCLAY 115.0 kV - 26HILLTOP 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0041A (1785) : Reconnector 4.5 miles of transmission line Project Type : FAC Cost : \$13,756,500 Time Estimate : 36.0 Months PN-AF2-F-0041B (1786) : Replace line drops at Hilltop. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0041C (1787) : Rebuild 0.23 miles of transmission line Project Type : FAC Cost : \$703,110 Time Estimate : 24.0 Months Note: It should be noted that some of the contingencies taken in the analysis may not be valid due to system condition changes that were not captured in the model. This will be re-evaluated for validity in the System Impact phase.	\$14,581,890

ID	Idx	Facility	Upgrade Description	Cost
101401879	7	26ALLEGHEN 115.0 kV - AF1- 232 TAP 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0036A (1774) : Reconductor 1.7 miles of transmission line Project Type : FAC Cost : \$5,196,900 Time Estimate : 24.0 Months PN-AF2-F-0036B (1775) : Replace the bus conductor at Allegheny. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months Note: It should be noted that some of the contingencies taken in the analysis may not be valid due to system condition changes that were not captured in the model. This will be re-evaluated for validity in the System Impact phase.	\$5,319,180
100806745,100 806933,100806 936,100806934, 100806935	24	01GARRET 138.0 kV - 01CARLOS 138.0 kV Ckt 1	<u>APS</u> n4655 (541) : Reconfigure Albright 138 kV SS to breaker-and-a-half layout Project Type : CON Cost : \$20,701,800 Time Estimate : 30.0 Months	\$20,701,800
100806873	27	01DANSMTN 138.0 kV - 01RIDGLY 138.0 kV Ckt 1		
100806915,100 806916	23	01CARLOS 138.0 kV - 01DANSMTN 138.0 kV Ckt 1		
101402841,101 401997	4	26SCALP L. 115.0 kV - 26RACHEL H 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0027A (1757) : Reconductor 2.70 miles of transmission line Project Type : FAC Cost : \$8,253,900 Time Estimate : 24.0 Months PN-AF2-F-0027B (1758) : Adjust CT taps at Rachel Hill. Project Type : FAC Cost : \$733,680 Time Estimate : 12.0 Months s2046_s2046.1_s2046.2 (1894) : Hooversville115 kV Substation Replace line relaying and line trap (s2046.1) Scalp Level 115 kV Substation Replace substation conductor (s2046.2) Rachel Hill 115 kV Substation Replace line relaying, line trap, and substation conductor (s2046.3) Project Type : FAC Cost : \$0	\$8,987,580

ID	Idx	Facility	Upgrade Description	Cost
101401696	13	26PENN-MAR 115.0 kV - 26GARRETT 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0038A (1777) : Reconductor 1.76 miles of transmission line Project Type : FAC Cost : \$5,380,320 Time Estimate : 30.0 Months PN-AF2-F-0038B (1778) : Replace bus conductor at Penn Mar substation. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0038C (1779) : Replace line drops at Penn Mar substation. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months	\$5,624,880
101402826,101 401733	12	26ROCKWOOD 115.0 kV - 26HIGHPOINT 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0037 (1776) : Rebuild 10.1 miles of transmission line Project Type : FAC Cost : \$30,875,700 Time Estimate : 36.0 Months	\$30,875,700
100807258	26	01VASC T 138.0 kV - 01EDGEWT 138.0 kV Ckt 1	<u>APS</u> WP-AF2-F-0010 (699) : Reconductor 5.1 miles of 336 ACSR of the Edgewater Tap - Vasco Tap 138 kV line (37 spans) Project Type : FAC Cost : \$13,285,755 Time Estimate : 42.0 Months	\$13,285,755
101401772	10	26SNAKE SP 115.0 kV - 26SAXTON 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0024 (1722) : Reconductor 18.07 miles of line. Replace line drops at Saxton and Snake Spring. Project Type : FAC Cost : \$55,239,990 Time Estimate : 42.0 Months	\$55,239,990

ID	Idx	Facility	Upgrade Description	Cost
101401987,101402852,101401988	5	26HOOVERSV 115.0 kV - 26SCALP L. 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0026A (1755) : Reconductor 6.92 miles of transmission line Project Type : FAC Cost : \$21,154,440 Time Estimate : 30.0 Months PN-AF2-F-0026B (1756) : Adjust CT taps at Hooversville. Project Type : FAC Cost : \$733,680 Time Estimate : 12.0 Months s2046_s2046.1_s2046.2 (1894) : Hooversville115 kV Substation Replace line relaying and line trap (s2046.1) Scalp Level 115 kV Substation Replace substation conductor (s2046.2) Rachel Hill 115 kV Substation Replace line relaying, line trap, and substation conductor (s2046.3) Project Type : FAC Cost : \$0	\$21,888,120
101401936,101401935	11	26SEWARD 115.0 kV - 26FLORENCE 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0029A (1762) : Replace bus conductor at Seward. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0029B (1763) : Reconductor 4.15 miles of transmission line Project Type : FAC Cost : \$12,686,550 Time Estimate : 30.0 Months PN-AF2-F-0029C (1764) : Replace bus conductor at Florence and Seward. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0029D (1765) : Replace line drops at Florence and Seward. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months	\$13,053,390

ID	Idx	Facility	Upgrade Description	Cost
101401941,101401940	17	26FLORENCE 115.0 kV - 26BLRSVL E 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0028A (1759) : Reconductor 9.5 miles of transmission line. Replace line drops at Blairsville East. Project Type : FAC Cost : \$29,041,500 Time Estimate : 36.0 Months PN-AF2-F-0028B (1760) : Replace bus conductor at Florence. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0028C (1761) : Replace line drops at Florence. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months	\$29,286,060
101401961	2	26BDFORD N 115.0 kV - 26SNAKE SP 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0008 (1710) : Reconductor 7.1 miles of line Project Type : FAC Cost : \$17,363,760 Time Estimate : 30.0 Months	\$17,363,760
101402922	8	26RACHEL H 115.0 kV - 26HILLCLAY 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0040A (1783) : Replace line drops at Rachel Hill Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0040B (1784) : Replace bus conductor at Rachel Hill. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months	\$244,560
101402036,101402889	6	26SOMERST 115.0 kV - 26ROCKWOOD 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0030 (1766) : Reconductor 8.12 miles of transmission line Project Type : FAC Cost : \$24,822,840 Time Estimate : 36.0 Months	\$24,822,840

ID	Idx	Facility	Upgrade Description	Cost
101402859	28	AF2-330 TAP 115.0 kV - 26SUMMIT 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0025A (1749) : Replace line trap at Summit Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0025B (1750) : Replace bus conductor at Summit. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months PN-AF2-F-0025C (1751) : Adjust CT taps at Summit. Project Type : FAC Cost : \$733,680 Time Estimate : 12.0 Months PN-AF2-F-0025D (1752) : Rebuild 1.22 miles of transmission line Project Type : FAC Cost : \$3,729,540 Time Estimate : 24.0 Months PN-AF2-F-0025E (1753) : Reconductor 0.28 mi. of transmission line Project Type : FAC Cost : \$855,960 Time Estimate : 18.0 Months PN-AF2-F-0025F (1754) : Replace circuit breaker and adjust relay settings at Summit. Project Type : FAC Cost : \$733,680 Time Estimate : 12.0 Months	\$6,297,420
101402137,101 401701,101402 821	1	26HIGHPOINT 115.0 kV - 26PENN-MAR 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0039A (1780) : Replace circuit breaker at Penn Mar Project Type : FAC Cost : \$733,680 Time Estimate : 12.0 Months PN-AF2-F-0039B (1781) : Rebuild 4.67 miles of transmission line Project Type : FAC Cost : \$14,276,190 Time Estimate : 36.0 Months PN-AF2-F-0039C (1782) : Replace bus conductor at Penn Mar. Project Type : FAC Cost : \$122,280 Time Estimate : 12.0 Months	\$15,132,150
			TOTAL COST	\$565,317,365

11.6 Flow Gate Details

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

11.6.1 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
101401701	202650	26HIGHPOINT	PENELEC	200747	26PENN-MAR	PENELEC	1	PN-P2-3-PN-115-35E	breaker	174.0	177.68	185.58	DC	13.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200834	26SW_E13_K22	0.1462	50/50	0.1462
200835	26DSGENWIN	0.9850	50/50	0.9850
200864	K-013 E	1.7945	Adder	2.11
200889	26STNY CRK	0.5956	50/50	0.5956
200890	26BF_G21_K23	0.4830	50/50	0.4830
200891	26CSLMN_L13	0.7577	50/50	0.7577
200892	26LOOKOUT	0.7198	50/50	0.7198
202225	26SCI_S29B	0.2274	50/50	0.2274
202652	26RGH_Y1-033	0.5552	50/50	0.5552
292350	K-023	18.0641	50/50	18.0641
292542	L-013 1	17.5699	50/50	17.5699
293432	R-040 E	0.9883	50/50	0.9883
293902	O-048 E	15.8129	50/50	15.8129
294903	P-060 E	13.8117	50/50	13.8117
913142	Y1-033 E OP1	21.9895	50/50	21.9895
917672	Z2-108 E	9.8831	50/50	9.8831
938351	AE1-053	5.4906	50/50	5.4906
938881	AE1-116	2.1186	50/50	2.1186
938991	AE1-128 C	10.8223	50/50	10.8223
938992	AE1-128 E	7.2149	50/50	7.2149
943711	AF1-039 C O1	5.8173	50/50	5.8173
943712	AF1-039 E O1	3.8782	50/50	3.8782
944781	AF1-143 C	32.9436	50/50	32.9436
944782	AF1-143 E	17.5699	50/50	17.5699
945671	AF1-232 C O2	39.3723	50/50	39.3723
945672	AF1-232 E O2	21.2005	50/50	21.2005
946081	AF1-273 C O1	18.5099	50/50	18.5099
946082	AF1-273 E O1	12.3400	50/50	12.3400
957981	AF2-092 C	0.9706	50/50	0.9706
957982	AF2-092 E	0.6470	50/50	0.6470
958101	AF2-104 C	1.1299	50/50	1.1299
958102	AF2-104 E	0.7533	50/50	0.7533
958411	AF2-135 C	1.6472	50/50	1.6472
958412	AF2-135 E	1.0981	50/50	1.0981
958471	AF2-141	4.3925	50/50	4.3925
959792	AF2-270 E	0.5593	50/50	0.5593
960451	AF2-336 C O1	1.6176	50/50	1.6176
960452	AF2-336 E O1	1.0784	50/50	1.0784
960461	AF2-337 C O1	1.6176	50/50	1.6176
960462	AF2-337 E O1	1.0784	50/50	1.0784
960471	AF2-338 C O1	1.6176	50/50	1.6176

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960472	AF2-338 E O1	1.0784	50/50	1.0784
960481	AF2-339 C O1	1.6176	50/50	1.6176
960482	AF2-339 E O1	1.0784	50/50	1.0784
960901	AF2-381 C	9.0065	50/50	9.0065
960902	AF2-381 E	4.7397	50/50	4.7397
NEWTON	NEWTON	0.2310	Confirmed LTF	0.2310
FARMERCITY	FARMERCITY	0.0121	Confirmed LTF	0.0121
G-007A	G-007A	0.7049	Confirmed LTF	0.7049
VFT	VFT	1.9479	Confirmed LTF	1.9479
CALDERWOOD	CALDERWOOD	0.1188	Confirmed LTF	0.1188
PRAIRIE	PRAIRIE	0.5631	Confirmed LTF	0.5631
CHEOAH	CHEOAH	0.1201	Confirmed LTF	0.1201
EDWARDS	EDWARDS	0.0732	Confirmed LTF	0.0732
TILTON	TILTON	0.1329	Confirmed LTF	0.1329
GIBSON	GIBSON	0.1174	Confirmed LTF	0.1174
BLUEG	BLUEG	0.3784	Confirmed LTF	0.3784
TRIMBLE	TRIMBLE	0.1208	Confirmed LTF	0.1208
CATAWBA	CATAWBA	0.0882	Confirmed LTF	0.0882

11.6.2 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
101401961	200501	26BDFORD N	PENELEC	200523	26SNAKE SP	PENELEC	1	PN-P2-3-PN-115-11F	breaker	152.0	97.58	110.41	DC	19.5

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200846	26FORWARD	0.1053	50/50	0.1053
200864	K-013 E	2.4411	50/50	2.4411
200889	26STNY CRK	0.3031	50/50	0.3031
292350	K-023	2.1578	Adder	2.54
292542	L-013 1	2.0988	Adder	2.47
293432	R-040 E	0.1181	Adder	0.14
293902	O-048 E	1.8889	Adder	2.22
294903	P-060 E	7.0287	50/50	7.0287
913142	Y1-033 E OP1	1.7518	Adder	2.06
917672	Z2-108 E	1.1805	Adder	1.39
938351	AE1-053	0.6559	Adder	0.77
938881	AE1-116	0.3462	Adder	0.41
938991	AE1-128 C	19.0073	50/50	19.0073
938992	AE1-128 E	12.6715	50/50	12.6715
943711	AF1-039 C O1	0.4634	Adder	0.55
943712	AF1-039 E O1	0.3090	Adder	0.36
944781	AF1-143 C	3.9352	Adder	4.63
944782	AF1-143 E	2.0988	Adder	2.47
945671	AF1-232 C O2	14.6047	50/50	14.6047
945672	AF1-232 E O2	7.8641	50/50	7.8641
946081	AF1-273 C O1	7.5934	50/50	7.5934
946082	AF1-273 E O1	5.0623	50/50	5.0623
946571	AF1-321 C O1	0.6698	Adder	0.79
946572	AF1-321 E O1	0.4466	Adder	0.53
957001	AF2-001 C O1	0.3550	Adder	0.79
957002	AF2-001 E O1	0.2367	Adder	0.53
957011	AF2-002 C O1	0.1775	Adder	0.39
957012	AF2-002 E O1	0.1183	Adder	0.26
957513	AF2-045 BAT	0.7421	Merchant Transmission	0.7421
958101	AF2-104 C	0.0978	Adder	0.22
958102	AF2-104 E	0.0652	Adder	0.14
958411	AF2-135 C	0.1043	Adder	0.23
958412	AF2-135 E	0.0695	Adder	0.15
958471	AF2-141	0.2781	Adder	0.62
959792	AF2-270 E	0.9823	50/50	0.9823
959803	AF2-271 BAT	0.0725	Merchant Transmission	0.0725
960901	AF2-381 C	12.7772	50/50	12.7772
960902	AF2-381 E	6.7240	50/50	6.7240
WEC	WEC	0.0214	Confirmed LTF	0.0214
LGEE	LGEE	0.0399	Confirmed LTF	0.0399
CPL	CPL	0.0417	Confirmed LTF	0.0417

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-W2	CBM-W2	0.5569	Confirmed LTF	0.5569
NY	NY	0.0951	Confirmed LTF	0.0951
CBM-W1	CBM-W1	0.8257	Confirmed LTF	0.8257
TVA	TVA	0.0952	Confirmed LTF	0.0952
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.3757	Confirmed LTF	0.3757
CBM-S1	CBM-S1	0.5794	Confirmed LTF	0.5794
G-007	G-007	0.1362	Confirmed LTF	0.1362
MEC	MEC	0.1081	Confirmed LTF	0.1081

11.6.3 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
101402888	200505	26CLYSBURG	PENELEC	960390	AF2-330 TAP	PENELEC	1	PN-P7-1-PN-230-001	tower	237.0	95.23	110.97	DC	37.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.1441	50/50	0.1441
200834	26SW_E13_K22	0.0739	50/50	0.0739
200835	26DSGENWIN	0.3639	50/50	0.3639
200846	26FORWARD	0.2664	50/50	0.2664
200864	K-013 E	6.1772	50/50	6.1772
200888	26HIGHLAND	0.6407	50/50	0.6407
200889	26STNY CRK	0.5348	50/50	0.5348
200890	26BF_G21_K23	0.1785	50/50	0.1785
200891	26CSLMN_L13	0.2800	50/50	0.2800
200892	26LOOKOUT	0.2660	50/50	0.2660
200925	26R32	0.7393	50/50	0.7393
202225	26SCI_S29B	0.1150	50/50	0.1150
202652	26RGH_Y1-033	0.1367	50/50	0.1367
292350	K-023	6.6744	50/50	6.6744
292542	L-013 1	6.4918	50/50	6.4918
293432	R-040 E	0.3652	50/50	0.3652
293603	O-018 E	14.8585	50/50	14.8585
293902	O-048 E	5.8427	50/50	5.8427
294903	P-060 E	12.4022	50/50	12.4022
296332	R-032 E	17.1444	50/50	17.1444
913142	Y1-033 E OP1	5.4139	50/50	5.4139
917672	Z2-108 E	3.6517	50/50	3.6517
938351	AE1-053	2.0287	50/50	2.0287
938881	AE1-116	1.0712	50/50	1.0712
938991	AE1-128 C	26.4449	50/50	26.4449
938992	AE1-128 E	17.6299	50/50	17.6299
943711	AF1-039 C O1	1.4323	50/50	1.4323
943712	AF1-039 E O1	0.9548	50/50	0.9548
944751	AF1-140 C	4.8234	50/50	4.8234
944752	AF1-140 E	3.2156	50/50	3.2156
944781	AF1-143 C	12.1722	50/50	12.1722
944782	AF1-143 E	6.4918	50/50	6.4918
945671	AF1-232 C O2	28.6250	50/50	28.6250
945672	AF1-232 E O2	15.4134	50/50	15.4134
946081	AF1-273 C O1	14.3585	50/50	14.3585
946082	AF1-273 E O1	9.5724	50/50	9.5724
946571	AF1-321 C O1	2.8931	50/50	2.8931
946572	AF1-321 E O1	1.9287	50/50	1.9287
957001	AF2-001 C O1	2.8931	50/50	2.8931
957002	AF2-001 E O1	1.9287	50/50	1.9287
957011	AF2-002 C O1	1.4465	50/50	1.4465

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957012	AF2-002 E O1	0.9644	50/50	0.9644
957513	AF2-045 BAT	2.6820	50/50	2.6820
957981	AF2-092 C	2.8461	50/50	2.8461
957982	AF2-092 E	1.8974	50/50	1.8974
958101	AF2-104 C	0.5713	50/50	0.5713
958102	AF2-104 E	0.3809	50/50	0.3809
958411	AF2-135 C	0.6086	50/50	0.6086
958412	AF2-135 E	0.4057	50/50	0.4057
958471	AF2-141	1.6230	50/50	1.6230
959301	AF2-221 C	1.2907	50/50	1.2907
959302	AF2-221 E	1.7824	50/50	1.7824
959792	AF2-270 E	1.3667	50/50	1.3667
959803	AF2-271 BAT	0.2573	50/50	0.2573
960451	AF2-336 C O1	4.7435	50/50	4.7435
960452	AF2-336 E O1	3.1623	50/50	3.1623
960461	AF2-337 C O1	4.7435	50/50	4.7435
960462	AF2-337 E O1	3.1623	50/50	3.1623
960471	AF2-338 C O1	4.7435	50/50	4.7435
960472	AF2-338 E O1	3.1623	50/50	3.1623
960481	AF2-339 C O1	4.7435	50/50	4.7435
960482	AF2-339 E O1	3.1623	50/50	3.1623
960901	AF2-381 C	24.4529	50/50	24.4529
960902	AF2-381 E	12.8684	50/50	12.8684
WEC	WEC	0.0321	Confirmed LTF	0.0321
LGEE	LGEE	0.0616	Confirmed LTF	0.0616
CPL	CPL	0.0820	Confirmed LTF	0.0820
CBM-W2	CBM-W2	0.8927	Confirmed LTF	0.8927
NY	NY	0.2085	Confirmed LTF	0.2085
CBM-W1	CBM-W1	1.1885	Confirmed LTF	1.1885
TVA	TVA	0.1596	Confirmed LTF	0.1596
O-066	O-066	1.2970	Confirmed LTF	1.2970
CBM-S2	CBM-S2	0.7052	Confirmed LTF	0.7052
CBM-S1	CBM-S1	0.9628	Confirmed LTF	0.9628
G-007	G-007	0.1914	Confirmed LTF	0.1914
MEC	MEC	0.1668	Confirmed LTF	0.1668

11.6.4 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
101402841	200734	26SCALP L.	PENELEC	200749	26RACHEL H	PENELEC	1	PN-P7-1-PN-230-001	tower	190.0	115.87	141.89	DC	49.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2537	50/50	0.2537
200834	26SW_E13_K22	0.1303	50/50	0.1303
200835	26DSGENWIN	0.6414	50/50	0.6414
200840	26DEEPCRK1	0.2343	50/50	0.2343
200841	26DEEPCRK2	0.2343	50/50	0.2343
200846	26FORWARD	0.4573	50/50	0.4573
200864	K-013 E	10.6047	50/50	10.6047
200889	26STNY CRK	0.6356	50/50	0.6356
200890	26BF_G21_K23	0.3146	50/50	0.3146
200891	26CSLMN_L13	0.4934	50/50	0.4934
200892	26LOOKOUT	0.4687	50/50	0.4687
202225	26SCI_S29B	0.2027	50/50	0.2027
202652	26RGH_Y1-033	0.2408	50/50	0.2408
292350	K-023	11.7637	50/50	11.7637
292542	L-013 1	11.4419	50/50	11.4419
293432	R-040 E	0.6436	50/50	0.6436
293902	O-048 E	10.2977	50/50	10.2977
294903	P-060 E	14.7386	50/50	14.7386
913142	Y1-033 E OP1	9.5361	50/50	9.5361
917672	Z2-108 E	6.4361	50/50	6.4361
930262	AB1-065 E (Suspended)	0.4692	Adder	0.55
938351	AE1-053	3.5756	50/50	3.5756
938881	AE1-116	1.8885	50/50	1.8885
938991	AE1-128 C	19.0411	50/50	19.0411
938992	AE1-128 E	12.6941	50/50	12.6941
943301	AF1-001 C	0.4485	Adder	0.53
943302	AF1-001 E	0.5002	Adder	0.59
943711	AF1-039 C O1	2.5228	50/50	2.5228
943712	AF1-039 E O1	1.6819	50/50	1.6819
944781	AF1-143 C	21.4536	50/50	21.4536
944782	AF1-143 E	11.4419	50/50	11.4419
945671	AF1-232 C O2	39.0010	50/50	39.0010
945672	AF1-232 E O2	21.0006	50/50	21.0006
946081	AF1-273 C O1	18.7389	50/50	18.7389
946082	AF1-273 E O1	12.4926	50/50	12.4926
946571	AF1-321 C O1	6.0611	50/50	6.0611
946572	AF1-321 E O1	4.0407	50/50	4.0407
957001	AF2-001 C O1	6.0611	50/50	6.0611
957002	AF2-001 E O1	4.0407	50/50	4.0407
957011	AF2-002 C O1	3.0305	50/50	3.0305
957012	AF2-002 E O1	2.0204	50/50	2.0204

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957981	AF2-092 C	1.5727	50/50	1.5727
957982	AF2-092 E	1.0485	50/50	1.0485
958101	AF2-104 C	1.0072	50/50	1.0072
958102	AF2-104 E	0.6715	50/50	0.6715
958411	AF2-135 C	1.0727	50/50	1.0727
958412	AF2-135 E	0.7151	50/50	0.7151
958471	AF2-141	2.8605	50/50	2.8605
959301	AF2-221 C	4.3160	50/50	4.3160
959302	AF2-221 E	5.9602	50/50	5.9602
959792	AF2-270 E	0.9841	50/50	0.9841
960451	AF2-336 C O1	2.6212	50/50	2.6212
960452	AF2-336 E O1	1.7474	50/50	1.7474
960461	AF2-337 C O1	2.6212	50/50	2.6212
960462	AF2-337 E O1	1.7474	50/50	1.7474
960471	AF2-338 C O1	2.6212	50/50	2.6212
960472	AF2-338 E O1	1.7474	50/50	1.7474
960481	AF2-339 C O1	2.6212	50/50	2.6212
960482	AF2-339 E O1	1.7474	50/50	1.7474
960901	AF2-381 C	32.3898	50/50	32.3898
960902	AF2-381 E	17.0452	50/50	17.0452
WEC	WEC	0.0410	Confirmed LTF	0.0410
LGEE	LGEE	0.0787	Confirmed LTF	0.0787
CPL	CPL	0.1131	Confirmed LTF	0.1131
CBM-W2	CBM-W2	1.1630	Confirmed LTF	1.1630
NY	NY	0.2300	Confirmed LTF	0.2300
CBM-W1	CBM-W1	1.4887	Confirmed LTF	1.4887
TVA	TVA	0.2086	Confirmed LTF	0.2086
O-066	O-066	1.5994	Confirmed LTF	1.5994
CBM-S2	CBM-S2	0.9595	Confirmed LTF	0.9595
CBM-S1	CBM-S1	1.2524	Confirmed LTF	1.2524
G-007	G-007	0.2392	Confirmed LTF	0.2392
MEC	MEC	0.2129	Confirmed LTF	0.2129

11.6.5 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
101402852	200743	26HOOVERSV	PENELEC	200734	26SCALP L	PENELEC	1	PN-P7-1-PN-230-001	tower	190.0	115.57	141.58	DC	49.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2537	50/50	0.2537
200834	26SW_E13_K22	0.1303	50/50	0.1303
200835	26DSGENWIN	0.6414	50/50	0.6414
200840	26DEEPCRK1	0.2343	50/50	0.2343
200841	26DEEPCRK2	0.2343	50/50	0.2343
200846	26FORWARD	0.4573	50/50	0.4573
200864	K-013 E	10.6047	50/50	10.6047
200889	26STNY CRK	0.6356	50/50	0.6356
200890	26BF_G21_K23	0.3146	50/50	0.3146
200891	26CSLMN_L13	0.4934	50/50	0.4934
200892	26LOOKOUT	0.4687	50/50	0.4687
202225	26SCI_S29B	0.2027	50/50	0.2027
202652	26RGH_Y1-033	0.2408	50/50	0.2408
292350	K-023	11.7637	50/50	11.7637
292542	L-013 1	11.4419	50/50	11.4419
293432	R-040 E	0.6436	50/50	0.6436
293902	O-048 E	10.2977	50/50	10.2977
294903	P-060 E	14.7386	50/50	14.7386
913142	Y1-033 E OP1	9.5361	50/50	9.5361
917672	Z2-108 E	6.4361	50/50	6.4361
930262	AB1-065 E (Suspended)	0.4692	Adder	0.55
938351	AE1-053	3.5756	50/50	3.5756
938881	AE1-116	1.8885	50/50	1.8885
938991	AE1-128 C	19.0411	50/50	19.0411
938992	AE1-128 E	12.6941	50/50	12.6941
943301	AF1-001 C	0.4485	Adder	0.53
943302	AF1-001 E	0.5002	Adder	0.59
943711	AF1-039 C O1	2.5228	50/50	2.5228
943712	AF1-039 E O1	1.6819	50/50	1.6819
944781	AF1-143 C	21.4536	50/50	21.4536
944782	AF1-143 E	11.4419	50/50	11.4419
945671	AF1-232 C O2	39.0010	50/50	39.0010
945672	AF1-232 E O2	21.0006	50/50	21.0006
946081	AF1-273 C O1	18.7389	50/50	18.7389
946082	AF1-273 E O1	12.4926	50/50	12.4926
946571	AF1-321 C O1	6.0611	50/50	6.0611
946572	AF1-321 E O1	4.0407	50/50	4.0407
957001	AF2-001 C O1	6.0611	50/50	6.0611
957002	AF2-001 E O1	4.0407	50/50	4.0407
957011	AF2-002 C O1	3.0305	50/50	3.0305
957012	AF2-002 E O1	2.0204	50/50	2.0204

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957981	AF2-092 C	1.5727	50/50	1.5727
957982	AF2-092 E	1.0485	50/50	1.0485
958101	AF2-104 C	1.0072	50/50	1.0072
958102	AF2-104 E	0.6715	50/50	0.6715
958411	AF2-135 C	1.0727	50/50	1.0727
958412	AF2-135 E	0.7151	50/50	0.7151
958471	AF2-141	2.8605	50/50	2.8605
959792	AF2-270 E	0.9841	50/50	0.9841
960451	AF2-336 C O1	2.6212	50/50	2.6212
960452	AF2-336 E O1	1.7474	50/50	1.7474
960461	AF2-337 C O1	2.6212	50/50	2.6212
960462	AF2-337 E O1	1.7474	50/50	1.7474
960471	AF2-338 C O1	2.6212	50/50	2.6212
960472	AF2-338 E O1	1.7474	50/50	1.7474
960481	AF2-339 C O1	2.6212	50/50	2.6212
960482	AF2-339 E O1	1.7474	50/50	1.7474
960901	AF2-381 C	32.3898	50/50	32.3898
960902	AF2-381 E	17.0452	50/50	17.0452
WEC	WEC	0.0410	Confirmed LTF	0.0410
LGEE	LGEE	0.0787	Confirmed LTF	0.0787
CPL	CPL	0.1131	Confirmed LTF	0.1131
CBM-W2	CBM-W2	1.1630	Confirmed LTF	1.1630
NY	NY	0.2300	Confirmed LTF	0.2300
CBM-W1	CBM-W1	1.4887	Confirmed LTF	1.4887
TVA	TVA	0.2086	Confirmed LTF	0.2086
O-066	O-066	1.5994	Confirmed LTF	1.5994
CBM-S2	CBM-S2	0.9595	Confirmed LTF	0.9595
CBM-S1	CBM-S1	1.2524	Confirmed LTF	1.2524
G-007	G-007	0.2392	Confirmed LTF	0.2392
MEC	MEC	0.2129	Confirmed LTF	0.2129

11.6.6 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
101402889	200744	26SOMERST	PENELEC	200746	26ROCKWOOD	PENELEC	1	PN-P7-1-PN-230-001	tower	179.0	95.93	109.47	DC	24.24

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200834	26SW_E13_K22	0.0867	50/50	0.0867
200846	26FORWARD	0.2030	50/50	0.2030
200864	K-013 E	4.7082	50/50	4.7082
200888	26HIGHLAND	0.2569	50/50	0.2569
200889	26STNY CRK	0.4219	50/50	0.4219
200925	26R32	0.2964	50/50	0.2964
202225	26SCI_S29B	0.1348	50/50	0.1348
293603	O-018 E	5.9566	50/50	5.9566
294903	P-060 E	9.7835	50/50	9.7835
296332	R-032 E	6.8730	50/50	6.8730
917672	Z2-108 E	-9.3971	Adder	-11.06
917673	Z2-108 BAT	11.0554	50/50	11.0554
938352	AE1-053 BAT	6.1419	50/50	6.1419
938881	AE1-116	1.2564	50/50	1.2564
938991	AE1-128 C	12.5834	50/50	12.5834
938992	AE1-128 E	8.3890	50/50	8.3890
944751	AF1-140 C	1.1235	50/50	1.1235
944752	AF1-140 E	0.7490	50/50	0.7490
945671	AF1-232 C O2	25.9106	50/50	25.9106
945672	AF1-232 E O2	13.9518	50/50	13.9518
946081	AF1-273 C O1	12.4465	50/50	12.4465
946082	AF1-273 E O1	8.2977	50/50	8.2977
946571	AF1-321 C O1	2.5195	50/50	2.5195
946572	AF1-321 E O1	1.6797	50/50	1.6797
957001	AF2-001 C O1	2.5195	50/50	2.5195
957002	AF2-001 E O1	1.6797	50/50	1.6797
957011	AF2-002 C O1	1.2598	50/50	1.2598
957012	AF2-002 E O1	0.8398	50/50	0.8398
957981	AF2-092 C	1.1624	50/50	1.1624
957982	AF2-092 E	0.7750	50/50	0.7750
958101	AF2-104 C	0.6701	50/50	0.6701
958102	AF2-104 E	0.4467	50/50	0.4467
958472	AF2-141 BAT	12.2838	50/50	12.2838
959301	AF2-221 C	1.0000	50/50	1.0000
959302	AF2-221 E	1.3810	50/50	1.3810
959792	AF2-270 E	0.6503	50/50	0.6503
960391	AF2-330 C	1.9991	Adder	4.44
960392	AF2-330 E	0.8744	Adder	1.94
960451	AF2-336 C O1	1.9374	50/50	1.9374
960452	AF2-336 E O1	1.2916	50/50	1.2916
960461	AF2-337 C O1	1.9374	50/50	1.9374

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960462	AF2-337 E O1	1.2916	50/50	1.2916
960471	AF2-338 C O1	1.9374	50/50	1.9374
960472	AF2-338 E O1	1.2916	50/50	1.2916
960481	AF2-339 C O1	1.9374	50/50	1.9374
960482	AF2-339 E O1	1.2916	50/50	1.2916
960901	AF2-381 C	15.8829	50/50	15.8829
960902	AF2-381 E	8.3584	50/50	8.3584
NEWTON	NEWTON	0.2912	Confirmed LTF	0.2912
FARMERCITY	FARMERCITY	0.0152	Confirmed LTF	0.0152
G-007A	G-007A	1.0525	Confirmed LTF	1.0525
VFT	VFT	2.9025	Confirmed LTF	2.9025
CALDERWOOD	CALDERWOOD	0.1501	Confirmed LTF	0.1501
PRAIRIE	PRAIRIE	0.7103	Confirmed LTF	0.7103
CHEOAH	CHEOAH	0.1517	Confirmed LTF	0.1517
EDWARDS	EDWARDS	0.0917	Confirmed LTF	0.0917
TILTON	TILTON	0.1669	Confirmed LTF	0.1669
GIBSON	GIBSON	0.1480	Confirmed LTF	0.1480
BLUEG	BLUEG	0.4757	Confirmed LTF	0.4757
TRIMBLE	TRIMBLE	0.1525	Confirmed LTF	0.1525
CATAWBA	CATAWBA	0.1113	Confirmed LTF	0.1113

11.6.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401879	200745	26ALLEGHEN	PENELEC	945670	AF1-232 TAP	PENELEC	1	PN-P2-3-PN-115-82B	breaker	160.0	93.64	120.06	DC	42.27

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200883	Q-053 E	3.5545	Adder	4.18
200889	26STNY CRK	1.1413	50/50	1.1413
290086	Q-036 E	1.7503	Adder	2.06
293603	O-018 E	2.9526	Adder	3.47
294903	P-060 E	26.4650	50/50	26.4650
296332	R-032 E	3.4068	Adder	4.01
917672	Z2-108 E	-1.7962	Adder	-2.11
917673	Z2-108 BAT	2.1132	50/50	2.1132
936991	AD2-133 C	0.7876	Adder	0.93
936992	AD2-133 E	3.6026	Adder	4.24
938352	AE1-053 BAT	1.1740	50/50	1.1740
938882	AE1-116 BAT	1.2397	50/50	1.2397
938991	AE1-128 C	24.3475	50/50	24.3475
938992	AE1-128 E	16.2317	50/50	16.2317
944751	AF1-140 C	1.4492	50/50	1.4492
944752	AF1-140 E	0.9661	50/50	0.9661
945673	AF1-232 BAT	5.7712	50/50	5.7712
946081	AF1-273 C O1	34.9794	50/50	34.9794
946082	AF1-273 E O1	23.3196	50/50	23.3196
957512	AF2-045 E	0.4427	Adder	0.98
957931	AF2-087 C	0.0761	Adder	0.17
957932	AF2-087 E	0.1047	Adder	0.23
957981	AF2-092 C	2.1306	50/50	2.1306
957982	AF2-092 E	1.4204	50/50	1.4204
958472	AF2-141 BAT	2.3480	50/50	2.3480
959792	AF2-270 E	1.2583	50/50	1.2583
959802	AF2-271 E	0.0803	Adder	0.18
960391	AF2-330 C	5.0068	50/50	5.0068
960392	AF2-330 E	2.1899	50/50	2.1899
960451	AF2-336 C O1	3.5509	50/50	3.5509
960452	AF2-336 E O1	2.3673	50/50	2.3673
960461	AF2-337 C O1	3.5509	50/50	3.5509
960462	AF2-337 E O1	2.3673	50/50	2.3673
960471	AF2-338 C O1	3.5509	50/50	3.5509
960472	AF2-338 E O1	2.3673	50/50	2.3673
960481	AF2-339 C O1	3.5509	50/50	3.5509
960482	AF2-339 E O1	2.3673	50/50	2.3673
960901	AF2-381 C	27.6953	50/50	27.6953
960902	AF2-381 E	14.5747	50/50	14.5747
NEWTON	NEWTON	0.0838	Confirmed LTF	0.0838
FARMERCITY	FARMERCITY	0.0044	Confirmed LTF	0.0044

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007A	G-007A	0.2997	Confirmed LTF	0.2997
VFT	VFT	0.8256	Confirmed LTF	0.8256
CALDERWOOD	CALDERWOOD	0.0403	Confirmed LTF	0.0403
PRAIRIE	PRAIRIE	0.2015	Confirmed LTF	0.2015
CHEOAH	CHEOAH	0.0405	Confirmed LTF	0.0405
EDWARDS	EDWARDS	0.0269	Confirmed LTF	0.0269
TILTON	TILTON	0.0485	Confirmed LTF	0.0485
MADISON	MADISON	0.0020	Confirmed LTF	0.0020
GIBSON	GIBSON	0.0426	Confirmed LTF	0.0426
BLUEG	BLUEG	0.1371	Confirmed LTF	0.1371
TRIMBLE	TRIMBLE	0.0440	Confirmed LTF	0.0440
CATAWBA	CATAWBA	0.0283	Confirmed LTF	0.0283

11.6.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101402922	200749	26RACHEL H	PENELEC	200751	26HILLCLAY	PENELEC	1	PN-P7-1-PN-230-001	tower	237.0	79.94	100.8	DC	49.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2537	50/50	0.2537
200834	26SW_E13_K22	0.1303	50/50	0.1303
200835	26DSGENWIN	0.6414	50/50	0.6414
200840	26DEEPCRK1	0.2343	50/50	0.2343
200841	26DEEPCRK2	0.2343	50/50	0.2343
200846	26FORWARD	0.4573	50/50	0.4573
200864	K-013 E	10.6047	50/50	10.6047
200889	26STNY CRK	0.6356	50/50	0.6356
200890	26BF_G21_K23	0.3146	50/50	0.3146
200891	26CSLMN_L13	0.4934	50/50	0.4934
200892	26LOOKOUT	0.4687	50/50	0.4687
202225	26SCI_S29B	0.2027	50/50	0.2027
202652	26RGH_Y1-033	0.2408	50/50	0.2408
292350	K-023	11.7637	50/50	11.7637
292542	L-013 1	11.4419	50/50	11.4419
293432	R-040 E	0.6436	50/50	0.6436
293902	O-048 E	10.2977	50/50	10.2977
294903	P-060 E	14.7386	50/50	14.7386
913142	Y1-033 E OP1	9.5361	50/50	9.5361
917672	Z2-108 E	6.4361	50/50	6.4361
930262	AB1-065 E (Suspended)	0.4692	Adder	0.55
938351	AE1-053	3.5756	50/50	3.5756
938881	AE1-116	1.8885	50/50	1.8885
938991	AE1-128 C	19.0411	50/50	19.0411
938992	AE1-128 E	12.6941	50/50	12.6941
943301	AF1-001 C	0.4485	Adder	0.53
943302	AF1-001 E	0.5002	Adder	0.59
943711	AF1-039 C O1	2.5228	50/50	2.5228
943712	AF1-039 E O1	1.6819	50/50	1.6819
944781	AF1-143 C	21.4536	50/50	21.4536
944782	AF1-143 E	11.4419	50/50	11.4419
945671	AF1-232 C O2	39.0010	50/50	39.0010
945672	AF1-232 E O2	21.0006	50/50	21.0006
946081	AF1-273 C O1	18.7389	50/50	18.7389
946082	AF1-273 E O1	12.4926	50/50	12.4926
946571	AF1-321 C O1	6.0611	50/50	6.0611
946572	AF1-321 E O1	4.0407	50/50	4.0407
957001	AF2-001 C O1	6.0611	50/50	6.0611
957002	AF2-001 E O1	4.0407	50/50	4.0407
957011	AF2-002 C O1	3.0305	50/50	3.0305
957012	AF2-002 E O1	2.0204	50/50	2.0204

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957981	AF2-092 C	1.5727	50/50	1.5727
957982	AF2-092 E	1.0485	50/50	1.0485
958101	AF2-104 C	1.0072	50/50	1.0072
958102	AF2-104 E	0.6715	50/50	0.6715
958411	AF2-135 C	1.0727	50/50	1.0727
958412	AF2-135 E	0.7151	50/50	0.7151
958471	AF2-141	2.8605	50/50	2.8605
959301	AF2-221 C	4.3160	50/50	4.3160
959302	AF2-221 E	5.9602	50/50	5.9602
959792	AF2-270 E	0.9841	50/50	0.9841
960451	AF2-336 C O1	2.6212	50/50	2.6212
960452	AF2-336 E O1	1.7474	50/50	1.7474
960461	AF2-337 C O1	2.6212	50/50	2.6212
960462	AF2-337 E O1	1.7474	50/50	1.7474
960471	AF2-338 C O1	2.6212	50/50	2.6212
960472	AF2-338 E O1	1.7474	50/50	1.7474
960481	AF2-339 C O1	2.6212	50/50	2.6212
960482	AF2-339 E O1	1.7474	50/50	1.7474
960901	AF2-381 C	32.3898	50/50	32.3898
960902	AF2-381 E	17.0452	50/50	17.0452
WEC	WEC	0.0410	Confirmed LTF	0.0410
LGEE	LGEE	0.0787	Confirmed LTF	0.0787
CPL	CPL	0.1131	Confirmed LTF	0.1131
CBM-W2	CBM-W2	1.1630	Confirmed LTF	1.1630
NY	NY	0.2300	Confirmed LTF	0.2300
CBM-W1	CBM-W1	1.4887	Confirmed LTF	1.4887
TVA	TVA	0.2086	Confirmed LTF	0.2086
O-066	O-066	1.5994	Confirmed LTF	1.5994
CBM-S2	CBM-S2	0.9595	Confirmed LTF	0.9595
CBM-S1	CBM-S1	1.2524	Confirmed LTF	1.2524
G-007	G-007	0.2392	Confirmed LTF	0.2392
MEC	MEC	0.2129	Confirmed LTF	0.2129

11.6.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688827	200513	26LEWISTWN	PENELEC	208005	JUNI BU2	PPL	1	AP-P1-2-WP-230-324T_FSA_B	single	624.0	108.63	109.82	DC	7.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	10.5785	80/20	10.5785
200642	26SENECA#1	5.1447	80/20	5.1447
200643	26SENECA#2	4.8589	80/20	4.8589
200644	26SENECA#3	0.4784	80/20	0.4784
200649	26PENNTech	1.3924	80/20	1.3924
200665	26SHAWVL 3	8.0082	80/20	8.0082
200666	26SHAWVL 4	7.9690	80/20	7.9690
200715	26SHAWVL 1	5.2796	80/20	5.2796
200722	26SHAWVL 2	5.4100	80/20	5.4100
200794	26CONEMAGH	0.1561	80/20	0.1561
200805	26COLVER13 (Deactivation : 01/09/2020)	10.6557	80/20	10.6557
200812	26ALY HYDR	1.3563	80/20	1.3563
200846	26FORWARD	0.0866	80/20	0.0866
200852	26WARR RDG	0.3875	80/20	0.3875
200870	26C_T85_W218	0.0940	80/20	0.0940
200886	26ARWF_N39	0.5228	80/20	0.5228
200888	26HIGHLAND	0.2292	80/20	0.2292
200889	26STNY CRK	0.1593	80/20	0.1593
200905	26Q36	0.3243	80/20	0.3243
200913	26SHAW-D	0.2381	80/20	0.2381
200915	26CHSTN_FL	0.1837	80/20	0.1837
200925	26R32	0.2645	80/20	0.2645
200945	26CT_V3-030	0.1060	80/20	0.1060
201201	26WRREN CT	1.0943	80/20	1.0943
201477	26Y2-055	3.2300	80/20	3.2300
203034	26NA_O38_P22	0.4574	80/20	0.4574
203905	26W1-045 C	0.6507	80/20	0.6507
919491	AA2-000	127.9269	80/20	127.9269
922932	AB1-082 OP (Suspended)	1.8125	80/20	1.8125
930511	AB1-092	4.6971	80/20	4.6971
935191	AD1-154	1.7428	80/20	1.7428
936421	AD2-055	9.6705	80/20	9.6705
936471	AD2-062 C O1	5.5966	80/20	5.5966
936991	AD2-133 C	3.3844	80/20	3.3844
938381	AE1-071 C	12.5957	80/20	12.5957
938991	AE1-128 C	7.1402	80/20	7.1402
939171	AE1-147 C	4.3174	80/20	4.3174
940201	AE2-001 C	4.3289	80/20	4.3289

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
940681	AE2-055 C (Suspended)	4.5042	80/20	4.5042
940861	AE2-074 C	1.3762	80/20	1.3762
941191	AE2-113 C	9.0964	80/20	9.0964
941231	AE2-117 C	4.4932	80/20	4.4932
941241	AE2-118 C	4.4932	80/20	4.4932
941261	AE2-120 C	4.3351	80/20	4.3351
941271	AE2-121 C	2.2847	80/20	2.2847
941321	AE2-126 C	2.5042	80/20	2.5042
941331	AE2-129 C	2.4839	80/20	2.4839
941351	AE2-131 C	2.4839	80/20	2.4839
942121	AE2-224 C	7.3230	80/20	7.3230
942351	AE2-248 C	3.5448	80/20	3.5448
942491	AE2-262 C	15.5645	80/20	15.5645
942501	AE2-263 C	14.6306	80/20	14.6306
942511	AE2-264 C	14.7394	80/20	14.7394
942961	AE2-316 C	6.3425	80/20	6.3425
943751	AF1-043	29.0115	80/20	29.0115
944001	AF1-068 C O1	4.7500	80/20	4.7500
944181	AF1-086 C O1	2.7598	80/20	2.7598
944311	AF1-099 C	23.6269	80/20	23.6269
944321	AF1-100 C	40.6380	80/20	40.6380
944381	AF1-103 O1	2.2260	80/20	2.2260
944471	AF1-112 C	4.7060	80/20	4.7060
944671	AF1-132 C O1	4.4656	80/20	4.4656
944691	AF1-134 C O1	2.1055	80/20	2.1055
944751	AF1-140 C	1.1375	80/20	1.1375
944771	AF1-142 C	37.8031	80/20	37.8031
944841	AF1-149 C	4.3358	80/20	4.3358
944881	AF1-153 C O1	2.4360	80/20	2.4360
944901	AF1-155 C	2.4209	80/20	2.4209
945121	AF1-177	0.5565	80/20	0.5565
945161	AF1-181	0.2159	80/20	0.2159
945171	AF1-182	1.0807	80/20	1.0807
945181	AF1-183	0.2509	80/20	0.2509
945491	AF1-214 C	4.3348	80/20	4.3348
945551	AF1-220 C	17.6476	80/20	17.6476
945671	AF1-232 C O2	8.8254	80/20	8.8254
945751	AF1-240 C O1	1.0457	80/20	1.0457
946081	AF1-273 C O1	4.3778	80/20	4.3778
946111	AF1-276 C	7.1536	80/20	7.1536
946121	AF1-277 C	7.1536	80/20	7.1536
946131	AF1-278 C	5.7015	80/20	5.7015
946381	AF1-302 C	2.7697	80/20	2.7697
946421	AF1-306 C	10.5768	80/20	10.5768
946431	AF1-307 C	3.4111	80/20	3.4111
946571	AF1-321 C O1	1.0013	80/20	1.0013
957001	AF2-001 C O1	1.0013	80/20	1.0013
957011	AF2-002 C O1	0.5006	80/20	0.5006
957451	AF2-039 C	1.8638	80/20	1.8638
957561	AF2-050 C	3.6615	80/20	3.6615
957581	AF2-052 C	4.4034	80/20	4.4034
957681	AF2-062 C	12.4344	80/20	12.4344

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957931	AF2-087 C	0.6293	80/20	0.6293
957941	AF2-088 C	0.8974	80/20	0.8974
957981	AF2-092 C	0.7415	80/20	0.7415
958271	AF2-121 C	2.4839	80/20	2.4839
958551	AF2-146 C	3.3344	80/20	3.3344
958561	AF2-147 C	4.1257	80/20	4.1257
958571	AF2-148 C	2.2507	80/20	2.2507
958871	AF2-178	0.4947	80/20	0.4947
959301	AF2-221 C	0.5634	80/20	0.5634
959381	AF2-229 C	1.3827	80/20	1.3827
959401	AF2-231 C	1.1233	80/20	1.1233
960041	AF2-295 C	2.4209	80/20	2.4209
960051	AF2-296 C	2.1055	80/20	2.1055
960211	AF2-312 C	1.2448	80/20	1.2448
960391	AF2-330 C	6.0612	80/20	6.0612
960451	AF2-336 C O1	1.2358	80/20	1.2358
960461	AF2-337 C O1	1.2358	80/20	1.2358
960471	AF2-338 C O1	1.2358	80/20	1.2358
960481	AF2-339 C O1	1.2358	80/20	1.2358
960901	AF2-381 C	7.4210	80/20	7.4210
961481	AF2-439 C	3.2586	80/20	3.2586
WEC	WEC	0.4460	Confirmed LTF	0.4460
LGEE	LGEE	0.7810	Confirmed LTF	0.7810
CPL	CPL	0.5279	Confirmed LTF	0.5279
CBM-W2	CBM-W2	10.5733	Confirmed LTF	10.5733
NY	NY	0.6138	Confirmed LTF	0.6138
CBM-W1	CBM-W1	18.4397	Confirmed LTF	18.4397
TVA	TVA	1.6912	Confirmed LTF	1.6912
CBM-S2	CBM-S2	5.3349	Confirmed LTF	5.3349
CBM-S1	CBM-S1	10.5478	Confirmed LTF	10.5478
MEC	MEC	2.1753	Confirmed LTF	2.1753

11.6.10 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401772	200523	26SNAKE SP	PENELEC	200521	26SAXTON	PENELEC	1	PN-P2-3-PN-115-11F	breaker	120.0	130.77	147.02	DC	19.5

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200846	26FORWARD	0.1053	50/50	0.1053
200864	K-013 E	2.4411	50/50	2.4411
200889	26STNY CRK	0.3031	50/50	0.3031
292350	K-023	2.1578	Adder	2.54
292542	L-013 1	2.0988	Adder	2.47
293432	R-040 E	0.1181	Adder	0.14
293902	O-048 E	1.8889	Adder	2.22
294903	P-060 E	7.0287	50/50	7.0287
913142	Y1-033 E OP1	1.7518	Adder	2.06
917672	Z2-108 E	1.1805	Adder	1.39
938351	AE1-053	0.6559	Adder	0.77
938881	AE1-116	0.3462	Adder	0.41
938991	AE1-128 C	19.0073	50/50	19.0073
938992	AE1-128 E	12.6715	50/50	12.6715
943711	AF1-039 C O1	0.4634	Adder	0.55
943712	AF1-039 E O1	0.3090	Adder	0.36
944781	AF1-143 C	3.9352	Adder	4.63
944782	AF1-143 E	2.0988	Adder	2.47
945671	AF1-232 C O2	14.6047	50/50	14.6047
945672	AF1-232 E O2	7.8641	50/50	7.8641
946081	AF1-273 C O1	7.5934	50/50	7.5934
946082	AF1-273 E O1	5.0623	50/50	5.0623
946571	AF1-321 C O1	0.6698	Adder	0.79
946572	AF1-321 E O1	0.4466	Adder	0.53
957001	AF2-001 C O1	0.3550	Adder	0.79
957002	AF2-001 E O1	0.2367	Adder	0.53
957011	AF2-002 C O1	0.1775	Adder	0.39
957012	AF2-002 E O1	0.1183	Adder	0.26
957513	AF2-045 BAT	0.7421	Merchant Transmission	0.7421
957981	AF2-092 C	2.7002	50/50	2.7002
957982	AF2-092 E	1.8001	50/50	1.8001
958101	AF2-104 C	0.0978	Adder	0.22
958102	AF2-104 E	0.0652	Adder	0.14
958411	AF2-135 C	0.1043	Adder	0.23
958412	AF2-135 E	0.0695	Adder	0.15
958471	AF2-141	0.2781	Adder	0.62
959792	AF2-270 E	0.9823	50/50	0.9823
959803	AF2-271 BAT	0.0725	Merchant Transmission	0.0725
960451	AF2-336 C O1	4.5004	50/50	4.5004
960452	AF2-336 E O1	3.0002	50/50	3.0002
960461	AF2-337 C O1	4.5004	50/50	4.5004

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960462	AF2-337 E O1	3.0002	50/50	3.0002
960471	AF2-338 C O1	4.5004	50/50	4.5004
960472	AF2-338 E O1	3.0002	50/50	3.0002
960481	AF2-339 C O1	4.5004	50/50	4.5004
960482	AF2-339 E O1	3.0002	50/50	3.0002
960901	AF2-381 C	12.7772	50/50	12.7772
960902	AF2-381 E	6.7240	50/50	6.7240
WEC	WEC	0.0214	Confirmed LTF	0.0214
LGEE	LGEE	0.0399	Confirmed LTF	0.0399
CPL	CPL	0.0417	Confirmed LTF	0.0417
CBM-W2	CBM-W2	0.5569	Confirmed LTF	0.5569
NY	NY	0.0951	Confirmed LTF	0.0951
CBM-W1	CBM-W1	0.8257	Confirmed LTF	0.8257
TVA	TVA	0.0952	Confirmed LTF	0.0952
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.3757	Confirmed LTF	0.3757
CBM-S1	CBM-S1	0.5794	Confirmed LTF	0.5794
G-007	G-007	0.1362	Confirmed LTF	0.1362
MEC	MEC	0.1081	Confirmed LTF	0.1081

11.6.11 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401935	200741	26SEWARD	PENELEC	200766	26FLORENCE	PENELEC	1	PN-P2-3-PN-230-9G-A	breaker	282.0	107.81	113.36	DC	15.65

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	11.5979	50/50	11.5979
200794	26CONEMAGH	0.3084	50/50	0.3084
200834	26SW_E13_K22	0.0357	50/50	0.0357
200846	26FORWARD	0.1279	50/50	0.1279
200864	K-013 E	2.9661	50/50	2.9661
200883	Q-053 E	4.9843	50/50	4.9843
200888	26HIGHLAND	0.2719	50/50	0.2719
200889	26STNY CRK	0.2121	50/50	0.2121
200915	26CHSTN_FL	0.1361	50/50	0.1361
200925	26R32	0.3138	50/50	0.3138
202225	26SCI_S29B	0.0556	50/50	0.0556
290086	Q-036 E	2.4721	Adder	2.91
292350	K-023	2.7056	Adder	3.18
292542	L-013 1	2.6316	Adder	3.1
293301	N-039 E	4.2209	Adder	4.97
293393	V3-030E	1.8828	Adder	2.22
293432	R-040 E	0.1480	Adder	0.17
293603	O-018 E	6.3060	50/50	6.3060
293902	O-048 E	2.3684	Adder	2.79
294515	O38_P22	3.6933	Adder	4.35
294903	P-060 E	4.9178	50/50	4.9178
296332	R-032 E	7.2762	50/50	7.2762
913142	Y1-033 E OP1	2.1364	Adder	2.51
917672	Z2-108 E	1.4803	Adder	1.74
936991	AD2-133 C	1.1125	Adder	1.31
936992	AD2-133 E	5.0883	Adder	5.99
938351	AE1-053	0.8224	Adder	0.97
938881	AE1-116	0.5181	50/50	0.5181
938991	AE1-128 C	8.6076	50/50	8.6076
938992	AE1-128 E	5.7384	50/50	5.7384
941231	AE2-117 C	0.5318	Adder	0.63
941232	AE2-117 E	0.3546	Adder	0.42
941241	AE2-118 C	0.5318	Adder	0.63
941242	AE2-118 E	0.3546	Adder	0.42
941331	AE2-129 C	0.6019	Adder	0.71
941332	AE2-129 E	0.4013	Adder	0.47
941351	AE2-131 C	0.6019	Adder	0.71
941352	AE2-131 E	0.4013	Adder	0.47
942121	AE2-224 C	4.3901	Adder	5.16
942122	AE2-224 E	2.9267	Adder	3.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942511	AE2-264 C	2.5365	Adder	2.98
942512	AE2-264 E	1.6910	Adder	1.99
943711	AF1-039 C O1	0.5652	Adder	0.66
943712	AF1-039 E O1	0.3768	Adder	0.44
944751	AF1-140 C	1.1215	50/50	1.1215
944752	AF1-140 E	0.7476	50/50	0.7476
944781	AF1-143 C	4.9343	Adder	5.81
944782	AF1-143 E	2.6316	Adder	3.1
945671	AF1-232 C O2	12.1066	50/50	12.1066
945672	AF1-232 E O2	6.5190	50/50	6.5190
946081	AF1-273 C O1	5.9476	50/50	5.9476
946082	AF1-273 E O1	3.9651	50/50	3.9651
946431	AF1-307 C	6.2779	50/50	6.2779
946432	AF1-307 E	4.1852	50/50	4.1852
946571	AF1-321 C O1	1.5589	50/50	1.5589
946572	AF1-321 E O1	1.0393	50/50	1.0393
957001	AF2-001 C O1	1.5589	50/50	1.5589
957002	AF2-001 E O1	1.0393	50/50	1.0393
957011	AF2-002 C O1	0.7795	50/50	0.7795
957012	AF2-002 E O1	0.5196	50/50	0.5196
957512	AF2-045 E	2.1605	50/50	2.1605
957561	AF2-050 C	1.1634	Adder	2.58
957562	AF2-050 E	0.7756	Adder	1.72
957931	AF2-087 C	0.1172	Adder	0.26
957932	AF2-087 E	0.1615	Adder	0.36
957981	AF2-092 C	0.8530	50/50	0.8530
957982	AF2-092 E	0.5687	50/50	0.5687
958101	AF2-104 C	0.2763	50/50	0.2763
958102	AF2-104 E	0.1842	50/50	0.1842
958271	AF2-121 C	0.3190	Adder	0.71
958272	AF2-121 E	0.2127	Adder	0.47
958411	AF2-135 C	0.1308	Adder	0.29
958412	AF2-135 E	0.0872	Adder	0.19
958471	AF2-141	0.3487	Adder	0.77
959301	AF2-221 C	0.8014	50/50	0.8014
959302	AF2-221 E	1.1066	50/50	1.1066
959401	AF2-231 C	0.0705	Adder	0.16
959402	AF2-231 E	0.0470	Adder	0.1
959792	AF2-270 E	0.4448	50/50	0.4448
959802	AF2-271 E	0.1080	Adder	0.24
960211	AF2-312 C	0.3910	Adder	0.87
960212	AF2-312 E	0.2607	Adder	0.58
960391	AF2-330 C	5.4227	50/50	5.4227
960392	AF2-330 E	2.3718	50/50	2.3718
960451	AF2-336 C O1	1.4216	50/50	1.4216
960452	AF2-336 E O1	0.9478	50/50	0.9478
960461	AF2-337 C O1	1.4216	50/50	1.4216
960462	AF2-337 E O1	0.9478	50/50	0.9478
960471	AF2-338 C O1	1.4216	50/50	1.4216
960472	AF2-338 E O1	0.9478	50/50	0.9478
960481	AF2-339 C O1	1.4216	50/50	1.4216
960482	AF2-339 E O1	0.9478	50/50	0.9478

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960901	AF2-381 C	10.2531	50/50	10.2531
960902	AF2-381 E	5.3957	50/50	5.3957
NEWTON	NEWTON	0.5168	Confirmed LTF	0.5168
FARMERCITY	FARMERCITY	0.0266	Confirmed LTF	0.0266
G-007A	G-007A	1.4121	Confirmed LTF	1.4121
VFT	VFT	3.8958	Confirmed LTF	3.8958
CALDERWOOD	CALDERWOOD	0.2212	Confirmed LTF	0.2212
PRAIRIE	PRAIRIE	1.2269	Confirmed LTF	1.2269
CHEOAH	CHEOAH	0.2222	Confirmed LTF	0.2222
EDWARDS	EDWARDS	0.1690	Confirmed LTF	0.1690
TILTON	TILTON	0.3056	Confirmed LTF	0.3056
MADISON	MADISON	0.0403	Confirmed LTF	0.0403
GIBSON	GIBSON	0.2648	Confirmed LTF	0.2648
BLUEG	BLUEG	0.8472	Confirmed LTF	0.8472
TRIMBLE	TRIMBLE	0.2721	Confirmed LTF	0.2721
CATAWBA	CATAWBA	0.1421	Confirmed LTF	0.1421

11.6.12 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401733	200746	26ROCKWOOD	PENELEC	202650	26HIGHPOINT	PENELEC	1	PN-P2-3- PN-115-35E	breaker	179.0	158.91	166.59	DC	13.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200834	26SW_E13_K22	0.1462	50/50	0.1462
200835	26DSGENWIN	0.9850	50/50	0.9850
200864	K-013 E	1.7949	Adder	2.11
200889	26STNY CRK	0.5957	50/50	0.5957
200890	26BF_G21_K23	0.4830	50/50	0.4830
200891	26CSLMN_L13	0.7577	50/50	0.7577
200892	26LOOKOUT	0.7198	50/50	0.7198
202225	26SCI_S29B	0.2274	50/50	0.2274
292350	K-023	18.0647	50/50	18.0647
292542	L-013 1	17.5706	50/50	17.5706
293432	R-040 E	0.9883	50/50	0.9883
293902	O-048 E	15.8135	50/50	15.8135
294903	P-060 E	13.8130	50/50	13.8130
917672	Z2-108 E	9.8834	50/50	9.8834
938351	AE1-053	5.4908	50/50	5.4908
938881	AE1-116	2.1188	50/50	2.1188
938991	AE1-128 C	10.8245	50/50	10.8245
938992	AE1-128 E	7.2163	50/50	7.2163
944751	AF1-140 C	0.6698	Adder	0.79
944752	AF1-140 E	0.4465	Adder	0.53
944781	AF1-143 C	32.9448	50/50	32.9448
944782	AF1-143 E	17.5706	50/50	17.5706
945671	AF1-232 C O2	39.3744	50/50	39.3744
945672	AF1-232 E O2	21.2016	50/50	21.2016
946081	AF1-273 C O1	18.5115	50/50	18.5115
946082	AF1-273 E O1	12.3410	50/50	12.3410
957981	AF2-092 C	0.9707	50/50	0.9707
957982	AF2-092 E	0.6471	50/50	0.6471
958101	AF2-104 C	1.1300	50/50	1.1300
958102	AF2-104 E	0.7533	50/50	0.7533
958411	AF2-135 C	1.6472	50/50	1.6472
958412	AF2-135 E	1.0982	50/50	1.0982
958471	AF2-141	4.3926	50/50	4.3926
959792	AF2-270 E	0.5594	50/50	0.5594
960451	AF2-336 C O1	1.6178	50/50	1.6178
960452	AF2-336 E O1	1.0786	50/50	1.0786
960461	AF2-337 C O1	1.6178	50/50	1.6178
960462	AF2-337 E O1	1.0786	50/50	1.0786
960471	AF2-338 C O1	1.6178	50/50	1.6178
960472	AF2-338 E O1	1.0786	50/50	1.0786

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960481	AF2-339 C O1	1.6178	50/50	1.6178
960482	AF2-339 E O1	1.0786	50/50	1.0786
960901	AF2-381 C	9.0082	50/50	9.0082
960902	AF2-381 E	4.7406	50/50	4.7406
NEWTON	NEWTON	0.2278	Confirmed LTF	0.2278
FARMERCITY	FARMERCITY	0.0119	Confirmed LTF	0.0119
G-007A	G-007A	0.7121	Confirmed LTF	0.7121
VFT	VFT	1.9672	Confirmed LTF	1.9672
CALDERWOOD	CALDERWOOD	0.1173	Confirmed LTF	0.1173
PRAIRIE	PRAIRIE	0.5553	Confirmed LTF	0.5553
CHEOAH	CHEOAH	0.1186	Confirmed LTF	0.1186
EDWARDS	EDWARDS	0.0721	Confirmed LTF	0.0721
TILTON	TILTON	0.1310	Confirmed LTF	0.1310
GIBSON	GIBSON	0.1158	Confirmed LTF	0.1158
BLUEG	BLUEG	0.3732	Confirmed LTF	0.3732
TRIMBLE	TRIMBLE	0.1191	Confirmed LTF	0.1191
CATAWBA	CATAWBA	0.0872	Confirmed LTF	0.0872

11.6.13 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401696	200747	26PENN-MAR	PENELEC	200762	26GARRETT	PENELEC	1	PN-P2-3-PN-115-35E	breaker	167.0	188.53	196.76	DC	13.74

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.7148	50/50	0.7148
200834	26SW_E13_K22	0.1462	50/50	0.1462
200835	26DSGENWIN	0.9849	50/50	0.9849
200864	K-013 E	1.7937	Adder	2.11
200889	26STNY CRK	0.5956	50/50	0.5956
200890	26BF_G21_K23	0.4830	50/50	0.4830
200891	26CSLMN_L13	0.7576	50/50	0.7576
200892	26LOOKOUT	0.7198	50/50	0.7198
202225	26SCI_S29B	0.2274	50/50	0.2274
202652	26RGH_Y1-033	0.5552	50/50	0.5552
292350	K-023	18.0631	50/50	18.0631
292542	L-013 1	17.5690	50/50	17.5690
293432	R-040 E	0.9883	50/50	0.9883
293902	O-048 E	15.8121	50/50	15.8121
294903	P-060 E	13.8104	50/50	13.8104
913142	Y1-033 E OP1	21.9885	50/50	21.9885
917672	Z2-108 E	9.8825	50/50	9.8825
938351	AE1-053	5.4903	50/50	5.4903
938881	AE1-116	2.1185	50/50	2.1185
938991	AE1-128 C	10.8202	50/50	10.8202
938992	AE1-128 E	7.2134	50/50	7.2134
943711	AF1-039 C O1	5.8171	50/50	5.8171
943712	AF1-039 E O1	3.8780	50/50	3.8780
944781	AF1-143 C	32.9418	50/50	32.9418
944782	AF1-143 E	17.5690	50/50	17.5690
945671	AF1-232 C O2	39.3692	50/50	39.3692
945672	AF1-232 E O2	21.1988	50/50	21.1988
946081	AF1-273 C O1	18.5084	50/50	18.5084
946082	AF1-273 E O1	12.3389	50/50	12.3389
957981	AF2-092 C	0.9703	50/50	0.9703
957982	AF2-092 E	0.6468	50/50	0.6468
958101	AF2-104 C	1.1299	50/50	1.1299
958102	AF2-104 E	0.7532	50/50	0.7532
958411	AF2-135 C	1.6471	50/50	1.6471
958412	AF2-135 E	1.0981	50/50	1.0981
958471	AF2-141	4.3922	50/50	4.3922
959792	AF2-270 E	0.5592	50/50	0.5592
960451	AF2-336 C O1	1.6171	50/50	1.6171
960452	AF2-336 E O1	1.0781	50/50	1.0781
960461	AF2-337 C O1	1.6171	50/50	1.6171
960462	AF2-337 E O1	1.0781	50/50	1.0781

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960471	AF2-338 C O1	1.6171	50/50	1.6171
960472	AF2-338 E O1	1.0781	50/50	1.0781
960481	AF2-339 C O1	1.6171	50/50	1.6171
960482	AF2-339 E O1	1.0781	50/50	1.0781
960901	AF2-381 C	9.0041	50/50	9.0041
960902	AF2-381 E	4.7384	50/50	4.7384
NEWTON	NEWTON	0.2342	Confirmed LTF	0.2342
FARMERCITY	FARMERCITY	0.0123	Confirmed LTF	0.0123
G-007A	G-007A	0.6977	Confirmed LTF	0.6977
VFT	VFT	1.9285	Confirmed LTF	1.9285
CALDERWOOD	CALDERWOOD	0.1203	Confirmed LTF	0.1203
PRAIRIE	PRAIRIE	0.5708	Confirmed LTF	0.5708
CHEOAH	CHEOAH	0.1216	Confirmed LTF	0.1216
EDWARDS	EDWARDS	0.0742	Confirmed LTF	0.0742
TILTON	TILTON	0.1348	Confirmed LTF	0.1348
GIBSON	GIBSON	0.1190	Confirmed LTF	0.1190
BLUEG	BLUEG	0.3837	Confirmed LTF	0.3837
TRIMBLE	TRIMBLE	0.1224	Confirmed LTF	0.1224
CATAWBA	CATAWBA	0.0893	Confirmed LTF	0.0893

11.6.14 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101402858	200751	26HILLCLAY	PENELEC	200752	26HILLTOP	PENELEC	1	PN-P7-1-PN-230-001	tower	237.0	112.49	135.62	DC	54.81

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2541	50/50	0.2541
200834	26SW_E13_K22	0.1306	50/50	0.1306
200835	26DSGENWIN	0.6428	50/50	0.6428
200840	26DEEPCRK1	0.2343	50/50	0.2343
200841	26DEEPCRK2	0.2343	50/50	0.2343
200846	26FORWARD	0.4624	50/50	0.4624
200864	K-013 E	10.7233	50/50	10.7233
200883	Q-053 E	7.7242	50/50	7.7242
200888	26HIGHLAND	1.2344	50/50	1.2344
200889	26STNY CRK	0.7356	50/50	0.7356
200890	26BF_G21_K23	0.3152	50/50	0.3152
200891	26CSLMN_L13	0.4945	50/50	0.4945
200892	26LOOKOUT	0.4698	50/50	0.4698
200915	26CHSTN_FL	0.2110	50/50	0.2110
200925	26R32	1.4243	50/50	1.4243
202225	26SCI_S29B	0.2032	50/50	0.2032
202652	26RGH_Y1-033	0.2412	50/50	0.2412
292350	K-023	11.7891	50/50	11.7891
292542	L-013 1	11.4666	50/50	11.4666
293432	R-040 E	0.6450	50/50	0.6450
293603	O-018 E	28.6239	50/50	28.6239
293902	O-048 E	10.3199	50/50	10.3199
294903	P-060 E	17.0591	50/50	17.0591
296332	R-032 E	33.0276	50/50	33.0276
913142	Y1-033 E OP1	9.5532	50/50	9.5532
917672	Z2-108 E	6.4499	50/50	6.4499
938351	AE1-053	3.5833	50/50	3.5833
938881	AE1-116	1.8930	50/50	1.8930
938991	AE1-128 C	27.9324	50/50	27.9324
938992	AE1-128 E	18.6216	50/50	18.6216
943711	AF1-039 C O1	2.5273	50/50	2.5273
943712	AF1-039 E O1	1.6849	50/50	1.6849
944751	AF1-140 C	3.1099	50/50	3.1099
944752	AF1-140 E	2.0733	50/50	2.0733
944781	AF1-143 C	21.4998	50/50	21.4998
944782	AF1-143 E	11.4666	50/50	11.4666
945671	AF1-232 C O2	42.7700	50/50	42.7700
945672	AF1-232 E O2	23.0300	50/50	23.0300
946081	AF1-273 C O1	20.8921	50/50	20.8921
946082	AF1-273 E O1	13.9281	50/50	13.9281
946571	AF1-321 C O1	5.7685	50/50	5.7685

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946572	AF1-321 E O1	3.8457	50/50	3.8457
957001	AF2-001 C O1	5.7685	50/50	5.7685
957002	AF2-001 E O1	3.8457	50/50	3.8457
957011	AF2-002 C O1	2.8843	50/50	2.8843
957012	AF2-002 E O1	1.9228	50/50	1.9228
957931	AF2-087 C	0.1261	Adder	0.28
957932	AF2-087 E	0.1737	Adder	0.39
957981	AF2-092 C	2.6812	50/50	2.6812
957982	AF2-092 E	1.7875	50/50	1.7875
958101	AF2-104 C	1.0096	50/50	1.0096
958102	AF2-104 E	0.6731	50/50	0.6731
958411	AF2-135 C	1.0750	50/50	1.0750
958412	AF2-135 E	0.7167	50/50	0.7167
958471	AF2-141	2.8666	50/50	2.8666
959301	AF2-221 C	3.6886	50/50	3.6886
959302	AF2-221 E	5.0938	50/50	5.0938
959792	AF2-270 E	1.4436	50/50	1.4436
959802	AF2-271 E	0.3133	50/50	0.3133
960391	AF2-330 C	9.6134	50/50	9.6134
960392	AF2-330 E	4.2046	50/50	4.2046
960451	AF2-336 C O1	4.4687	50/50	4.4687
960452	AF2-336 E O1	2.9791	50/50	2.9791
960461	AF2-337 C O1	4.4687	50/50	4.4687
960462	AF2-337 E O1	2.9791	50/50	2.9791
960471	AF2-338 C O1	4.4687	50/50	4.4687
960472	AF2-338 E O1	2.9791	50/50	2.9791
960481	AF2-339 C O1	4.4687	50/50	4.4687
960482	AF2-339 E O1	2.9791	50/50	2.9791
960901	AF2-381 C	35.9099	50/50	35.9099
960902	AF2-381 E	18.8976	50/50	18.8976
WEC	WEC	0.0268	Confirmed LTF	0.0268
LGEE	LGEE	0.0531	Confirmed LTF	0.0531
CPL	CPL	0.0900	Confirmed LTF	0.0900
CBM-W2	CBM-W2	0.8026	Confirmed LTF	0.8026
NY	NY	0.1825	Confirmed LTF	0.1825
CBM-W1	CBM-W1	0.9257	Confirmed LTF	0.9257
TVA	TVA	0.1498	Confirmed LTF	0.1498
O-066	O-066	1.2029	Confirmed LTF	1.2029
CBM-S2	CBM-S2	0.7456	Confirmed LTF	0.7456
CBM-S1	CBM-S1	0.8946	Confirmed LTF	0.8946
G-007	G-007	0.1810	Confirmed LTF	0.1810
MADISON	MADISON	0.0040	Confirmed LTF	0.0040
MEC	MEC	0.1430	Confirmed LTF	0.1430

11.6.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
98923733	200762	26GARRETT	PENELEC	235470	01GARRET	AP	1	PN-P2-3-PN-115-35E	breaker	160.0	207.12	215.7	DC	13.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.7147	50/50	0.7147
200834	26SW_E13_K22	0.1461	50/50	0.1461
200835	26DSGENWIN	0.9847	50/50	0.9847
200840	26DEEPCRK1	1.4114	50/50	1.4114
200841	26DEEPCRK2	1.4114	50/50	1.4114
200889	26STNY CRK	0.5954	50/50	0.5954
200890	26BF_G21_K23	0.4829	50/50	0.4829
200891	26CSLMN_L13	0.7575	50/50	0.7575
200892	26LOOKOUT	0.7196	50/50	0.7196
202225	26SCI_S29B	0.2273	50/50	0.2273
202652	26RGH_Y1-033	0.5551	50/50	0.5551
292350	K-023	18.0595	50/50	18.0595
292542	L-013 1	17.5654	50/50	17.5654
293432	R-040 E	0.9881	50/50	0.9881
293902	O-048 E	15.8089	50/50	15.8089
294903	P-060 E	13.8062	50/50	13.8062
913142	Y1-033 E OP1	21.9847	50/50	21.9847
917672	Z2-108 E	9.8806	50/50	9.8806
938351	AE1-053	5.4892	50/50	5.4892
938881	AE1-116	2.1181	50/50	2.1181
938991	AE1-128 C	10.8130	50/50	10.8130
938992	AE1-128 E	7.2086	50/50	7.2086
943711	AF1-039 C O1	5.8161	50/50	5.8161
943712	AF1-039 E O1	3.8774	50/50	3.8774
944781	AF1-143 C	32.9352	50/50	32.9352
944782	AF1-143 E	17.5654	50/50	17.5654
945671	AF1-232 C O2	39.3588	50/50	39.3588
945672	AF1-232 E O2	21.1932	50/50	21.1932
946081	AF1-273 C O1	18.5033	50/50	18.5033
946082	AF1-273 E O1	12.3355	50/50	12.3355
957981	AF2-092 C	0.9696	50/50	0.9696
957982	AF2-092 E	0.6464	50/50	0.6464
958101	AF2-104 C	1.1296	50/50	1.1296
958102	AF2-104 E	0.7531	50/50	0.7531
958411	AF2-135 C	1.6468	50/50	1.6468
958412	AF2-135 E	1.0978	50/50	1.0978
958471	AF2-141	4.3914	50/50	4.3914
959792	AF2-270 E	0.5588	50/50	0.5588
960451	AF2-336 C O1	1.6159	50/50	1.6159
960452	AF2-336 E O1	1.0773	50/50	1.0773
960461	AF2-337 C O1	1.6159	50/50	1.6159

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960462	AF2-337 E O1	1.0773	50/50	1.0773
960471	AF2-338 C O1	1.6159	50/50	1.6159
960472	AF2-338 E O1	1.0773	50/50	1.0773
960481	AF2-339 C O1	1.6159	50/50	1.6159
960482	AF2-339 E O1	1.0773	50/50	1.0773
960901	AF2-381 C	8.9959	50/50	8.9959
960902	AF2-381 E	4.7341	50/50	4.7341
NEWTON	NEWTON	0.2450	Confirmed LTF	0.2450
FARMERCITY	FARMERCITY	0.0128	Confirmed LTF	0.0128
G-007A	G-007A	0.6737	Confirmed LTF	0.6737
VFT	VFT	1.8640	Confirmed LTF	1.8640
CALDERWOOD	CALDERWOOD	0.1252	Confirmed LTF	0.1252
PRAIRIE	PRAIRIE	0.5967	Confirmed LTF	0.5967
CHEOAH	CHEOAH	0.1266	Confirmed LTF	0.1266
EDWARDS	EDWARDS	0.0777	Confirmed LTF	0.0777
TILTON	TILTON	0.1411	Confirmed LTF	0.1411
GIBSON	GIBSON	0.1245	Confirmed LTF	0.1245
BLUEG	BLUEG	0.4010	Confirmed LTF	0.4010
TRIMBLE	TRIMBLE	0.1280	Confirmed LTF	0.1280
CATAWBA	CATAWBA	0.0927	Confirmed LTF	0.0927

11.6.16 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
98924030	200763	26BLAIRSVL	PENELEC	235253	01SOCIAL	AP	1	PN-P1_2-PN-230-0103	single	287.0	110.84	113.88	DC	8.71

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	10.7785	80/20	10.7785
200636	26IUP CO-G	0.3876	80/20	0.3876
200715	26SHAWVL 1	1.0991	80/20	1.0991
200722	26SHAWVL 2	1.1268	80/20	1.1268
200794	26CONEMAGH	0.2638	80/20	0.2638
200805	26COLVER13 (Deactivation : 01/09/2020)	13.8149	80/20	13.8149
200809	26SITHE	0.5687	80/20	0.5687
200812	26ALY HYDR	0.2035	80/20	0.2035
200813	26YOUGH	0.0525	80/20	0.0525
200833	26SEWRDB34	8.4976	80/20	8.4976
200834	26SW_E13_K22	0.0299	80/20	0.0299
200835	26DSGENWIN	0.1435	80/20	0.1435
200837	26HOMER C1	9.7941	80/20	9.7941
200838	26HOMER C2	7.9635	80/20	7.9635
200839	26HOMER C3	8.4304	80/20	8.4304
200846	26FORWARD	0.1075	80/20	0.1075
200852	26WARR RDG	0.0581	80/20	0.0581
200886	26ARWF_N39	0.2244	80/20	0.2244
200888	26HIGHLAND	0.2438	80/20	0.2438
200889	26STNY CRK	0.1806	80/20	0.1806
200890	26BF_G21_K23	0.0704	80/20	0.0704
200891	26CSLMN_L13	0.1104	80/20	0.1104
200892	26LOOKOUT	0.1049	80/20	0.1049
200905	26Q36	0.1359	80/20	0.1359
200913	26SHAW-D	0.0612	80/20	0.0612
200915	26CHSTN_FL	0.1300	80/20	0.1300
200925	26R32	0.2813	80/20	0.2813
200945	26CT_V3-030	0.1056	80/20	0.1056
202158	26CON.GEN1	0.0688	80/20	0.0688
202160	26CON.GEN2	0.1286	80/20	0.1286
202225	26SCI_S29B	0.0464	80/20	0.0464
202652	26RGH_Y1-033	0.0514	80/20	0.0514
203034	26NA_O38_P22	0.1964	80/20	0.1964
935191	AD1-154	1.5542	80/20	1.5542
936991	AD2-133 C	1.4184	80/20	1.4184
938351	AE1-053	0.7999	80/20	0.7999
938881	AE1-116	0.4327	80/20	0.4327
938991	AE1-128 C	7.5002	80/20	7.5002

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941231	AE2-117 C	0.6740	80/20	0.6740
941241	AE2-118 C	0.6740	80/20	0.6740
941321	AE2-126 C	0.6278	80/20	0.6278
941331	AE2-129 C	0.8395	80/20	0.8395
941351	AE2-131 C	0.8395	80/20	0.8395
942121	AE2-224 C	5.4018	80/20	5.4018
942511	AE2-264 C	3.1560	80/20	3.1560
943711	AF1-039 C O1	0.5390	80/20	0.5390
944181	AF1-086 C O1	2.1918	80/20	2.1918
944691	AF1-134 C O1	1.0355	80/20	1.0355
944751	AF1-140 C	1.0220	80/20	1.0220
944781	AF1-143 C	4.7994	80/20	4.7994
945181	AF1-183	0.0522	80/20	0.0522
945671	AF1-232 C O2	10.2398	80/20	10.2398
945751	AF1-240 C O1	0.9325	80/20	0.9325
946071	AF1-272 C O1	12.4245	80/20	12.4245
946081	AF1-273 C O1	5.0419	80/20	5.0419
946431	AF1-307 C	5.4216	80/20	5.4216
946571	AF1-321 C O1	1.2994	80/20	1.2994
957001	AF2-001 C O1	1.2994	80/20	1.2994
957011	AF2-002 C O1	0.6497	80/20	0.6497
957451	AF2-039 C	0.4790	80/20	0.4790
957561	AF2-050 C	2.7009	80/20	2.7009
957931	AF2-087 C	0.2587	80/20	0.2587
957941	AF2-088 C	0.2306	80/20	0.2306
957981	AF2-092 C	0.7506	80/20	0.7506
958101	AF2-104 C	0.2308	80/20	0.2308
958271	AF2-121 C	0.8395	80/20	0.8395
958411	AF2-135 C	0.2400	80/20	0.2400
958471	AF2-141	0.6399	80/20	0.6399
959301	AF2-221 C	0.6913	80/20	0.6913
959401	AF2-231 C	0.1685	80/20	0.1685
960051	AF2-296 C	1.0355	80/20	1.0355
960211	AF2-312 C	1.2310	80/20	1.2310
960391	AF2-330 C	5.0677	80/20	5.0677
960451	AF2-336 C O1	1.2510	80/20	1.2510
960461	AF2-337 C O1	1.2510	80/20	1.2510
960471	AF2-338 C O1	1.2510	80/20	1.2510
960481	AF2-339 C O1	1.2510	80/20	1.2510
960901	AF2-381 C	8.7150	80/20	8.7150
NEWTON	NEWTON	0.7016	Confirmed LTF	0.7016
FARMERCITY	FARMERCITY	0.0361	Confirmed LTF	0.0361
G-007A	G-007A	2.0187	Confirmed LTF	2.0187
VFT	VFT	5.5664	Confirmed LTF	5.5664
CALDERWOOD	CALDERWOOD	0.3027	Confirmed LTF	0.3027
PRAIRIE	PRAIRIE	1.6660	Confirmed LTF	1.6660
CHEOAH	CHEOAH	0.3038	Confirmed LTF	0.3038
EDWARDS	EDWARDS	0.2289	Confirmed LTF	0.2289
TILTON	TILTON	0.4139	Confirmed LTF	0.4139
MADISON	MADISON	0.0524	Confirmed LTF	0.0524
GIBSON	GIBSON	0.3593	Confirmed LTF	0.3593
BLUEG	BLUEG	1.1492	Confirmed LTF	1.1492

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TRIMBLE	TRIMBLE	0.3690	Confirmed LTF	0.3690
CATAWBA	CATAWBA	0.1953	Confirmed LTF	0.1953

11.6.17 Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
101401940	200766	26FLORENCE	PENELEC	200740	26BLRSVLE	PENELEC	1	PN-P2-3-PN-230-9G-A	breaker	282.0	107.7	113.25	DC	15.65

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	11.5979	50/50	11.5979
200794	26CONEMAGH	0.3084	50/50	0.3084
200834	26SW_E13_K22	0.0357	50/50	0.0357
200846	26FORWARD	0.1279	50/50	0.1279
200864	K-013 E	2.9661	50/50	2.9661
200883	Q-053 E	4.9843	50/50	4.9843
200888	26HIGHLAND	0.2719	50/50	0.2719
200889	26STNY CRK	0.2121	50/50	0.2121
200915	26CHSTN_FL	0.1361	50/50	0.1361
200925	26R32	0.3138	50/50	0.3138
202225	26SCI_S29B	0.0556	50/50	0.0556
290086	Q-036 E	2.4721	Adder	2.91
292350	K-023	2.7056	Adder	3.18
292542	L-013 1	2.6316	Adder	3.1
293301	N-039 E	4.2209	Adder	4.97
293393	V3-030E	1.8828	Adder	2.22
293432	R-040 E	0.1480	Adder	0.17
293603	O-018 E	6.3060	50/50	6.3060
293902	O-048 E	2.3684	Adder	2.79
294515	O38_P22	3.6933	Adder	4.35
294903	P-060 E	4.9178	50/50	4.9178
296332	R-032 E	7.2762	50/50	7.2762
913142	Y1-033 E OP1	2.1364	Adder	2.51
917672	Z2-108 E	1.4803	Adder	1.74
936991	AD2-133 C	1.1125	Adder	1.31
936992	AD2-133 E	5.0883	Adder	5.99
938351	AE1-053	0.8224	Adder	0.97
938881	AE1-116	0.5181	50/50	0.5181
938991	AE1-128 C	8.6076	50/50	8.6076
938992	AE1-128 E	5.7384	50/50	5.7384
941231	AE2-117 C	0.5318	Adder	0.63
941232	AE2-117 E	0.3546	Adder	0.42
941241	AE2-118 C	0.5318	Adder	0.63
941242	AE2-118 E	0.3546	Adder	0.42
941331	AE2-129 C	0.6019	Adder	0.71
941332	AE2-129 E	0.4013	Adder	0.47
941351	AE2-131 C	0.6019	Adder	0.71
941352	AE2-131 E	0.4013	Adder	0.47
942121	AE2-224 C	4.3901	Adder	5.16
942122	AE2-224 E	2.9267	Adder	3.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942511	AE2-264 C	2.5365	Adder	2.98
942512	AE2-264 E	1.6910	Adder	1.99
943711	AF1-039 C O1	0.5652	Adder	0.66
943712	AF1-039 E O1	0.3768	Adder	0.44
944751	AF1-140 C	1.1215	50/50	1.1215
944752	AF1-140 E	0.7476	50/50	0.7476
944781	AF1-143 C	4.9343	Adder	5.81
944782	AF1-143 E	2.6316	Adder	3.1
945671	AF1-232 C O2	12.1066	50/50	12.1066
945672	AF1-232 E O2	6.5190	50/50	6.5190
946081	AF1-273 C O1	5.9476	50/50	5.9476
946082	AF1-273 E O1	3.9651	50/50	3.9651
946431	AF1-307 C	6.2779	50/50	6.2779
946432	AF1-307 E	4.1852	50/50	4.1852
946571	AF1-321 C O1	1.5589	50/50	1.5589
946572	AF1-321 E O1	1.0393	50/50	1.0393
957001	AF2-001 C O1	1.5589	50/50	1.5589
957002	AF2-001 E O1	1.0393	50/50	1.0393
957011	AF2-002 C O1	0.7795	50/50	0.7795
957012	AF2-002 E O1	0.5196	50/50	0.5196
957512	AF2-045 E	2.1605	50/50	2.1605
957561	AF2-050 C	1.1634	Adder	2.58
957562	AF2-050 E	0.7756	Adder	1.72
957931	AF2-087 C	0.1172	Adder	0.26
957932	AF2-087 E	0.1615	Adder	0.36
957981	AF2-092 C	0.8530	50/50	0.8530
957982	AF2-092 E	0.5687	50/50	0.5687
958101	AF2-104 C	0.2763	50/50	0.2763
958102	AF2-104 E	0.1842	50/50	0.1842
958271	AF2-121 C	0.3190	Adder	0.71
958272	AF2-121 E	0.2127	Adder	0.47
958411	AF2-135 C	0.1308	Adder	0.29
958412	AF2-135 E	0.0872	Adder	0.19
958471	AF2-141	0.3487	Adder	0.77
959301	AF2-221 C	0.8014	50/50	0.8014
959302	AF2-221 E	1.1066	50/50	1.1066
959401	AF2-231 C	0.0705	Adder	0.16
959402	AF2-231 E	0.0470	Adder	0.1
959792	AF2-270 E	0.4448	50/50	0.4448
959802	AF2-271 E	0.1080	Adder	0.24
960211	AF2-312 C	0.3910	Adder	0.87
960212	AF2-312 E	0.2607	Adder	0.58
960391	AF2-330 C	5.4227	50/50	5.4227
960392	AF2-330 E	2.3718	50/50	2.3718
960451	AF2-336 C O1	1.4216	50/50	1.4216
960452	AF2-336 E O1	0.9478	50/50	0.9478
960461	AF2-337 C O1	1.4216	50/50	1.4216
960462	AF2-337 E O1	0.9478	50/50	0.9478
960471	AF2-338 C O1	1.4216	50/50	1.4216
960472	AF2-338 E O1	0.9478	50/50	0.9478
960481	AF2-339 C O1	1.4216	50/50	1.4216
960482	AF2-339 E O1	0.9478	50/50	0.9478

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960901	AF2-381 C	10.2531	50/50	10.2531
960902	AF2-381 E	5.3957	50/50	5.3957
NEWTON	NEWTON	0.5168	Confirmed LTF	0.5168
FARMERCITY	FARMERCITY	0.0266	Confirmed LTF	0.0266
G-007A	G-007A	1.4121	Confirmed LTF	1.4121
VFT	VFT	3.8958	Confirmed LTF	3.8958
CALDERWOOD	CALDERWOOD	0.2212	Confirmed LTF	0.2212
PRAIRIE	PRAIRIE	1.2269	Confirmed LTF	1.2269
CHEOAH	CHEOAH	0.2222	Confirmed LTF	0.2222
EDWARDS	EDWARDS	0.1690	Confirmed LTF	0.1690
TILTON	TILTON	0.3056	Confirmed LTF	0.3056
MADISON	MADISON	0.0403	Confirmed LTF	0.0403
GIBSON	GIBSON	0.2648	Confirmed LTF	0.2648
BLUEG	BLUEG	0.8472	Confirmed LTF	0.8472
TRIMBLE	TRIMBLE	0.2721	Confirmed LTF	0.2721
CATAWBA	CATAWBA	0.1421	Confirmed LTF	0.1421

11.6.18 Index 18

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688765	200767	26HOMER CT	PENELEC	200795	26SHELOCTA	PENELEC	1	PN-P1-2-PN-345-107T	single	917.0	150.84	153.02	DC	19.87

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	21.8285	80/20	21.8285
200642	26SENECA#1	8.0557	80/20	8.0557
200643	26SENECA#2	7.6082	80/20	7.6082
200644	26SENECA#3	0.7491	80/20	0.7491
200794	26CONEMAGH	0.4042	80/20	0.4042
200805	26COLVER13 (Deactivation : 01/09/2020)	10.0503	Adder	11.82
200809	26SITHE	2.3929	80/20	2.3929
200828	26HNSMLK 1	2.0014	80/20	2.0014
200829	26HNSMLK 2	2.0014	80/20	2.0014
200830	26HNSMLK 3	2.0014	80/20	2.0014
200831	26HNSMLK 4	2.0014	80/20	2.0014
200832	26HNSMLK 5	2.0014	80/20	2.0014
200833	26SEWRDB34	23.2757	80/20	23.2757
200834	26SW_E13_K22	0.0691	80/20	0.0691
200837	26HOMER C1	41.2116	80/20	41.2116
200838	26HOMER C2	35.1995	80/20	35.1995
200839	26HOMER C3	37.2634	80/20	37.2634
200846	26FORWARD	0.2470	80/20	0.2470
200886	26ARWF_N39	0.6484	80/20	0.6484
200888	26HIGHLAND	0.5293	80/20	0.5293
200889	26STNY CRK	0.4118	80/20	0.4118
200898	26AA1-106	2.6350	Adder	3.1
200915	26CHSTN_FL	0.2811	80/20	0.2811
200925	26R32	0.6108	80/20	0.6108
201477	26Y2-055	5.7435	80/20	5.7435
202225	26SCI_S29B	0.1075	80/20	0.1075
203034	26NA_O38_P22	0.5674	80/20	0.5674
203349	26Z1-069 C	0.4764	80/20	0.4764
203909	26Z1-038	1.9214	Adder	2.26
203910	26Z1-091	2.4510	Adder	2.88
915951	Y3-092 FTIR	192.3300	Merchant Transmission	192.3300
919201	AA1-144 OP	19.6311	Adder	23.1
919491	AA2-000	57.4701	Adder	67.61
920341	AA2-132 (Suspended)	2.6995	Adder	3.18
922932	AB1-082 OP (Suspended)	4.3036	80/20	4.3036
923442	AB1-160 C	0.1361	80/20	0.1361
930511	AB1-092	2.1101	Adder	2.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935191	AD1-154	2.1961	Adder	2.58
936421	AD2-055	4.3444	Adder	5.11
936991	AD2-133 C	2.8213	Adder	3.32
938351	AE1-053	1.5925	Adder	1.87
938881	AE1-116	1.0012	80/20	1.0012
938951	AE1-123	2.2356	Adder	2.63
938991	AE1-128 C	16.8091	80/20	16.8091
939171	AE1-147 C	1.3204	Adder	1.55
939291	AE1-160 C	1.8792	Adder	2.21
940201	AE2-001 C	1.3184	Adder	1.55
940681	AE2-055 C (Suspended)	1.2873	Adder	1.51
940861	AE2-074 C	3.2677	80/20	3.2677
941191	AE2-113 C	12.6014	80/20	12.6014
941231	AE2-117 C	1.5908	Adder	1.87
941241	AE2-118 C	1.5908	Adder	1.87
941261	AE2-120 C	1.3172	Adder	1.55
941271	AE2-121 C	0.7039	Adder	0.83
941321	AE2-126 C	1.6846	Adder	1.98
941331	AE2-129 C	1.7421	Adder	2.05
941351	AE2-131 C	1.7421	Adder	2.05
941421	AE2-139 C	7.3172	Adder	8.61
942121	AE2-224 C	15.9210	80/20	15.9210
942351	AE2-248 C	1.0402	Adder	1.22
942491	AE2-262 C	5.9296	Adder	6.98
942501	AE2-263 C	5.5738	Adder	6.56
942511	AE2-264 C	7.4709	Adder	8.79
942811	AE2-299 C	5.3143	Adder	6.25
942961	AE2-316 C	5.5600	Adder	6.54
943151	AE2-344 C	11.5182	Adder	13.55
943351	AF1-006 C	2.1004	Adder	2.47
943711	AF1-039 C O1	1.0988	Adder	1.29
943751	AF1-043	13.0332	Adder	15.33
944001	AF1-068 C O1	1.3828	Adder	1.63
944181	AF1-086 C O1	2.1801	Adder	2.56
944261	AF1-094 C	1.8988	Adder	2.23
944281	AF1-096 C	1.7756	Adder	2.09
944301	AF1-098 C	7.9340	Adder	9.33
944311	AF1-099 C	9.0011	Adder	10.59
944321	AF1-100 C	18.8317	Adder	22.15
944381	AF1-103 O1	3.3667	Adder	3.96
944391	AF1-104 O1	3.2762	Adder	3.85
944411	AF1-106 O1	2.9167	Adder	3.43
944471	AF1-112 C	1.3906	Adder	1.64
944671	AF1-132 C O1	1.2942	Adder	1.52
944691	AF1-134 C O1	1.4014	Adder	1.65
944751	AF1-140 C	2.2196	80/20	2.2196
944771	AF1-142 C	14.4018	Adder	16.94
944781	AF1-143 C	9.5549	Adder	11.24
944841	AF1-149 C	1.3171	Adder	1.55
944881	AF1-153 C O1	1.6027	Adder	1.89
944901	AF1-155 C	1.6020	Adder	1.88
945021	AF1-167 C	0.9343	Adder	1.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945051	AF1-170 C	7.6414	Adder	8.99
945121	AF1-177	0.8417	Adder	0.99
945161	AF1-181	0.1005	Adder	0.12
945171	AF1-182	0.5025	Adder	0.59
945181	AF1-183	0.1282	Adder	0.15
945331	AF1-198	0.3852	Adder	0.45
945451	AF1-210 C	1.0200	Adder	1.2
945491	AF1-214 C	1.3172	Adder	1.55
945551	AF1-220 C	13.3684	Adder	15.73
945671	AF1-232 C O2	23.4676	80/20	23.4676
945751	AF1-240 C O1	1.3176	Adder	1.55
946081	AF1-273 C O1	11.5357	80/20	11.5357
946111	AF1-276 C	15.0743	80/20	15.0743
946121	AF1-277 C	15.0743	80/20	15.0743
946131	AF1-278 C	12.0145	80/20	12.0145
946211	AF1-286 C O1	1.1813	Adder	1.39
946221	AF1-287 C	1.9781	Adder	2.33
946381	AF1-302 C	2.4280	Adder	2.86
946401	AF1-304 C	8.7475	Adder	10.29
946421	AF1-306 C	6.7886	Adder	7.99
946431	AF1-307 C	8.5410	80/20	8.5410
946571	AF1-321 C O1	3.0025	80/20	3.0025
946771	AF1-217 C O2	1.9781	Adder	2.33
957001	AF2-001 C O1	3.0025	80/20	3.0025
957011	AF2-002 C O1	1.5013	80/20	1.5013
957161	AF2-010 C	3.8458	Adder	8.54
957451	AF2-039 C	0.5621	Adder	1.25
957561	AF2-050 C	7.9605	80/20	7.9605
957571	AF2-051 C O1	2.9150	Adder	6.47
957581	AF2-052 C	8.0253	80/20	8.0253
957681	AF2-062 C	27.4632	80/20	27.4632
957931	AF2-087 C	0.6212	80/20	0.6212
957941	AF2-088 C	0.2707	Adder	0.6
957951	AF2-089 C	0.2588	Adder	0.57
957981	AF2-092 C	1.6705	80/20	1.6705
958031	AF2-097 C	0.2609	Adder	0.58
958101	AF2-104 C	0.5340	80/20	0.5340
958271	AF2-121 C	0.9233	Adder	2.05
958361	AF2-130 C	0.8471	Adder	1.88
958411	AF2-135 C	0.2532	Adder	0.56
958471	AF2-141	0.6752	Adder	1.5
958731	AF2-164 C O1	10.4098	80/20	10.4098
958741	AF2-165 C	0.9170	Adder	2.04
958751	AF2-166 C	0.8471	Adder	1.88
958791	AF2-170 C	1.0418	Adder	2.31
959061	AF2-197 C O1	2.6610	Adder	5.91
959301	AF2-221 C	1.5451	80/20	1.5451
959401	AF2-231 C	0.2108	Adder	0.47
959441	AF2-235 C	0.4705	Adder	1.04
959461	AF2-237 C	0.5032	Adder	1.12
959471	AF2-238 C	0.9410	Adder	2.09
959481	AF2-239 C	0.7234	Adder	1.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959491	AF2-240 C	0.8348	Adder	1.85
959501	AF2-241 C	0.8734	Adder	1.94
959521	AF2-243 C	0.6877	Adder	1.53
959741	AF2-265 C	0.6744	Adder	1.5
960031	AF2-294 C	0.8627	Adder	1.91
960041	AF2-295 C	0.8491	Adder	1.88
960051	AF2-296 C	0.7427	Adder	1.65
960211	AF2-312 C	0.8059	Adder	1.79
960271	AF2-318 C	0.7821	Adder	1.74
960321	AF2-323 C O1	2.3330	Adder	5.18
960391	AF2-330 C	10.7793	80/20	10.7793
960451	AF2-336 C O1	2.7841	80/20	2.7841
960461	AF2-337 C O1	2.7841	80/20	2.7841
960471	AF2-338 C O1	2.7841	80/20	2.7841
960481	AF2-339 C O1	2.7841	80/20	2.7841
960901	AF2-381 C	19.8673	80/20	19.8673
961141	AF2-405	0.7729	Adder	1.72
961151	AF2-406	5.7969	Adder	12.87
961201	AF2-411 O1	63.9870	80/20	63.9870
961211	AF2-412 O1	11.5924	Adder	25.73
961451	AF2-436	0.0885	Adder	0.2
NEWTON	NEWTON	1.5150	Confirmed LTF	1.5150
FARMERCITY	FARMERCITY	0.0783	Confirmed LTF	0.0783
G-007A	G-007A	2.6205	Confirmed LTF	2.6205
VFT	VFT	7.5078	Confirmed LTF	7.5078
CALDERWOOD	CALDERWOOD	0.6565	Confirmed LTF	0.6565
PRAIRIE	PRAIRIE	3.6033	Confirmed LTF	3.6033
CHEOAH	CHEOAH	0.6597	Confirmed LTF	0.6597
EDWARDS	EDWARDS	0.4963	Confirmed LTF	0.4963
TILTON	TILTON	0.8946	Confirmed LTF	0.8946
MADISON	MADISON	0.0706	Confirmed LTF	0.0706
GIBSON	GIBSON	0.7731	Confirmed LTF	0.7731
BLUEG	BLUEG	2.4651	Confirmed LTF	2.4651
TRIMBLE	TRIMBLE	0.7908	Confirmed LTF	0.7908
CATAWBA	CATAWBA	0.4323	Confirmed LTF	0.4323

11.6.19 Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688564	200793	26SEWARD 2	PENELEC	200912	26CONEMAGH	PENELEC	1	PN-P2_3- PN-230-0252-A	breaker	1147.0	120.25	123.5	DC	38.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	31.2262	50/50	31.2262
200794	26CONEMAGH	0.6545	50/50	0.6545
200805	26COLVER13 (Deactivation : 01/09/2020)	23.2600	Adder	27.36
200809	26SITHE	2.0167	50/50	2.0167
200833	26SEWRDB34	37.4753	50/50	37.4753
200834	26SW_E13_K22	0.0875	50/50	0.0875
200837	26HOMER C1	34.7328	50/50	34.7328
200838	26HOMER C2	29.3172	50/50	29.3172
200839	26HOMER C3	31.0362	50/50	31.0362
200846	26FORWARD	0.3117	50/50	0.3117
200864	K-013 E	7.2275	50/50	7.2275
200883	Q-053 E	14.0093	50/50	14.0093
200886	26ARWF_N39	0.8478	50/50	0.8478
200888	26HIGHLAND	0.7206	50/50	0.7206
200889	26STNY CRK	0.5285	50/50	0.5285
200894	26K02	5.7263	Adder	6.74
200898	26AA1-106	2.1159	Adder	2.49
200915	26CHSTN_FL	0.3826	50/50	0.3826
200925	26R32	0.8314	50/50	0.8314
200945	26CT_V3-030	0.2531	50/50	0.2531
201477	26Y2-055	3.4623	Adder	4.07
202225	26SCI_S29B	0.1361	50/50	0.1361
203034	26NA_O38_P22	0.7418	50/50	0.7418
203910	26Z1-091	1.8412	Adder	2.17
203999	P-047 E	9.8717	Adder	11.61
235003	AC1-025 E	0.1587	Adder	0.19
236828	01GRAYMONT	0.4288	Adder	0.5
290086	Q-036 E	7.8836	Adder	9.27
292350	K-023	6.6881	Adder	7.87
292542	L-013 1	6.5052	Adder	7.65
293301	N-039 E	19.6595	50/50	19.6595
293393	V3-030E	7.7347	50/50	7.7347
293432	R-040 E	0.3659	Adder	0.43
293603	O-018 E	16.7097	50/50	16.7097
293902	O-048 E	5.8546	Adder	6.89
294515	O38_P22	17.2021	50/50	17.2021
294903	P-060 E	12.2552	50/50	12.2552

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
296332	R-032 E	19.2804	50/50	19.2804
913142	Y1-033 E OP1	5.3852	Adder	6.34
916202	Z1-069 E	8.0004	Adder	9.41
917672	Z2-108 E	3.6591	Adder	4.3
919201	AA1-144 OP	15.1504	Adder	17.82
919491	AA2-000	51.6967	Adder	60.82
920341	AA2-132 (Suspended)	2.0572	Adder	2.42
922932	AB1-082 OP (Suspended)	2.9413	Adder	3.46
923443	AB1-160 E	2.2858	Adder	2.69
930511	AB1-092	1.8982	Adder	2.23
935191	AD1-154	3.2936	Adder	3.87
936421	AD2-055	3.9080	Adder	4.6
936991	AD2-133 C	3.5476	Adder	4.17
936992	AD2-133 E	16.2264	Adder	19.09
938351	AE1-053	2.0329	Adder	2.39
938881	AE1-116	1.2677	50/50	1.2677
938951	AE1-123	2.3069	Adder	2.71
938991	AE1-128 C	21.9226	50/50	21.9226
938992	AE1-128 E	14.6150	50/50	14.6150
939171	AE1-147 C	1.2893	Adder	1.52
939172	AE1-147 E	0.8595	Adder	1.01
939291	AE1-160 C	1.4262	Adder	1.68
939292	AE1-160 E	0.8198	Adder	0.96
940201	AE2-001 C	1.2877	Adder	1.51
940202	AE2-001 E	0.8585	Adder	1.01
940681	AE2-055 C (Suspended)	1.2646	Adder	1.49
940682	AE2-055 E (Suspended)	0.8431	Adder	0.99
940861	AE2-074 C	2.2334	Adder	2.63
940862	AE2-074 E	2.9399	Adder	3.46
941191	AE2-113 C	9.0111	Adder	10.6
941192	AE2-113 E	9.7021	Adder	11.41
941231	AE2-117 C	1.9331	Adder	2.27
941232	AE2-117 E	1.2887	Adder	1.52
941241	AE2-118 C	1.9331	Adder	2.27
941242	AE2-118 E	1.2887	Adder	1.52
941261	AE2-120 C	1.2869	Adder	1.51
941262	AE2-120 E	0.8580	Adder	1.01
941271	AE2-121 C	0.6868	Adder	0.81
941272	AE2-121 E	0.4586	Adder	0.54
941321	AE2-126 C	1.6708	Adder	1.97
941322	AE2-126 E	1.1138	Adder	1.31
941331	AE2-129 C	2.0887	Adder	2.46
941332	AE2-129 E	1.3924	Adder	1.64
941351	AE2-131 C	2.0887	Adder	2.46
941352	AE2-131 E	1.3924	Adder	1.64
941421	AE2-139 C	5.7887	Adder	6.81
941422	AE2-139 E	3.8592	Adder	4.54
942121	AE2-224 C	21.1128	50/50	21.1128
942122	AE2-224 E	14.0752	50/50	14.0752
942351	AE2-248 C	1.0194	Adder	1.2
942352	AE2-248 E	0.6796	Adder	0.8
942491	AE2-262 C	5.6912	Adder	6.7

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942492	AE2-262 E	3.8245	Adder	4.5
942501	AE2-263 C	5.3497	Adder	6.29
942502	AE2-263 E	3.5718	Adder	4.2
942511	AE2-264 C	9.4052	Adder	11.06
942512	AE2-264 E	6.2701	Adder	7.38
942811	AE2-299 C	3.0513	Adder	3.59
942812	AE2-299 E	12.2052	Adder	14.36
942961	AE2-316 C	5.0155	Adder	5.9
942962	AE2-316 E	7.1522	Adder	8.41
943151	AE2-344 C	6.5475	Adder	7.7
943152	AE2-344 E	4.3650	Adder	5.14
943711	AF1-039 C O1	1.4247	Adder	1.68
943712	AF1-039 E O1	0.9498	Adder	1.12
943751	AF1-043	11.7239	Adder	13.79
944001	AF1-068 C O1	1.3561	Adder	1.6
944002	AF1-068 E O1	0.7628	Adder	0.9
944181	AF1-086 C O1	4.0187	Adder	4.73
944182	AF1-086 E O1	17.4836	Adder	20.57
944261	AF1-094 C	1.1977	Adder	1.41
944262	AF1-094 E	0.7985	Adder	0.94
944281	AF1-096 C	1.3476	Adder	1.59
944282	AF1-096 E	0.8984	Adder	1.06
944301	AF1-098 C	4.7042	Adder	5.53
944302	AF1-098 E	3.1362	Adder	3.69
944311	AF1-099 C	8.6392	Adder	10.16
944312	AF1-099 E	5.7595	Adder	6.78
944321	AF1-100 C	18.3065	Adder	21.54
944322	AF1-100 E	12.2043	Adder	14.36
944381	AF1-103 O1	2.3868	Adder	2.81
944411	AF1-106 O1	2.2629	Adder	2.66
944471	AF1-112 C	1.3618	Adder	1.6
944472	AF1-112 E	0.7660	Adder	0.9
944671	AF1-132 C O1	1.2697	Adder	1.49
944672	AF1-132 E O1	0.8465	Adder	1.0
944691	AF1-134 C O1	2.0909	Adder	2.46
944692	AF1-134 E O1	1.3939	Adder	1.64
944751	AF1-140 C	3.0046	50/50	3.0046
944752	AF1-140 E	2.0031	50/50	2.0031
944771	AF1-142 C	13.8227	Adder	16.26
944772	AF1-142 E	9.2152	Adder	10.84
944781	AF1-143 C	12.1972	Adder	14.35
944782	AF1-143 E	6.5052	Adder	7.65
944841	AF1-149 C	1.2868	Adder	1.51
944842	AF1-149 E	0.8579	Adder	1.01
944881	AF1-153 C O1	1.4700	Adder	1.73
944882	AF1-153 E O1	0.9800	Adder	1.15
944901	AF1-155 C	1.4695	Adder	1.73
944902	AF1-155 E	0.9797	Adder	1.15
945021	AF1-167 C	0.9039	Adder	1.06
945022	AF1-167 E	0.6037	Adder	0.71
945121	AF1-177	0.5967	Adder	0.7
945161	AF1-181	0.0985	Adder	0.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945171	AF1-182	0.4925	Adder	0.58
945181	AF1-183	0.1340	Adder	0.16
945331	AF1-198	0.3071	Adder	0.36
945451	AF1-210 C	0.9958	Adder	1.17
945452	AF1-210 E	0.6639	Adder	0.78
945491	AF1-214 C	1.2869	Adder	1.51
945492	AF1-214 E	0.8580	Adder	1.01
945551	AF1-220 C	12.2600	Adder	14.42
945552	AF1-220 E	8.1778	Adder	9.62
945671	AF1-232 C O2	29.9790	50/50	29.9790
945672	AF1-232 E O2	16.1426	50/50	16.1426
945751	AF1-240 C O1	1.9761	Adder	2.32
945752	AF1-240 E O1	1.3174	Adder	1.55
946071	AF1-272 C O1	12.9445	Adder	15.23
946072	AF1-272 E O1	8.6297	Adder	10.15
946081	AF1-273 C O1	14.7579	50/50	14.7579
946082	AF1-273 E O1	9.8386	50/50	9.8386
946111	AF1-276 C	10.1126	Adder	11.9
946112	AF1-276 E	4.9808	Adder	5.86
946121	AF1-277 C	10.1126	Adder	11.9
946122	AF1-277 E	4.9808	Adder	5.86
946131	AF1-278 C	8.0599	Adder	9.48
946132	AF1-278 E	4.0088	Adder	4.72
946211	AF1-286 C O1	0.9165	Adder	1.08
946212	AF1-286 E O1	0.6223	Adder	0.73
946221	AF1-287 C	1.1296	Adder	1.33
946222	AF1-287 E	0.7531	Adder	0.89
946381	AF1-302 C	2.1902	Adder	2.58
946382	AF1-302 E	2.9203	Adder	3.44
946401	AF1-304 C	6.8962	Adder	8.11
946402	AF1-304 E	4.5975	Adder	5.41
946421	AF1-306 C	6.1273	Adder	7.21
946422	AF1-306 E	24.5094	Adder	28.83
946431	AF1-307 C	13.6494	50/50	13.6494
946432	AF1-307 E	9.0996	50/50	9.0996
946571	AF1-321 C O1	3.7594	50/50	3.7594
946572	AF1-321 E O1	2.5062	50/50	2.5062
946771	AF1-217 C O2	1.1296	Adder	1.33
946772	AF1-217 E O2	0.7531	Adder	0.89
957001	AF2-001 C O1	3.7594	50/50	3.7594
957002	AF2-001 E O1	2.5062	50/50	2.5062
957011	AF2-002 C O1	1.8797	50/50	1.8797
957012	AF2-002 E O1	1.2531	50/50	1.2531
957161	AF2-010 C	2.4478	Adder	5.43
957162	AF2-010 E	1.6496	Adder	3.66
957451	AF2-039 C	0.6259	Adder	1.39
957452	AF2-039 E	0.4173	Adder	0.93
957512	AF2-045 E	5.8171	50/50	5.8171
957561	AF2-050 C	10.5564	50/50	10.5564
957562	AF2-050 E	7.0376	50/50	7.0376
957571	AF2-051 C O1	1.8332	Adder	4.07
957572	AF2-051 E O1	0.9444	Adder	2.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957581	AF2-052 C	2.9522	Adder	6.55
957582	AF2-052 E	1.4362	Adder	3.19
957681	AF2-062 C	9.8097	Adder	21.78
957682	AF2-062 E	6.5398	Adder	14.52
957931	AF2-087 C	0.8194	50/50	0.8194
957932	AF2-087 E	1.1283	50/50	1.1283
957941	AF2-088 C	0.3014	Adder	0.67
957942	AF2-088 E	0.2009	Adder	0.45
957951	AF2-089 C	0.1964	Adder	0.44
957952	AF2-089 E	0.1012	Adder	0.22
957981	AF2-092 C	2.1966	50/50	2.1966
957982	AF2-092 E	1.4644	50/50	1.4644
958101	AF2-104 C	0.6761	50/50	0.6761
958102	AF2-104 E	0.4507	50/50	0.4507
958271	AF2-121 C	1.1070	Adder	2.46
958272	AF2-121 E	0.7380	Adder	1.64
958361	AF2-130 C	0.7857	Adder	1.74
958362	AF2-130 E	0.5238	Adder	1.16
958411	AF2-135 C	0.3232	Adder	0.72
958412	AF2-135 E	0.2155	Adder	0.48
958471	AF2-141	0.8619	Adder	1.91
958731	AF2-164 C O1	3.3089	Adder	7.34
958732	AF2-164 E O1	2.2059	Adder	4.9
958741	AF2-165 C	0.7534	Adder	1.67
958742	AF2-165 E	0.5023	Adder	1.11
958751	AF2-166 C	0.7857	Adder	1.74
958752	AF2-166 E	0.5238	Adder	1.16
959061	AF2-197 C O1	2.0415	Adder	4.53
959062	AF2-197 E O1	3.0622	Adder	6.8
959301	AF2-221 C	2.0266	50/50	2.0266
959302	AF2-221 E	2.7987	50/50	2.7987
959401	AF2-231 C	0.2561	Adder	0.57
959402	AF2-231 E	0.1708	Adder	0.38
959441	AF2-235 C	0.3571	Adder	0.79
959442	AF2-235 E	0.2381	Adder	0.53
959461	AF2-237 C	0.3174	Adder	0.7
959462	AF2-237 E	0.2116	Adder	0.47
959471	AF2-238 C	0.7426	Adder	1.65
959472	AF2-238 E	0.4950	Adder	1.1
959481	AF2-239 C	0.5535	Adder	1.23
959482	AF2-239 E	0.4438	Adder	0.99
959491	AF2-240 C	0.6476	Adder	1.44
959492	AF2-240 E	0.5517	Adder	1.22
959501	AF2-241 C	0.6776	Adder	1.5
959502	AF2-241 E	0.5217	Adder	1.16
959521	AF2-243 C	0.5651	Adder	1.25
959522	AF2-243 E	0.3767	Adder	0.84
959741	AF2-265 C	0.5322	Adder	1.18
959742	AF2-265 E	0.3960	Adder	0.88
959792	AF2-270 E	1.1330	50/50	1.1330
959802	AF2-271 E	0.3327	Adder	0.74
959822	AF2-273 E	0.2111	Adder	0.47

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960022	AF2-293 E	0.0664	Adder	0.15
960031	AF2-294 C	0.6575	Adder	1.46
960032	AF2-294 E	0.4383	Adder	0.97
960041	AF2-295 C	0.7788	Adder	1.73
960042	AF2-295 E	0.5192	Adder	1.15
960051	AF2-296 C	1.1082	Adder	2.46
960052	AF2-296 E	0.7388	Adder	1.64
960211	AF2-312 C	2.9816	50/50	2.9816
960212	AF2-312 E	1.9877	50/50	1.9877
960271	AF2-318 C	0.5983	Adder	1.33
960272	AF2-318 E	0.3989	Adder	0.89
960321	AF2-323 C O1	1.4727	Adder	3.27
960322	AF2-323 E O1	0.9818	Adder	2.18
960391	AF2-330 C	14.8326	50/50	14.8326
960392	AF2-330 E	6.4873	50/50	6.4873
960451	AF2-336 C O1	3.6611	50/50	3.6611
960452	AF2-336 E O1	2.4407	50/50	2.4407
960461	AF2-337 C O1	3.6611	50/50	3.6611
960462	AF2-337 E O1	2.4407	50/50	2.4407
960471	AF2-338 C O1	3.6611	50/50	3.6611
960472	AF2-338 E O1	2.4407	50/50	2.4407
960481	AF2-339 C O1	3.6611	50/50	3.6611
960482	AF2-339 E O1	2.4407	50/50	2.4407
960901	AF2-381 C	25.3292	50/50	25.3292
960902	AF2-381 E	13.3295	50/50	13.3295
961141	AF2-405	0.5997	Adder	1.33
961151	AF2-406	4.4975	Adder	9.98
961201	AF2-411 O1	22.9633	Adder	50.97
961211	AF2-412 O1	9.1953	Adder	20.41
WEC	WEC	0.0652	Confirmed LTF	0.0652
LGEE	LGEE	0.0764	Confirmed LTF	0.0764
CALDERWOOD	CALDERWOOD	0.0452	Confirmed LTF	0.0452
CBM-W2	CBM-W2	0.5569	Confirmed LTF	0.5569
CBM-W1	CBM-W1	3.8281	Confirmed LTF	3.8281
O-066	O-066	8.3866	Confirmed LTF	8.3866
CHEOAH	CHEOAH	0.0485	Confirmed LTF	0.0485
CBM-S1	CBM-S1	0.0596	Confirmed LTF	0.0596
G-007	G-007	1.3936	Confirmed LTF	1.3936
MEC	MEC	0.2447	Confirmed LTF	0.2447
CATAWBA	CATAWBA	0.0952	Confirmed LTF	0.0952

11.6.20 Index 20

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688333	200795	26SHELOCTA	PENELEC	200810	26KEYSTONE	PENELEC	1	ATSI-P2-3-CEI-345-004D	breaker	917.0	194.81	198.5	DC	33.35

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.7309	50/50	0.7309
200794	26CONEMAGH	0.4993	50/50	0.4993
200805	26COLVER13 (Deactivation : 01/09/2020)	29.3843	50/50	29.3843
200809	26SITHE	2.2832	50/50	2.2832
200833	26SEWRDB34	24.0546	50/50	24.0546
200837	26HOMER C1	39.3219	50/50	39.3219
200838	26HOMER C2	34.1161	50/50	34.1161
200839	26HOMER C3	36.1164	50/50	36.1164
200846	26FORWARD	0.2706	50/50	0.2706
200864	K-013 E	6.2749	50/50	6.2749
200883	Q-053 E	9.9862	Adder	11.75
200888	26HIGHLAND	0.5912	50/50	0.5912
200894	26K02	7.1452	Adder	8.41
200898	26AA1-106	2.6743	Adder	3.15
200925	26R32	0.6821	50/50	0.6821
201477	26Y2-055	4.9421	Adder	5.81
202158	26CON.GEN1	0.1250	50/50	0.1250
203910	26Z1-091	2.4312	Adder	2.86
203999	P-047 E	12.4397	Adder	14.63
235003	AC1-025 E	0.1777	Adder	0.21
236828	01GRAYMONT	0.4827	Adder	0.57
290086	Q-036 E	7.3243	Adder	8.62
292350	K-023	5.7633	Adder	6.78
292542	L-013 1	5.6056	Adder	6.59
293301	N-039 E	13.1545	Adder	15.48
293393	V3-030E	6.1438	Adder	7.23
293432	R-040 E	0.3153	Adder	0.37
293603	O-018 E	13.7093	50/50	13.7093
293902	O-048 E	5.0451	Adder	5.94
294515	O38_P22	11.5102	Adder	13.54
294903	P-060 E	8.9489	Adder	10.53
296332	R-032 E	15.8184	50/50	15.8184
913142	Y1-033 E OP1	4.5943	Adder	5.41
915951	Y3-092 FTIR	216.0000	Merchant Transmission	216.0000
916202	Z1-069 E	9.9846	Adder	11.75
917672	Z2-108 E	3.1532	Adder	3.71
918682	AA1-082 E	6.9319	Adder	8.16
919201	AA1-144 OP	19.7240	Adder	23.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
919491	AA2-000	61.9605	Adder	72.89
920341	AA2-132 (Suspended)	2.6754	Adder	3.15
922932	AB1-082 OP (Suspended)	3.6694	Adder	4.32
923443	AB1-160 E	2.8527	Adder	3.36
930511	AB1-092	2.2750	Adder	2.68
935191	AD1-154	3.8233	Adder	4.5
936421	AD2-055	4.6838	Adder	5.51
936991	AD2-133 C	3.2959	Adder	3.88
936992	AD2-133 E	15.0752	Adder	17.74
938351	AE1-053	1.7518	Adder	2.06
938881	AE1-116	0.9335	Adder	1.1
938951	AE1-123	2.9365	Adder	3.45
938991	AE1-128 C	15.8502	Adder	18.65
938992	AE1-128 E	10.5668	Adder	12.43
939171	AE1-147 C	1.4523	Adder	1.71
939172	AE1-147 E	0.9682	Adder	1.14
939291	AE1-160 C	2.1456	Adder	2.52
939292	AE1-160 E	1.2333	Adder	1.45
940201	AE2-001 C	1.4499	Adder	1.71
940202	AE2-001 E	0.9666	Adder	1.14
940681	AE2-055 C (Suspended)	1.4141	Adder	1.66
940682	AE2-055 E (Suspended)	0.9428	Adder	1.11
940861	AE2-074 C	2.7861	Adder	3.28
940862	AE2-074 E	3.6675	Adder	4.31
941191	AE2-113 C	11.1012	Adder	13.06
941192	AE2-113 E	11.9524	Adder	14.06
941231	AE2-117 C	1.6666	Adder	1.96
941232	AE2-117 E	1.1111	Adder	1.31
941241	AE2-118 C	1.6666	Adder	1.96
941242	AE2-118 E	1.1111	Adder	1.31
941261	AE2-120 C	1.4486	Adder	1.7
941262	AE2-120 E	0.9657	Adder	1.14
941271	AE2-121 C	0.7743	Adder	0.91
941272	AE2-121 E	0.5170	Adder	0.61
941321	AE2-126 C	1.9222	Adder	2.26
941322	AE2-126 E	1.2815	Adder	1.51
941331	AE2-129 C	2.0674	Adder	2.43
941332	AE2-129 E	1.3783	Adder	1.62
941351	AE2-131 C	2.0674	Adder	2.43
941352	AE2-131 E	1.3783	Adder	1.62
941421	AE2-139 C	7.4309	Adder	8.74
941422	AE2-139 E	4.9540	Adder	5.83
942121	AE2-224 C	16.2642	50/50	16.2642
942122	AE2-224 E	10.8428	50/50	10.8428
942351	AE2-248 C	1.1433	Adder	1.35
942352	AE2-248 E	0.7622	Adder	0.9
942491	AE2-262 C	6.5458	Adder	7.7
942492	AE2-262 E	4.3988	Adder	5.18
942501	AE2-263 C	6.1531	Adder	7.24
942502	AE2-263 E	4.1082	Adder	4.83
942511	AE2-264 C	7.8026	Adder	9.18
942512	AE2-264 E	5.2017	Adder	6.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942811	AE2-299 C	5.2363	Adder	6.16
942812	AE2-299 E	20.9451	Adder	24.64
942961	AE2-316 C	6.1301	Adder	7.21
942962	AE2-316 E	8.7415	Adder	10.28
943151	AE2-344 C	12.0975	Adder	14.23
943152	AE2-344 E	8.0650	Adder	9.49
943351	AF1-006 C	2.1870	Adder	2.57
943352	AF1-006 E	1.2302	Adder	1.45
943711	AF1-039 C O1	1.2154	Adder	1.43
943712	AF1-039 E O1	0.8103	Adder	0.95
943751	AF1-043	14.0515	Adder	16.53
944001	AF1-068 C O1	1.5196	Adder	1.79
944002	AF1-068 E O1	0.8548	Adder	1.01
944181	AF1-086 C O1	4.2701	Adder	5.02
944182	AF1-086 E O1	18.5773	Adder	21.86
944261	AF1-094 C	1.9969	Adder	2.35
944262	AF1-094 E	1.3312	Adder	1.57
944281	AF1-096 C	2.0274	Adder	2.39
944282	AF1-096 E	1.3516	Adder	1.59
944301	AF1-098 C	7.9568	Adder	9.36
944302	AF1-098 E	5.3045	Adder	6.24
944311	AF1-099 C	9.9366	Adder	11.69
944312	AF1-099 E	6.6244	Adder	7.79
944321	AF1-100 C	21.1140	Adder	24.84
944322	AF1-100 E	14.0760	Adder	16.56
944381	AF1-103 O1	3.4080	Adder	4.01
944391	AF1-104 O1	3.5894	Adder	4.22
944411	AF1-106 O1	2.8975	Adder	3.41
944471	AF1-112 C	1.5285	Adder	1.8
944472	AF1-112 E	0.8598	Adder	1.01
944671	AF1-132 C O1	1.4221	Adder	1.67
944672	AF1-132 E O1	0.9481	Adder	1.12
944691	AF1-134 C O1	2.2431	Adder	2.64
944692	AF1-134 E O1	1.4954	Adder	1.76
944751	AF1-140 C	2.1234	Adder	2.5
944752	AF1-140 E	1.4156	Adder	1.67
944771	AF1-142 C	15.8986	Adder	18.7
944772	AF1-142 E	10.5990	Adder	12.47
944781	AF1-143 C	10.5106	Adder	12.37
944782	AF1-143 E	5.6056	Adder	6.59
944841	AF1-149 C	1.4485	Adder	1.7
944842	AF1-149 E	0.9657	Adder	1.14
944881	AF1-153 C O1	1.7741	Adder	2.09
944882	AF1-153 E O1	1.1827	Adder	1.39
944901	AF1-155 C	1.7742	Adder	2.09
944902	AF1-155 E	1.1828	Adder	1.39
945021	AF1-167 C	1.1249	Adder	1.32
945022	AF1-167 E	0.7513	Adder	0.88
945051	AF1-170 C	8.2473	Adder	9.7
945052	AF1-170 E	5.4982	Adder	6.47
945121	AF1-177	0.8520	Adder	1.0
945161	AF1-181	0.1132	Adder	0.13

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945171	AF1-182	0.5659	Adder	0.67
945181	AF1-183	0.1499	Adder	0.18
945331	AF1-198	0.3852	Adder	0.45
945451	AF1-210 C	1.2304	Adder	1.45
945452	AF1-210 E	0.8203	Adder	0.97
945491	AF1-214 C	1.4487	Adder	1.7
945492	AF1-214 E	0.9658	Adder	1.14
945551	AF1-220 C	14.6462	Adder	17.23
945552	AF1-220 E	9.7695	Adder	11.49
945671	AF1-232 C O2	21.9541	Adder	25.83
945672	AF1-232 E O2	11.8215	Adder	13.91
945751	AF1-240 C O1	2.2940	Adder	2.7
945752	AF1-240 E O1	1.5293	Adder	1.8
946071	AF1-272 C O1	22.7773	50/50	22.7773
946072	AF1-272 E O1	15.1848	50/50	15.1848
946081	AF1-273 C O1	10.7976	Adder	12.7
946082	AF1-273 E O1	7.1984	Adder	8.47
946111	AF1-276 C	12.8576	Adder	15.13
946112	AF1-276 E	6.3328	Adder	7.45
946121	AF1-277 C	12.8576	Adder	15.13
946122	AF1-277 E	6.3328	Adder	7.45
946131	AF1-278 C	10.2477	Adder	12.06
946132	AF1-278 E	5.0970	Adder	6.0
946211	AF1-286 C O1	1.1735	Adder	1.38
946212	AF1-286 E O1	0.7968	Adder	0.94
946221	AF1-287 C	2.0775	Adder	2.44
946222	AF1-287 E	1.3850	Adder	1.63
946381	AF1-302 C	2.6769	Adder	3.15
946382	AF1-302 E	3.5692	Adder	4.2
946401	AF1-304 C	10.1689	Adder	11.96
946402	AF1-304 E	6.7793	Adder	7.98
946421	AF1-306 C	7.4059	Adder	8.71
946422	AF1-306 E	29.6235	Adder	34.85
946431	AF1-307 C	10.4821	50/50	10.4821
946432	AF1-307 E	6.9881	50/50	6.9881
946571	AF1-321 C O1	3.2800	50/50	3.2800
946572	AF1-321 E O1	2.1866	50/50	2.1866
946771	AF1-217 C O2	2.0775	Adder	2.44
946772	AF1-217 E O2	1.3850	Adder	1.63
957001	AF2-001 C O1	3.2800	50/50	3.2800
957002	AF2-001 E O1	2.1866	50/50	2.1866
957011	AF2-002 C O1	1.6400	50/50	1.6400
957012	AF2-002 E O1	1.0933	50/50	1.0933
957161	AF2-010 C	4.0601	Adder	9.01
957162	AF2-010 E	2.7361	Adder	6.07
957451	AF2-039 C	0.6828	Adder	1.52
957452	AF2-039 E	0.4552	Adder	1.01
957512	AF2-045 E	2.1054	Adder	4.67
957561	AF2-050 C	8.1321	50/50	8.1321
957562	AF2-050 E	5.4214	50/50	5.4214
957571	AF2-051 C O1	3.1689	Adder	7.03
957572	AF2-051 E O1	1.6325	Adder	3.62

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957581	AF2-052 C	3.6694	Adder	8.15
957582	AF2-052 E	1.7851	Adder	3.96
957681	AF2-062 C	12.3878	Adder	27.5
957682	AF2-062 E	8.2586	Adder	18.33
957931	AF2-087 C	0.3080	Adder	0.68
957932	AF2-087 E	0.4241	Adder	0.94
957941	AF2-088 C	0.3288	Adder	0.73
957942	AF2-088 E	0.2192	Adder	0.49
957951	AF2-089 C	0.2955	Adder	0.66
957952	AF2-089 E	0.1522	Adder	0.34
957981	AF2-092 C	0.8375	Adder	1.86
957982	AF2-092 E	0.5583	Adder	1.24
958031	AF2-097 C	0.2717	Adder	0.6
958032	AF2-097 E	0.1811	Adder	0.4
958101	AF2-104 C	0.2639	Adder	0.59
958102	AF2-104 E	0.1759	Adder	0.39
958271	AF2-121 C	1.0957	Adder	2.43
958272	AF2-121 E	0.7305	Adder	1.62
958361	AF2-130 C	1.0593	Adder	2.35
958362	AF2-130 E	0.7062	Adder	1.57
958411	AF2-135 C	0.2785	Adder	0.62
958412	AF2-135 E	0.1857	Adder	0.41
958471	AF2-141	0.7427	Adder	1.65
958731	AF2-164 C O1	4.9949	Adder	11.09
958732	AF2-164 E O1	3.3300	Adder	7.39
958741	AF2-165 C	1.0893	Adder	2.42
958742	AF2-165 E	0.7262	Adder	1.61
958751	AF2-166 C	1.0593	Adder	2.35
958752	AF2-166 E	0.7062	Adder	1.57
958791	AF2-170 C	1.1414	Adder	2.53
958792	AF2-170 E	0.7609	Adder	1.69
959061	AF2-197 C O1	2.6587	Adder	5.9
959062	AF2-197 E O1	3.9880	Adder	8.85
959301	AF2-221 C	1.7042	50/50	1.7042
959302	AF2-221 E	2.3534	50/50	2.3534
959401	AF2-231 C	0.2208	Adder	0.49
959402	AF2-231 E	0.1472	Adder	0.33
959441	AF2-235 C	0.5372	Adder	1.19
959442	AF2-235 E	0.3582	Adder	0.8
959461	AF2-237 C	0.5292	Adder	1.17
959462	AF2-237 E	0.3528	Adder	0.78
959471	AF2-238 C	0.9386	Adder	2.08
959472	AF2-238 E	0.6257	Adder	1.39
959481	AF2-239 C	0.7226	Adder	1.6
959482	AF2-239 E	0.5794	Adder	1.29
959491	AF2-240 C	0.8293	Adder	1.84
959492	AF2-240 E	0.7064	Adder	1.57
959501	AF2-241 C	0.8677	Adder	1.93
959502	AF2-241 E	0.6680	Adder	1.48
959521	AF2-243 C	0.8169	Adder	1.81
959522	AF2-243 E	0.5446	Adder	1.21
959741	AF2-265 C	0.6727	Adder	1.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959742	AF2-265 E	0.5006	Adder	1.11
959792	AF2-270 E	0.4341	Adder	0.96
959802	AF2-271 E	0.3002	Adder	0.67
959822	AF2-273 E	0.2616	Adder	0.58
960022	AF2-293 E	0.0748	Adder	0.17
960031	AF2-294 C	0.8551	Adder	1.9
960032	AF2-294 E	0.5700	Adder	1.27
960041	AF2-295 C	0.9403	Adder	2.09
960042	AF2-295 E	0.6269	Adder	1.39
960051	AF2-296 C	1.1888	Adder	2.64
960052	AF2-296 E	0.7926	Adder	1.76
960211	AF2-312 C	1.2463	Adder	2.77
960212	AF2-312 E	0.8308	Adder	1.84
960271	AF2-318 C	0.7812	Adder	1.73
960272	AF2-318 E	0.5208	Adder	1.16
960321	AF2-323 C O1	2.5387	Adder	5.64
960322	AF2-323 E O1	1.6925	Adder	3.76
960391	AF2-330 C	5.5322	Adder	12.28
960392	AF2-330 E	2.4196	Adder	5.37
960451	AF2-336 C O1	1.3958	Adder	3.1
960452	AF2-336 E O1	0.9306	Adder	2.07
960461	AF2-337 C O1	1.3958	Adder	3.1
960462	AF2-337 E O1	0.9306	Adder	2.07
960471	AF2-338 C O1	1.3958	Adder	3.1
960472	AF2-338 E O1	0.9306	Adder	2.07
960481	AF2-339 C O1	1.3958	Adder	3.1
960482	AF2-339 E O1	0.9306	Adder	2.07
960901	AF2-381 C	21.8509	50/50	21.8509
960902	AF2-381 E	11.4991	50/50	11.4991
961141	AF2-405	0.7678	Adder	1.7
961151	AF2-406	5.7587	Adder	12.78
961201	AF2-411 O1	28.4018	Adder	63.05
961211	AF2-412 O1	11.4817	Adder	25.49
961451	AF2-436	0.0883	Adder	0.2
NEWTON	NEWTON	1.4033	Confirmed LTF	1.4033
FARMERCITY	FARMERCITY	0.0725	Confirmed LTF	0.0725
G-007A	G-007A	2.1458	Confirmed LTF	2.1458
VFT	VFT	6.2243	Confirmed LTF	6.2243
CALDERWOOD	CALDERWOOD	0.6118	Confirmed LTF	0.6118
PRAIRIE	PRAIRIE	3.3398	Confirmed LTF	3.3398
CHEOAH	CHEOAH	0.6151	Confirmed LTF	0.6151
EDWARDS	EDWARDS	0.4592	Confirmed LTF	0.4592
TILTON	TILTON	0.8285	Confirmed LTF	0.8285
MADISON	MADISON	0.0625	Confirmed LTF	0.0625
GIBSON	GIBSON	0.7158	Confirmed LTF	0.7158
BLUEG	BLUEG	2.2828	Confirmed LTF	2.2828
TRIMBLE	TRIMBLE	0.7324	Confirmed LTF	0.7324
CATAWBA	CATAWBA	0.4053	Confirmed LTF	0.4053

11.6.21 Index 21

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688463	200810	26KEYSTONE	PENELEC	999401	KEYSTONE	PJM	4	PJM500_PN_P4-500-001D	breaker	635.0	147.12	150.76	DC	22.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.5021	50/50	0.5021
200794	26CONEMAGH	0.3401	50/50	0.3401
200805	26COLVER13 (Deactivation : 01/09/2020)	19.4986	50/50	19.4986
200809	26SITHE	1.5787	50/50	1.5787
200833	26SEWRDB34	16.4203	50/50	16.4203
200837	26HOMER C1	27.1889	50/50	27.1889
200838	26HOMER C2	22.7783	50/50	22.7783
200839	26HOMER C3	24.1138	50/50	24.1138
200846	26FORWARD	0.1849	50/50	0.1849
200864	K-013 E	4.2867	50/50	4.2867
200883	Q-053 E	6.7034	Adder	7.89
200888	26HIGHLAND	0.4021	50/50	0.4021
200894	26K02	4.2797	Adder	5.03
200898	26AA1-106	1.6191	Adder	1.9
200906	26KEYSTN#3	0.8346	50/50	0.8346
200925	26R32	0.4640	50/50	0.4640
201477	26Y2-055	2.5158	Adder	2.96
202158	26CON.GEN1	0.0871	50/50	0.0871
202160	26CON.GEN2	0.0608	50/50	0.0608
203910	26Z1-091	1.4616	Adder	1.72
203999	P-047 E	7.6650	Adder	9.02
235003	AC1-025 E	0.1066	Adder	0.13
236828	01GRAYMONT	0.2892	Adder	0.34
290086	Q-036 E	4.7423	Adder	5.58
292350	K-023	3.9316	Adder	4.63
292542	L-013 1	3.8240	Adder	4.5
293301	N-039 E	8.9004	Adder	10.47
293393	V3-030E	4.0991	Adder	4.82
293432	R-040 E	0.2151	Adder	0.25
293603	O-018 E	9.3246	50/50	9.3246
293902	O-048 E	3.4416	Adder	4.05
294515	O38_P22	7.7878	Adder	9.16
294903	P-060 E	6.1011	Adder	7.18
296332	R-032 E	10.7592	50/50	10.7592
913142	Y1-033 E OP1	3.1285	Adder	3.68
916202	Z1-069 E	6.1111	Adder	7.19
917672	Z2-108 E	2.1510	Adder	2.53
918682	AA1-082 E	4.1676	Adder	4.9
919201	AA1-144 OP	11.8571	Adder	13.95
919491	AA2-000	36.9465	Adder	43.47

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
920341	AA2-132 (Suspended)	1.6179	Adder	1.9
922932	AB1-082 OP (Suspended)	2.2235	Adder	2.62
923443	AB1-160 E	1.7460	Adder	2.05
930511	AB1-092	1.3566	Adder	1.6
935191	AD1-154	2.3474	Adder	2.76
936421	AD2-055	2.7929	Adder	3.29
936991	AD2-133 C	2.1340	Adder	2.51
936992	AD2-133 E	9.7609	Adder	11.48
938351	AE1-053	1.1950	Adder	1.41
938881	AE1-116	0.6374	Adder	0.75
938951	AE1-123	1.6446	Adder	1.93
938991	AE1-128 C	12.6893	50/50	12.6893
938992	AE1-128 E	8.4595	50/50	8.4595
939171	AE1-147 C	0.8699	Adder	1.02
939172	AE1-147 E	0.5799	Adder	0.68
939291	AE1-160 C	1.0211	Adder	1.2
939292	AE1-160 E	0.5869	Adder	0.69
940201	AE2-001 C	0.8685	Adder	1.02
940202	AE2-001 E	0.5790	Adder	0.68
940681	AE2-055 C (Suspended)	0.8483	Adder	1.0
940682	AE2-055 E (Suspended)	0.5656	Adder	0.67
940861	AE2-074 C	1.6883	Adder	1.99
940862	AE2-074 E	2.2224	Adder	2.61
941191	AE2-113 C	6.6071	Adder	7.77
941192	AE2-113 E	7.1137	Adder	8.37
941231	AE2-117 C	1.0882	Adder	1.28
941232	AE2-117 E	0.7255	Adder	0.85
941241	AE2-118 C	1.0882	Adder	1.28
941242	AE2-118 E	0.7255	Adder	0.85
941261	AE2-120 C	0.8677	Adder	1.02
941262	AE2-120 E	0.5785	Adder	0.68
941271	AE2-121 C	0.4637	Adder	0.55
941272	AE2-121 E	0.3096	Adder	0.36
941321	AE2-126 C	1.1540	Adder	1.36
941322	AE2-126 E	0.7694	Adder	0.91
941331	AE2-129 C	1.3112	Adder	1.54
941332	AE2-129 E	0.8741	Adder	1.03
941351	AE2-131 C	1.3112	Adder	1.54
941352	AE2-131 E	0.8741	Adder	1.03
941421	AE2-139 C	4.4628	Adder	5.25
941422	AE2-139 E	2.9752	Adder	3.5
942121	AE2-224 C	11.0940	50/50	11.0940
942122	AE2-224 E	7.3960	50/50	7.3960
942351	AE2-248 C	0.6854	Adder	0.81
942352	AE2-248 E	0.4570	Adder	0.54
942491	AE2-262 C	3.9028	Adder	4.59
942492	AE2-262 E	2.6227	Adder	3.09
942501	AE2-263 C	3.6686	Adder	4.32
942502	AE2-263 E	2.4494	Adder	2.88
942511	AE2-264 C	5.1755	Adder	6.09
942512	AE2-264 E	3.4503	Adder	4.06
942811	AE2-299 C	2.1929	Adder	2.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942812	AE2-299 E	8.7715	Adder	10.32
942961	AE2-316 C	3.5685	Adder	4.2
942962	AE2-316 E	5.0887	Adder	5.99
943151	AE2-344 C	4.6736	Adder	5.5
943152	AE2-344 E	3.1157	Adder	3.67
943351	AF1-006 C	0.8073	Adder	0.95
943352	AF1-006 E	0.4541	Adder	0.53
943711	AF1-039 C O1	0.8277	Adder	0.97
943712	AF1-039 E O1	0.5518	Adder	0.65
943751	AF1-043	8.3788	Adder	9.86
944001	AF1-068 C O1	0.9112	Adder	1.07
944002	AF1-068 E O1	0.5125	Adder	0.6
944181	AF1-086 C O1	2.7924	Adder	3.29
944182	AF1-086 E O1	12.1484	Adder	14.29
944261	AF1-094 C	0.8554	Adder	1.01
944262	AF1-094 E	0.5702	Adder	0.67
944281	AF1-096 C	0.9648	Adder	1.14
944282	AF1-096 E	0.6432	Adder	0.76
944301	AF1-098 C	3.3713	Adder	3.97
944302	AF1-098 E	2.2475	Adder	2.64
944311	AF1-099 C	5.9244	Adder	6.97
944312	AF1-099 E	3.9496	Adder	4.65
944321	AF1-100 C	12.6059	Adder	14.83
944322	AF1-100 E	8.4040	Adder	9.89
944381	AF1-103 O1	1.7343	Adder	2.04
944411	AF1-106 O1	1.7626	Adder	2.07
944471	AF1-112 C	0.9162	Adder	1.08
944472	AF1-112 E	0.5154	Adder	0.61
944671	AF1-132 C O1	0.8528	Adder	1.0
944672	AF1-132 E O1	0.5685	Adder	0.67
944691	AF1-134 C O1	1.4353	Adder	1.69
944692	AF1-134 E O1	0.9569	Adder	1.13
944751	AF1-140 C	1.4386	Adder	1.69
944752	AF1-140 E	0.9590	Adder	1.13
944771	AF1-142 C	9.4791	Adder	11.15
944772	AF1-142 E	6.3194	Adder	7.43
944781	AF1-143 C	7.1701	Adder	8.44
944782	AF1-143 E	3.8240	Adder	4.5
944841	AF1-149 C	0.8677	Adder	1.02
944842	AF1-149 E	0.5785	Adder	0.68
944881	AF1-153 C O1	1.0338	Adder	1.22
944882	AF1-153 E O1	0.6892	Adder	0.81
944901	AF1-155 C	1.0336	Adder	1.22
944902	AF1-155 E	0.6890	Adder	0.81
945021	AF1-167 C	0.6395	Adder	0.75
945022	AF1-167 E	0.4272	Adder	0.5
945051	AF1-170 C	2.9067	Adder	3.42
945052	AF1-170 E	1.9378	Adder	2.28
945121	AF1-177	0.4336	Adder	0.51
945161	AF1-181	0.0677	Adder	0.08
945171	AF1-182	0.3383	Adder	0.4
945181	AF1-183	0.0910	Adder	0.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945331	AF1-198	0.2365	Adder	0.28
945451	AF1-210 C	0.6992	Adder	0.82
945452	AF1-210 E	0.4662	Adder	0.55
945491	AF1-214 C	0.8678	Adder	1.02
945492	AF1-214 E	0.5785	Adder	0.68
945551	AF1-220 C	8.6431	Adder	10.17
945552	AF1-220 E	5.7652	Adder	6.78
945671	AF1-232 C O2	14.9758	Adder	17.62
945672	AF1-232 E O2	8.0639	Adder	9.49
945751	AF1-240 C O1	1.4084	Adder	1.66
945752	AF1-240 E O1	0.9389	Adder	1.1
946071	AF1-272 C O1	15.7799	50/50	15.7799
946072	AF1-272 E O1	10.5200	50/50	10.5200
946081	AF1-273 C O1	7.3643	Adder	8.66
946082	AF1-273 E O1	4.9095	Adder	5.78
946111	AF1-276 C	7.5744	Adder	8.91
946112	AF1-276 E	3.7307	Adder	4.39
946121	AF1-277 C	7.5744	Adder	8.91
946122	AF1-277 E	3.7307	Adder	4.39
946131	AF1-278 C	6.0369	Adder	7.1
946132	AF1-278 E	3.0026	Adder	3.53
946211	AF1-286 C O1	0.7138	Adder	0.84
946212	AF1-286 E O1	0.4847	Adder	0.57
946221	AF1-287 C	0.8067	Adder	0.95
946222	AF1-287 E	0.5378	Adder	0.63
946381	AF1-302 C	1.5583	Adder	1.83
946382	AF1-302 E	2.0777	Adder	2.44
946401	AF1-304 C	4.9399	Adder	5.81
946402	AF1-304 E	3.2932	Adder	3.87
946421	AF1-306 C	4.3129	Adder	5.07
946422	AF1-306 E	17.2515	Adder	20.3
946431	AF1-307 C	7.1345	50/50	7.1345
946432	AF1-307 E	4.7563	50/50	4.7563
946571	AF1-321 C O1	2.2427	50/50	2.2427
946572	AF1-321 E O1	1.4951	50/50	1.4951
946771	AF1-217 C O2	0.8067	Adder	0.95
946772	AF1-217 E O2	0.5378	Adder	0.63
957001	AF2-001 C O1	2.2427	50/50	2.2427
957002	AF2-001 E O1	1.4951	50/50	1.4951
957011	AF2-002 C O1	1.1213	50/50	1.1213
957012	AF2-002 E O1	0.7476	50/50	0.7476
957161	AF2-010 C	1.7484	Adder	3.88
957162	AF2-010 E	1.1783	Adder	2.62
957451	AF2-039 C	0.4203	Adder	0.93
957452	AF2-039 E	0.2802	Adder	0.62
957512	AF2-045 E	1.4273	Adder	3.17
957561	AF2-050 C	5.5470	50/50	5.5470
957562	AF2-050 E	3.6980	50/50	3.6980
957571	AF2-051 C O1	1.3230	Adder	2.94
957572	AF2-051 E O1	0.6815	Adder	1.51
957581	AF2-052 C	2.2007	Adder	4.89
957582	AF2-052 E	1.0706	Adder	2.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957681	AF2-062 C	7.3711	Adder	16.36
957682	AF2-062 E	4.9141	Adder	10.91
957931	AF2-087 C	0.2059	Adder	0.46
957932	AF2-087 E	0.2835	Adder	0.63
957941	AF2-088 C	0.2023	Adder	0.45
957942	AF2-088 E	0.1349	Adder	0.3
957951	AF2-089 C	0.1406	Adder	0.31
957952	AF2-089 E	0.0724	Adder	0.16
957981	AF2-092 C	0.5693	Adder	1.26
957982	AF2-092 E	0.3796	Adder	0.84
958031	AF2-097 C	0.1003	Adder	0.22
958032	AF2-097 E	0.0669	Adder	0.15
958101	AF2-104 C	0.1802	Adder	0.4
958102	AF2-104 E	0.1201	Adder	0.27
958271	AF2-121 C	0.6949	Adder	1.54
958272	AF2-121 E	0.4633	Adder	1.03
958361	AF2-130 C	0.5615	Adder	1.25
958362	AF2-130 E	0.3743	Adder	0.83
958411	AF2-135 C	0.1900	Adder	0.42
958412	AF2-135 E	0.1267	Adder	0.28
958471	AF2-141	0.5067	Adder	1.12
958731	AF2-164 C O1	2.4513	Adder	5.44
958732	AF2-164 E O1	1.6342	Adder	3.63
958741	AF2-165 C	0.5404	Adder	1.2
958742	AF2-165 E	0.3603	Adder	0.8
958751	AF2-166 C	0.5615	Adder	1.25
958752	AF2-166 E	0.3743	Adder	0.83
959061	AF2-197 C O1	1.6039	Adder	3.56
959062	AF2-197 E O1	2.4058	Adder	5.34
959301	AF2-221 C	1.1633	50/50	1.1633
959302	AF2-221 E	1.6065	50/50	1.6065
959401	AF2-231 C	0.1442	Adder	0.32
959402	AF2-231 E	0.0961	Adder	0.21
959441	AF2-235 C	0.2557	Adder	0.57
959442	AF2-235 E	0.1705	Adder	0.38
959461	AF2-237 C	0.2267	Adder	0.5
959462	AF2-237 E	0.1511	Adder	0.34
959471	AF2-238 C	0.5755	Adder	1.28
959472	AF2-238 E	0.3836	Adder	0.85
959481	AF2-239 C	0.4355	Adder	0.97
959482	AF2-239 E	0.3492	Adder	0.78
959491	AF2-240 C	0.5044	Adder	1.12
959492	AF2-240 E	0.4297	Adder	0.95
959501	AF2-241 C	0.5278	Adder	1.17
959502	AF2-241 E	0.4064	Adder	0.9
959521	AF2-243 C	0.4053	Adder	0.9
959522	AF2-243 E	0.2702	Adder	0.6
959741	AF2-265 C	0.4124	Adder	0.92
959742	AF2-265 E	0.3069	Adder	0.68
959792	AF2-270 E	0.6558	50/50	0.6558
959802	AF2-271 E	0.1963	Adder	0.44
959822	AF2-273 E	0.1487	Adder	0.33

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960022	AF2-293 E	0.0448	Adder	0.1
960031	AF2-294 C	0.5171	Adder	1.15
960032	AF2-294 E	0.3447	Adder	0.77
960041	AF2-295 C	0.5478	Adder	1.22
960042	AF2-295 E	0.3652	Adder	0.81
960051	AF2-296 C	0.7607	Adder	1.69
960052	AF2-296 E	0.5072	Adder	1.13
960211	AF2-312 C	0.8320	Adder	1.85
960212	AF2-312 E	0.5547	Adder	1.23
960271	AF2-318 C	0.4709	Adder	1.05
960272	AF2-318 E	0.3139	Adder	0.7
960321	AF2-323 C O1	1.0633	Adder	2.36
960322	AF2-323 E O1	0.7088	Adder	1.57
960391	AF2-330 C	3.7356	Adder	8.29
960392	AF2-330 E	1.6339	Adder	3.63
960451	AF2-336 C O1	0.9489	Adder	2.11
960452	AF2-336 E O1	0.6326	Adder	1.4
960461	AF2-337 C O1	0.9489	Adder	2.11
960462	AF2-337 E O1	0.6326	Adder	1.4
960471	AF2-338 C O1	0.9489	Adder	2.11
960472	AF2-338 E O1	0.6326	Adder	1.4
960481	AF2-339 C O1	0.9489	Adder	2.11
960482	AF2-339 E O1	0.6326	Adder	1.4
960901	AF2-381 C	14.9091	50/50	14.9091
960902	AF2-381 E	7.8459	50/50	7.8459
961141	AF2-405	0.4671	Adder	1.04
961151	AF2-406	3.5031	Adder	7.78
961201	AF2-411 O1	17.8114	Adder	39.54
961211	AF2-412 O1	7.1197	Adder	15.8
961451	AF2-436	0.0528	Adder	0.12
NEWTON	NEWTON	0.5437	Confirmed LTF	0.5437
FARMERCITY	FARMERCITY	0.0283	Confirmed LTF	0.0283
G-007A	G-007A	0.0216	Confirmed LTF	0.0216
VFT	VFT	0.3289	Confirmed LTF	0.3289
CALDERWOOD	CALDERWOOD	0.2863	Confirmed LTF	0.2863
PRAIRIE	PRAIRIE	1.3277	Confirmed LTF	1.3277
CHEOAH	CHEOAH	0.2888	Confirmed LTF	0.2888
EDWARDS	EDWARDS	0.1694	Confirmed LTF	0.1694
TILTON	TILTON	0.3106	Confirmed LTF	0.3106
MADISON	MADISON	0.0302	Confirmed LTF	0.0302
GIBSON	GIBSON	0.2779	Confirmed LTF	0.2779
BLUEG	BLUEG	0.9027	Confirmed LTF	0.9027
TRIMBLE	TRIMBLE	0.2894	Confirmed LTF	0.2894
CATAWBA	CATAWBA	0.2138	Confirmed LTF	0.2138

11.6.22 Index 22

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
99688514	200912	26CONEMAGH	PENELEC	200005	CONEM-GH	PJM	3	PN-P2_3-PN-230-0252-A	breaker	1066.0	129.39	132.89	DC	38.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	31.2262	50/50	31.2262
200794	26CONEMAGH	0.6545	50/50	0.6545
200805	26COLVER13 (Deactivation : 01/09/2020)	23.2600	Adder	27.36
200809	26SITHE	2.0167	50/50	2.0167
200833	26SEWRDB34	37.4753	50/50	37.4753
200834	26SW_E13_K22	0.0875	50/50	0.0875
200837	26HOMER C1	34.7328	50/50	34.7328
200838	26HOMER C2	29.3172	50/50	29.3172
200839	26HOMER C3	31.0362	50/50	31.0362
200846	26FORWARD	0.3117	50/50	0.3117
200864	K-013 E	7.2275	50/50	7.2275
200883	Q-053 E	14.0093	50/50	14.0093
200886	26ARWF_N39	0.8478	50/50	0.8478
200888	26HIGHLAND	0.7206	50/50	0.7206
200889	26STNY CRK	0.5285	50/50	0.5285
200894	26K02	5.7263	Adder	6.74
200898	26AA1-106	2.1159	Adder	2.49
200915	26CHSTN_FL	0.3826	50/50	0.3826
200925	26R32	0.8314	50/50	0.8314
200945	26CT_V3-030	0.2531	50/50	0.2531
201477	26Y2-055	3.4623	Adder	4.07
202225	26SCI_S29B	0.1361	50/50	0.1361
203034	26NA_O38_P22	0.7418	50/50	0.7418
203910	26Z1-091	1.8412	Adder	2.17
203999	P-047 E	9.8717	Adder	11.61
235003	AC1-025 E	0.1587	Adder	0.19
236828	01GRAYMONT	0.4288	Adder	0.5
290086	Q-036 E	7.8836	Adder	9.27
292350	K-023	6.6881	Adder	7.87
292542	L-013 1	6.5052	Adder	7.65
293301	N-039 E	19.6595	50/50	19.6595
293393	V3-030E	7.7347	50/50	7.7347
293432	R-040 E	0.3659	Adder	0.43
293603	O-018 E	16.7097	50/50	16.7097
293902	O-048 E	5.8546	Adder	6.89
294515	O38_P22	17.2021	50/50	17.2021
294903	P-060 E	12.2552	50/50	12.2552

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
296332	R-032 E	19.2804	50/50	19.2804
913142	Y1-033 E OP1	5.3852	Adder	6.34
916202	Z1-069 E	8.0004	Adder	9.41
917672	Z2-108 E	3.6591	Adder	4.3
919201	AA1-144 OP	15.1504	Adder	17.82
919491	AA2-000	51.6967	Adder	60.82
920341	AA2-132 (Suspended)	2.0572	Adder	2.42
922932	AB1-082 OP (Suspended)	2.9413	Adder	3.46
923443	AB1-160 E	2.2858	Adder	2.69
930511	AB1-092	1.8982	Adder	2.23
935191	AD1-154	3.2936	Adder	3.87
936421	AD2-055	3.9080	Adder	4.6
936991	AD2-133 C	3.5476	Adder	4.17
936992	AD2-133 E	16.2264	Adder	19.09
938351	AE1-053	2.0329	Adder	2.39
938881	AE1-116	1.2677	50/50	1.2677
938951	AE1-123	2.3069	Adder	2.71
938991	AE1-128 C	21.9226	50/50	21.9226
938992	AE1-128 E	14.6150	50/50	14.6150
939171	AE1-147 C	1.2893	Adder	1.52
939172	AE1-147 E	0.8595	Adder	1.01
939291	AE1-160 C	1.4262	Adder	1.68
939292	AE1-160 E	0.8198	Adder	0.96
940201	AE2-001 C	1.2877	Adder	1.51
940202	AE2-001 E	0.8585	Adder	1.01
940681	AE2-055 C (Suspended)	1.2646	Adder	1.49
940682	AE2-055 E (Suspended)	0.8431	Adder	0.99
940861	AE2-074 C	2.2334	Adder	2.63
940862	AE2-074 E	2.9399	Adder	3.46
941191	AE2-113 C	9.0111	Adder	10.6
941192	AE2-113 E	9.7021	Adder	11.41
941231	AE2-117 C	1.9331	Adder	2.27
941232	AE2-117 E	1.2887	Adder	1.52
941241	AE2-118 C	1.9331	Adder	2.27
941242	AE2-118 E	1.2887	Adder	1.52
941261	AE2-120 C	1.2869	Adder	1.51
941262	AE2-120 E	0.8580	Adder	1.01
941271	AE2-121 C	0.6868	Adder	0.81
941272	AE2-121 E	0.4586	Adder	0.54
941321	AE2-126 C	1.6708	Adder	1.97
941322	AE2-126 E	1.1138	Adder	1.31
941331	AE2-129 C	2.0887	Adder	2.46
941332	AE2-129 E	1.3924	Adder	1.64
941351	AE2-131 C	2.0887	Adder	2.46
941352	AE2-131 E	1.3924	Adder	1.64
941421	AE2-139 C	5.7887	Adder	6.81
941422	AE2-139 E	3.8592	Adder	4.54
942121	AE2-224 C	21.1128	50/50	21.1128
942122	AE2-224 E	14.0752	50/50	14.0752
942351	AE2-248 C	1.0194	Adder	1.2
942352	AE2-248 E	0.6796	Adder	0.8
942491	AE2-262 C	5.6912	Adder	6.7

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942492	AE2-262 E	3.8245	Adder	4.5
942501	AE2-263 C	5.3497	Adder	6.29
942502	AE2-263 E	3.5718	Adder	4.2
942511	AE2-264 C	9.4052	Adder	11.06
942512	AE2-264 E	6.2701	Adder	7.38
942811	AE2-299 C	3.0513	Adder	3.59
942812	AE2-299 E	12.2052	Adder	14.36
942961	AE2-316 C	5.0155	Adder	5.9
942962	AE2-316 E	7.1522	Adder	8.41
943151	AE2-344 C	6.5475	Adder	7.7
943152	AE2-344 E	4.3650	Adder	5.14
943711	AF1-039 C O1	1.4247	Adder	1.68
943712	AF1-039 E O1	0.9498	Adder	1.12
943751	AF1-043	11.7239	Adder	13.79
944001	AF1-068 C O1	1.3561	Adder	1.6
944002	AF1-068 E O1	0.7628	Adder	0.9
944181	AF1-086 C O1	4.0187	Adder	4.73
944182	AF1-086 E O1	17.4836	Adder	20.57
944261	AF1-094 C	1.1977	Adder	1.41
944262	AF1-094 E	0.7985	Adder	0.94
944281	AF1-096 C	1.3476	Adder	1.59
944282	AF1-096 E	0.8984	Adder	1.06
944301	AF1-098 C	4.7042	Adder	5.53
944302	AF1-098 E	3.1362	Adder	3.69
944311	AF1-099 C	8.6392	Adder	10.16
944312	AF1-099 E	5.7595	Adder	6.78
944321	AF1-100 C	18.3065	Adder	21.54
944322	AF1-100 E	12.2043	Adder	14.36
944381	AF1-103 O1	2.3868	Adder	2.81
944411	AF1-106 O1	2.2629	Adder	2.66
944471	AF1-112 C	1.3618	Adder	1.6
944472	AF1-112 E	0.7660	Adder	0.9
944671	AF1-132 C O1	1.2697	Adder	1.49
944672	AF1-132 E O1	0.8465	Adder	1.0
944691	AF1-134 C O1	2.0909	Adder	2.46
944692	AF1-134 E O1	1.3939	Adder	1.64
944751	AF1-140 C	3.0046	50/50	3.0046
944752	AF1-140 E	2.0031	50/50	2.0031
944771	AF1-142 C	13.8227	Adder	16.26
944772	AF1-142 E	9.2152	Adder	10.84
944781	AF1-143 C	12.1972	Adder	14.35
944782	AF1-143 E	6.5052	Adder	7.65
944841	AF1-149 C	1.2868	Adder	1.51
944842	AF1-149 E	0.8579	Adder	1.01
944881	AF1-153 C O1	1.4700	Adder	1.73
944882	AF1-153 E O1	0.9800	Adder	1.15
944901	AF1-155 C	1.4695	Adder	1.73
944902	AF1-155 E	0.9797	Adder	1.15
945021	AF1-167 C	0.9039	Adder	1.06
945022	AF1-167 E	0.6037	Adder	0.71
945121	AF1-177	0.5967	Adder	0.7
945161	AF1-181	0.0985	Adder	0.12

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945171	AF1-182	0.4925	Adder	0.58
945181	AF1-183	0.1340	Adder	0.16
945331	AF1-198	0.3071	Adder	0.36
945451	AF1-210 C	0.9958	Adder	1.17
945452	AF1-210 E	0.6639	Adder	0.78
945491	AF1-214 C	1.2869	Adder	1.51
945492	AF1-214 E	0.8580	Adder	1.01
945551	AF1-220 C	12.2600	Adder	14.42
945552	AF1-220 E	8.1778	Adder	9.62
945671	AF1-232 C O2	29.9790	50/50	29.9790
945672	AF1-232 E O2	16.1426	50/50	16.1426
945751	AF1-240 C O1	1.9761	Adder	2.32
945752	AF1-240 E O1	1.3174	Adder	1.55
946071	AF1-272 C O1	12.9445	Adder	15.23
946072	AF1-272 E O1	8.6297	Adder	10.15
946081	AF1-273 C O1	14.7579	50/50	14.7579
946082	AF1-273 E O1	9.8386	50/50	9.8386
946111	AF1-276 C	10.1126	Adder	11.9
946112	AF1-276 E	4.9808	Adder	5.86
946121	AF1-277 C	10.1126	Adder	11.9
946122	AF1-277 E	4.9808	Adder	5.86
946131	AF1-278 C	8.0599	Adder	9.48
946132	AF1-278 E	4.0088	Adder	4.72
946211	AF1-286 C O1	0.9165	Adder	1.08
946212	AF1-286 E O1	0.6223	Adder	0.73
946221	AF1-287 C	1.1296	Adder	1.33
946222	AF1-287 E	0.7531	Adder	0.89
946381	AF1-302 C	2.1902	Adder	2.58
946382	AF1-302 E	2.9203	Adder	3.44
946401	AF1-304 C	6.8962	Adder	8.11
946402	AF1-304 E	4.5975	Adder	5.41
946421	AF1-306 C	6.1273	Adder	7.21
946422	AF1-306 E	24.5094	Adder	28.83
946431	AF1-307 C	13.6494	50/50	13.6494
946432	AF1-307 E	9.0996	50/50	9.0996
946571	AF1-321 C O1	3.7594	50/50	3.7594
946572	AF1-321 E O1	2.5062	50/50	2.5062
946771	AF1-217 C O2	1.1296	Adder	1.33
946772	AF1-217 E O2	0.7531	Adder	0.89
957001	AF2-001 C O1	3.7594	50/50	3.7594
957002	AF2-001 E O1	2.5062	50/50	2.5062
957011	AF2-002 C O1	1.8797	50/50	1.8797
957012	AF2-002 E O1	1.2531	50/50	1.2531
957161	AF2-010 C	2.4478	Adder	5.43
957162	AF2-010 E	1.6496	Adder	3.66
957451	AF2-039 C	0.6259	Adder	1.39
957452	AF2-039 E	0.4173	Adder	0.93
957512	AF2-045 E	5.8171	50/50	5.8171
957561	AF2-050 C	10.5564	50/50	10.5564
957562	AF2-050 E	7.0376	50/50	7.0376
957571	AF2-051 C O1	1.8332	Adder	4.07
957572	AF2-051 E O1	0.9444	Adder	2.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957581	AF2-052 C	2.9522	Adder	6.55
957582	AF2-052 E	1.4362	Adder	3.19
957681	AF2-062 C	9.8097	Adder	21.78
957682	AF2-062 E	6.5398	Adder	14.52
957931	AF2-087 C	0.8194	50/50	0.8194
957932	AF2-087 E	1.1283	50/50	1.1283
957941	AF2-088 C	0.3014	Adder	0.67
957942	AF2-088 E	0.2009	Adder	0.45
957951	AF2-089 C	0.1964	Adder	0.44
957952	AF2-089 E	0.1012	Adder	0.22
957981	AF2-092 C	2.1966	50/50	2.1966
957982	AF2-092 E	1.4644	50/50	1.4644
958101	AF2-104 C	0.6761	50/50	0.6761
958102	AF2-104 E	0.4507	50/50	0.4507
958271	AF2-121 C	1.1070	Adder	2.46
958272	AF2-121 E	0.7380	Adder	1.64
958361	AF2-130 C	0.7857	Adder	1.74
958362	AF2-130 E	0.5238	Adder	1.16
958411	AF2-135 C	0.3232	Adder	0.72
958412	AF2-135 E	0.2155	Adder	0.48
958471	AF2-141	0.8619	Adder	1.91
958731	AF2-164 C O1	3.3089	Adder	7.34
958732	AF2-164 E O1	2.2059	Adder	4.9
958741	AF2-165 C	0.7534	Adder	1.67
958742	AF2-165 E	0.5023	Adder	1.11
958751	AF2-166 C	0.7857	Adder	1.74
958752	AF2-166 E	0.5238	Adder	1.16
959061	AF2-197 C O1	2.0415	Adder	4.53
959062	AF2-197 E O1	3.0622	Adder	6.8
959301	AF2-221 C	2.0266	50/50	2.0266
959302	AF2-221 E	2.7987	50/50	2.7987
959401	AF2-231 C	0.2561	Adder	0.57
959402	AF2-231 E	0.1708	Adder	0.38
959441	AF2-235 C	0.3571	Adder	0.79
959442	AF2-235 E	0.2381	Adder	0.53
959461	AF2-237 C	0.3174	Adder	0.7
959462	AF2-237 E	0.2116	Adder	0.47
959471	AF2-238 C	0.7426	Adder	1.65
959472	AF2-238 E	0.4950	Adder	1.1
959481	AF2-239 C	0.5535	Adder	1.23
959482	AF2-239 E	0.4438	Adder	0.99
959491	AF2-240 C	0.6476	Adder	1.44
959492	AF2-240 E	0.5517	Adder	1.22
959501	AF2-241 C	0.6776	Adder	1.5
959502	AF2-241 E	0.5217	Adder	1.16
959521	AF2-243 C	0.5651	Adder	1.25
959522	AF2-243 E	0.3767	Adder	0.84
959741	AF2-265 C	0.5322	Adder	1.18
959742	AF2-265 E	0.3960	Adder	0.88
959792	AF2-270 E	1.1330	50/50	1.1330
959802	AF2-271 E	0.3327	Adder	0.74
959822	AF2-273 E	0.2111	Adder	0.47

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960022	AF2-293 E	0.0664	Adder	0.15
960031	AF2-294 C	0.6575	Adder	1.46
960032	AF2-294 E	0.4383	Adder	0.97
960041	AF2-295 C	0.7788	Adder	1.73
960042	AF2-295 E	0.5192	Adder	1.15
960051	AF2-296 C	1.1082	Adder	2.46
960052	AF2-296 E	0.7388	Adder	1.64
960211	AF2-312 C	2.9816	50/50	2.9816
960212	AF2-312 E	1.9877	50/50	1.9877
960271	AF2-318 C	0.5983	Adder	1.33
960272	AF2-318 E	0.3989	Adder	0.89
960321	AF2-323 C O1	1.4727	Adder	3.27
960322	AF2-323 E O1	0.9818	Adder	2.18
960391	AF2-330 C	14.8326	50/50	14.8326
960392	AF2-330 E	6.4873	50/50	6.4873
960451	AF2-336 C O1	3.6611	50/50	3.6611
960452	AF2-336 E O1	2.4407	50/50	2.4407
960461	AF2-337 C O1	3.6611	50/50	3.6611
960462	AF2-337 E O1	2.4407	50/50	2.4407
960471	AF2-338 C O1	3.6611	50/50	3.6611
960472	AF2-338 E O1	2.4407	50/50	2.4407
960481	AF2-339 C O1	3.6611	50/50	3.6611
960482	AF2-339 E O1	2.4407	50/50	2.4407
960901	AF2-381 C	25.3292	50/50	25.3292
960902	AF2-381 E	13.3295	50/50	13.3295
961141	AF2-405	0.5997	Adder	1.33
961151	AF2-406	4.4975	Adder	9.98
961201	AF2-411 O1	22.9633	Adder	50.97
961211	AF2-412 O1	9.1953	Adder	20.41
WEC	WEC	0.0652	Confirmed LTF	0.0652
LGEE	LGEE	0.0764	Confirmed LTF	0.0764
CALDERWOOD	CALDERWOOD	0.0452	Confirmed LTF	0.0452
CBM-W2	CBM-W2	0.5569	Confirmed LTF	0.5569
CBM-W1	CBM-W1	3.8281	Confirmed LTF	3.8281
O-066	O-066	8.3866	Confirmed LTF	8.3866
CHEOAH	CHEOAH	0.0485	Confirmed LTF	0.0485
CBM-S1	CBM-S1	0.0596	Confirmed LTF	0.0596
G-007	G-007	1.3936	Confirmed LTF	1.3936
MEC	MEC	0.2447	Confirmed LTF	0.2447
CATAWBA	CATAWBA	0.0952	Confirmed LTF	0.0952

11.6.23 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
100806916	235449	01CARLOS	AP	237310	01DANSMTN	AP	1	AP-P2-4-MP-138-200	breaker	182.0	116.81	119.09	DC	9.21

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.3990	50/50	0.3990
200834	26SW_E13_K22	0.0423	50/50	0.0423
200835	26DSGENWIN	0.4034	50/50	0.4034
200840	26DEEPCRK1	0.9218	50/50	0.9218
200841	26DEEPCRK2	0.9218	50/50	0.9218
200864	K-013 E	1.4480	Adder	1.7
200889	26STNY CRK	0.1968	50/50	0.1968
200890	26BF_G21_K23	0.1978	50/50	0.1978
200891	26CSLMN_L13	0.3103	50/50	0.3103
200892	26LOOKOUT	0.2948	50/50	0.2948
202225	26SCI_S29B	0.0657	50/50	0.0657
202652	26RGH_Y1-033	0.2880	50/50	0.2880
235013	01AB1-065 C	0.4384	50/50	0.4384
235532	AA1-100 BAT	1.0554	Merchant Transmission	1.0554
292350	K-023	7.3986	50/50	7.3986
292542	L-013 1	7.1962	50/50	7.1962
293432	R-040 E	0.4048	50/50	0.4048
293902	O-048 E	6.4765	50/50	6.4765
294903	P-060 E	4.5646	50/50	4.5646
913142	Y1-033 E OP1	11.4062	50/50	11.4062
917672	Z2-108 E	4.0478	50/50	4.0478
923971	AB2-038	-0.2980	Adder	-0.35
924001	AB2-041 C	-0.2625	Adder	-0.31
924002	AB2-041 E	-1.1139	Adder	-1.31
930262	AB1-065 E (Suspended)	4.2153	50/50	4.2153
933951	AD1-018 C (Suspended)	1.5651	50/50	1.5651
933952	AD1-018 E (Suspended)	2.5537	50/50	2.5537
934441	AD1-068 C	7.2891	50/50	7.2891
934442	AD1-068 E	42.2965	50/50	42.2965
938351	AE1-053	2.2488	50/50	2.2488
938881	AE1-116	0.6125	50/50	0.6125
938991	AE1-128 C	4.5410	Adder	5.34
938992	AE1-128 E	3.0274	Adder	3.56
942901	AE2-309 C	3.3457	50/50	3.3457
942902	AE2-309 E	0.6386	50/50	0.6386
943301	AF1-001 C	4.0293	50/50	4.0293
943302	AF1-001 E	4.4943	50/50	4.4943
943711	AF1-039 C O1	3.0175	50/50	3.0175
943712	AF1-039 E O1	2.0117	50/50	2.0117
944781	AF1-143 C	13.4928	50/50	13.4928
944782	AF1-143 E	7.1962	50/50	7.1962

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945671	AF1-232 C O2	12.3022	50/50	12.3022
945672	AF1-232 E O2	6.6242	50/50	6.6242
946081	AF1-273 C O1	5.8788	50/50	5.8788
946082	AF1-273 E O1	3.9192	50/50	3.9192
946571	AF1-321 C O1	0.7470	Adder	0.88
946572	AF1-321 E O1	0.4980	Adder	0.59
957001	AF2-001 C O1	0.3959	Adder	0.88
957002	AF2-001 E O1	0.2640	Adder	0.59
957011	AF2-002 C O1	0.1980	Adder	0.44
957012	AF2-002 E O1	0.1320	Adder	0.29
957981	AF2-092 C	0.2249	Adder	0.5
957982	AF2-092 E	0.1499	Adder	0.33
958101	AF2-104 C	0.3267	50/50	0.3267
958102	AF2-104 E	0.2178	50/50	0.2178
958411	AF2-135 C	0.6746	50/50	0.6746
958412	AF2-135 E	0.4498	50/50	0.4498
958471	AF2-141	1.7990	50/50	1.7990
959792	AF2-270 E	0.1244	Adder	0.28
960451	AF2-336 C O1	0.3749	Adder	0.83
960452	AF2-336 E O1	0.2499	Adder	0.55
960461	AF2-337 C O1	0.3749	Adder	0.83
960462	AF2-337 E O1	0.2499	Adder	0.55
960471	AF2-338 C O1	0.3749	Adder	0.83
960472	AF2-338 E O1	0.2499	Adder	0.55
960481	AF2-339 C O1	0.3749	Adder	0.83
960482	AF2-339 E O1	0.2499	Adder	0.55
960901	AF2-381 C	2.7185	Adder	6.03
960902	AF2-381 E	1.4306	Adder	3.18
NEWTON	NEWTON	0.1644	Confirmed LTF	0.1644
FARMERCITY	FARMERCITY	0.0088	Confirmed LTF	0.0088
G-007A	G-007A	0.5754	Confirmed LTF	0.5754
VFT	VFT	1.6125	Confirmed LTF	1.6125
CALDERWOOD	CALDERWOOD	0.1069	Confirmed LTF	0.1069
PRAIRIE	PRAIRIE	0.4184	Confirmed LTF	0.4184
CHEOAH	CHEOAH	0.1086	Confirmed LTF	0.1086
EDWARDS	EDWARDS	0.0497	Confirmed LTF	0.0497
TILTON	TILTON	0.0907	Confirmed LTF	0.0907
GIBSON	GIBSON	0.0824	Confirmed LTF	0.0824
BLUEG	BLUEG	0.2656	Confirmed LTF	0.2656
TRIMBLE	TRIMBLE	0.0846	Confirmed LTF	0.0846
CATAWBA	CATAWBA	0.0921	Confirmed LTF	0.0921

11.6.24 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
100806933	235469	01GARRET	AP	235449	01CARLOS	AP	1	AP-P2-3-MP-138-150	breaker	206.0	111.05	113.14	DC	9.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.4123	50/50	0.4123
200834	26SW_E13_K22	0.0437	50/50	0.0437
200835	26DSGENWIN	0.4170	50/50	0.4170
200840	26DEEPCRK1	0.9523	50/50	0.9523
200841	26DEEPCRK2	0.9523	50/50	0.9523
200864	K-013 E	1.5001	Adder	1.76
200889	26STNY CRK	0.2037	50/50	0.2037
200890	26BF_G21_K23	0.2045	50/50	0.2045
200891	26CSLMN_L13	0.3208	50/50	0.3208
200892	26LOOKOUT	0.3047	50/50	0.3047
202225	26SCI_S29B	0.0680	50/50	0.0680
202652	26RGH_Y1-033	0.2976	50/50	0.2976
235013	01AB1-065 C	0.4529	50/50	0.4529
235532	AA1-100 BAT	1.1832	50/50	1.1832
292350	K-023	7.6479	50/50	7.6479
292542	L-013 1	7.4387	50/50	7.4387
293432	R-040 E	0.4184	50/50	0.4184
293902	O-048 E	6.6948	50/50	6.6948
294903	P-060 E	4.7237	50/50	4.7237
913142	Y1-033 E OP1	11.7869	50/50	11.7869
917672	Z2-108 E	4.1843	50/50	4.1843
923971	AB2-038	-0.3840	Adder	-0.45
924001	AB2-041 C	-0.3382	Adder	-0.4
924002	AB2-041 E	-1.4353	Adder	-1.69
930262	AB1-065 E (Suspended)	4.3545	50/50	4.3545
934441	AD1-068 C	7.5298	50/50	7.5298
934442	AD1-068 E	43.6934	50/50	43.6934
938351	AE1-053	2.3246	50/50	2.3246
938881	AE1-116	0.6336	50/50	0.6336
938991	AE1-128 C	4.7032	Adder	5.53
938992	AE1-128 E	3.1355	Adder	3.69
942903	AE2-309 BAT	1.3793	50/50	1.3793
943301	AF1-001 C	4.1624	50/50	4.1624
943302	AF1-001 E	4.6427	50/50	4.6427
943711	AF1-039 C O1	3.1182	50/50	3.1182
943712	AF1-039 E O1	2.0788	50/50	2.0788
944781	AF1-143 C	13.9476	50/50	13.9476
944782	AF1-143 E	7.4387	50/50	7.4387
945671	AF1-232 C O2	12.7286	50/50	12.7286
945672	AF1-232 E O2	6.8538	50/50	6.8538
946081	AF1-273 C O1	6.0828	50/50	6.0828

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946082	AF1-273 E O1	4.0552	50/50	4.0552
946571	AF1-321 C O1	0.7740	Adder	0.91
946572	AF1-321 E O1	0.5160	Adder	0.61
957001	AF2-001 C O1	0.4102	Adder	0.91
957002	AF2-001 E O1	0.2735	Adder	0.61
957011	AF2-002 C O1	0.2051	Adder	0.46
957012	AF2-002 E O1	0.1367	Adder	0.3
957981	AF2-092 C	0.2330	Adder	0.52
957982	AF2-092 E	0.1553	Adder	0.34
958101	AF2-104 C	0.3379	50/50	0.3379
958102	AF2-104 E	0.2253	50/50	0.2253
958411	AF2-135 C	0.6974	50/50	0.6974
958412	AF2-135 E	0.4649	50/50	0.4649
958471	AF2-141	1.8597	50/50	1.8597
959792	AF2-270 E	0.1288	Adder	0.29
960192	AF2-310 BAT	2.1510	50/50	2.1510
960451	AF2-336 C O1	0.3884	Adder	0.86
960452	AF2-336 E O1	0.2589	Adder	0.57
960461	AF2-337 C O1	0.3884	Adder	0.86
960462	AF2-337 E O1	0.2589	Adder	0.57
960471	AF2-338 C O1	0.3884	Adder	0.86
960472	AF2-338 E O1	0.2589	Adder	0.57
960481	AF2-339 C O1	0.3884	Adder	0.86
960482	AF2-339 E O1	0.2589	Adder	0.57
960901	AF2-381 C	2.8159	Adder	6.25
960902	AF2-381 E	1.4819	Adder	3.29
NEWTON	NEWTON	0.1429	Confirmed LTF	0.1429
FARMERCITY	FARMERCITY	0.0078	Confirmed LTF	0.0078
G-007A	G-007A	0.5346	Confirmed LTF	0.5346
VFT	VFT	1.5093	Confirmed LTF	1.5093
CALDERWOOD	CALDERWOOD	0.1049	Confirmed LTF	0.1049
PRAIRIE	PRAIRIE	0.3720	Confirmed LTF	0.3720
CHEOAH	CHEOAH	0.1066	Confirmed LTF	0.1066
EDWARDS	EDWARDS	0.0420	Confirmed LTF	0.0420
TILTON	TILTON	0.0769	Confirmed LTF	0.0769
GIBSON	GIBSON	0.0710	Confirmed LTF	0.0710
BLUEG	BLUEG	0.2292	Confirmed LTF	0.2292
TRIMBLE	TRIMBLE	0.0729	Confirmed LTF	0.0729
CATAWBA	CATAWBA	0.0952	Confirmed LTF	0.0952

11.6.25 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
100806834	235470	01GARRET	AP	235469	01GARRET	AP	1	PN-P2-3-PN-115-35E	breaker	196.0	169.08	176.08	DC	13.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.7147	50/50	0.7147
200834	26SW_E13_K22	0.1461	50/50	0.1461
200835	26DSGENWIN	0.9847	50/50	0.9847
200840	26DEEPCRK1	1.4114	50/50	1.4114
200841	26DEEPCRK2	1.4114	50/50	1.4114
200889	26STNY CRK	0.5954	50/50	0.5954
200890	26BF_G21_K23	0.4829	50/50	0.4829
200891	26CSLMN_L13	0.7575	50/50	0.7575
200892	26LOOKOUT	0.7196	50/50	0.7196
202225	26SCI_S29B	0.2273	50/50	0.2273
202652	26RGH_Y1-033	0.5551	50/50	0.5551
292350	K-023	18.0595	50/50	18.0595
292542	L-013 1	17.5654	50/50	17.5654
293432	R-040 E	0.9881	50/50	0.9881
293902	O-048 E	15.8089	50/50	15.8089
294903	P-060 E	13.8062	50/50	13.8062
913142	Y1-033 E OP1	21.9847	50/50	21.9847
917672	Z2-108 E	9.8806	50/50	9.8806
938351	AE1-053	5.4892	50/50	5.4892
938881	AE1-116	2.1181	50/50	2.1181
938991	AE1-128 C	10.8130	50/50	10.8130
938992	AE1-128 E	7.2086	50/50	7.2086
943711	AF1-039 C O1	5.8161	50/50	5.8161
943712	AF1-039 E O1	3.8774	50/50	3.8774
944781	AF1-143 C	32.9352	50/50	32.9352
944782	AF1-143 E	17.5654	50/50	17.5654
945671	AF1-232 C O2	39.3588	50/50	39.3588
945672	AF1-232 E O2	21.1932	50/50	21.1932
946081	AF1-273 C O1	18.5033	50/50	18.5033
946082	AF1-273 E O1	12.3355	50/50	12.3355
957981	AF2-092 C	0.9696	50/50	0.9696
957982	AF2-092 E	0.6464	50/50	0.6464
958101	AF2-104 C	1.1296	50/50	1.1296
958102	AF2-104 E	0.7531	50/50	0.7531
958411	AF2-135 C	1.6468	50/50	1.6468
958412	AF2-135 E	1.0978	50/50	1.0978
958471	AF2-141	4.3914	50/50	4.3914
959792	AF2-270 E	0.5588	50/50	0.5588
960451	AF2-336 C O1	1.6159	50/50	1.6159
960452	AF2-336 E O1	1.0773	50/50	1.0773
960461	AF2-337 C O1	1.6159	50/50	1.6159

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960462	AF2-337 E O1	1.0773	50/50	1.0773
960471	AF2-338 C O1	1.6159	50/50	1.6159
960472	AF2-338 E O1	1.0773	50/50	1.0773
960481	AF2-339 C O1	1.6159	50/50	1.6159
960482	AF2-339 E O1	1.0773	50/50	1.0773
960901	AF2-381 C	8.9959	50/50	8.9959
960902	AF2-381 E	4.7341	50/50	4.7341
NEWTON	NEWTON	0.2450	Confirmed LTF	0.2450
FARMERCITY	FARMERCITY	0.0128	Confirmed LTF	0.0128
G-007A	G-007A	0.6737	Confirmed LTF	0.6737
VFT	VFT	1.8640	Confirmed LTF	1.8640
CALDERWOOD	CALDERWOOD	0.1252	Confirmed LTF	0.1252
PRAIRIE	PRAIRIE	0.5967	Confirmed LTF	0.5967
CHEOAH	CHEOAH	0.1266	Confirmed LTF	0.1266
EDWARDS	EDWARDS	0.0777	Confirmed LTF	0.0777
TILTON	TILTON	0.1411	Confirmed LTF	0.1411
GIBSON	GIBSON	0.1245	Confirmed LTF	0.1245
BLUEG	BLUEG	0.4010	Confirmed LTF	0.4010
TRIMBLE	TRIMBLE	0.1280	Confirmed LTF	0.1280
CATAWBA	CATAWBA	0.0927	Confirmed LTF	0.0927

11.6.26 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
100807258	235596	01VASC T	AP	235173	01EDGEWT	AP	1	PN-P1_2-PN-230-0103	single	192.0	101.23	104.04	DC	5.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	6.6990	80/20	6.6990
200636	26IUP CO-G	0.2347	80/20	0.2347
200794	26CONEMAGH	0.1599	80/20	0.1599
200805	26COLVER13 (Deactivation : 01/09/2020)	8.7890	80/20	8.7890
200809	26SITHE	0.3741	80/20	0.3741
200833	26SEWRDB34	5.3818	80/20	5.3818
200834	26SW_E13_K22	0.0183	80/20	0.0183
200837	26HOMER C1	6.4435	80/20	6.4435
200838	26HOMER C2	5.6324	80/20	5.6324
200839	26HOMER C3	5.9626	80/20	5.9626
200846	26FORWARD	0.0666	80/20	0.0666
200886	26ARWF_N39	0.1443	80/20	0.1443
200888	26HIGHLAND	0.1515	80/20	0.1515
200889	26STNY CRK	0.1115	80/20	0.1115
200905	26Q36	0.0903	80/20	0.0903
200915	26CHSTN_FL	0.0821	80/20	0.0821
200925	26R32	0.1748	80/20	0.1748
200945	26CT_V3-030	0.0668	80/20	0.0668
202158	26CON.GEN1	0.0409	80/20	0.0409
202160	26CON.GEN2	0.0729	80/20	0.0729
202225	26SCI_S29B	0.0285	80/20	0.0285
203034	26NA_O38_P22	0.1262	80/20	0.1262
935191	AD1-154	1.1690	80/20	1.1690
936991	AD2-133 C	0.9423	80/20	0.9423
938881	AE1-116	0.2657	80/20	0.2657
938991	AE1-128 C	4.6577	80/20	4.6577
942121	AE2-224 C	3.4518	80/20	3.4518
944181	AF1-086 C O1	1.4214	80/20	1.4214
944691	AF1-134 C O1	0.6934	80/20	0.6934
944751	AF1-140 C	0.6379	80/20	0.6379
945671	AF1-232 C O2	6.3097	80/20	6.3097
945751	AF1-240 C O1	0.7014	80/20	0.7014
946071	AF1-272 C O1	7.4402	80/20	7.4402
946081	AF1-273 C O1	3.1084	80/20	3.1084
946431	AF1-307 C	3.2941	80/20	3.2941
946571	AF1-321 C O1	0.8050	80/20	0.8050
957001	AF2-001 C O1	0.8050	80/20	0.8050
957011	AF2-002 C O1	0.4025	80/20	0.4025

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957561	AF2-050 C	1.7259	80/20	1.7259
957931	AF2-087 C	0.1654	80/20	0.1654
957981	AF2-092 C	0.4666	80/20	0.4666
958101	AF2-104 C	0.1417	80/20	0.1417
959301	AF2-221 C	0.4285	80/20	0.4285
960051	AF2-296 C	0.6934	80/20	0.6934
960211	AF2-312 C	0.7782	80/20	0.7782
960231	AF2-314 C	0.4287	80/20	0.4287
960391	AF2-330 C	3.1733	80/20	3.1733
960451	AF2-336 C O1	0.7777	80/20	0.7777
960461	AF2-337 C O1	0.7777	80/20	0.7777
960471	AF2-338 C O1	0.7777	80/20	0.7777
960481	AF2-339 C O1	0.7777	80/20	0.7777
960901	AF2-381 C	5.4046	80/20	5.4046
NEWTON	NEWTON	0.5050	Confirmed LTF	0.5050
FARMERCITY	FARMERCITY	0.0260	Confirmed LTF	0.0260
G-007A	G-007A	1.4457	Confirmed LTF	1.4457
VFT	VFT	3.9926	Confirmed LTF	3.9926
CALDERWOOD	CALDERWOOD	0.2296	Confirmed LTF	0.2296
PRAIRIE	PRAIRIE	1.2063	Confirmed LTF	1.2063
CHEOAH	CHEOAH	0.2312	Confirmed LTF	0.2312
EDWARDS	EDWARDS	0.1628	Confirmed LTF	0.1628
TILTON	TILTON	0.2955	Confirmed LTF	0.2955
MADISON	MADISON	0.0323	Confirmed LTF	0.0323
GIBSON	GIBSON	0.2583	Confirmed LTF	0.2583
BLUEG	BLUEG	0.8298	Confirmed LTF	0.8298
TRIMBLE	TRIMBLE	0.2660	Confirmed LTF	0.2660
CATAWBA	CATAWBA	0.1547	Confirmed LTF	0.1547

11.6.27 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
100806873	237310	01DANSMTN	AP	235504	01RIDGLY	AP	1	AP-P2-4-MP-138-200	breaker	182.0	147.09	149.38	DC	9.21

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.3990	50/50	0.3990
200834	26SW_E13_K22	0.0423	50/50	0.0423
200835	26DSGENWIN	0.4034	50/50	0.4034
200840	26DEEPCRK1	0.9218	50/50	0.9218
200841	26DEEPCRK2	0.9218	50/50	0.9218
200864	K-013 E	1.4480	Adder	1.7
200889	26STNY CRK	0.1968	50/50	0.1968
200890	26BF_G21_K23	0.1978	50/50	0.1978
200891	26CSLMN_L13	0.3103	50/50	0.3103
200892	26LOOKOUT	0.2948	50/50	0.2948
202225	26SCI_S29B	0.0657	50/50	0.0657
202652	26RGH_Y1-033	0.2880	50/50	0.2880
235013	01AB1-065 C	0.4384	50/50	0.4384
235532	AA1-100 BAT	1.0554	Merchant Transmission	1.0554
237312	01DANS_S-014	11.5987	50/50	11.5987
290229	S-014 E	46.3949	50/50	46.3949
292350	K-023	7.3986	50/50	7.3986
292542	L-013 1	7.1962	50/50	7.1962
293432	R-040 E	0.4048	50/50	0.4048
293902	O-048 E	6.4765	50/50	6.4765
294903	P-060 E	4.5646	50/50	4.5646
913142	Y1-033 E OP1	11.4062	50/50	11.4062
917672	Z2-108 E	4.0478	50/50	4.0478
923971	AB2-038	-0.2980	Adder	-0.35
924001	AB2-041 C	-0.2625	Adder	-0.31
924002	AB2-041 E	-1.1139	Adder	-1.31
930262	AB1-065 E (Suspended)	4.2153	50/50	4.2153
933951	AD1-018 C (Suspended)	1.5651	50/50	1.5651
933952	AD1-018 E (Suspended)	2.5537	50/50	2.5537
934441	AD1-068 C	7.2891	50/50	7.2891
934442	AD1-068 E	42.2965	50/50	42.2965
938351	AE1-053	2.2488	50/50	2.2488
938881	AE1-116	0.6125	50/50	0.6125
938991	AE1-128 C	4.5410	Adder	5.34
938992	AE1-128 E	3.0274	Adder	3.56
942901	AE2-309 C	3.3457	50/50	3.3457
942902	AE2-309 E	0.6386	50/50	0.6386
943301	AF1-001 C	4.0293	50/50	4.0293
943302	AF1-001 E	4.4943	50/50	4.4943
943711	AF1-039 C O1	3.0175	50/50	3.0175
943712	AF1-039 E O1	2.0117	50/50	2.0117

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944781	AF1-143 C	13.4928	50/50	13.4928
944782	AF1-143 E	7.1962	50/50	7.1962
945671	AF1-232 C O2	12.3022	50/50	12.3022
945672	AF1-232 E O2	6.6242	50/50	6.6242
946081	AF1-273 C O1	5.8788	50/50	5.8788
946082	AF1-273 E O1	3.9192	50/50	3.9192
946571	AF1-321 C O1	0.7470	Adder	0.88
946572	AF1-321 E O1	0.4980	Adder	0.59
957001	AF2-001 C O1	0.3959	Adder	0.88
957002	AF2-001 E O1	0.2640	Adder	0.59
957011	AF2-002 C O1	0.1980	Adder	0.44
957012	AF2-002 E O1	0.1320	Adder	0.29
958101	AF2-104 C	0.3267	50/50	0.3267
958102	AF2-104 E	0.2178	50/50	0.2178
958411	AF2-135 C	0.6746	50/50	0.6746
958412	AF2-135 E	0.4498	50/50	0.4498
958471	AF2-141	1.7990	50/50	1.7990
959792	AF2-270 E	0.1244	Adder	0.28
960901	AF2-381 C	2.7185	Adder	6.03
960902	AF2-381 E	1.4306	Adder	3.18
NEWTON	NEWTON	0.1644	Confirmed LTF	0.1644
FARMERCITY	FARMERCITY	0.0088	Confirmed LTF	0.0088
G-007A	G-007A	0.5754	Confirmed LTF	0.5754
VFT	VFT	1.6125	Confirmed LTF	1.6125
CALDERWOOD	CALDERWOOD	0.1069	Confirmed LTF	0.1069
PRAIRIE	PRAIRIE	0.4184	Confirmed LTF	0.4184
CHEOAH	CHEOAH	0.1086	Confirmed LTF	0.1086
EDWARDS	EDWARDS	0.0497	Confirmed LTF	0.0497
TILTON	TILTON	0.0907	Confirmed LTF	0.0907
GIBSON	GIBSON	0.0824	Confirmed LTF	0.0824
BLUEG	BLUEG	0.2656	Confirmed LTF	0.2656
TRIMBLE	TRIMBLE	0.0846	Confirmed LTF	0.0846
CATAWBA	CATAWBA	0.0921	Confirmed LTF	0.0921

11.6.28 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
101402859	960390	AF2-330 TAP	PENELEC	200525	26SUMMIT	PENELEC	1	PN-P7-1-PN-230-001	tower	237.0	115.03	130.78	DC	37.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.1441	50/50	0.1441
200834	26SW_E13_K22	0.0739	50/50	0.0739
200835	26DSGENWIN	0.3639	50/50	0.3639
200846	26FORWARD	0.2664	50/50	0.2664
200864	K-013 E	6.1772	50/50	6.1772
200888	26HIGHLAND	0.6407	50/50	0.6407
200889	26STNY CRK	0.5348	50/50	0.5348
200890	26BF_G21_K23	0.1785	50/50	0.1785
200891	26CSLMN_L13	0.2800	50/50	0.2800
200892	26LOOKOUT	0.2660	50/50	0.2660
200925	26R32	0.7393	50/50	0.7393
202225	26SCI_S29B	0.1150	50/50	0.1150
202652	26RGH_Y1-033	0.1367	50/50	0.1367
292350	K-023	6.6744	50/50	6.6744
292542	L-013 1	6.4918	50/50	6.4918
293432	R-040 E	0.3652	50/50	0.3652
293603	O-018 E	14.8585	50/50	14.8585
293902	O-048 E	5.8427	50/50	5.8427
294903	P-060 E	12.4022	50/50	12.4022
296332	R-032 E	17.1444	50/50	17.1444
913142	Y1-033 E OP1	5.4139	50/50	5.4139
917672	Z2-108 E	3.6517	50/50	3.6517
938351	AE1-053	2.0287	50/50	2.0287
938881	AE1-116	1.0712	50/50	1.0712
938991	AE1-128 C	26.4449	50/50	26.4449
938992	AE1-128 E	17.6299	50/50	17.6299
943711	AF1-039 C O1	1.4323	50/50	1.4323
943712	AF1-039 E O1	0.9548	50/50	0.9548
944751	AF1-140 C	4.8234	50/50	4.8234
944752	AF1-140 E	3.2156	50/50	3.2156
944781	AF1-143 C	12.1722	50/50	12.1722
944782	AF1-143 E	6.4918	50/50	6.4918
945671	AF1-232 C O2	28.6250	50/50	28.6250
945672	AF1-232 E O2	15.4134	50/50	15.4134
946081	AF1-273 C O1	14.3585	50/50	14.3585
946082	AF1-273 E O1	9.5724	50/50	9.5724
946571	AF1-321 C O1	2.8931	50/50	2.8931
946572	AF1-321 E O1	1.9287	50/50	1.9287
957001	AF2-001 C O1	2.8931	50/50	2.8931
957002	AF2-001 E O1	1.9287	50/50	1.9287
957011	AF2-002 C O1	1.4465	50/50	1.4465

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957012	AF2-002 E O1	0.9644	50/50	0.9644
957513	AF2-045 BAT	2.6820	50/50	2.6820
957981	AF2-092 C	2.8461	50/50	2.8461
957982	AF2-092 E	1.8974	50/50	1.8974
958101	AF2-104 C	0.5713	50/50	0.5713
958102	AF2-104 E	0.3809	50/50	0.3809
958411	AF2-135 C	0.6086	50/50	0.6086
958412	AF2-135 E	0.4057	50/50	0.4057
958471	AF2-141	1.6230	50/50	1.6230
959301	AF2-221 C	1.2907	50/50	1.2907
959302	AF2-221 E	1.7824	50/50	1.7824
959792	AF2-270 E	1.3667	50/50	1.3667
959803	AF2-271 BAT	0.2573	50/50	0.2573
960391	AF2-330 C	32.6533	50/50	32.6533
960392	AF2-330 E	14.2816	50/50	14.2816
960451	AF2-336 C O1	4.7435	50/50	4.7435
960452	AF2-336 E O1	3.1623	50/50	3.1623
960461	AF2-337 C O1	4.7435	50/50	4.7435
960462	AF2-337 E O1	3.1623	50/50	3.1623
960471	AF2-338 C O1	4.7435	50/50	4.7435
960472	AF2-338 E O1	3.1623	50/50	3.1623
960481	AF2-339 C O1	4.7435	50/50	4.7435
960482	AF2-339 E O1	3.1623	50/50	3.1623
960901	AF2-381 C	24.4529	50/50	24.4529
960902	AF2-381 E	12.8684	50/50	12.8684
WEC	WEC	0.0321	Confirmed LTF	0.0321
LGEE	LGEE	0.0616	Confirmed LTF	0.0616
CPL	CPL	0.0820	Confirmed LTF	0.0820
CBM-W2	CBM-W2	0.8927	Confirmed LTF	0.8927
NY	NY	0.2085	Confirmed LTF	0.2085
CBM-W1	CBM-W1	1.1885	Confirmed LTF	1.1885
TVA	TVA	0.1596	Confirmed LTF	0.1596
O-066	O-066	1.2970	Confirmed LTF	1.2970
CBM-S2	CBM-S2	0.7052	Confirmed LTF	0.7052
CBM-S1	CBM-S1	0.9628	Confirmed LTF	0.9628
G-007	G-007	0.1914	Confirmed LTF	0.1914
MEC	MEC	0.1668	Confirmed LTF	0.1668

11.6.29 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
99688468	999401	KEYSTONE	PJM	200011	KEYSTONE	PJM	4	PJM500_PN_P4-500-001D	breaker	634.0	146.61	150.26	DC	22.76

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.5021	50/50	0.5021
200794	26CONEMAGH	0.3401	50/50	0.3401
200805	26COLVER13 (Deactivation : 01/09/2020)	19.4986	50/50	19.4986
200809	26SITHE	1.5787	50/50	1.5787
200833	26SEWRDB34	16.4203	50/50	16.4203
200837	26HOMER C1	27.1889	50/50	27.1889
200838	26HOMER C2	22.7783	50/50	22.7783
200839	26HOMER C3	24.1138	50/50	24.1138
200846	26FORWARD	0.1849	50/50	0.1849
200864	K-013 E	4.2867	50/50	4.2867
200883	Q-053 E	6.7034	Adder	7.89
200888	26HIGHLAND	0.4021	50/50	0.4021
200894	26K02	4.2797	Adder	5.03
200898	26AA1-106	1.6191	Adder	1.9
200906	26KEYSTN#3	0.8346	50/50	0.8346
200925	26R32	0.4640	50/50	0.4640
201477	26Y2-055	2.5158	Adder	2.96
202158	26CON.GEN1	0.0871	50/50	0.0871
202160	26CON.GEN2	0.0608	50/50	0.0608
203910	26Z1-091	1.4616	Adder	1.72
203999	P-047 E	7.6650	Adder	9.02
235003	AC1-025 E	0.1066	Adder	0.13
236828	01GRAYMONT	0.2892	Adder	0.34
290086	Q-036 E	4.7423	Adder	5.58
292350	K-023	3.9316	Adder	4.63
292542	L-013 1	3.8240	Adder	4.5
293301	N-039 E	8.9004	Adder	10.47
293393	V3-030E	4.0991	Adder	4.82
293432	R-040 E	0.2151	Adder	0.25
293603	O-018 E	9.3246	50/50	9.3246
293902	O-048 E	3.4416	Adder	4.05
294515	O38_P22	7.7878	Adder	9.16
294903	P-060 E	6.1011	Adder	7.18
296332	R-032 E	10.7592	50/50	10.7592
913142	Y1-033 E OP1	3.1285	Adder	3.68
916202	Z1-069 E	6.1111	Adder	7.19
917672	Z2-108 E	2.1510	Adder	2.53
918682	AA1-082 E	4.1676	Adder	4.9
919201	AA1-144 OP	11.8571	Adder	13.95
919491	AA2-000	36.9465	Adder	43.47

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
920341	AA2-132 (Suspended)	1.6179	Adder	1.9
922932	AB1-082 OP (Suspended)	2.2235	Adder	2.62
923443	AB1-160 E	1.7460	Adder	2.05
930511	AB1-092	1.3566	Adder	1.6
935191	AD1-154	2.3474	Adder	2.76
936421	AD2-055	2.7929	Adder	3.29
936991	AD2-133 C	2.1340	Adder	2.51
936992	AD2-133 E	9.7609	Adder	11.48
938351	AE1-053	1.1950	Adder	1.41
938881	AE1-116	0.6374	Adder	0.75
938951	AE1-123	1.6446	Adder	1.93
938991	AE1-128 C	12.6893	50/50	12.6893
938992	AE1-128 E	8.4595	50/50	8.4595
939171	AE1-147 C	0.8699	Adder	1.02
939172	AE1-147 E	0.5799	Adder	0.68
939291	AE1-160 C	1.0211	Adder	1.2
939292	AE1-160 E	0.5869	Adder	0.69
940201	AE2-001 C	0.8685	Adder	1.02
940202	AE2-001 E	0.5790	Adder	0.68
940681	AE2-055 C (Suspended)	0.8483	Adder	1.0
940682	AE2-055 E (Suspended)	0.5656	Adder	0.67
940861	AE2-074 C	1.6883	Adder	1.99
940862	AE2-074 E	2.2224	Adder	2.61
941191	AE2-113 C	6.6071	Adder	7.77
941192	AE2-113 E	7.1137	Adder	8.37
941231	AE2-117 C	1.0882	Adder	1.28
941232	AE2-117 E	0.7255	Adder	0.85
941241	AE2-118 C	1.0882	Adder	1.28
941242	AE2-118 E	0.7255	Adder	0.85
941261	AE2-120 C	0.8677	Adder	1.02
941262	AE2-120 E	0.5785	Adder	0.68
941271	AE2-121 C	0.4637	Adder	0.55
941272	AE2-121 E	0.3096	Adder	0.36
941321	AE2-126 C	1.1540	Adder	1.36
941322	AE2-126 E	0.7694	Adder	0.91
941331	AE2-129 C	1.3112	Adder	1.54
941332	AE2-129 E	0.8741	Adder	1.03
941351	AE2-131 C	1.3112	Adder	1.54
941352	AE2-131 E	0.8741	Adder	1.03
941421	AE2-139 C	4.4628	Adder	5.25
941422	AE2-139 E	2.9752	Adder	3.5
942121	AE2-224 C	11.0940	50/50	11.0940
942122	AE2-224 E	7.3960	50/50	7.3960
942351	AE2-248 C	0.6854	Adder	0.81
942352	AE2-248 E	0.4570	Adder	0.54
942491	AE2-262 C	3.9028	Adder	4.59
942492	AE2-262 E	2.6227	Adder	3.09
942501	AE2-263 C	3.6686	Adder	4.32
942502	AE2-263 E	2.4494	Adder	2.88
942511	AE2-264 C	5.1755	Adder	6.09
942512	AE2-264 E	3.4503	Adder	4.06
942811	AE2-299 C	2.1929	Adder	2.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942812	AE2-299 E	8.7715	Adder	10.32
942961	AE2-316 C	3.5685	Adder	4.2
942962	AE2-316 E	5.0887	Adder	5.99
943151	AE2-344 C	4.6736	Adder	5.5
943152	AE2-344 E	3.1157	Adder	3.67
943351	AF1-006 C	0.8073	Adder	0.95
943352	AF1-006 E	0.4541	Adder	0.53
943711	AF1-039 C O1	0.8277	Adder	0.97
943712	AF1-039 E O1	0.5518	Adder	0.65
943751	AF1-043	8.3788	Adder	9.86
944001	AF1-068 C O1	0.9112	Adder	1.07
944002	AF1-068 E O1	0.5125	Adder	0.6
944181	AF1-086 C O1	2.7924	Adder	3.29
944182	AF1-086 E O1	12.1484	Adder	14.29
944261	AF1-094 C	0.8554	Adder	1.01
944262	AF1-094 E	0.5702	Adder	0.67
944281	AF1-096 C	0.9648	Adder	1.14
944282	AF1-096 E	0.6432	Adder	0.76
944301	AF1-098 C	3.3713	Adder	3.97
944302	AF1-098 E	2.2475	Adder	2.64
944311	AF1-099 C	5.9244	Adder	6.97
944312	AF1-099 E	3.9496	Adder	4.65
944321	AF1-100 C	12.6059	Adder	14.83
944322	AF1-100 E	8.4040	Adder	9.89
944381	AF1-103 O1	1.7343	Adder	2.04
944411	AF1-106 O1	1.7626	Adder	2.07
944471	AF1-112 C	0.9162	Adder	1.08
944472	AF1-112 E	0.5154	Adder	0.61
944671	AF1-132 C O1	0.8528	Adder	1.0
944672	AF1-132 E O1	0.5685	Adder	0.67
944691	AF1-134 C O1	1.4353	Adder	1.69
944692	AF1-134 E O1	0.9569	Adder	1.13
944751	AF1-140 C	1.4386	Adder	1.69
944752	AF1-140 E	0.9590	Adder	1.13
944771	AF1-142 C	9.4791	Adder	11.15
944772	AF1-142 E	6.3194	Adder	7.43
944781	AF1-143 C	7.1701	Adder	8.44
944782	AF1-143 E	3.8240	Adder	4.5
944841	AF1-149 C	0.8677	Adder	1.02
944842	AF1-149 E	0.5785	Adder	0.68
944881	AF1-153 C O1	1.0338	Adder	1.22
944882	AF1-153 E O1	0.6892	Adder	0.81
944901	AF1-155 C	1.0336	Adder	1.22
944902	AF1-155 E	0.6890	Adder	0.81
945021	AF1-167 C	0.6395	Adder	0.75
945022	AF1-167 E	0.4272	Adder	0.5
945051	AF1-170 C	2.9067	Adder	3.42
945052	AF1-170 E	1.9378	Adder	2.28
945121	AF1-177	0.4336	Adder	0.51
945161	AF1-181	0.0677	Adder	0.08
945171	AF1-182	0.3383	Adder	0.4
945181	AF1-183	0.0910	Adder	0.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945331	AF1-198	0.2365	Adder	0.28
945451	AF1-210 C	0.6992	Adder	0.82
945452	AF1-210 E	0.4662	Adder	0.55
945491	AF1-214 C	0.8678	Adder	1.02
945492	AF1-214 E	0.5785	Adder	0.68
945551	AF1-220 C	8.6431	Adder	10.17
945552	AF1-220 E	5.7652	Adder	6.78
945671	AF1-232 C O2	14.9758	Adder	17.62
945672	AF1-232 E O2	8.0639	Adder	9.49
945751	AF1-240 C O1	1.4084	Adder	1.66
945752	AF1-240 E O1	0.9389	Adder	1.1
946071	AF1-272 C O1	15.7799	50/50	15.7799
946072	AF1-272 E O1	10.5200	50/50	10.5200
946081	AF1-273 C O1	7.3643	Adder	8.66
946082	AF1-273 E O1	4.9095	Adder	5.78
946111	AF1-276 C	7.5744	Adder	8.91
946112	AF1-276 E	3.7307	Adder	4.39
946121	AF1-277 C	7.5744	Adder	8.91
946122	AF1-277 E	3.7307	Adder	4.39
946131	AF1-278 C	6.0369	Adder	7.1
946132	AF1-278 E	3.0026	Adder	3.53
946211	AF1-286 C O1	0.7138	Adder	0.84
946212	AF1-286 E O1	0.4847	Adder	0.57
946221	AF1-287 C	0.8067	Adder	0.95
946222	AF1-287 E	0.5378	Adder	0.63
946381	AF1-302 C	1.5583	Adder	1.83
946382	AF1-302 E	2.0777	Adder	2.44
946401	AF1-304 C	4.9399	Adder	5.81
946402	AF1-304 E	3.2932	Adder	3.87
946421	AF1-306 C	4.3129	Adder	5.07
946422	AF1-306 E	17.2515	Adder	20.3
946431	AF1-307 C	7.1345	50/50	7.1345
946432	AF1-307 E	4.7563	50/50	4.7563
946571	AF1-321 C O1	2.2427	50/50	2.2427
946572	AF1-321 E O1	1.4951	50/50	1.4951
946771	AF1-217 C O2	0.8067	Adder	0.95
946772	AF1-217 E O2	0.5378	Adder	0.63
957001	AF2-001 C O1	2.2427	50/50	2.2427
957002	AF2-001 E O1	1.4951	50/50	1.4951
957011	AF2-002 C O1	1.1213	50/50	1.1213
957012	AF2-002 E O1	0.7476	50/50	0.7476
957161	AF2-010 C	1.7484	Adder	3.88
957162	AF2-010 E	1.1783	Adder	2.62
957451	AF2-039 C	0.4203	Adder	0.93
957452	AF2-039 E	0.2802	Adder	0.62
957512	AF2-045 E	1.4273	Adder	3.17
957561	AF2-050 C	5.5470	50/50	5.5470
957562	AF2-050 E	3.6980	50/50	3.6980
957571	AF2-051 C O1	1.3230	Adder	2.94
957572	AF2-051 E O1	0.6815	Adder	1.51
957581	AF2-052 C	2.2007	Adder	4.89
957582	AF2-052 E	1.0706	Adder	2.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957681	AF2-062 C	7.3711	Adder	16.36
957682	AF2-062 E	4.9141	Adder	10.91
957931	AF2-087 C	0.2059	Adder	0.46
957932	AF2-087 E	0.2835	Adder	0.63
957941	AF2-088 C	0.2023	Adder	0.45
957942	AF2-088 E	0.1349	Adder	0.3
957951	AF2-089 C	0.1406	Adder	0.31
957952	AF2-089 E	0.0724	Adder	0.16
957981	AF2-092 C	0.5693	Adder	1.26
957982	AF2-092 E	0.3796	Adder	0.84
958031	AF2-097 C	0.1003	Adder	0.22
958032	AF2-097 E	0.0669	Adder	0.15
958101	AF2-104 C	0.1802	Adder	0.4
958102	AF2-104 E	0.1201	Adder	0.27
958271	AF2-121 C	0.6949	Adder	1.54
958272	AF2-121 E	0.4633	Adder	1.03
958361	AF2-130 C	0.5615	Adder	1.25
958362	AF2-130 E	0.3743	Adder	0.83
958411	AF2-135 C	0.1900	Adder	0.42
958412	AF2-135 E	0.1267	Adder	0.28
958471	AF2-141	0.5067	Adder	1.12
958731	AF2-164 C O1	2.4513	Adder	5.44
958732	AF2-164 E O1	1.6342	Adder	3.63
958741	AF2-165 C	0.5404	Adder	1.2
958742	AF2-165 E	0.3603	Adder	0.8
958751	AF2-166 C	0.5615	Adder	1.25
958752	AF2-166 E	0.3743	Adder	0.83
959061	AF2-197 C O1	1.6039	Adder	3.56
959062	AF2-197 E O1	2.4058	Adder	5.34
959301	AF2-221 C	1.1633	50/50	1.1633
959302	AF2-221 E	1.6065	50/50	1.6065
959401	AF2-231 C	0.1442	Adder	0.32
959402	AF2-231 E	0.0961	Adder	0.21
959441	AF2-235 C	0.2557	Adder	0.57
959442	AF2-235 E	0.1705	Adder	0.38
959461	AF2-237 C	0.2267	Adder	0.5
959462	AF2-237 E	0.1511	Adder	0.34
959471	AF2-238 C	0.5755	Adder	1.28
959472	AF2-238 E	0.3836	Adder	0.85
959481	AF2-239 C	0.4355	Adder	0.97
959482	AF2-239 E	0.3492	Adder	0.78
959491	AF2-240 C	0.5044	Adder	1.12
959492	AF2-240 E	0.4297	Adder	0.95
959501	AF2-241 C	0.5278	Adder	1.17
959502	AF2-241 E	0.4064	Adder	0.9
959521	AF2-243 C	0.4053	Adder	0.9
959522	AF2-243 E	0.2702	Adder	0.6
959741	AF2-265 C	0.4124	Adder	0.92
959742	AF2-265 E	0.3069	Adder	0.68
959792	AF2-270 E	0.6558	50/50	0.6558
959802	AF2-271 E	0.1963	Adder	0.44
959822	AF2-273 E	0.1487	Adder	0.33

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960022	AF2-293 E	0.0448	Adder	0.1
960031	AF2-294 C	0.5171	Adder	1.15
960032	AF2-294 E	0.3447	Adder	0.77
960041	AF2-295 C	0.5478	Adder	1.22
960042	AF2-295 E	0.3652	Adder	0.81
960051	AF2-296 C	0.7607	Adder	1.69
960052	AF2-296 E	0.5072	Adder	1.13
960211	AF2-312 C	0.8320	Adder	1.85
960212	AF2-312 E	0.5547	Adder	1.23
960271	AF2-318 C	0.4709	Adder	1.05
960272	AF2-318 E	0.3139	Adder	0.7
960321	AF2-323 C O1	1.0633	Adder	2.36
960322	AF2-323 E O1	0.7088	Adder	1.57
960391	AF2-330 C	3.7356	Adder	8.29
960392	AF2-330 E	1.6339	Adder	3.63
960451	AF2-336 C O1	0.9489	Adder	2.11
960452	AF2-336 E O1	0.6326	Adder	1.4
960461	AF2-337 C O1	0.9489	Adder	2.11
960462	AF2-337 E O1	0.6326	Adder	1.4
960471	AF2-338 C O1	0.9489	Adder	2.11
960472	AF2-338 E O1	0.6326	Adder	1.4
960481	AF2-339 C O1	0.9489	Adder	2.11
960482	AF2-339 E O1	0.6326	Adder	1.4
960901	AF2-381 C	14.9091	50/50	14.9091
960902	AF2-381 E	7.8459	50/50	7.8459
961141	AF2-405	0.4671	Adder	1.04
961151	AF2-406	3.5031	Adder	7.78
961201	AF2-411 O1	17.8114	Adder	39.54
961211	AF2-412 O1	7.1197	Adder	15.8
961451	AF2-436	0.0528	Adder	0.12
NEWTON	NEWTON	0.5437	Confirmed LTF	0.5437
FARMERCITY	FARMERCITY	0.0283	Confirmed LTF	0.0283
G-007A	G-007A	0.0216	Confirmed LTF	0.0216
VFT	VFT	0.3289	Confirmed LTF	0.3289
CALDERWOOD	CALDERWOOD	0.2863	Confirmed LTF	0.2863
PRAIRIE	PRAIRIE	1.3277	Confirmed LTF	1.3277
CHEOAH	CHEOAH	0.2888	Confirmed LTF	0.2888
EDWARDS	EDWARDS	0.1694	Confirmed LTF	0.1694
TILTON	TILTON	0.3106	Confirmed LTF	0.3106
MADISON	MADISON	0.0302	Confirmed LTF	0.0302
GIBSON	GIBSON	0.2779	Confirmed LTF	0.2779
BLUEG	BLUEG	0.9027	Confirmed LTF	0.9027
TRIMBLE	TRIMBLE	0.2894	Confirmed LTF	0.2894
CATAWBA	CATAWBA	0.2138	Confirmed LTF	0.2138

11.7 Queue Dependencies

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

Queue Number	Project Name	Status
AA1-082	E. Towanda 230kV	In Service
AA1-100	Warrior Run 138kV	In Service
AA1-106	Grover II 34.5kV	Withdrawn
AA1-144	East Towanda-Grover 230kV	Engineering and Procurement
AA2-000	N/A	N/A
AA2-132	Thompson 34.5kV	Suspended
AB1-065	Jennings-Hoyes 34.5kV	Suspended
AB1-082	Potter 46kV	Suspended
AB1-092	Moshannon-East Towanda 230kV	Active
AB1-160	Gold-Sabinsville 115kV	In Service
AB2-038	Frostburg 138kV	Engineering and Procurement
AB2-041	Frostburg 138kV	Engineering and Procurement
AC1-025	Dale Summit	In Service
AD1-018	Carlos Jct - Plaza 34 kV	Suspended
AD1-068	Albright-Garrett 138 kV	Active
AD1-154	Timblin 34.5 kV	Active
AD2-055	Moshannon-East Towanda 230 kV	Active
AD2-062	Roxbury-Greene 138 kV	Active
AD2-133	Eagle Valley 115kV	Active
AE1-053	Meyersdale North	Active
AE1-071	Shade Gap-Roxbury 115 kV	Active
AE1-116	Somerset Windpower 23 kV	Active
AE1-123	Emlenton 34.5 kV	Engineering and Procurement
AE1-128	Bedford North-Wills Mounain 115 kV	Active
AE1-147	Bellefonte 46 kV	Engineering and Procurement
AE1-160	Venango 34.5 kV	Engineering and Procurement
AE2-001	Nittany-Zion 46 kV	Active
AE2-055	Shingletown-Boalsburg 46 kV	Suspended
AE2-074	Potter 46 kV	Active
AE2-113	Farmers Valley-Ridgeway 115 kV	Active
AE2-117	ABW Tap-Alexandria 46 kV	Active
AE2-118	ABW Tap-Williamsburg 46 kV	Active
AE2-120	Graymont-Zion 46 kV	Active
AE2-121	Milesburg-Tanney Junction 46 kV	Active
AE2-126	Dubois-Curwensville 34.5 kV	Active
AE2-129	Philipsburg-Clarence 34.5 kV	Active
AE2-131	Philipsburg-Karthaus 34.5	Active
AE2-139	East Towanda-Grover 230 kV	Active
AE2-224	Bearrock-Johnstown 230 kV	Active
AE2-248	Fillmore-Thompson Farm 46 kV	Active

Queue Number	Project Name	Status
AE2-262	Moshannon-Milesburg 230 kV	Active
AE2-263	Moshannon-Milesburg 230 kV	Active
AE2-264	Altoona-Raystown 230 kV	Active
AE2-299	Erie East 230 kV	Active
AE2-309	Carlos Junction-Lonaconing 34.5 kV	Active
AE2-316	Brookville-Squab Hollow 138 kV	Active
AE2-344	Edinboro South-Venango Junction 115 kV	Active
AF1-001	Thayerville 34.5 kV	Engineering and Procurement
AF1-006	Fairview East 34.5 kV	Active
AF1-039	Listonburg-Highpoint 24.9 kV	Active
AF1-043	Moshannon-East Towanda 230 kV	Active
AF1-068	Boalsburg-Centre Hall 46 kV	Active
AF1-086	Madera-Westover South 115 kV	Active
AF1-094	Union City-Cambridge Springs 34.5 kV	Active
AF1-096	Titusville-Oil Creek 34.5 kV	Active
AF1-098	Four Mile Jct-Corry East 115 kV	Active
AF1-099	Moshannon-Milesburg 230 kV	Active
AF1-100	Shawville-Moshannon 230 kV	Active
AF1-103	Warren 34.5 kV	Active
AF1-104	Erie West 34.5 kV	Active
AF1-106	East Sayre 34.5 kV	Active
AF1-112	Centre Hall-Boalsburg 46 kV	Active
AF1-132	Shingletown-Boalsburg 46 kV	Active
AF1-134	Philipsburg-Madera 34.5 kV	Active
AF1-140	Claysburg 23 kV	Engineering and Procurement
AF1-142	Moshannon-Milesburg 230 kV	Active
AF1-143	Lick Run 115 kV	Active
AF1-149	Graymont-Zion 46 kV	Active
AF1-153	Motion-Ridgeway 46 kV	Active
AF1-155	Paper City-Wilcox 46 kV	Engineering and Procurement
AF1-167	West Freedom-C&K Coal 25 kV	Active
AF1-170	Springboro-Venango Junction 115 kV	Active
AF1-177	Warren 115 kV	Partially in Service - Under Construction
AF1-181	Shawville 3 230 kV	Partially in Service - Under Construction
AF1-182	Shawville 4 230 kV	Partially in Service - Under Construction
AF1-183	Shawville 1 230 kV	Partially in Service - Under Construction
AF1-198	Blossburg #1 CT 34.5 kV	Partially in Service - Under Construction
AF1-210	Burma 23 kV	Engineering and Procurement
AF1-214	Nittany-Zion 46 kV	Active
AF1-217	Edinboro -Cambridge Springs 34.5 kV	Active
AF1-220	Ridgeway-Whetstone 115 kV	Active
AF1-232	Allegheny-Somerset 115 kV	Active
AF1-240	Timblin 34.5 kV	Active
AF1-272	Lucerne 115 kV	Active
AF1-273	Allegheny 115 kV	Active
AF1-276	Lewis Run-Pierce Brook 230 kV	Active
AF1-277	Lewis Run-Pierce Brook 2 230 kV	Active
AF1-278	Lewis Run-Pierce Brook 3 230 kV	Active
AF1-286	East Sayre 34.5 kV II	Active
AF1-287	Edinboro South 34.5 kV II	Active
AF1-302	Brookville-Squab Hollow 138 kV	Active
AF1-304	Titusville-Grandview 115 kV	Active

Queue Number	Project Name	Status
AF1-306	Squab Hollow 230 kV	Active
AF1-307	Seward-Jackson Rd 115 kV	Active
AF1-321	Hooversville 115 kV I	Active
AF2-001	Hooversville 115 kV II	Active
AF2-002	Hooversville 115 kV III	Active
AF2-010	Union City-Titusville 115 kV	Active
AF2-039	Shawville-Clearfield 34.5 kV	Active
AF2-045	Cambria Nug 115 kV	Active
AF2-050	Bearrock-Johnstown 230 kV	Active
AF2-051	Geneva 115 kV	Active
AF2-052	Farmers Valley-Ridgeway 115 kV	Active
AF2-062	Lewis Run-Pierce Brook 230 kV	Active
AF2-087	East Altoona-Pinecroft 12.47 kV	Active
AF2-088	Shawville-Clearfield 34.5 kV II	Active
AF2-089	Titusville 34.5 kV	Active
AF2-092	Snake Spring-Bedford Area 23 kV	Active
AF2-097	Fairview East 34.5 kV II	Active
AF2-104	Somerset 23 kV	Active
AF2-121	Philipsburg-Shawville 34.5 kV	Active
AF2-130	Wolfs Corners 34.5 kV	Active
AF2-135	Rockwood-Confluence 23 kV	Active
AF2-141	Lick Run 115 kV	Active
AF2-146	Hill Valley-Valley REC 46 kV	Active
AF2-147	McVeytown-Strodes Mill 46 kV	Active
AF2-148	Shade Gap-Three Springs KTS 23 kV	Active
AF2-164	Handsome Lake 345 kV	Active
AF2-165	Clark Summit-Emlenton 34.5 kV	Active
AF2-166	Clark Summit-Emlenton 34 kV	Active
AF2-170	Erie West-Springboro 34.5 kV	Active
AF2-178	Roxbury 23 kV II	Active
AF2-197	East Towanda 115 kV	Active
AF2-221	Scalp Level 22.9 kV	Active
AF2-229	Roxbury 23 kV	Active
AF2-231	Belleville 12.47 kV	Active
AF2-235	Titusville-Oil Creek 34.5 kV	Active
AF2-237	Union City-Cambridge Springs 34.5 kV	Active
AF2-238	Mansfield-South Troy 34.5 kV	Active
AF2-239	Wyalusing-Hollenback WRC 34.5 kV	Active
AF2-240	North Orwell 12.47 kV	Active
AF2-241	Athens-Milan 34.5 kV	Active
AF2-243	Clark Summit 34.5 kV	Active
AF2-265	South Troy-Athens 34.5 kV	Active
AF2-270	Bedford South RCB-Bedford Area 23 kV	Active
AF2-271	Pemberton-Sinking Valley 12.47 kV	Active
AF2-273	Sligo 25 kV	Active
AF2-293	Beech Creek 46 kV	Active
AF2-294	Thompson 34.5 kV	Active
AF2-295	Wilcox-Paper City 46 kV	Active
AF2-296	Madera 34.5 kV	Active
AF2-310	Jennings-Hoyes Road 34.5 kV	Active
AF2-312	Carrolltown-Patton 46 kV	Active
AF2-314	Vandergrift 25 kV	Active

Queue Number	Project Name	Status
AF2-318	East Towanda-New Albany 34.5 kV	Active
AF2-323	Geneva-Franklin Tap 115 kV	Active
AF2-330	Claysburg-Summit 115 kV	Active
AF2-336	Snake Spring 115 kV	Active
AF2-337	Snake Spring 115 kV	Active
AF2-338	Snake Spring-Saxton 115 kV	Active
AF2-339	Snake Spring-Saxton 115 kV	Active
AF2-381	Bedford North-Central City West 115 kV	Active
AF2-405	East Sayre 34.5 kV III	Active
AF2-406	Sayre 115 kV	Active
AF2-411	Mainesburg 345 kV	Active
AF2-412	Mainesburg 115 kV	Active
AF2-436	Wyalusing 34.5 kV II	Active
AF2-439	Roxbury-Carlisle 115 kV	Active
V3-030	St. Benedict-Patton 46kV	In Service
W1-045	Roxbury 23 kV	In Service
Y1-033	Penn Mar-Rock Wood 115kV	In Service
Y2-055	Elm Street 34.5kV	Withdrawn
Y3-092	Erie West 345kV	Engineering and Procurement
Z1-038	Florey Knob 34.5kV	Withdrawn
Z1-069	Gold-Sabinsville 115kV	In Service
Z1-091	Lenox 34kV	Withdrawn
Z2-108	Meyersdale North 115kV	In Service

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
PN-P2_3-PN-230-0252-B	CONTINGENCY 'PN-P2_3-PN-230-0252-B' /* SHELOCTA 230 KV STUCK BREAKER (KEYSTONE/HOMER CITY) OPEN BRANCH FROM BUS 200795 TO BUS 200810 CKT 1 /* 26SHELOCTA 230.00 26KEYSTONE 230.00 OPEN BRANCH FROM BUS 200795 TO BUS 200767 CKT 1 /* 26SHELOCTA 230.00 26HOMER CT 230.00 END
PN-P2_3-PN-230-0252-C	CONTINGENCY 'PN-P2_3-PN-230-0252-C' /* SHELOCTA 230 KV STUCK BREAKER (HOMER CITY/XFMR) OPEN BRANCH FROM BUS 200795 TO BUS 200767 CKT 1 /* 26SHELOCTA 230.00 26HOMER CT 230.00 OPEN BRANCH FROM BUS 200795 TO BUS 200739 CKT 2 /* 26SHELOCTA 230.00 26SHELOCTA 115.00 END
PN-P2_3-PN-230-0252-A	CONTINGENCY 'PN-P2_3-PN-230-0252-A' /* SHELOCTA 230 KV STUCK BREAKER (KEYSTONE/XFMR) OPEN BRANCH FROM BUS 200795 TO BUS 200810 CKT 1 /* 26SHELOCTA 230.00 26KEYSTONE 230.00 OPEN BRANCH FROM BUS 200795 TO BUS 200739 CKT 2 /* 26SHELOCTA 230.00 26SHELOCTA 115.00 END
PN-P1-3-PN-115-014	CONTINGENCY 'PN-P1-3-PN-115-014' /* SUMMIT #1 115/46KV XFMR FAULT DISCONNECT BRANCH FROM BUS 200525 TO BUS 200538 CKT 1 /* 26SUMMIT 115 26SUMMIT 46 DISCONNECT BRANCH FROM BUS 200525 TO BUS 200503 CKT 1 /* 26SUMMIT 115 26C.SLOPE 115 DISCONNECT BRANCH FROM BUS 200525 TO BUS 960390 CKT 1 /* 26SUMMIT 115 26CLYSBURG 115 END
PN-P2-3-PN-115-35E	CONTINGENCY 'PN-P2-3-PN-115-35E' /* #14 STUCK TIE BREAKER BETWEEN BUSES 1 AND 2 DISCONNECT BRANCH FROM BUS 200734 TO BUS 200743 CKT 1 /* 26SCALP L. 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200802 CKT 1 /* 26HOOVERSV 115 26RALPHTON 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200776 CKT 1 /* 26HOOVERSV 115 26HOOVER#1 23 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200744 CKT 1 /* 26HOOVERSV 115 26SOMERST 115 DISCONNECT BRANCH FROM BUS 200742 TO BUS 200743 CKT 1 /* 26TOWER 51 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200789 CKT 2 /* 26HOOVERSV 115 26HOOVER#2 23 END

Contingency Name	Contingency Definition
PN-P2-3-PN-115-69A	CONTINGENCY 'PN-P2-3-PN-115-69A' /* 707 DISCONNECT BRANCH FROM BUS 200741 TO BUS 200742 CKT 1 /* 26SEWARD 115 26TOWER 51 115 DISCONNECT BRANCH FROM BUS 200742 TO BUS 200778 CKT 2 /* 26TOWER 51 115 26T-51 #2 23 DISCONNECT BRANCH FROM BUS 200742 TO BUS 200743 CKT 1 /* 26TOWER 51 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200742 TO BUS 200771 CKT 1 /* 26TOWER 51 115 26T-51 #1 23 END
PN-P1-2-PN-230-012A-A	CONTINGENCY 'PN-P1-2-PN-230-012A-A' /* QUEUE AA1-144 - MARSHALL 230KV DISCONNECT BRANCH FROM BUS 200857 TO BUS 200701 CKT 1 /* 26MARSHALL 230 26GROVER 230 DISCONNECT BRANCH FROM BUS 200701 TO BUS 941420 CKT 1 /* 26GROVER 230 AE2- 139 TAP 230 DISCONNECT BRANCH FROM BUS 200701 TO BUS 200702 CKT 1 /* 26GROVER 230 26GROVER 35 END
PN-P1-2-PN-115-110	CONTINGENCY 'PN-P1-2-PN-115-110' /* BEDFORD NORTH - STATLER HILL 115KV DISCONNECT BUS 200799 /* 26CEN.CTY 115 END
PN-P2-3-PN-115-3A2	CONTINGENCY 'PN-P2-3-PN-115-3A2' /* BEDFORD NORTH 115 KV STUCK CB - CB (BEDFORD NORTH - ALLEGHENY) DISCONNECT BRANCH FROM BUS 200501 TO BUS 200542 CKT 2 /* 26BDFORD N 115 26BDFRD N2 23 DISCONNECT BRANCH FROM BUS 200501 TO BUS 200884 CKT 1 /* 26BDFORD N 115 26NEW BALT 115 DISCONNECT BRANCH FROM BUS 200501 TO BUS 960900 CKT 1 /* 26BDFORD N 115 AF2-381 TAP 115 END
PN-P2-3-PN-115-82B	CONTINGENCY 'PN-P2-3-PN-115-82B' /* STATLER HILL 115 KV STUCK CB - CB (CENTRAL CITY WEST) REMOVE MACHINE W1 FROM BUS 200846 DISCONNECT BRANCH FROM BUS 200836 TO BUS 200799 CKT 1 DISCONNECT BRANCH FROM BUS 200799 TO BUS 200800 CKT 1 DISCONNECT BRANCH FROM BUS 200799 TO BUS 960900 CKT 1 REDUCE BUS 200799 SHUNT BY 100 PERCENT END

Contingency Name	Contingency Definition
ATSI-P2-3-CEI-345-004D	CONTINGENCY 'ATSI-P2-3-CEI-345-004D' /* ERIE WEST 345KV BKR 8 DISCONNECT BRANCH FROM BUS 200599 TO BUS 200600 CKT 1 /* 26ERIE W 345 26ERIE SO 345 DISCONNECT BRANCH FROM BUS 200599 TO BUS 238547 CKT 1 /* 26ERIE W 345 02AT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239036 CKT 1 /* 02AT 345 02PERRY 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 /* 02AT 345 02S8-ATT 345 DISCONNECT BUS 200600 /* 26ERIE SO 345 DISCONNECT BUS 238547 /* 02AT 345 END
AP-P1-2-MP-138-160-A	CONTINGENCY 'AP-P1-2-MP-138-160-A' /* 1518 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 END
AP-P1-2-WP-230-324T_FSA_B	CONTINGENCY 'AP-P1-2-WP-230-324T_FSA_B' /* MOSHANNON-MARSHALL 230KV APS-PN TIE DISCONNECT BRANCH FROM BUS 919490 TO BUS 200909 CKT 1 /* AA2-000 TAP 230 26LOBO+ 230 DISCONNECT BRANCH FROM BUS 200857 TO BUS 200909 CKT 1 /* 26MARSHALL 230 26LOBO+ 230 DISCONNECT BRANCH FROM BUS 236829 TO BUS 200909 CKT 81 /* 01LOBO 46 46 26LOBO+ 230 REMOVE LOAD 1 FROM BUS 236829 /* 01LOBO 46 46 END
PN-P1_2-PN-230-0104	CONTINGENCY 'PN-P1_2-PN-230-0104' /* SHELOCTA - HOMER CITY 230 KV LINE OPEN BRANCH FROM BUS 200795 TO BUS 200767 CKT 1 /* 26SHELOCTA 230.00 26HOMER CT 230.00 END

Contingency Name	Contingency Definition
AP-P2-3-MP-138-150	CONTINGENCY 'AP-P2-3-MP-138-150' /* ALBRIGHT-BRANDONVILLE 106 JCT. STK BKR AT ALBRIGHT DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 DISCONNECT BRANCH FROM BUS 938800 TO BUS 235305 CKT 1 /* AE1-106 TAP 138 01 106 J 138 /* CONTINGENCY LINE ADDED FOR AE1 BUILD DISCONNECT BRANCH FROM BUS 235297 TO BUS 235305 CKT 1 /* 01HAZELT 138 01 106 J 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 /* 01ALBRIG 138 01MTZION 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 /* CONTINGENCY LINE ADDED FOR AE1 BUILD END
PN-P1-2-PN-345-107T	CONTINGENCY 'PN-P1-2-PN-345-107T' /* ERIE WEST - ASHTABULA - PERRY 345KV DISCONNECT BRANCH FROM BUS 200599 TO BUS 238547 CKT 1 /* 26ERIE W 345 02AT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 /* 02AT 345 02S8-ATT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239036 CKT 1 /* 02AT 345 02PERRY 345 DISCONNECT BUS 238547 /* 02AT 345 END
PN-P1-2-PN-115-065	CONTINGENCY 'PN-P1-2-PN-115-065' /* HOOVERSVILLE - TOWER 51 115KV DISCONNECT BRANCH FROM BUS 200743 TO BUS 200742 CKT 1 /* 26HOOVERSV 115 26TOWER 51 115 END
PN-P1-3-PN-115-029	CONTINGENCY 'PN-P1-3-PN-115-029' /* HOOVERSVILLE #2 XFMR FAULT DISCONNECT BRANCH FROM BUS 200743 TO BUS 200789 CKT 2 /* 26HOOVERSV 115 26HOOVER#2 23 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200742 CKT 1 /* 26HOOVERSV 115 26TOWER 51 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200744 CKT 1 /* 26HOOVERSV 115 26SOMERST 115 END
PN-P2-3-PN-115-11F	CONTINGENCY 'PN-P2-3-PN-115-11F' /* FUTURE CLAYSBURG 115KV SB (BEDFORD NORTH/KRAYN) DISCONNECT BUS 200516 /* 26OSTRBURG 115 DISCONNECT BUS 200564 /* 26OSTRE SB 23 DISCONNECT BRANCH FROM BUS 200505 TO BUS 200878 CKT 1 /* 26CLYSBURG 115 26KRAYN 115 END

Contingency Name	Contingency Definition
AP-P2-2-MP-138-101-A	CONTINGENCY 'AP-P2-2-MP-138-101-A' /* ALBRIGHT-138-SOUTH DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235485 CKT 1 /* 01ALBRIG 138 01METTIK 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 END
PN-P1-3-PN-500-001AT	CONTINGENCY 'PN-P1-3-PN-500-001AT' /* KEYSTONE #3 500/230 KV XFMR OPEN BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 /* KEYSTONE 500.00 26KEYSTONE 230.00 END
AP-P2-4-MP-138-200	CONTINGENCY 'AP-P2-4-MP-138-200' /* ALBRIGHT BREAKER FAILURE - TIE BREAKER DISCONNECT BRANCH FROM BUS 235120 TO BUS 235304 CKT 1 /* 01ALBRIG 138 01BRANDN 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235356 CKT 1 /* 01ALBRIG 138 01KINGWD 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235398 CKT 1 /* 01ALBRIG 138 01RUTHBL 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235485 CKT 1 /* 01ALBRIG 138 01METTIK 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 /* 01ALBRIG 138 01MTZION 138 END
Base Case	
200909 26LOBO+ 230 919490 AA2-000 TAP 230 1	CONTINGENCY '200909 26LOBO+ 230 919490 AA2-000 TAP 230 1' OPEN BRANCH FROM BUS 200909 TO BUS 919490 CKT 1 END
PN-P1-2-PN-230-025	CONTINGENCY 'PN-P1-2-PN-230-025' /* CONEMAUGH - SEWARD 230KV DISCONNECT BRANCH FROM BUS 200912 TO BUS 200793 CKT 1 /* 26CONEMAGH 230 26SEWARD 2 230 END

Contingency Name	Contingency Definition
PN-P1-2-PN-115-074B-A	CONTINGENCY 'PN-P1-2-PN-115-074B-A' /* ALLEGHENY - KIMRUN 115KV DISCONNECT BRANCH FROM BUS 202647 TO BUS 945670 CKT 1 /* 26KIMRUN TAP 115 AF1-232 TAP 115 END
PJM500_PN_P4-500-001A	CONTINGENCY 'PJM500_PN_P4-500-001A' /* KEYSTONE 500KV BKR 1 DISCONNECT BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 /* KEYSTONE 500 26KEYSTONE 230 REMOVE MACHINE H FROM BUS 200033 /* KEYS G2 20 REMOVE MACHINE L FROM BUS 200033 /* KEYS G2 20 DISCONNECT BUS 200033 /* KEYS G2 20 END
PJM500_PN_P4-500-001D	CONTINGENCY 'PJM500_PN_P4-500-001D' /* KEYSTONE 500KV BKR 4 DISCONNECT BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 /* KEYSTONE 500 26KEYSTONE 230 REMOVE MACHINE H FROM BUS 200032 /* KEYS G1 20 REMOVE MACHINE L FROM BUS 200032 /* KEYS G1 20 DISCONNECT BUS 200032 /* KEYS G1 20 END
AP-P1-3-PN-115-010	CONTINGENCY 'AP-P1-3-PN-115-010' /* GARRETT 138/115KV XFMR FAULT OPEN BRANCH FROM BUS 235469 TO BUS 235470 CKT 1 /* 01GARRET 138.00 01GARRET 115.00 END
ATSI-P1-2-CEI-345-700T	CONTINGENCY 'ATSI-P1-2-CEI-345-700T' /* PN/ATSI ERIE WEST - ASHTABULA - PERRY 345KV DISCONNECT BRANCH FROM BUS 239036 TO BUS 238547 CKT 1 /* 02PERRY 345 02AT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 /* 02AT 345 02S8-ATT 345 DISCONNECT BRANCH FROM BUS 239082 TO BUS 238544 CKT 8 /* 02S8-ATT 345 02ASH_3 138 DISCONNECT BRANCH FROM BUS 238547 TO BUS 200599 CKT 1 /* 02AT 345 26ERIE W 345 END

Contingency Name	Contingency Definition
PN-P1-2-PN-115-082	CONTINGENCY 'PN-P1-2-PN-115-082' /* HILLTOP - KRAYN - RACHEL HILL 115KV DISCONNECT BRANCH FROM BUS 200878 TO BUS 200790 CKT 1 /* 26KRAYN 115 26SALIX 115 DISCONNECT BRANCH FROM BUS 200790 TO BUS 200751 CKT 1 /* 26SALIX 115 26HILLCLAY 115 DISCONNECT BRANCH FROM BUS 200751 TO BUS 200752 CKT 1 /* 26HILLCLAY 115 26HILLTOP 115 DISCONNECT BRANCH FROM BUS 200751 TO BUS 200749 CKT 1 /* 26HILLCLAY 115 26RACHEL H 115 DISCONNECT BRANCH FROM BUS 200790 TO BUS 200785 CKT 1 /* 26SALIX 115 26SALIX 23 DISCONNECT BRANCH FROM BUS 200749 TO BUS 200784 CKT 1 /* 26RACHEL H 115 26RACHEL#1 23 DISCONNECT BUS 200790 /* 26SALIX 115 DISCONNECT BUS 200751 /* 26HILLCLAY 115 END
PN-P1-2-PN-115-080	CONTINGENCY 'PN-P1-2-PN-115-080' /* BEDFORD NORTH - CLAYSBURG 115KV DISCONNECT BRANCH FROM BUS 200505 TO BUS 200516 CKT 1 /* 26CLYSBURG 115 26OSTRBURG 115 DISCONNECT BRANCH FROM BUS 200516 TO BUS 200501 CKT 1 /* 26OSTRBURG 115 26BDFORD N 115 DISCONNECT BRANCH FROM BUS 200516 TO BUS 200564 CKT 1 /* 26OSTRBURG 115 26OSTRE SB 23 DISCONNECT BUS 200516 /* 26OSTRBURG 115 END
PN-P2-3-PN-230-9G-A	CONTINGENCY 'PN-P2-3-PN-230-9G-A' /* HOMER CITY 230 KV STUCK BREAKER 208 (HOOVERSVILLE/SHELOCTA) DISCONNECT BRANCH FROM BUS 200767 TO BUS 200768 CKT 1 /* 26HOMER CT 230 26QUEMAHON 230 DISCONNECT BRANCH FROM BUS 200768 TO BUS 200796 CKT 1 /* 26QUEMAHON 230 26HOOVRSVL 230 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200796 CKT 3 /* 26HOOVERSV 115 26HOOVRSVL 230 DISCONNECT BRANCH FROM BUS 200767 TO BUS 200795 CKT 1 /* 26HOMER CT 230 26SHELOCTA 230 END
PJM_P1_APS_B_G692	CONTINGENCY 'PJM_P1_APS_B_G692' / 200011 KEYSTONE 500 235104 01CABOT 500 1 OPEN BRANCH FROM BUS 200011 TO BUS 235104 CKT 1 END

Contingency Name	Contingency Definition
PN-P2-3-PN-230-9H-A	CONTINGENCY 'PN-P2-3-PN-230-9H-A' /* HOMER CITY 230 KV STUCK BREAKER 209 (SHELOCTA/SOUTH BUS) DISCONNECT BRANCH FROM BUS 200767 TO BUS 200769 TO BUS 202641 CKT S/* 26HOMER CT 230 26HOMER CY 345 26HOMERCITYS 23.00 DISCONNECT BRANCH FROM BUS 200767 TO BUS 200795 CKT 1 /* 26HOMER CT 230 26SHELOCTA 230 END
PN-P1_2-PN-230-0103	CONTINGENCY 'PN-P1_2-PN-230-0103' /* SHELOCTA - KEYSTONE 230 KV LINE OPEN BRANCH FROM BUS 200795 TO BUS 200810 CKT 1 /* 26SHELOCTA 230.00 26KEYSTONE 230.00 END
AP-P2-3-MP-138-153	CONTINGENCY 'AP-P2-3-MP-138-153' /* OAK PARK-KELSO GAP STK BKR AT ALBRIGHT DISCONNECT BRANCH FROM BUS 235120 TO BUS 235485 CKT 1 /* 01ALBRIG 138 01METTIK 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 /* 01ALBRIG 138 01MTZION 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235402 TO BUS 235403 CKT 1 /* 01SNOW T 138 01SNWYCK 138 DISCONNECT BRANCH FROM BUS 235402 TO BUS 235497 CKT 1 /* 01SNOW T 138 01OAKPRK 138 DISCONNECT BRANCH FROM BUS 235403 TO BUS 237273 CKT 1 /* 01SNWYCK 138 01SNOW C 66 DISCONNECT BRANCH FROM BUS 235497 TO BUS 237313 CKT 1 /* 01OAKPRK 138 01KELSOG 138 END
PN-P7-1-PN-230-001	CONTINGENCY 'PN-P7-1-PN-230-001' /* HOMER CITY - HOOVERVILLE 230KV & SEWARD - TOWER 51 115KV DISCONNECT BRANCH FROM BUS 200767 TO BUS 200768 CKT 1 /* 26HOMER CT 230 26QUEMAHON 230 DISCONNECT BRANCH FROM BUS 200768 TO BUS 200796 CKT 1 /* 26QUEMAHON 230 26HOOVRVL 230 DISCONNECT BRANCH FROM BUS 200796 TO BUS 200743 CKT 3 /* 26HOOVRVL 230 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200741 TO BUS 200742 CKT 1 /* 26SEWARD 115 26TOWER 51 115 END

Contingency Name	Contingency Definition
AP-P2-3-MP-138-159	CONTINGENCY 'AP-P2-3-MP-138-159' /* ALBRIGHT-DENVER STK BKR AT ALBRIGHT DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235320 TO BUS 235810 CKT 1 /* 01DENVER 138 01INT COAL 138 DISCONNECT BRANCH FROM BUS 235338 TO BUS 235810 CKT 1 /* 01GRAFTN 138 01INT COAL 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1- 068 TAP 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 /* 01ALBRIG 138 01MTZION 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 END
PN-P1-3-PN-230-001T	CONTINGENCY 'PN-P1-3-PN-230-001T' /* CONEMAUGH #1 500/230KV XFMR DISCONNECT BRANCH FROM BUS 200005 TO BUS 200912 CKT 3 /* CONEM-GH 500 26CONEMAGH 230 END

12 Short Circuit Analysis

Short Circuit Analysis to be performed in the System Impact phase.

13 Affected Systems

13.1 NYISO

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

14 Attachment 1: One Line Diagram