



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-473
SHINGLETOWN-LEWISTOWN 230 KV
32.34 MW Capacity / 53.9 MW Energy**

May 2021

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.....	8
8	Transmission Owner Analysis.....	8
8.1	Power Flow 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	10
10.1	PJM Requirements	10
10.2	Meteorological Data Reporting Requirements	10
10.3	Interconnected Transmission Owner Requirements.....	10
11	Summer Peak - Load Flow Analysis	11
11.1	Generation Deliverability	12
11.2	Multiple Facility Contingency	12
11.3	Contribution to Previously Identified Overloads.....	12
11.4	Potential Congestion due to Local Energy Deliverability.....	14
11.5	System Reinforcements - Summer Peak Load Flow - Primary POI.....	16
11.6	Flow Gate Details.....	25
11.6.1	Index 1	26
11.6.2	Index 2	28
11.6.3	Index 3	31
11.6.4	Index 4	34
11.6.5	Index 5	36
11.6.6	Index 6	40
11.6.7	Index 7	45

11.6.8	Index 8	49
11.6.9	Index 9	51
11.6.10	Index 10.....	55
11.6.11	Index 11.....	58
11.6.12	Index 12.....	61
11.6.13	Index 13.....	63
11.6.14	Index 14.....	66
11.6.15	Index 15.....	68
11.6.16	Index 16.....	71
11.6.17	Index 17.....	75
11.6.18	Index 18.....	78
11.6.19	Index 19.....	80
11.6.20	Index 20.....	83
11.6.21	Index 21.....	87
11.6.22	Index 22.....	89
11.6.23	Index 23.....	91
11.6.24	Index 24.....	94
11.6.25	Index 25.....	96
11.7	Queue Dependencies	98
11.8	Contingency Descriptions.....	102
12	Short Circuit Analysis.....	106
12.1	System Reinforcements - Short Circuit.....	106
13	Affected Systems	107
13.1	NYISO	107
14	Attachment 1: One Line Diagram	108

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 PENELEC.

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.

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; Storage generating facility located in Huntingdon County, Pennsylvania. The installed facilities will have a total capability of 53.9 MW with 32.34 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-473
Project Name	SHINGLETOWN-LEWISTOWN 230 KV
State	Pennsylvania
County	Huntingdon
Transmission Owner	PENELEC
MFO	53.9
MWE	53.9
MWC	32.34
Fuel	Solar; Storage
Basecase Study Year	2024

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 will be accomplished by constructing a new 230 kV three breaker ring bus substation and looping the Lewistown - Shingletown 230 kV line into the new station. The new substation will be located approximately 13.9 miles from Lewistown 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 upgrades at Lewistown Substation and Shingletown Substation.

Attachment 1 shows a one-line diagram of the proposed interconnection facilities for the AG1-473 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 interconnection facilities.

5 Cost Summary

The AG1-473 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$9,580,000
Total System Network Upgrade Costs	\$539,076,586 ¹
Total Costs	\$548,656,586

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 2016-36, 2016-25 I.R.B. (6/20/2016). 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/or 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 may 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 contributes to a facility that is already overloaded by a prior queue, then they may 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 230 kV three (3) breaker ring bus substation and looping the Lewistown - Shingletown 230 kV line into the new station. The new substation will be located approximately 13.9 miles from Lewistown 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 upgrades at Lewistown Substation and Shingletown Substation.

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

Description	Total Cost
Construct a new 230 kV three breaker ring bus interconnection substation.	\$6,670,000
Loop the Lewistown – Shingletown 230 kV line into the new interconnection substation.	\$850,000
Upgrade relaying at Lewistown Substation.	\$1,030,000
Upgrade relaying at Shingletown Substation.	\$1,030,000
Total Physical Interconnection Costs	\$9,580,000

7 Schedule

Based on the scope of work for the interconnection facilities, it is expected to take a minimum of **24 months** after the signing of an Interconnection Construction Service Agreement to complete the installation. This includes the requirement for the IC to make a preliminary payment that compensates FE for the first three months of the engineering design work that is related to the construction of the interconnection substation. 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 interconnection facilities 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 report¹.

8 Transmission Owner Analysis

8.1 Power Flow Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AG1-473 project did not contribute to any overloads on the FE transmission <100 kV system.

9 Interconnection Customer Requirements

9.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in FE's "Requirements for Transmission Connected Facilities" document located at: <http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>.

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

9.2 Compliance Issues and Interconnection Customer Requirements

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

1. The purchase and installation of a fully rated 230 kV circuit breaker to protect the AG1-473 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 AG1-473 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) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Irradiance (Watts/meter²) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- 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 FE revenue metering requirements for generation interconnection customers which can be found in FE's "Requirements for Transmission Connected Facilities" document located at: <http://www.pjm.com/planning/design-engineering/to-tech-standards/private-firstenergy.aspx>.

11 Summer Peak - Load Flow Analysis

The Queue Project AG1-473 was evaluated as a 53.9 MW (Capacity 32.3 MW) injection tapping the Lewistown to Shingletown 230 kV line in the PENELEC area. Project AG1-473 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-473 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 DC	MW IMPACT
166282006	200716	26PHILIPSB	115.0	PENELEC	200904	26EAGL VAL	115.0	PENELEC	1	AP-P1-3-WP-230-326T-B	single	244.0	99.69	101.06	DC	3.34

11.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC DC	MW IMPACT
174108328	200909	26LOBO+	230.0	PENELEC	200857	26MARSHALL	230.0	PENELEC	1	PN-P2-3-PN-230-14BT	breaker	666.0	99.1	101.0	DC	12.6
181387156	200909	26LOBO+	230.0	PENELEC	200857	26MARSHALL	230.0	PENELEC	1	PN-P2-3-PN-230-14CT	breaker	666.0	99.07	100.97	DC	12.6
174108324	921641	AA1-111 TAP	230.0	PENELEC	200909	26LOBO+	230.0	PENELEC	1	PN-P2-3-PN-230-14BT	breaker	666.0	99.21	101.1	DC	12.6
181387152	921641	AA1-111 TAP	230.0	PENELEC	200909	26LOBO+	230.0	PENELEC	1	PN-P2-3-PN-230-14CT	breaker	666.0	99.16	101.06	DC	12.6

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC DC	MW IMPACT
165130606	200504	26CARLISLE	115.0	PENEL	204528	27GARDNERS	115.0	METED	1	PL:10:P24:100548	bus	160.0	103.06	103.88	DC	2.9
179951412	200504	26CARLISLE	115.0	PENEL	204528	27GARDNERS	115.0	METED	1	PL:10:P45:102437	breaker	160.0	103.06	103.88	DC	2.9
165820225	200512	26LEWISTW N	115.0	PENEL	200519	26REED TAP	115.0	PENEL	1	PL:10:P24:100548	bus	225.0	133.23	136.54	DC	7.44
166058876	200512	26LEWISTW N	115.0	PENEL	200519	26REED TAP	115.0	PENEL	1	PL:10:P45:102437	breaker	225.0	133.23	136.54	DC	7.44
166281991	200512	26LEWISTW N	115.0	PENEL	200519	26REED TAP	115.0	PENEL	1	PL:10:P13:100618	single	225.0	112.68	114.66	DC	4.46
166281992	200512	26LEWISTW N	115.0	PENEL	200519	26REED TAP	115.0	PENEL	1	PN-P1-2-PN-230-103AT	single	225.0	111.32	113.3	DC	4.46

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
167741506	200513	26LEWISTW N	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	Base Case	single	493.0	131.39	134.17	DC	13.7
179951270	200513	26LEWISTW N	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	PN-P2_3-PN-115-0331-A_NON	breaker	618.0	176.98	181.05	DC	25.16
179951271	200513	26LEWISTW N	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	PN-P2_3-PN-115-0331-B_NON	breaker	618.0	176.68	180.76	DC	25.17
179951573	200513	26LEWISTW N	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	PN-P1-2-PN-500-006	single	618.0	121.59	123.78	DC	13.56
165820235	200519	26REED TAP	115.0	PENEL EC	200522	26SHADE GP	115.0	PENEL EC	1	PL:10:P24:100548	bus	225.0	127.14	130.45	DC	7.44
166058898	200519	26REED TAP	115.0	PENEL EC	200522	26SHADE GP	115.0	PENEL EC	1	PL:10:P45:102437	breaker	225.0	127.14	130.45	DC	7.44
166282014	200519	26REED TAP	115.0	PENEL EC	200522	26SHADE GP	115.0	PENEL EC	1	PL:10:P13:100618	single	225.0	106.59	108.57	DC	4.46
166282015	200519	26REED TAP	115.0	PENEL EC	200522	26SHADE GP	115.0	PENEL EC	1	PN-P1-2-PN-230-103AT	single	225.0	105.19	107.17	DC	4.46
165820295	200520	26ROXBURY	115.0	PENEL EC	961480	AF2-439 TAP	115.0	PENEL EC	1	PL:10:P24:100548	bus	159.0	112.4	113.2	DC	2.83
166058987	200520	26ROXBURY	115.0	PENEL EC	961480	AF2-439 TAP	115.0	PENEL EC	1	PL:10:P45:102437	breaker	159.0	112.4	113.2	DC	2.83
165820164	200522	26SHADE GP	115.0	PENEL EC	938380	AE1-071-POI	115.0	PENEL EC	1	PL:10:P24:100548	bus	160.0	204.84	210.06	DC	8.34
166058783	200522	26SHADE GP	115.0	PENEL EC	938380	AE1-071-POI	115.0	PENEL EC	1	PL:10:P45:102437	breaker	160.0	204.84	210.06	DC	8.34
166281880	200522	26SHADE GP	115.0	PENEL EC	938380	AE1-071-POI	115.0	PENEL EC	1	PL:10:P13:100618	single	160.0	159.97	163.09	DC	5.0
166281881	200522	26SHADE GP	115.0	PENEL EC	938380	AE1-071-POI	115.0	PENEL EC	1	PN-P1-2-PN-230-103AT	single	160.0	157.86	160.98	DC	5.0
165820234	200713	26ROCKTON	115.0	PENEL EC	200712	26DUBOIS	115.0	PENEL EC	1	AP-P2-2-WP-230-001T	bus	190.0	138.2	138.93	DC	3.06
166058921	200713	26ROCKTON	115.0	PENEL EC	200712	26DUBOIS	115.0	PENEL EC	1	AP-P2-3-WP-230-446T	breaker	190.0	138.2	138.93	DC	3.06
166058922	200713	26ROCKTON	115.0	PENEL EC	200712	26DUBOIS	115.0	PENEL EC	1	AP-P2-3-WP-230-443T *	breaker	190.0	138.1	138.82	DC	3.06
165820233	200714	26SHAWVL 1	115.0	PENEL EC	200713	26ROCKTON	115.0	PENEL EC	1	AP-P2-2-WP-230-001T	bus	190.0	139.15	139.87	DC	3.06
166058912	200714	26SHAWVL 1	115.0	PENEL EC	200713	26ROCKTON	115.0	PENEL EC	1	AP-P2-3-WP-230-446T	breaker	190.0	139.15	139.88	DC	3.06
166058913	200714	26SHAWVL 1	115.0	PENEL EC	200713	26ROCKTON	115.0	PENEL EC	1	AP-P2-3-WP-230-443T *	breaker	190.0	139.04	139.77	DC	3.06
166282125	200727	26SHAW. 2	115.0	PENEL EC	964450	AG1-308 TAP	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	single	202.0	104.34	106.0	DC	3.34
174108280	200857	26MARSHAL L	230.0	PENEL EC	200701	26GROVER	230.0	PENEL EC	1	PN-P2-3-PN-230-14BT	breaker	666.0	104.42	106.32	DC	12.6
181387143	200857	26MARSHAL L	230.0	PENEL EC	200701	26GROVER	230.0	PENEL EC	1	PN-P2-3-PN-230-14CT	breaker	666.0	104.37	106.27	DC	12.6
166281945	200904	26EAGL VAL	115.0	PENEL EC	200527	26TYRONE N	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	single	242.0	107.7	109.08	DC	3.34
181387328	200940	26SCOTCHH LLW	230.0	PENEL EC	200675	26E.TWAND A	230.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	single	570.0	111.51	112.78	DC	7.23
179951341	208005	JUNI BU2	230.0	PPL	207955	DAUP TR2	230.0	PPL	1	PL:10:P42:100577	breaker	531.0	119.09	120.28	DC	6.33
164706390	235175	01ELKO	230.0	AP	235971	01SQUABHL LW	230.0	AP	1	PN-P2-3-PN-230-14CT	breaker	621.0	114.15	117.27	DC	19.36
164706391	235175	01ELKO	230.0	AP	235971	01SQUABHL LW	230.0	AP	1	PN-P2-3-PN-230-14BT	breaker	621.0	114.12	117.24	DC	19.37
181387393	919200	AA1-144 TAP	230.0	PENEL EC	200940	26SCOTCHH LLW	230.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	single	621.0	104.59	105.76	DC	7.23
165670435	936470	AD2-062 TAP	138.0	AP	235188	01GREENE	138.0	AP	1	PL:10:P22:100582	bus	206.0	102.87	105.51	DC	5.44
165670436	936470	AD2-062 TAP	138.0	AP	235188	01GREENE	138.0	AP	1	PL:10:P24:100548	bus	206.0	101.43	104.07	DC	5.44
165820159	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	PL:10:P24:100548	bus	160.0	237.7	242.92	DC	8.34

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 LOADING %	POST PROJE CT LOADING %	AC DC	MW IMPACT
166058774	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	PL:10:P45:102437	breaker	160.0	237.7	242.92	DC	8.34
166281868	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	PL:10:P13:100618	single	160.0	184.64	187.77	DC	5.0
166281869	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	PN-P1-2-PN-230-103AT	single	160.0	182.53	185.66	DC	5.0
166281877	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	Base Case	single	131.0	105.98	107.85	DC	2.46
165820279	961480	AF2-439 TAP	115.0	PENEL EC	200504	26CARLISLE	115.0	PENEL EC	1	PL:10:P24:100548	bus	159.0	121.79	122.59	DC	2.83
166058961	961480	AF2-439 TAP	115.0	PENEL EC	200504	26CARLISLE	115.0	PENEL EC	1	PL:10:P45:102437	breaker	159.0	121.79	122.59	DC	2.83
166282024	964450	AG1-308 TAP	115.0	PENEL EC	200716	26PHILIPSB	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	single	202.0	105.21	106.86	DC	3.34
164706567	966040	AG1-473 TAP	230.0	AP	200513	26LEWISTWN	230.0	PENEL EC	1	Base Case	single	520.0	142.97	147.03	DC	21.09
164706568	966040	AG1-473 TAP	230.0	AP	200513	26LEWISTWN	230.0	PENEL EC	1	PL:03:P12:000193	single	621.0	139.71	143.14	DC	21.32
165820344	999326	26SHAWVL2	1.0	PENEL EC	200727	26SHAW. 2	115.0	PENEL EC	2A	AP-P2-2-WP-230-001T	bus	166.0	100.21	101.03	DC	2.98
166059142	999326	26SHAWVL2	1.0	PENEL EC	200727	26SHAW. 2	115.0	PENEL EC	2A	AP-P2-3-WP-230-446T	breaker	166.0	100.27	101.09	DC	2.98
166059143	999326	26SHAWVL2	1.0	PENEL EC	200727	26SHAW. 2	115.0	PENEL EC	2A	AP-P2-3-WP-230-443T *	breaker	166.0	100.15	100.96	DC	2.98
165820263	999327	26SHAWVL1	1.0	PENEL EC	200714	26SHAWVL1	115.0	PENEL EC	1A	AP-P2-2-WP-230-001T	bus	126.0	130.75	131.8	DC	2.93
166058887	999327	26SHAWVL1	1.0	PENEL EC	200714	26SHAWVL1	115.0	PENEL EC	1A	AP-P2-3-WP-230-446T	breaker	126.0	130.83	131.88	DC	2.93
166058888	999327	26SHAWVL1	1.0	PENEL EC	200714	26SHAWVL1	115.0	PENEL EC	1A	AP-P2-3-WP-230-443T *	breaker	126.0	130.75	131.8	DC	2.93
166282057	999327	26SHAWVL1	1.0	PENEL EC	200714	26SHAWVL1	115.0	PENEL EC	1A	AP-P1-3-WP-230-326T-B	single	126.0	109.39	111.66	DC	2.86

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	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADING %	POST PROJE CT LOADING %	AC DC	MW IMPACT
166281989	200512	26LEWISTWN	115.0	PENEL EC	200519	26REED TAP	115.0	PENEL EC	1	PL:10:P13:100618	operation	225.0	131.95	135.26	DC	7.44
167741504	200513	26LEWISTWN	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	Base Case	operation	493.0	192.03	196.66	DC	22.84
179951568	200513	26LEWISTWN	230.0	PENEL EC	208005	JUNI BU2	230.0	PPL	1	PN-P1-2-PN-500-005	operation	618.0	169.78	173.45	DC	22.68
166282012	200519	26REED TAP	115.0	PENEL EC	200522	26SHADE GP	115.0	PENEL EC	1	PL:10:P13:100618	operation	225.0	125.86	129.17	DC	7.44

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
166281878	200522	26SHADE GP	115.0	PENEL EC	938380	AE1-071-POI	115.0	PENEL EC	1	PL:10:P13:100618	operati on	160.0	199.33	204.54	DC	8.34
166281974	200714	26SHAWV L1	115.0	PENEL EC	200872	26BIOEN TP	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	185.0	142.81	145.9	DC	5.72
166282003	200716	26PHILIPS B	115.0	PENEL EC	200904	26EAGL VAL	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	244.0	137.81	140.1	DC	5.57
166282138	200717	26MADERA	115.0	PENEL EC	944180	AF1-086 TAP	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	237.0	106.74	109.15	DC	5.72
166282122	200727	26SHAW. 2	115.0	PENEL EC	964450	AG1-308 TAP	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	202.0	110.32	113.08	DC	5.57
166282016	200755	26WESTO VER	115.0	PENEL EC	200801	26GARMAN	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	246.0	133.61	135.94	DC	5.72
166282160	200872	26BIOEN TP	115.0	PENEL EC	200717	26MADERA	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	242.0	103.59	105.96	DC	5.72
166281939	200904	26EAGL VAL	115.0	PENEL EC	200527	26TYRONE N	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	242.0	174.0	176.31	DC	5.57
167741652	208005	JUNI BU2	230.0	PPL	208004	JUNI BU1	230.0	PPL	1	PL:10:P13:001633	operati on	641.0	124.77	126.87	DC	13.44
167741693	208005	JUNI BU2	230.0	PPL	207955	DAUP TR2	230.0	PPL	1	PL:10:P13:001616	operati on	531.0	118.92	120.11	DC	6.33
168013647	235157	01CARB	138.0	AP	235159	01CARB J	138.0	AP	1	AP-P1-3-WP-230-001	operati on	299.0	115.17	117.11	DC	5.77
182904206	235158	01CARB	230.0	AP	235157	01CARB	138.0	AP	1	AP-P1-3-WP-230-001	operati on	306.0	117.09	117.88	DC	5.33
168013586	235159	01CARB J	138.0	AP	235174	01ELKO	138.0	AP	1	AP-P1-3-WP-230-001	operati on	192.0	125.94	126.97	DC	4.38
164706733	235175	01ELKO	230.0	AP	235971	01SQUABHL LW	230.0	AP	1	AP-P1-3-WP-230-326T-B	operati on	621.0	113.2	116.31	DC	19.32
164706806	235175	01ELKO	230.0	AP	235158	01CARB	230.0	AP	1	AP-P1-3-WP-230-001	operati on	510.0	100.65	101.92	DC	6.49
166281866	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	PL:10:P13:100618	operati on	160.0	235.66	240.87	DC	8.34
166281873	938380	AE1-071-POI	115.0	PENEL EC	200520	26ROXBURY	115.0	PENEL EC	1	Base Case	operati on	131.0	131.43	132.84	DC	4.1
166281993	944180	AF1-086 TAP	115.0	PENEL EC	200755	26WESTOV ER	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	237.0	139.49	141.9	DC	5.72
166282021	964450	AG1-308 TAP	115.0	PENEL EC	200716	26PHILIPSB	115.0	PENEL EC	1	AP-P1-3-WP-230-326T-B	operati on	202.0	132.35	135.11	DC	5.57
164706562	966040	AG1-473 TAP	230.0	AP	200513	26LEWISTW N	230.0	PENEL EC	1	PL:03:P12:000193	operati on	621.0	187.98	193.72	DC	35.53
164706564	966040	AG1-473 TAP	230.0	AP	200513	26LEWISTW N	230.0	PENEL EC	1	Base Case	operati on	520.0	184.36	191.13	DC	35.15
166282053	999327	26SHAWV L1	1.0	PENEL EC	200714	26SHAWVL 1	115.0	PENEL EC	1A	AP-P1-3-WP-230-326T-B	operati on	126.0	126.31	128.01	DC	4.76

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
166281881,166058783,165820164,166281880	10	26SHADE GP 115.0 kV - AE1-071 TAP 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0015A (1424) : Reconductor 6.4 miles of 115 kV transmission line between Shade Gap and AE1-071 Tap. Project Type : FAC Cost : \$19,600,000 Time Estimate : 30.0 Months PN-AF2-F-0015B (1425) : Replace line trap at Shade Gap Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AF2-F-0015C (1426) : Replace transmission line drop at Shade Gap Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AF2-F-0015D (1427) : Replace adjust CTs at Shade Gap Project Type : FAC Cost : \$800,000 Time Estimate : 12.0 Months PN-AF2-F-0015E (1428) : Replace substation conductor (bus taps) at Shade Gap Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AG1-F-0016F (1429) : Replace breaker at Shade Gap Project Type : FAC Cost : \$900,000 Time Estimate : 12.0 Months	\$21,900,000

ID	Idx	Facility	Upgrade Description	Cost
166281877,165 820159,166281 868,166281869, 166058774	20	AE1-071 TAP 115.0 kV - 26ROXBURY 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0014A (1435) : Reconductor 6.4 miles of 115 kV transmission line between AE1-071 Tap and Roxbury. Project Type : FAC Cost : \$15,700,000 Time Estimate : 36.0 Months PN-AF2-F-0014B (1436) : Replace substation conductor (including bus, risers, line trap leads, and breaker leads) at Roxbury Project Type : FAC Cost : \$175,000 Time Estimate : 12.0 Months PN-AF2-F-0014C (1437) : Replace transmission line drop at Roxbury Project Type : FAC Cost : \$175,000 Time Estimate : 12.0 Months PN-AF2-F-0014D (1438) : Replace circuit breaker and CTs at Roxbury Project Type : FAC Cost : \$800,000 Time Estimate : 12.0 Months	\$16,850,000
166281945	14	26EAGL VAL 115.0 kV - 26TYRONE N 115.0 kV Ckt 1	<u>PENELEC</u> PN-AG1-0029A: Reconductor 5.9 miles of 115 kV transmission line between Eagle Valley and Tyrone North. Project Type : FAC Cost : \$14,500,000 Time Estimate : 38.0 Months	\$14,500,000

ID	Idx	Facility	Upgrade Description	Cost
164706391,164706390	17	01ELKO 230.0 kV - 01SQUABHLLW 230.0 kV Ckt 1	<u>APS</u> WP-AG1-F-0004A (1181) : Replace 1033.5 ACSR & 1272 ACSR bus conductor at Elko substation. Project Type : FAC Cost : \$162,816 Time Estimate : 12.0 Months WP-AG1-F-0004B (1182) : Replace 1033.5 ACSR bus conductor at Squab Hollow. Project Type : FAC Cost : \$162,816 Time Estimate : 12.0 Months WP-AG1-F-0004C (1183) : Replace 1033.5 ACSR line riser at Elko substation. Project Type : FAC Cost : \$162,816 Time Estimate : 12.0 Months WP-AG1-F-0004D (1184) : Replace 1033.5 ACSR line riser at Squab Hollow substation. Project Type : FAC Cost : \$162,816 Time Estimate : 12.0 Months WP-AG1-F-0004E (1185) : Reconductor 4.03 miles of 1033.5 ACSR from Elko to Squab Hollow 230 kV (35 spans). Project Type : FAC Cost : \$18,235,350 Time Estimate : 36.0 Months	\$18,886,612
166282006	1	26PHILIPSB 115.0 kV - 26EAGL VAL 115.0 kV Ckt 1	<u>PENELEC</u> s1919 : 1) Build a four breaker 115 kV ring bus at the Philipsburg substation. (s1919.1) 2) Replace limiting CTs, substation conductor / drop, line trap and circuit breakers on Shawville 115 kV line exit at the Philipsburg substation. (s1919.2) 3) Replace limiting CTs, substation conductor / drop, and circuit breakers on Eagle Valley 115 kV line exit at the Philipsburg substation. (s1919.3) 4) Replace line trap on Philipsburg 115 kV line exit at the Shawville substation and adjust line relaying as necessary. (s1919.4) Project Type : CON Cost : \$0 Time Estimate : Projected In-Service Date: 12/31/2025	\$0

ID	Idx	Facility	Upgrade Description	Cost
167741506,179 951573,179951 270,179951271	6	26LEWISTWN 230.0 kV - JUNI BU2 230.0 kV Ckt 1	PENELEC PN-AF2-F-0018B: Rebuild 24.59 miles of 230 kV transmission line between Lewistown and Juniata. Project Type : FAC Cost : \$105,265,000 Time Estimate : 48.0 Months PPL R-PL-0006 : Rebuild PPL's ~0.9 miles LEWI-JUNI & JUNI-DAUP 230kV line and replace terminal equipment at Juniata 230kV. Project Type : FAC Cost : \$3,450,000 Time Estimate : 24 Months	\$108,715,000
181387393	18	AA1-144 TAP 230.0 kV - 26SCOTCHHLLW 230.0 kV Ckt 1	PENELEC No Violation. Current PENELEC ratings are A: 546 MVA; B: 666 MVA; 753 MVA	\$0
165820295,166 058987	8	26ROXBURY 115.0 kV - AF2- 439 TAP 115.0 kV Ckt 1	PENELEC PN-AG1-F-0026A: Reconnector 2.59 miles of 115 kV transmission line between Roxbury and AF2-439 Tap. Project Type : FAC Cost : \$6,380,000 Time Estimate : 30.0 Months	\$6,380,000
179951341	16	JUNI BU2 230.0 kV - DAUP TR2 230.0 kV Ckt 1	PPL R-PL-0016 : Upgrade limiting bay equipment at Juniata for the JUNI-DAUP 230kV line. Project Type : FAC Cost : \$650,000 Time Estimate : 24 Months	\$650,000

ID	Idx	Facility	Upgrade Description	Cost
165820225,166 281991,166058 876,166281992	5	26LEWISTWN 115.0 kV - 26REED TAP 115.0 kV Ckt 1	PENELEC PN-AF2-F-0017A (1446) : Rebuild 11.84 miles of line. Project Type : FAC Cost : \$36,200,000 Time Estimate : 36.0 Months PN-AF2-F-0017B (1447) : Rebuild 0.18 miles of line and replace line drop at Reed Gap Switching Station. Project Type : FAC Cost : \$650,000 Time Estimate : 18.0 Months PN-AF2-F-0017C (1448) : Replace line trap at Lewistown Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AG1-F-0021D (1449) : Replace the bus conductor at Reeds Gap switching station. Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months	\$37,250,000
166282125	12	26SHAW. 2 115.0 kV - AG1- 308 TAP 115.0 kV Ckt 1	PENELEC PN-AF2-F-0051A : Reconnector 14.2 miles of 115 kV transmission line between Shawville and Philipsburg. Replace lines drops at Philipsburg and Shawville substations. Project Type : FAC Cost : \$43,409,400 Time Estimate : 54.0 Months	\$43,409,400
166282024	22	AG1-308 TAP 115.0 kV - 26PHILIPSB 115.0 kV Ckt 1		
165820279,166 058961	21	AF2-439 TAP 115.0 kV - 26CARLISLE 115.0 kV Ckt 1	PENELEC PN-AG1-F-0020A (2235) : Upgrade relaying at Carlisle Pike Project Type : FAC Cost : \$800,000 Time Estimate : 12.0 Months PN-AG1-F-0020B (2236) : Reconnector 6.82 miles of line. Please line drops at Carlisle Pike substation. Project Type : FAC Cost : \$16,840,000 Time Estimate : 42.0 Months	\$17,640,000

ID	Idx	Facility	Upgrade Description	Cost
166282015,165 820235,166058 898,166282014	7	26REED TAP 115.0 kV - 26SHADE GP 115.0 kV Ckt 1	PENELEC PN-AF2-F-0016A (1479) : Rebuild 22.36 miles of line. Project Type : FAC Cost : \$67,975,000 Time Estimate : 42.0 Months PN-AF2-F-0016B (1480) : Rebuild 0.3 miles of line and replace line drop at Reed Gap Switching Station Project Type : FAC Cost : \$1,050,000 Time Estimate : 18.0 Months PN-AF2-F-0016C (1481) : Adjust CT ratios at Shade Gap Project Type : FAC Cost : \$800,000 Time Estimate : 12.0 Months PN-AF2-F-0016D (1482) : Replace substation conductor at Shade Gap Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AG1-0031A (1483) : Replace line trap at Shade Gap Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months	\$70,225,000
165670436,165 670435	19	AD2-062 TAP 138.0 kV - 01GREENE 138.0 kV Ckt 1	APS WP-AF2-F-0011 : Replace 600 A disconnect switch at Greene Tap. Project Type : FAC Cost : \$195,379 Time Estimate : 12.0 Months	\$195,379
165820263,166 282057,166058 887,166058888	25	26SHAWVL 1 1.0 kV - 26SHAWVL 1 115.0 kV Ckt 1A	PENELEC PN-AF2-F-0021 (1423) : Replace 230/115-17.2 kV transformer with a larger unit. Project Type : FAC Cost : \$5,600,000 Time Estimate : 30.0 Months	\$5,600,000

ID	Idx	Facility	Upgrade Description	Cost
166058913,166 058912,165820 233	11	26SHAWVL 1 115.0 kV - 26ROCKTON 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0050A (1432) : Replace line trap at Shawville. Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AF2-F-0050B (1433) : Reconductor 8.63 miles of line. Replace line drops at Shawville. Project Type : FAC Cost : \$26,475,000 Time Estimate : 48.0 Months PN-AG1-F-0018 (1434) : Replace substation conductor at Shawville. Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months	\$26,875,000
179951412,165 130606	4	26CARLISLE 115.0 kV - 27GARDNERS 115.0 kV Ckt 1	<u>METED</u> ME-AG1-F-0005A (2144) : Reconductor line with larger conductor (13.1 miles). Project Type : FAC Cost : \$31,738,680 Time Estimate : 50.0 Months <u>PENELEC</u> PN-AG1-F-0035C (2290) : Reconductor 7.54 miles of line. Project Type : FAC Cost : \$18,480,000 Time Estimate : 44.0 Months	\$50,218,680

ID	Idx	Facility	Upgrade Description	Cost
164706568,164706567	23	AG1-473 TAP 230.0 kV - 26LEWISTWN 230.0 kV Ckt 1	<u>APS</u> WP-AG1-F-0028A: Replace 1033.5 ACSR 54/7 SCCIR (Bus taps, bus & line side disconnect leads, line risers) at Shingletown substation. Project Type : FAC Cost : \$130,253 Time Estimate : 12.0 Months WP-AG1-F-0028B : Replace 1200 A bus & line side disconnect switches at Shingletown substation. Project Type : FAC Cost : \$716,389 Time Estimate : 12.0 Months WP-AG1-F-0028C : Replace 2.00 IPS AL Pipe SCCIR (Line & bus side breaker risers) at Shingletown substation. Project Type : FAC Cost : \$130,253 Time Estimate : 12.0 Months WP-AG1-F-0028D : Replace circuit breaker and associated equipment at Shingletown on the Lewistown 230 kV terminal. Project Type : FAC Cost : \$1,042,020 Time Estimate : 12.0 Months <u>PENELEC</u> PN-AG1-F-0027A : Reconductor 13.9 miles of line. Project Type : FAC Cost : \$48,650,000 Time Estimate : 24.0 Months PN-AG1-F-0027B : Adjust impedance relays at Lewistown. Project Type : FAC Cost : \$850,000 Time Estimate : 12.0 Months	\$51,518,915
166059143,166059142,165820344	24	26SHAWVL 2 1.0 kV - 26SHAW. 2 115.0 kV Ckt 2A	<u>PENELEC</u> PN-AG1-F-0017 (1430) : Replace 230/115-17.2 kV transformer with a larger unit. Project Type : FAC Cost : \$5,600,000 Time Estimate : 30.0 Months	\$5,600,000

ID	Idx	Facility	Upgrade Description	Cost
165820234,166 058922,166058 921	10	26ROCKTON 115.0 kV - 26DUBOIS 115.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0054A (1472) : Replace line trap at Dubois. Project Type : FAC Cost : \$200,000 Time Estimate : 12.0 Months PN-AF2-F-0054B (1473) : Reconductor 11.67 miles of line. Project Type : FAC Cost : \$28,640,000 Time Estimate : 48.0 Months PN-AF2-F-0054C (1474) : Adjust CT ratios at Dubois. Project Type : FAC Cost : \$800,000 Time Estimate : 12.0 Months	\$29,640,000
181387328	15	26SCOTCHILLW 230.0 kV - 26E.TWANDA 230.0 kV Ckt 1	<u>PENELEC</u> PN-AF2-F-0044A : Replace line trap at East Towanda. Project Type : FAC Cost : \$225,000 Time Estimate : 12.0 Months PN-AF2-F-0044B : Replace substation conductor at East Towanda. Project Type : FAC Cost : \$225,000 Time Estimate : 12.0 Months	\$450,000
174108324,181 387152	3	AA1-111 TAP 230.0 kV - 26LOBO+ 230.0 kV Ckt 1	<u>PENELEC</u> n5740 : Stability Reinforcement for AA1-111 1) Install a 230-345kV transformer between the proposed AA1-111 interconnection switchyard and the NYSEG Q654 interconnection switchyard, approximately 1 mile in length. 2) At AA1-111 interconnection switchyard, install a 345 / 230 kV transformer, 230 kV breaker, and 345 kV breaker. Project Type : CON Cost : \$12,572,600 Time Estimate : 28.0 Months	\$12,572,600
181387156,174 108328	2	26LOBO+ 230.0 kV - 26MARSHALL 230.0 kV Ckt 1		
174108280,181 387143	13	26MARSHALL 230.0 kV - 26GROVER 230.0 kV Ckt 1		
			TOTAL COST	\$539,076,586

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
166282006	200716	26PHILIPSB	PENELEC	200904	26EAGL VAL	PENELEC	1	AP-P1-3-WP-230-326T-B	single	244.0	99.69	101.06	DC	3.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200649	26PENNTech	0.5643	80/20	0.5643
200665	26SHAWVL 3	3.0688	80/20	3.0688
200666	26SHAWVL 4	3.0132	80/20	3.0132
200715	26SHAWVL 1	2.7201	80/20	2.7201
200722	26SHAWVL 2	2.7890	80/20	2.7890
200913	26SHAW-D	0.1644	80/20	0.1644
921642	AA2-000	34.1231	80/20	34.1231
930511	AB2-092	1.2529	80/20	1.2529
936421	AD2-055	2.5795	80/20	2.5795
939171	AE1-147 C	1.2322	80/20	1.2322
940201	AE2-001 C	1.2328	80/20	1.2328
940681	AE2-055 C (Suspended)	1.2421	80/20	1.2421
941191	AE2-113 C	3.7047	80/20	3.7047
941261	AE2-120 C	1.2331	80/20	1.2331
941271	AE2-121 C	0.6545	80/20	0.6545
941321	AE2-126 C (Suspended)	1.5325	80/20	1.5325
941331	AE2-129 C	4.5841	80/20	4.5841
941351	AE2-131 C (Suspended)	4.5841	80/20	4.5841
942351	AE2-248 C	0.9906	80/20	0.9906
942491	AE2-262 C	5.0040	80/20	5.0040
942501	AE2-263 C	4.7038	80/20	4.7038
942961	AE2-316 C	2.1566	80/20	2.1566
943751	AF1-043	7.7385	80/20	7.7385
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.3221	80/20	1.3221
944181	AF1-086 C O1	1.0319	80/20	1.0319
944311	AF1-099 C	7.5961	80/20	7.5961
944321	AF1-100 C	16.2390	80/20	16.2390
944471	AF1-112 C	1.2372	80/20	1.2372
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.2401	80/20	1.2401
944691	AF1-134 C	1.2390	80/20	1.2390
944751	AF1-140 C	-0.5991	Adder	-0.7
944771	AF1-142 C	12.1537	80/20	12.1537
944881	AF1-153 C O1	0.9084	80/20	0.9084
944901	AF1-155 C (Suspended)	0.9013	80/20	0.9013
945161	AF1-181	0.0141	80/20	0.0141
945171	AF1-182	0.0705	80/20	0.0705
945181	AF1-183	0.0223	80/20	0.0223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2331	80/20	1.2331
946381	AF1-302 C	0.9418	80/20	0.9418
946421	AF1-306 C	4.0648	80/20	4.0648
957451	AF2-039 C	1.4097	80/20	1.4097
957931	AF2-087 C (Suspended)	-0.2796	Adder	-0.33
957941	AF2-088 C	0.6788	80/20	0.6788
958271	AF2-121 C	4.5841	80/20	4.5841
960041	AF2-295 C	0.9013	80/20	0.9013
960051	AF2-296 C	1.2390	80/20	1.2390
962411	AG1-090 C O1	22.9206	80/20	22.9206
962951	AG1-144 C (Withdrawn : 03/02/2021)	4.5841	80/20	4.5841
963571	AG1-206 C	0.7546	80/20	0.7546
963891	AG1-242 C	0.6711	80/20	0.6711
964031	AG1-257 C	0.8551	80/20	0.8551
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.8551	80/20	0.8551
964451	AG1-308 C O1	2.6473	80/20	2.6473
965121	AG1-377 C O1	4.5841	80/20	4.5841
965131	AG1-378 C O1	4.5841	80/20	4.5841
965201	AG1-385 C (Withdrawn : 03/24/2021)	1.1681	80/20	1.1681
965301	AG1-395 C (Withdrawn : 02/26/2021)	5.8906	80/20	5.8906
966041	AG1-473 C	3.3443	80/20	3.3443
WEC	WEC	0.0041	Confirmed LTF	0.0041
LGEE	LGEE	0.0025	Confirmed LTF	0.0025
CALDERWOOD	CALDERWOOD	0.0119	Confirmed LTF	0.0119
SIGE	SIGE	0.0118	Confirmed LTF	0.0118
CHEOAH	CHEOAH	0.0125	Confirmed LTF	0.0125
COTTONWOOD	COTTONWOOD	0.0273	Confirmed LTF	0.0273
HAMLET	HAMLET	0.0329	Confirmed LTF	0.0329
MEC	MEC	0.0111	Confirmed LTF	0.0111
CATAWBA	CATAWBA	0.0164	Confirmed LTF	0.0164
CBM-W1	CBM-W1	0.3645	Confirmed LTF	0.3645

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
174108328	200909	26LOBO+	PENELEC	200857	26MARSHALL	PENELEC	1	PN-P2-3-PN-230-14BT	breaker	666.0	99.1	101.0	DC	12.6

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	5.9787	50/50	5.9787
200666	26SHAWVL 4	5.8401	50/50	5.8401
200715	26SHAWVL 1	3.7614	50/50	3.7614
200722	26SHAWVL 2	3.8311	50/50	3.8311
200913	26SHAW-D	0.1621	50/50	0.1621
235003	AC1-025 E	0.3513	50/50	0.3513
236828	01GRAYMONT	0.9421	50/50	0.9421
290086	Q-036 E	3.4833	Adder	4.1
919201	AA1-144 OP	-22.7374	Adder	-26.75
921642	AA2-000	207.4194	50/50	207.4194
930511	AB2-092	7.6158	50/50	7.6158
936421	AD2-055	15.6797	50/50	15.6797
936991	AD2-133 C	1.5675	Adder	1.84
936992	AD2-133 E	7.1695	Adder	8.43
939171	AE1-147 C	2.8286	50/50	2.8286
939172	AE1-147 E	1.8858	50/50	1.8858
940201	AE2-001 C	2.8272	50/50	2.8272
940202	AE2-001 E	1.8848	50/50	1.8848
940681	AE2-055 C (Suspended)	2.8061	50/50	2.8061
940682	AE2-055 E (Suspended)	1.8707	50/50	1.8707
941191	AE2-113 C	4.6096	Adder	5.42
941192	AE2-113 E	4.9630	Adder	5.84
941261	AE2-120 C	2.8265	50/50	2.8265
941262	AE2-120 E	1.8843	50/50	1.8843
941271	AE2-121 C	1.5052	50/50	1.5052
941272	AE2-121 E	1.0050	50/50	1.0050
941321	AE2-126 C (Suspended)	1.8539	50/50	1.8539
941322	AE2-126 E (Suspended)	1.2359	50/50	1.2359
941331	AE2-129 C	1.3607	Adder	1.6
941332	AE2-129 E	0.9071	Adder	1.07
941351	AE2-131 C (Suspended)	1.3607	Adder	1.6
941352	AE2-131 E (Suspended)	0.9071	Adder	1.07
942351	AE2-248 C	2.2520	50/50	2.2520
942352	AE2-248 E	1.5013	50/50	1.5013
942491	AE2-262 C	12.0780	50/50	12.0780
942492	AE2-262 E	8.1164	50/50	8.1164
942501	AE2-263 C	11.3533	50/50	11.3533
942502	AE2-263 E	7.5802	50/50	7.5802
942961	AE2-316 C	4.0033	Adder	4.71
942962	AE2-316 E	5.7088	Adder	6.72
943751	AF1-043	47.0389	50/50	47.0389

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	2.9998	50/50	2.9998
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	1.6874	50/50	1.6874
944181	AF1-086 C O1	1.3202	Adder	1.55
944182	AF1-086 E O1	5.7438	Adder	6.76
944311	AF1-099 C	18.3344	50/50	18.3344
944312	AF1-099 E	12.2229	50/50	12.2229
944321	AF1-100 C	33.7005	50/50	33.7005
944322	AF1-100 E	22.4670	50/50	22.4670
944412	AF1-106 BAT	2.0686	Merchant Transmission	2.0686
944471	AF1-112 C	2.8172	50/50	2.8172
944472	AF1-112 E	1.8782	50/50	1.8782
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	2.8108	50/50	2.8108
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	1.8738	50/50	1.8738
944691	AF1-134 C	1.1902	Adder	1.4
944692	AF1-134 E	0.7935	Adder	0.93
944771	AF1-142 C	29.3350	50/50	29.3350
944772	AF1-142 E	19.5567	50/50	19.5567
944881	AF1-153 C O1	1.9435	50/50	1.9435
944882	AF1-153 E O1	1.2957	50/50	1.2957
944901	AF1-155 C (Suspended)	1.9286	50/50	1.9286
944902	AF1-155 E (Suspended)	1.2858	50/50	1.2858
945161	AF1-181	0.0275	50/50	0.0275
945171	AF1-182	0.1366	50/50	0.1366
945181	AF1-183	0.0308	50/50	0.0308
945491	AF1-214 C (Withdrawn : 12/03/2020)	2.8265	50/50	2.8265
945492	AF1-214 E (Withdrawn : 12/03/2020)	1.8843	50/50	1.8843
946381	AF1-302 C	1.7482	Adder	2.06
946382	AF1-302 E	2.3309	Adder	2.74
946421	AF1-306 C	8.4801	50/50	8.4801
946422	AF1-306 E	33.9204	50/50	33.9204
957451	AF2-039 C	1.3872	50/50	1.3872
957452	AF2-039 E	0.9248	50/50	0.9248
957941	AF2-088 C	0.6679	50/50	0.6679
957942	AF2-088 E	0.4453	50/50	0.4453
958271	AF2-121 C	1.3607	Adder	1.6
958272	AF2-121 E	0.9071	Adder	1.07
959063	AF2-197 BAT	13.6765	Merchant Transmission	13.6765
960022	AF2-293 E	0.2749	50/50	0.2749
960041	AF2-295 C	1.9286	50/50	1.9286
960042	AF2-295 E	1.2858	50/50	1.2858
960051	AF2-296 C	1.1902	Adder	1.4
960052	AF2-296 E	0.7935	Adder	0.93
961142	AF2-405 BAT	1.0343	Merchant Transmission	1.0343
961152	AF2-406 BAT	7.7573	Merchant Transmission	7.7573
961212	AF2-412 BAT	10.1049	Merchant Transmission	10.1049

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961451	AF2-436	-0.1533	Adder	-0.18
962411	AG1-090 C O1	3.6058	Adder	8.0
962412	AG1-090 E O1	2.4039	Adder	5.34
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.7212	Adder	1.6
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.4808	Adder	1.07
963571	AG1-206 C	0.9766	50/50	0.9766
963572	AG1-206 E	0.5259	50/50	0.5259
963891	AG1-242 C	0.3417	Adder	0.76
963892	AG1-242 E	0.1840	Adder	0.41
964031	AG1-257 C	1.9499	50/50	1.9499
964032	AG1-257 E	2.7252	50/50	2.7252
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.9499	50/50	1.9499
964042	AG1-258 E (Withdrawn : 02/25/2021)	2.7252	50/50	2.7252
964341	AG1-296 C	0.2935	Adder	0.65
964342	AG1-296 E	0.1580	Adder	0.35
964451	AG1-308 C O1	1.2032	50/50	1.2032
964452	AG1-308 E O1	1.6815	50/50	1.6815
964703	AG1-333 BAT	0.2076	Merchant Transmission	0.2076
965121	AG1-377 C O1	0.7212	Adder	1.6
965122	AG1-377 E O1	0.4808	Adder	1.07
965131	AG1-378 C O1	0.7212	Adder	1.6
965132	AG1-378 E O1	0.4808	Adder	1.07
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.4990	50/50	2.4990
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.7402	50/50	0.7402
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.9267	Adder	2.06
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.2752	Adder	0.61
966041	AG1-473 C	7.5608	50/50	7.5608
966042	AG1-473 E	5.0405	50/50	5.0405
WEC	WEC	0.1893	Confirmed LTF	0.1893
LGEE	LGEE	0.3657	Confirmed LTF	0.3657
CPL	CPL	0.2457	Confirmed LTF	0.2457
CBM-W2	CBM-W2	4.9280	Confirmed LTF	4.9280
NY	NY	1.7630	Confirmed LTF	1.7630
TVA	TVA	0.7280	Confirmed LTF	0.7280
O-066	O-066	10.4180	Confirmed LTF	10.4180
SIGE	SIGE	0.2235	Confirmed LTF	0.2235
CBM-S2	CBM-S2	4.2595	Confirmed LTF	4.2595
CBM-S1	CBM-S1	0.2018	Confirmed LTF	0.2018
G-007	G-007	1.5214	Confirmed LTF	1.5214
MEC	MEC	0.9264	Confirmed LTF	0.9264
LAGN	LAGN	0.9205	Confirmed LTF	0.9205
CBM-W1	CBM-W1	8.7625	Confirmed LTF	8.7625

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
181387152	921641	AA1-111 TAP	PENELEC	200909	26LOBO+	PENELEC	1	PN-P2-3-PN-230-14CT	breaker	666.0	99.16	101.06	DC	12.6

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	5.9774	50/50	5.9774
200666	26SHAWVL 4	5.8387	50/50	5.8387
200715	26SHAWVL 1	3.7605	50/50	3.7605
200722	26SHAWVL 2	3.8299	50/50	3.8299
200913	26SHAW-D	0.1621	50/50	0.1621
235003	AC1-025 E	0.3513	50/50	0.3513
236828	01GRAYMONT	0.9419	50/50	0.9419
290086	Q-036 E	3.4775	Adder	4.09
919201	AA1-144 OP	-22.7416	Adder	-26.75
921642	AA2-000	207.4009	50/50	207.4009
930511	AB2-092	7.6152	50/50	7.6152
936421	AD2-055	15.6783	50/50	15.6783
936991	AD2-133 C	1.5649	Adder	1.84
936992	AD2-133 E	7.1576	Adder	8.42
939171	AE1-147 C	2.8282	50/50	2.8282
939172	AE1-147 E	1.8854	50/50	1.8854
940201	AE2-001 C	2.8267	50/50	2.8267
940202	AE2-001 E	1.8845	50/50	1.8845
940681	AE2-055 C (Suspended)	2.8056	50/50	2.8056
940682	AE2-055 E (Suspended)	1.8704	50/50	1.8704
941191	AE2-113 C	4.6080	Adder	5.42
941192	AE2-113 E	4.9613	Adder	5.84
941261	AE2-120 C	2.8260	50/50	2.8260
941262	AE2-120 E	1.8840	50/50	1.8840
941271	AE2-121 C	1.5049	50/50	1.5049
941272	AE2-121 E	1.0048	50/50	1.0048
941321	AE2-126 C (Suspended)	1.8533	50/50	1.8533
941322	AE2-126 E (Suspended)	1.2355	50/50	1.2355
941331	AE2-129 C	1.3595	Adder	1.6
941332	AE2-129 E	0.9063	Adder	1.07
941351	AE2-131 C (Suspended)	1.3595	Adder	1.6
941352	AE2-131 E (Suspended)	0.9063	Adder	1.07
942351	AE2-248 C	2.2516	50/50	2.2516
942352	AE2-248 E	1.5011	50/50	1.5011
942491	AE2-262 C	12.0760	50/50	12.0760
942492	AE2-262 E	8.1151	50/50	8.1151
942501	AE2-263 C	11.3514	50/50	11.3514
942502	AE2-263 E	7.5789	50/50	7.5789
942961	AE2-316 C	4.0023	Adder	4.71
942962	AE2-316 E	5.7073	Adder	6.71
943751	AF1-043	47.0347	50/50	47.0347

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	2.9992	50/50	2.9992
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	1.6870	50/50	1.6870
944181	AF1-086 C O1	1.3197	Adder	1.55
944182	AF1-086 E O1	5.7415	Adder	6.75
944311	AF1-099 C	18.3314	50/50	18.3314
944312	AF1-099 E	12.2209	50/50	12.2209
944321	AF1-100 C	33.6945	50/50	33.6945
944322	AF1-100 E	22.4630	50/50	22.4630
944412	AF1-106 BAT	2.0690	Merchant Transmission	2.0690
944471	AF1-112 C	2.8168	50/50	2.8168
944472	AF1-112 E	1.8778	50/50	1.8778
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	2.8103	50/50	2.8103
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	1.8735	50/50	1.8735
944691	AF1-134 C	1.1897	Adder	1.4
944692	AF1-134 E	0.7932	Adder	0.93
944771	AF1-142 C	29.3302	50/50	29.3302
944772	AF1-142 E	19.5535	50/50	19.5535
944881	AF1-153 C O1	1.9430	50/50	1.9430
944882	AF1-153 E O1	1.2954	50/50	1.2954
944901	AF1-155 C (Suspended)	1.9283	50/50	1.9283
944902	AF1-155 E (Suspended)	1.2855	50/50	1.2855
945161	AF1-181	0.0275	50/50	0.0275
945171	AF1-182	0.1366	50/50	0.1366
945181	AF1-183	0.0308	50/50	0.0308
945491	AF1-214 C (Withdrawn : 12/03/2020)	2.8260	50/50	2.8260
945492	AF1-214 E (Withdrawn : 12/03/2020)	1.8840	50/50	1.8840
946381	AF1-302 C	1.7477	Adder	2.06
946382	AF1-302 E	2.3303	Adder	2.74
946421	AF1-306 C	8.4781	50/50	8.4781
946422	AF1-306 E	33.9125	50/50	33.9125
957451	AF2-039 C	1.3867	50/50	1.3867
957452	AF2-039 E	0.9245	50/50	0.9245
957941	AF2-088 C	0.6677	50/50	0.6677
957942	AF2-088 E	0.4451	50/50	0.4451
958271	AF2-121 C	1.3595	Adder	1.6
958272	AF2-121 E	0.9063	Adder	1.07
959063	AF2-197 BAT	13.6796	Merchant Transmission	13.6796
960022	AF2-293 E	0.2749	50/50	0.2749
960041	AF2-295 C	1.9283	50/50	1.9283
960042	AF2-295 E	1.2855	50/50	1.2855
960051	AF2-296 C	1.1897	Adder	1.4
960052	AF2-296 E	0.7932	Adder	0.93
961142	AF2-405 BAT	1.0345	Merchant Transmission	1.0345
961152	AF2-406 BAT	7.7588	Merchant Transmission	7.7588
961212	AF2-412 BAT	10.1075	Merchant Transmission	10.1075

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961451	AF2-436	-0.1534	Adder	-0.18
962411	AG1-090 C O1	3.6026	Adder	8.0
962412	AG1-090 E O1	2.4017	Adder	5.33
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.7205	Adder	1.6
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.4803	Adder	1.07
963571	AG1-206 C	0.9763	50/50	0.9763
963572	AG1-206 E	0.5257	50/50	0.5257
963891	AG1-242 C	0.3416	Adder	0.76
963892	AG1-242 E	0.1839	Adder	0.41
964031	AG1-257 C	1.9495	50/50	1.9495
964032	AG1-257 E	2.7246	50/50	2.7246
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.9495	50/50	1.9495
964042	AG1-258 E (Withdrawn : 02/25/2021)	2.7246	50/50	2.7246
964341	AG1-296 C	0.2934	Adder	0.65
964342	AG1-296 E	0.1580	Adder	0.35
964451	AG1-308 C O1	1.2023	50/50	1.2023
964452	AG1-308 E O1	1.6803	50/50	1.6803
964703	AG1-333 BAT	0.2077	Merchant Transmission	0.2077
965121	AG1-377 C O1	0.7205	Adder	1.6
965122	AG1-377 E O1	0.4803	Adder	1.07
965131	AG1-378 C O1	0.7205	Adder	1.6
965132	AG1-378 E O1	0.4803	Adder	1.07
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.4984	50/50	2.4984
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.7400	50/50	0.7400
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.9259	Adder	2.06
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.2750	Adder	0.61
966041	AG1-473 C	7.5595	50/50	7.5595
966042	AG1-473 E	5.0396	50/50	5.0396
WEC	WEC	0.1899	Confirmed LTF	0.1899
LGEE	LGEE	0.3669	Confirmed LTF	0.3669
CPL	CPL	0.2471	Confirmed LTF	0.2471
CBM-W2	CBM-W2	4.9459	Confirmed LTF	4.9459
NY	NY	1.7646	Confirmed LTF	1.7646
TVA	TVA	0.7308	Confirmed LTF	0.7308
O-066	O-066	10.4382	Confirmed LTF	10.4382
SIGE	SIGE	0.2241	Confirmed LTF	0.2241
CBM-S2	CBM-S2	4.2804	Confirmed LTF	4.2804
CBM-S1	CBM-S1	0.2025	Confirmed LTF	0.2025
G-007	G-007	1.5257	Confirmed LTF	1.5257
MEC	MEC	0.9296	Confirmed LTF	0.9296
LAGN	LAGN	0.9240	Confirmed LTF	0.9240
CBM-W1	CBM-W1	8.7905	Confirmed LTF	8.7905

11.6.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	ACID C	MW IMPACT
179951412	200504	26CARLISLE	PENELEC	204528	27GARDNERS	METED	1	PL:10:P45:102437	breaker	160.0	103.06	103.88	DC	2.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200870	26C_T85_W218	0.3757	50/50	0.3757
203905	26W1-045 C	0.2399	50/50	0.2399
237329	01CHBRG_I12	0.5202	50/50	0.5202
901242	W1-045 E OP1	1.3251	50/50	1.3251
930822	AB1-127 E	0.3881	Adder	0.46
930832	AB1-128 E	0.3881	Adder	0.46
933977	AD1-020 EBAT (Suspended)	1.3794	Merchant Transmission	1.3794
934371	AD1-061 C	0.3669	Adder	0.43
934372	AD1-061 E	0.3186	Adder	0.37
936061	AD2-009 C	2.4854	Adder	2.92
936062	AD2-009 E	1.1316	Adder	1.33
936471	AD2-062 C O1	10.9654	50/50	10.9654
936472	AD2-062 E O1	5.4929	50/50	5.4929
938384	AE1-071-C	14.1867	50/50	14.1867
938385	AE1-071-E	8.6811	50/50	8.6811
938753	AE1-101 C1	1.9142	Adder	2.25
938754	AE1-101 C2	0.9571	Adder	1.13
938756	AE1-101 E1	3.9517	Adder	4.65
938757	AE1-101 E2	1.9729	Adder	2.32
939033	AE1-132 C	2.6352	Adder	3.1
939034	AE1-132 E	1.7568	Adder	2.07
939591	AE1-188 C	0.6808	Adder	0.8
939592	AE1-188 E	0.3999	Adder	0.47
940671	AE2-054 C (Suspended)	0.5756	Adder	0.68
940672	AE2-054 E (Suspended)	0.3837	Adder	0.45
945011	AF1-166 C	0.5644	Adder	0.66
945012	AF1-166 E	0.3763	Adder	0.44
945441	AF1-209 C O1	0.5609	Adder	0.66
945442	AF1-209 E O1	0.3739	Adder	0.44
945591	AF1-224 C	0.4269	Adder	0.5
945592	AF1-224 E	0.2161	Adder	0.25
958071	AF2-101 C (Suspended)	-0.2674	Adder	-0.31
958221	AF2-116 C	0.6872	Adder	0.81
958222	AF2-116 E	0.3462	Adder	0.41
958231	AF2-117 C	2.1961	Adder	2.58
958232	AF2-117 E	1.0978	Adder	1.29
958551	AF2-146 C (Withdrawn : 04/16/2021)	1.8602	50/50	1.8602
958552	AF2-146 E (Withdrawn : 04/16/2021)	1.2402	50/50	1.2402

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958571	AF2-148 C (Withdrawn : 04/16/2021)	1.5119	50/50	1.5119
958572	AF2-148 E (Withdrawn : 04/16/2021)	1.0080	50/50	1.0080
958601	AF2-151 C	-0.2638	Adder	-0.31
958871	AF2-178	1.1561	50/50	1.1561
958881	AF2-179	0.3411	Adder	0.4
958891	AF2-180	0.3411	Adder	0.4
958931	AF2-184	0.2800	Adder	0.33
959223	AF2-213 BAT	4.6893	Merchant Transmission	4.6893
959241	AF2-215 C	0.1578	Adder	0.19
959242	AF2-215 E	0.1052	Adder	0.12
959381	AF2-229 C (Withdrawn : 04/03/2021)	3.2312	50/50	3.2312
959382	AF2-229 E (Withdrawn : 04/03/2021)	2.6976	50/50	2.6976
959773	AF2-268 BAT	0.1026	Merchant Transmission	0.1026
959842	AF2-275 E	0.1764	Adder	0.21
959852	AF2-276 E	0.1764	Adder	0.21
961481	AF2-439 C (Withdrawn : 04/23/2021)	8.0462	50/50	8.0462
961482	AF2-439 E (Withdrawn : 04/23/2021)	7.4273	50/50	7.4273
962082	AG1-052 BAT	0.6306	Merchant Transmission	0.6306
963901	AG1-243 C	0.2010	Adder	0.45
963902	AG1-243 E	0.1082	Adder	0.24
964641	AG1-327 C O1	0.6309	Adder	1.4
964642	AG1-327 E O1	0.3250	Adder	0.72
964693	AG1-332 BAT	0.1049	Merchant Transmission	0.1049
965963	AG1-465 BAT	2.9426	Merchant Transmission	2.9426
966041	AG1-473 C	0.7851	Adder	1.74
966042	AG1-473 E	0.5234	Adder	1.16
966152	AG1-484 BAT	3.8508	50/50	3.8508
966172	AG1-486 BAT	0.5437	Merchant Transmission	0.5437
966461	AG1-515 C	0.1450	Adder	0.32
966462	AG1-515 E	0.2176	Adder	0.48
WEC	WEC	0.1304	Confirmed LTF	0.1304
LGEE	LGEE	0.2576	Confirmed LTF	0.2576
CPL	CPL	0.2355	Confirmed LTF	0.2355
CBM-W2	CBM-W2	3.5930	Confirmed LTF	3.5930
NY	NY	0.2030	Confirmed LTF	0.2030
TVA	TVA	0.5502	Confirmed LTF	0.5502
O-066	O-066	6.4608	Confirmed LTF	6.4608
SIGE	SIGE	0.1437	Confirmed LTF	0.1437
CBM-S2	CBM-S2	3.7584	Confirmed LTF	3.7584
CBM-S1	CBM-S1	0.1505	Confirmed LTF	0.1505
G-007	G-007	1.0133	Confirmed LTF	1.0133
MEC	MEC	0.6499	Confirmed LTF	0.6499
LAGN	LAGN	0.6895	Confirmed LTF	0.6895
CBM-W1	CBM-W1	5.8744	Confirmed LTF	5.8744

11.6.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	ACID C	MW IMPACT
166058876	200512	26LEWISTWN	PENELEC	200519	26REED TAP	PENELEC	1	PL:10:P45:102437	breaker	225.0	133.23	136.54	DC	7.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200812	26ALY HYDR	0.3606	50/50	0.3606
200852	26WARR RDG	0.1999	Adder	0.24
235003	AC1-025 E	0.1664	50/50	0.1664
236828	01GRAYMONT	0.4282	50/50	0.4282
290086	Q-036 E	2.0818	Adder	2.45
293301	N-039 E	3.2515	Adder	3.83
294515	O38_P22	2.8451	Adder	3.35
921642	AA2-000	23.0817	Adder	27.15
930511	AB2-092	0.8475	Adder	1.0
936421	AD2-055	1.7448	Adder	2.05
936991	AD2-133 C	0.9368	Adder	1.1
936992	AD2-133 E	4.2849	Adder	5.04
939171	AE1-147 C	1.2774	50/50	1.2774
939172	AE1-147 E	0.8516	50/50	0.8516
939591	AE1-188 C	-0.6138	Adder	-0.72
940201	AE2-001 C	1.2816	50/50	1.2816
940202	AE2-001 E	0.8544	50/50	0.8544
940681	AE2-055 C (Suspended)	1.3448	50/50	1.3448
940682	AE2-055 E (Suspended)	0.8966	50/50	0.8966
941231	AE2-117 C	0.9308	Adder	1.1
941232	AE2-117 E	0.6205	Adder	0.73
941241	AE2-118 C	0.8851	Adder	1.04
941242	AE2-118 E	0.5900	Adder	0.69
941261	AE2-120 C	1.2839	50/50	1.2839
941262	AE2-120 E	0.8559	50/50	0.8559
941271	AE2-121 C	0.6753	50/50	0.6753
941272	AE2-121 E	0.4509	50/50	0.4509
941321	AE2-126 C (Suspended)	0.6220	Adder	0.73
941322	AE2-126 E (Suspended)	0.4147	Adder	0.49
941331	AE2-129 C	0.6522	Adder	0.77
941332	AE2-129 E	0.4348	Adder	0.51
941351	AE2-131 C (Suspended)	0.6522	Adder	0.77
941352	AE2-131 E (Suspended)	0.4348	Adder	0.51
942121	AE2-224 C	2.6520	Adder	3.12
942122	AE2-224 E	1.7680	Adder	2.08
942351	AE2-248 C	1.0548	50/50	1.0548
942352	AE2-248 E	0.7032	50/50	0.7032
942491	AE2-262 C	3.7816	Adder	4.45
942492	AE2-262 E	2.5413	Adder	2.99
942501	AE2-263 C	3.5548	Adder	4.18
942502	AE2-263 E	2.3734	Adder	2.79
942511	AE2-264 C	3.8817	Adder	4.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942512	AE2-264 E	2.5878	Adder	3.04
943751	AF1-043	5.2345	Adder	6.16
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.4148	50/50	1.4148
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.7958	50/50	0.7958
944311	AF1-099 C	5.7405	Adder	6.75
944312	AF1-099 E	3.8270	Adder	4.5
944321	AF1-100 C	9.7410	Adder	11.46
944322	AF1-100 E	6.4940	Adder	7.64
944471	AF1-112 C	1.3115	50/50	1.3115
944472	AF1-112 E	0.8743	50/50	0.8743
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.3308	50/50	1.3308
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.8872	50/50	0.8872
944691	AF1-134 C	0.5312	Adder	0.62
944692	AF1-134 E	0.3541	Adder	0.42
944771	AF1-142 C	9.1849	Adder	10.81
944772	AF1-142 E	6.1232	Adder	7.2
944881	AF1-153 C O1	0.5910	Adder	0.7
944882	AF1-153 E O1	0.3940	Adder	0.46
944901	AF1-155 C (Suspended)	0.5875	Adder	0.69
944902	AF1-155 E (Suspended)	0.3917	Adder	0.46
945011	AF1-166 C	-0.5014	Adder	-0.59
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2838	50/50	1.2838
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.8558	50/50	0.8558
945591	AF1-224 C	-0.3848	Adder	-0.45
946421	AF1-306 C	2.5637	Adder	3.02
946422	AF1-306 E	10.2550	Adder	12.06
957451	AF2-039 C	0.4627	Adder	0.54
957452	AF2-039 E	0.3085	Adder	0.36
957561	AF2-050 C	1.3260	Adder	1.56
957562	AF2-050 E	0.8840	Adder	1.04
957931	AF2-087 C (Suspended)	0.1708	Adder	0.2
957932	AF2-087 E (Suspended)	0.2353	Adder	0.28
957941	AF2-088 C	0.2228	Adder	0.26
957942	AF2-088 E	0.1485	Adder	0.17
958071	AF2-101 C (Suspended)	-0.0836	Adder	-0.1
958271	AF2-121 C	0.6522	Adder	0.77
958272	AF2-121 E	0.4348	Adder	0.51
958601	AF2-151 C	-0.0825	Adder	-0.1
959241	AF2-215 C	-0.1406	Adder	-0.17
959802	AF2-271 E	0.2112	Adder	0.25
959843	AF2-275 BAT	0.0922	Merchant Transmission	0.0922
959853	AF2-276 BAT	0.0922	Merchant Transmission	0.0922
960022	AF2-293 E	0.1239	50/50	0.1239
960041	AF2-295 C	0.5875	Adder	0.69
960042	AF2-295 E	0.3917	Adder	0.46

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960051	AF2-296 C	0.5312	Adder	0.62
960052	AF2-296 E	0.3541	Adder	0.42
962411	AG1-090 C O1	1.7283	Adder	3.84
962412	AG1-090 E O1	1.1522	Adder	2.56
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.3457	Adder	0.77
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.2304	Adder	0.51
963571	AG1-206 C	0.1739	Adder	0.39
963572	AG1-206 E	0.0937	Adder	0.21
963891	AG1-242 C	0.1525	Adder	0.34
963892	AG1-242 E	0.0821	Adder	0.18
964031	AG1-257 C	0.9033	50/50	0.9033
964032	AG1-257 E	1.2624	50/50	1.2624
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.9033	50/50	0.9033
964042	AG1-258 E (Withdrawn : 02/25/2021)	1.2624	50/50	1.2624
964191	AG1-280 C	0.2726	Adder	0.61
964192	AG1-280 E	0.1817	Adder	0.4
964201	AG1-281 C	0.2742	Adder	0.61
964202	AG1-281 E	0.1828	Adder	0.41
964391	AG1-301 C	0.5084	Adder	1.13
964392	AG1-301 E	0.3390	Adder	0.75
964451	AG1-308 C O1	0.2429	Adder	0.54
964452	AG1-308 E O1	0.3394	Adder	0.75
965121	AG1-377 C O1	0.3457	Adder	0.77
965122	AG1-377 E O1	0.2304	Adder	0.51
965131	AG1-378 C O1	0.3457	Adder	0.77
965132	AG1-378 E O1	0.2304	Adder	0.51
965201	AG1-385 C (Withdrawn : 03/24/2021)	0.4028	Adder	0.89
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.1193	Adder	0.26
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.4442	Adder	0.99
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.1319	Adder	0.29
966041	AG1-473 C	4.4655	50/50	4.4655
966042	AG1-473 E	2.9770	50/50	2.9770
966152	AG1-484 BAT	0.6354	Merchant Transmission	0.6354
966463	AG1-515 BAT	0.3722	Merchant Transmission	0.3722
966891	AG1-560 BAT	12.4868	50/50	12.4868
966901	AG1-561 BAT	5.4397	50/50	5.4397
WEC	WEC	0.0410	Confirmed LTF	0.0410
LGEE	LGEE	0.0685	Confirmed LTF	0.0685
CALDERWOOD	CALDERWOOD	0.0035	Confirmed LTF	0.0035
CBM-W2	CBM-W2	0.5914	Confirmed LTF	0.5914
TVA	TVA	0.0378	Confirmed LTF	0.0378
O-066	O-066	1.7633	Confirmed LTF	1.7633
SIGE	SIGE	0.0387	Confirmed LTF	0.0387
CHEOAH	CHEOAH	0.0050	Confirmed LTF	0.0050
CBM-S1	CBM-S1	0.0160	Confirmed LTF	0.0160

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007	G-007	0.3056	Confirmed LTF	0.3056
HAMLET	HAMLET	0.0872	Confirmed LTF	0.0872
MEC	MEC	0.1716	Confirmed LTF	0.1716
LAGN	LAGN	0.0612	Confirmed LTF	0.0612
CATAWBA	CATAWBA	0.0364	Confirmed LTF	0.0364
CBM-W1	CBM-W1	2.2011	Confirmed LTF	2.2011

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
179951270	200513	26LEWISTWN	PENELEC	208005	JUNI BU2	PPL	1	PN-P2_3-PN-115-0331-A_NON	breaker	618.0	176.98	181.05	DC	25.16

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	7.0393	50/50	7.0393
200666	26SHAWVL 4	6.9273	50/50	6.9273
200715	26SHAWVL 1	4.6345	50/50	4.6345
200722	26SHAWVL 2	4.7422	50/50	4.7422
200812	26ALY HYDR	1.2162	50/50	1.2162
200852	26WARR RDG	0.7914	50/50	0.7914
200883	Q-053 E	6.3672	Adder	7.49
200886	26ARWF_N39	0.3360	50/50	0.3360
200894	26K02	6.3613	Adder	7.48
200905	26Q36	0.2673	50/50	0.2673
200913	26SHAW-D	0.2121	50/50	0.2121
203034	26NA_O38_P22	0.2952	50/50	0.2952
235003	AC1-025 E	0.5604	50/50	0.5604
236828	01GRAYMONT	1.4410	50/50	1.4410
290086	Q-036 E	8.1644	50/50	8.1644
293301	N-039 E	12.7379	50/50	12.7379
293393	V3-030E	3.0310	Adder	3.57
293603	O-018 E	4.9203	Adder	5.79
294515	O38_P22	11.1457	50/50	11.1457
296332	R-032 E	5.6773	Adder	6.68
921642	AA2-000	88.3404	50/50	88.3404
930511	AB2-092	2.7571	Adder	3.24
936421	AD2-055	5.6763	Adder	6.68
936991	AD2-133 C	3.6740	50/50	3.6740
936992	AD2-133 E	16.8044	50/50	16.8044
938384	AE1-071-C	34.3742	50/50	34.3742
938385	AE1-071-E	21.0341	50/50	21.0341
938993	AE1-128 C	6.6543	Adder	7.83
938994	AE1-128 E	4.4362	Adder	5.22
939171	AE1-147 C	4.2977	50/50	4.2977
939172	AE1-147 E	2.8651	50/50	2.8651
940201	AE2-001 C	4.3120	50/50	4.3120
940202	AE2-001 E	2.8746	50/50	2.8746
940681	AE2-055 C (Suspended)	4.5294	50/50	4.5294
940682	AE2-055 E (Suspended)	3.0196	50/50	3.0196
941191	AE2-113 C	7.7969	Adder	9.17
941192	AE2-113 E	8.3947	Adder	9.88
941231	AE2-117 C	3.6836	50/50	3.6836
941232	AE2-117 E	2.4558	50/50	2.4558
941241	AE2-118 C	3.4998	50/50	3.4998

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941242	AE2-118 E	2.3332	50/50	2.3332
941261	AE2-120 C	4.3198	50/50	4.3198
941262	AE2-120 E	2.8798	50/50	2.8798
941271	AE2-121 C	2.2717	50/50	2.2717
941272	AE2-121 E	1.5169	50/50	1.5169
941321	AE2-126 C (Suspended)	2.4330	50/50	2.4330
941322	AE2-126 E (Suspended)	1.6220	50/50	1.6220
941331	AE2-129 C	2.5577	50/50	2.5577
941332	AE2-129 E	1.7051	50/50	1.7051
941351	AE2-131 C (Suspended)	2.5577	50/50	2.5577
941352	AE2-131 E (Suspended)	1.7051	50/50	1.7051
942121	AE2-224 C	8.7944	Adder	10.35
942122	AE2-224 E	5.8630	Adder	6.9
942351	AE2-248 C	3.5509	50/50	3.5509
942352	AE2-248 E	2.3673	50/50	2.3673
942361	AE2-249 C (Suspended)	0.7486	Adder	0.88
942362	AE2-249 E (Suspended)	0.4991	Adder	0.59
942491	AE2-262 C	14.9005	50/50	14.9005
942492	AE2-262 E	10.0131	50/50	10.0131
942501	AE2-263 C	14.0065	50/50	14.0065
942502	AE2-263 E	9.3516	50/50	9.3516
942511	AE2-264 C	15.3696	50/50	15.3696
942512	AE2-264 E	10.2464	50/50	10.2464
942961	AE2-316 C	5.1984	Adder	6.12
942962	AE2-316 E	7.4130	Adder	8.72
943751	AF1-043	17.0289	Adder	20.03
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	4.7638	50/50	4.7638
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	2.6796	50/50	2.6796
944181	AF1-086 C O1	2.3440	Adder	2.76
944182	AF1-086 E O1	10.1979	Adder	12.0
944311	AF1-099 C	22.6190	50/50	22.6190
944312	AF1-099 E	15.0793	50/50	15.0793
944321	AF1-100 C	38.2515	50/50	38.2515
944322	AF1-100 E	25.5010	50/50	25.5010
944381	AF1-103 O1	1.9133	Adder	2.25
944471	AF1-112 C	4.4149	50/50	4.4149
944472	AF1-112 E	2.9433	50/50	2.9433
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	4.4814	50/50	4.4814
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	2.9876	50/50	2.9876
944691	AF1-134 C	1.7625	Adder	2.07
944692	AF1-134 E	1.1750	Adder	1.38
944751	AF1-140 C	1.0596	Adder	1.25
944752	AF1-140 E	0.7064	Adder	0.83
944771	AF1-142 C	36.1903	50/50	36.1903
944772	AF1-142 E	24.1269	50/50	24.1269
944881	AF1-153 C O1	2.3122	50/50	2.3122
944882	AF1-153 E O1	1.5414	50/50	1.5414

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944901	AF1-155 C (Suspended)	2.2986	50/50	2.2986
944902	AF1-155 E (Suspended)	1.5324	50/50	1.5324
945161	AF1-181	0.0323	50/50	0.0323
945171	AF1-182	0.1621	50/50	0.1621
945181	AF1-183	0.0380	50/50	0.0380
945491	AF1-214 C (Withdrawn : 12/03/2020)	4.3193	50/50	4.3193
945492	AF1-214 E (Withdrawn : 12/03/2020)	2.8795	50/50	2.8795
946111	AF1-276 C	6.4240	Adder	7.56
946112	AF1-276 E	3.1640	Adder	3.72
946121	AF1-277 C	6.4240	Adder	7.56
946122	AF1-277 E	3.1640	Adder	3.72
946131	AF1-278 C	5.1238	Adder	6.03
946132	AF1-278 E	2.5466	Adder	3.0
946381	AF1-302 C	2.2701	Adder	2.67
946382	AF1-302 E	3.0267	Adder	3.56
946421	AF1-306 C	10.0330	50/50	10.0330
946422	AF1-306 E	40.1322	50/50	40.1322
957451	AF2-039 C	1.8146	50/50	1.8146
957452	AF2-039 E	1.2098	50/50	1.2098
957512	AF2-045 E	1.8389	Adder	2.16
957561	AF2-050 C	4.3972	Adder	5.17
957562	AF2-050 E	2.9315	Adder	3.45
957931	AF2-087 C (Suspended)	0.6722	50/50	0.6722
957932	AF2-087 E (Suspended)	0.9257	50/50	0.9257
957941	AF2-088 C	0.8737	50/50	0.8737
957942	AF2-088 E	0.5825	50/50	0.5825
957981	AF2-092 C	0.6909	Adder	0.81
957982	AF2-092 E	0.4606	Adder	0.54
958271	AF2-121 C	2.5577	50/50	2.5577
958272	AF2-121 E	1.7051	50/50	1.7051
958551	AF2-146 C (Withdrawn : 04/16/2021)	6.6596	50/50	6.6596
958552	AF2-146 E (Withdrawn : 04/16/2021)	4.4398	50/50	4.4398
958571	AF2-148 C (Withdrawn : 04/16/2021)	4.4902	50/50	4.4902
958572	AF2-148 E (Withdrawn : 04/16/2021)	2.9935	50/50	2.9935
959792	AF2-270 E	0.3439	Adder	0.4
959802	AF2-271 E	0.8345	50/50	0.8345
959963	AF2-287 BAT	0.1615	Merchant Transmission	0.1615
959973	AF2-288 BAT	0.1615	Merchant Transmission	0.1615
960022	AF2-293 E	0.4169	50/50	0.4169
960041	AF2-295 C	2.2986	50/50	2.2986
960042	AF2-295 E	1.5324	50/50	1.5324
960051	AF2-296 C	1.7625	Adder	2.07
960052	AF2-296 E	1.1750	Adder	1.38
960451	AF2-336 C	1.1515	Adder	1.35
960452	AF2-336 E	0.7677	Adder	0.9
960461	AF2-337 C	1.1515	Adder	1.35
960462	AF2-337 E	0.7677	Adder	0.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960471	AF2-338 C	1.1515	Adder	1.35
960472	AF2-338 E	0.7677	Adder	0.9
960481	AF2-339 C	1.1515	Adder	1.35
960482	AF2-339 E	0.7677	Adder	0.9
961981	AG1-041 C	0.3760	Adder	0.83
961982	AG1-041 E	0.2507	Adder	0.56
962411	AG1-090 C O1	12.7884	50/50	12.7884
962412	AG1-090 E O1	8.5256	50/50	8.5256
962951	AG1-144 C (Withdrawn : 03/02/2021)	2.5577	50/50	2.5577
962952	AG1-144 E (Withdrawn : 03/02/2021)	1.7051	50/50	1.7051
963571	AG1-206 C	1.2830	50/50	1.2830
963572	AG1-206 E	0.6909	50/50	0.6909
963891	AG1-242 C	0.5060	Adder	1.12
963892	AG1-242 E	0.2724	Adder	0.6
964031	AG1-257 C	3.0403	50/50	3.0403
964032	AG1-257 E	4.2491	50/50	4.2491
964041	AG1-258 C (Withdrawn : 02/25/2021)	3.0403	50/50	3.0403
964042	AG1-258 E (Withdrawn : 02/25/2021)	4.2491	50/50	4.2491
964191	AG1-280 C	0.9075	Adder	2.01
964192	AG1-280 E	0.6050	Adder	1.34
964201	AG1-281 C	0.9129	Adder	2.03
964202	AG1-281 E	0.6086	Adder	1.35
964341	AG1-296 C	0.3959	Adder	0.88
964342	AG1-296 E	0.2132	Adder	0.47
964391	AG1-301 C	3.7987	50/50	3.7987
964392	AG1-301 E	2.5325	50/50	2.5325
964451	AG1-308 C O1	1.7970	50/50	1.7970
964452	AG1-308 E O1	2.5115	50/50	2.5115
964751	AG1-338 C	0.2479	Adder	0.55
964752	AG1-338 E	0.0338	Adder	0.08
964761	AG1-339 C	0.2592	Adder	0.58
964762	AG1-339 E	0.0225	Adder	0.05
964771	AG1-340 C	0.2479	Adder	0.55
964772	AG1-340 E	0.0338	Adder	0.08
965121	AG1-377 C O1	2.5577	50/50	2.5577
965122	AG1-377 E O1	1.7051	50/50	1.7051
965131	AG1-378 C O1	2.5577	50/50	2.5577
965132	AG1-378 E O1	1.7051	50/50	1.7051
965171	AG1-382 C	0.6903	Adder	1.53
965172	AG1-382 E	0.4602	Adder	1.02
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.9731	50/50	2.9731
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.8805	50/50	0.8805
965221	AG1-387 C (Withdrawn : 03/04/2021)	0.6903	Adder	1.53
965222	AG1-387 E (Withdrawn : 03/04/2021)	0.4602	Adder	1.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965301	AG1-395 C (Withdrawn : 02/26/2021)	3.2866	50/50	3.2866
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.9762	50/50	0.9762
966041	AG1-473 C	15.0983	50/50	15.0983
966042	AG1-473 E	10.0655	50/50	10.0655
966121	AG1-481	0.7874	Adder	1.75
WEC	WEC	0.3994	Confirmed LTF	0.3994
LGEE	LGEE	0.7640	Confirmed LTF	0.7640
CPL	CPL	0.3808	Confirmed LTF	0.3808
CBM-W2	CBM-W2	10.0442	Confirmed LTF	10.0442
TVA	TVA	1.4448	Confirmed LTF	1.4448
O-066	O-066	23.0031	Confirmed LTF	23.0031
SIGE	SIGE	0.4862	Confirmed LTF	0.4862
CBM-S2	CBM-S2	7.3289	Confirmed LTF	7.3289
CBM-S1	CBM-S1	0.4047	Confirmed LTF	0.4047
G-007	G-007	3.6025	Confirmed LTF	3.6025
MEC	MEC	1.9322	Confirmed LTF	1.9322
LAGN	LAGN	1.8358	Confirmed LTF	1.8358
CBM-W1	CBM-W1	18.6887	Confirmed LTF	18.6887

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
166058898	200519	26REED TAP	PENELEC	200522	26SHADE GP	PENELEC	1	PL:10:P45:102437	breaker	225.0	127.14	130.45	DC	7.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200812	26ALY HYDR	0.3606	50/50	0.3606
200852	26WARR RDG	0.1999	Adder	0.24
235003	AC1-025 E	0.1664	50/50	0.1664
236828	01GRAYMONT	0.4282	50/50	0.4282
290086	Q-036 E	2.0818	Adder	2.45
293301	N-039 E	3.2515	Adder	3.83
294515	O38_P22	2.8451	Adder	3.35
921642	AA2-000	23.0817	Adder	27.15
930511	AB2-092	0.8475	Adder	1.0
936421	AD2-055	1.7448	Adder	2.05
936991	AD2-133 C	0.9368	Adder	1.1
936992	AD2-133 E	4.2849	Adder	5.04
939171	AE1-147 C	1.2774	50/50	1.2774
939172	AE1-147 E	0.8516	50/50	0.8516
939591	AE1-188 C	-0.6138	Adder	-0.72
940201	AE2-001 C	1.2816	50/50	1.2816
940202	AE2-001 E	0.8544	50/50	0.8544
940681	AE2-055 C (Suspended)	1.3448	50/50	1.3448
940682	AE2-055 E (Suspended)	0.8966	50/50	0.8966
941231	AE2-117 C	0.9308	Adder	1.1
941232	AE2-117 E	0.6205	Adder	0.73
941241	AE2-118 C	0.8851	Adder	1.04
941242	AE2-118 E	0.5900	Adder	0.69
941261	AE2-120 C	1.2839	50/50	1.2839
941262	AE2-120 E	0.8559	50/50	0.8559
941271	AE2-121 C	0.6753	50/50	0.6753
941272	AE2-121 E	0.4509	50/50	0.4509
941321	AE2-126 C (Suspended)	0.6220	Adder	0.73
941322	AE2-126 E (Suspended)	0.4147	Adder	0.49
941331	AE2-129 C	0.6522	Adder	0.77
941332	AE2-129 E	0.4348	Adder	0.51
941351	AE2-131 C (Suspended)	0.6522	Adder	0.77
941352	AE2-131 E (Suspended)	0.4348	Adder	0.51
942121	AE2-224 C	2.6520	Adder	3.12
942122	AE2-224 E	1.7680	Adder	2.08
942351	AE2-248 C	1.0548	50/50	1.0548
942352	AE2-248 E	0.7032	50/50	0.7032
942491	AE2-262 C	3.7816	Adder	4.45
942492	AE2-262 E	2.5413	Adder	2.99
942501	AE2-263 C	3.5548	Adder	4.18
942502	AE2-263 E	2.3734	Adder	2.79
942511	AE2-264 C	3.8817	Adder	4.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942512	AE2-264 E	2.5878	Adder	3.04
943751	AF1-043	5.2345	Adder	6.16
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.4148	50/50	1.4148
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.7958	50/50	0.7958
944311	AF1-099 C	5.7405	Adder	6.75
944312	AF1-099 E	3.8270	Adder	4.5
944321	AF1-100 C	9.7410	Adder	11.46
944322	AF1-100 E	6.4940	Adder	7.64
944471	AF1-112 C	1.3115	50/50	1.3115
944472	AF1-112 E	0.8743	50/50	0.8743
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.3308	50/50	1.3308
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.8872	50/50	0.8872
944691	AF1-134 C	0.5312	Adder	0.62
944692	AF1-134 E	0.3541	Adder	0.42
944771	AF1-142 C	9.1849	Adder	10.81
944772	AF1-142 E	6.1232	Adder	7.2
944881	AF1-153 C O1	0.5910	Adder	0.7
944882	AF1-153 E O1	0.3940	Adder	0.46
944901	AF1-155 C (Suspended)	0.5875	Adder	0.69
944902	AF1-155 E (Suspended)	0.3917	Adder	0.46
945011	AF1-166 C	-0.5014	Adder	-0.59
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2838	50/50	1.2838
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.8558	50/50	0.8558
945591	AF1-224 C	-0.3848	Adder	-0.45
946421	AF1-306 C	2.5637	Adder	3.02
946422	AF1-306 E	10.2550	Adder	12.06
957451	AF2-039 C	0.4627	Adder	0.54
957452	AF2-039 E	0.3085	Adder	0.36
957561	AF2-050 C	1.3260	Adder	1.56
957562	AF2-050 E	0.8840	Adder	1.04
957931	AF2-087 C (Suspended)	0.1708	Adder	0.2
957932	AF2-087 E (Suspended)	0.2353	Adder	0.28
957941	AF2-088 C	0.2228	Adder	0.26
957942	AF2-088 E	0.1485	Adder	0.17
958071	AF2-101 C (Suspended)	-0.0836	Adder	-0.1
958271	AF2-121 C	0.6522	Adder	0.77
958272	AF2-121 E	0.4348	Adder	0.51
958601	AF2-151 C	-0.0825	Adder	-0.1
959241	AF2-215 C	-0.1406	Adder	-0.17
959802	AF2-271 E	0.2112	Adder	0.25
959843	AF2-275 BAT	0.0922	Merchant Transmission	0.0922
959853	AF2-276 BAT	0.0922	Merchant Transmission	0.0922
960022	AF2-293 E	0.1239	50/50	0.1239
960041	AF2-295 C	0.5875	Adder	0.69
960042	AF2-295 E	0.3917	Adder	0.46

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960051	AF2-296 C	0.5312	Adder	0.62
960052	AF2-296 E	0.3541	Adder	0.42
962411	AG1-090 C O1	1.7283	Adder	3.84
962412	AG1-090 E O1	1.1522	Adder	2.56
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.3457	Adder	0.77
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.2304	Adder	0.51
963571	AG1-206 C	0.1739	Adder	0.39
963572	AG1-206 E	0.0937	Adder	0.21
963891	AG1-242 C	0.1525	Adder	0.34
963892	AG1-242 E	0.0821	Adder	0.18
964031	AG1-257 C	0.9033	50/50	0.9033
964032	AG1-257 E	1.2624	50/50	1.2624
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.9033	50/50	0.9033
964042	AG1-258 E (Withdrawn : 02/25/2021)	1.2624	50/50	1.2624
964191	AG1-280 C	0.2726	Adder	0.61
964192	AG1-280 E	0.1817	Adder	0.4
964201	AG1-281 C	0.2742	Adder	0.61
964202	AG1-281 E	0.1828	Adder	0.41
964391	AG1-301 C	0.5084	Adder	1.13
964392	AG1-301 E	0.3390	Adder	0.75
964451	AG1-308 C O1	0.2429	Adder	0.54
964452	AG1-308 E O1	0.3394	Adder	0.75
965121	AG1-377 C O1	0.3457	Adder	0.77
965122	AG1-377 E O1	0.2304	Adder	0.51
965131	AG1-378 C O1	0.3457	Adder	0.77
965132	AG1-378 E O1	0.2304	Adder	0.51
965201	AG1-385 C (Withdrawn : 03/24/2021)	0.4028	Adder	0.89
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.1193	Adder	0.26
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.4442	Adder	0.99
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.1319	Adder	0.29
966041	AG1-473 C	4.4655	50/50	4.4655
966042	AG1-473 E	2.9770	50/50	2.9770
966152	AG1-484 BAT	0.6354	Merchant Transmission	0.6354
966463	AG1-515 BAT	0.3722	Merchant Transmission	0.3722
966891	AG1-560 BAT	12.4868	50/50	12.4868
966901	AG1-561 BAT	5.4397	50/50	5.4397
WEC	WEC	0.0410	Confirmed LTF	0.0410
LGEE	LGEE	0.0685	Confirmed LTF	0.0685
CALDERWOOD	CALDERWOOD	0.0035	Confirmed LTF	0.0035
CBM-W2	CBM-W2	0.5914	Confirmed LTF	0.5914
TVA	TVA	0.0378	Confirmed LTF	0.0378
O-066	O-066	1.7633	Confirmed LTF	1.7633
SIGE	SIGE	0.0387	Confirmed LTF	0.0387
CHEOAH	CHEOAH	0.0050	Confirmed LTF	0.0050
CBM-S1	CBM-S1	0.0160	Confirmed LTF	0.0160

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007	G-007	0.3056	Confirmed LTF	0.3056
HAMLET	HAMLET	0.0872	Confirmed LTF	0.0872
MEC	MEC	0.1716	Confirmed LTF	0.1716
LAGN	LAGN	0.0612	Confirmed LTF	0.0612
CATAWBA	CATAWBA	0.0364	Confirmed LTF	0.0364
CBM-W1	CBM-W1	2.2011	Confirmed LTF	2.2011

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
166058987	200520	26ROXBURY	PENELEC	961480	AF2-439 TAP	PENELEC	1	PL:10:P45:102437	breaker	159.0	112.4	113.2	DC	2.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
203905	26W1-045 C	0.0812	50/50	0.0812
237329	01CHBRG_I12	0.5074	50/50	0.5074
901242	W1-045 E OP1	0.4482	50/50	0.4482
930822	AB1-127 E	0.3786	Adder	0.45
930832	AB1-128 E	0.3786	Adder	0.45
933977	AD1-020 EBAT (Suspended)	1.3442	Merchant Transmission	1.3442
934371	AD1-061 C	0.3579	Adder	0.42
934372	AD1-061 E	0.3109	Adder	0.37
936061	AD2-009 C	2.4249	Adder	2.85
936062	AD2-009 E	1.1041	Adder	1.3
936471	AD2-062 C O1	10.6930	50/50	10.6930
936472	AD2-062 E O1	5.3565	50/50	5.3565
938384	AE1-071-C	13.8346	50/50	13.8346
938385	AE1-071-E	8.4656	50/50	8.4656
938753	AE1-101 C1	1.8674	Adder	2.2
938754	AE1-101 C2	0.9337	Adder	1.1
938756	AE1-101 E1	3.8550	Adder	4.54
938757	AE1-101 E2	1.9247	Adder	2.26
939033	AE1-132 C	2.5711	Adder	3.02
939034	AE1-132 E	1.7141	Adder	2.02
939591	AE1-188 C	0.6641	Adder	0.78
939592	AE1-188 E	0.3900	Adder	0.46
940671	AE2-054 C (Suspended)	0.5615	Adder	0.66
940672	AE2-054 E (Suspended)	0.3743	Adder	0.44
945011	AF1-166 C	0.5506	Adder	0.65
945012	AF1-166 E	0.3671	Adder	0.43
945441	AF1-209 C O1	0.5472	Adder	0.64
945442	AF1-209 E O1	0.3648	Adder	0.43
945591	AF1-224 C	0.4164	Adder	0.49
945592	AF1-224 E	0.2108	Adder	0.25
958071	AF2-101 C (Suspended)	-0.2607	Adder	-0.31
958221	AF2-116 C	0.6705	Adder	0.79
958222	AF2-116 E	0.3378	Adder	0.4
958231	AF2-117 C	2.1425	Adder	2.52
958232	AF2-117 E	1.0710	Adder	1.26
958551	AF2-146 C (Withdrawn : 04/16/2021)	1.8142	50/50	1.8142
958552	AF2-146 E (Withdrawn : 04/16/2021)	1.2094	50/50	1.2094
958571	AF2-148 C (Withdrawn : 04/16/2021)	1.4744	50/50	1.4744

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958572	AF2-148 E (Withdrawn : 04/16/2021)	0.9830	50/50	0.9830
958601	AF2-151 C	-0.2571	Adder	-0.3
958871	AF2-178	0.3911	50/50	0.3911
958881	AF2-179	0.3327	Adder	0.39
958891	AF2-180	0.3327	Adder	0.39
958931	AF2-184	0.2732	Adder	0.32
959223	AF2-213 BAT	4.5691	Merchant Transmission	4.5691
959241	AF2-215 C	0.1539	Adder	0.18
959242	AF2-215 E	0.1026	Adder	0.12
959381	AF2-229 C (Withdrawn : 04/03/2021)	1.0929	50/50	1.0929
959382	AF2-229 E (Withdrawn : 04/03/2021)	0.9125	50/50	0.9125
959773	AF2-268 BAT	0.1000	Merchant Transmission	0.1000
959842	AF2-275 E	0.1721	Adder	0.2
959852	AF2-276 E	0.1721	Adder	0.2
962082	AG1-052 BAT	0.6145	Merchant Transmission	0.6145
963901	AG1-243 C	0.1961	Adder	0.44
963902	AG1-243 E	0.1056	Adder	0.23
964641	AG1-327 C O1	0.6155	Adder	1.37
964642	AG1-327 E O1	0.3171	Adder	0.7
964693	AG1-332 BAT	0.1022	Merchant Transmission	0.1022
965963	AG1-465 BAT	2.8673	Merchant Transmission	2.8673
966041	AG1-473 C	0.7660	Adder	1.7
966042	AG1-473 E	0.5107	Adder	1.13
966152	AG1-484 BAT	3.7538	50/50	3.7538
966172	AG1-486 BAT	0.5299	Merchant Transmission	0.5299
966461	AG1-515 C	0.1415	Adder	0.31
966462	AG1-515 E	0.2122	Adder	0.47
WEC	WEC	0.1279	Confirmed LTF	0.1279
LGEE	LGEE	0.2526	Confirmed LTF	0.2526
CPLE	CPLE	0.2321	Confirmed LTF	0.2321
CBM-W2	CBM-W2	3.5213	Confirmed LTF	3.5213
NY	NY	0.1963	Confirmed LTF	0.1963
TVA	TVA	0.5404	Confirmed LTF	0.5404
O-066	O-066	6.2791	Confirmed LTF	6.2791
SIGE	SIGE	0.1402	Confirmed LTF	0.1402
CBM-S2	CBM-S2	3.6958	Confirmed LTF	3.6958
CBM-S1	CBM-S1	0.1478	Confirmed LTF	0.1478
G-007	G-007	0.9849	Confirmed LTF	0.9849
MEC	MEC	0.6388	Confirmed LTF	0.6388
LAGN	LAGN	0.6772	Confirmed LTF	0.6772
CBM-W1	CBM-W1	5.7622	Confirmed LTF	5.7622

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
166058783	200522	26SHADE GP	PENELEC	938380	AE1-071-POI	PENELEC	1	PL:10:P45:102437	breaker	160.0	204.84	210.06	DC	8.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200812	26ALY HYDR	0.4042	50/50	0.4042
200852	26WARR RDG	0.2636	50/50	0.2636
200883	Q-053 E	2.1510	Adder	2.53
235003	AC1-025 E	0.1866	50/50	0.1866
236828	01GRAYMONT	0.4801	50/50	0.4801
290086	Q-036 E	2.3338	Adder	2.75
293301	N-039 E	3.6448	Adder	4.29
294515	O38_P22	3.1892	Adder	3.75
921642	AA2-000	25.8759	Adder	30.44
930511	AB2-092	0.9501	Adder	1.12
936421	AD2-055	1.9561	Adder	2.3
936991	AD2-133 C	1.0502	Adder	1.24
936992	AD2-133 E	4.8035	Adder	5.65
939171	AE1-147 C	1.4321	50/50	1.4321
939172	AE1-147 E	0.9547	50/50	0.9547
939591	AE1-188 C	-0.6881	Adder	-0.81
940201	AE2-001 C	1.4368	50/50	1.4368
940202	AE2-001 E	0.9578	50/50	0.9578
940681	AE2-055 C (Suspended)	1.5077	50/50	1.5077
940682	AE2-055 E (Suspended)	1.0051	50/50	1.0051
941191	AE2-113 C	2.6637	Adder	3.13
941192	AE2-113 E	2.8679	Adder	3.37
941231	AE2-117 C	1.2276	50/50	1.2276
941232	AE2-117 E	0.8184	50/50	0.8184
941241	AE2-118 C	0.9922	Adder	1.17
941242	AE2-118 E	0.6614	Adder	0.78
941261	AE2-120 C	1.4393	50/50	1.4393
941262	AE2-120 E	0.9595	50/50	0.9595
941271	AE2-121 C	0.7571	50/50	0.7571
941272	AE2-121 E	0.5055	50/50	0.5055
941321	AE2-126 C (Suspended)	0.6973	Adder	0.82
941322	AE2-126 E (Suspended)	0.4648	Adder	0.55
941331	AE2-129 C	0.7311	Adder	0.86
941332	AE2-129 E	0.4874	Adder	0.57
941351	AE2-131 C (Suspended)	0.7311	Adder	0.86
941352	AE2-131 E (Suspended)	0.4874	Adder	0.57
942121	AE2-224 C	2.9733	Adder	3.5
942122	AE2-224 E	1.9822	Adder	2.33
942351	AE2-248 C	1.1824	50/50	1.1824
942352	AE2-248 E	0.7883	50/50	0.7883
942491	AE2-262 C	4.2394	Adder	4.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942492	AE2-262 E	2.8489	Adder	3.35
942501	AE2-263 C	3.9850	Adder	4.69
942502	AE2-263 E	2.6606	Adder	3.13
942511	AE2-264 C	5.1197	50/50	5.1197
942512	AE2-264 E	3.4131	50/50	3.4131
942961	AE2-316 C	1.7575	Adder	2.07
942962	AE2-316 E	2.5061	Adder	2.95
943751	AF1-043	5.8682	Adder	6.9
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.5860	50/50	1.5860
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.8922	50/50	0.8922
944311	AF1-099 C	6.4354	Adder	7.57
944312	AF1-099 E	4.2902	Adder	5.05
944321	AF1-100 C	10.9204	Adder	12.85
944322	AF1-100 E	7.2802	Adder	8.56
944471	AF1-112 C	1.4704	50/50	1.4704
944472	AF1-112 E	0.9802	50/50	0.9802
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.4920	50/50	1.4920
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.9946	50/50	0.9946
944691	AF1-134 C	0.5955	Adder	0.7
944692	AF1-134 E	0.3970	Adder	0.47
944771	AF1-142 C	10.2966	Adder	12.11
944772	AF1-142 E	6.8644	Adder	8.08
944881	AF1-153 C O1	0.6625	Adder	0.78
944882	AF1-153 E O1	0.4417	Adder	0.52
944901	AF1-155 C (Suspended)	0.6586	Adder	0.77
944902	AF1-155 E (Suspended)	0.4391	Adder	0.52
945011	AF1-166 C	-0.5622	Adder	-0.66
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.4392	50/50	1.4392
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.9594	50/50	0.9594
945591	AF1-224 C	-0.4314	Adder	-0.51
946381	AF1-302 C	0.7674	Adder	0.9
946382	AF1-302 E	1.0233	Adder	1.2
946421	AF1-306 C	2.8738	Adder	3.38
946422	AF1-306 E	11.4954	Adder	13.52
957451	AF2-039 C	0.5188	Adder	0.61
957452	AF2-039 E	0.3459	Adder	0.41
957561	AF2-050 C	1.4867	Adder	1.75
957562	AF2-050 E	0.9911	Adder	1.17
957931	AF2-087 C (Suspended)	0.1915	Adder	0.23
957932	AF2-087 E (Suspended)	0.2638	Adder	0.31
957941	AF2-088 C	0.2498	Adder	0.29
957942	AF2-088 E	0.1665	Adder	0.2
958071	AF2-101 C (Suspended)	-0.0937	Adder	-0.11
958271	AF2-121 C	0.7311	Adder	0.86
958272	AF2-121 E	0.4874	Adder	0.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958551	AF2-146 C (Withdrawn : 04/16/2021)	5.3006	50/50	5.3006
958552	AF2-146 E (Withdrawn : 04/16/2021)	3.5338	50/50	3.5338
958571	AF2-148 C (Withdrawn : 04/16/2021)	4.3049	50/50	4.3049
958572	AF2-148 E (Withdrawn : 04/16/2021)	2.8699	50/50	2.8699
958601	AF2-151 C	-0.0925	Adder	-0.11
959241	AF2-215 C	-0.1576	Adder	-0.19
959802	AF2-271 E	0.2368	Adder	0.28
959843	AF2-275 BAT	0.1034	Merchant Transmission	0.1034
959853	AF2-276 BAT	0.1034	Merchant Transmission	0.1034
960022	AF2-293 E	0.1389	50/50	0.1389
960041	AF2-295 C	0.6586	Adder	0.77
960042	AF2-295 E	0.4391	Adder	0.52
960051	AF2-296 C	0.5955	Adder	0.7
960052	AF2-296 E	0.3970	Adder	0.47
962411	AG1-090 C O1	1.9375	Adder	4.3
962412	AG1-090 E O1	1.2917	Adder	2.87
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.3875	Adder	0.86
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.2583	Adder	0.57
963571	AG1-206 C	0.1950	Adder	0.43
963572	AG1-206 E	0.1050	Adder	0.23
963891	AG1-242 C	0.1710	Adder	0.38
963892	AG1-242 E	0.0921	Adder	0.2
964031	AG1-257 C	1.0126	50/50	1.0126
964032	AG1-257 E	1.4152	50/50	1.4152
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.0126	50/50	1.0126
964042	AG1-258 E (Withdrawn : 02/25/2021)	1.4152	50/50	1.4152
964191	AG1-280 C	0.3056	Adder	0.68
964192	AG1-280 E	0.2037	Adder	0.45
964201	AG1-281 C	0.3074	Adder	0.68
964202	AG1-281 E	0.2049	Adder	0.45
964391	AG1-301 C	1.2653	50/50	1.2653
964392	AG1-301 E	0.8435	50/50	0.8435
964451	AG1-308 C O1	0.2722	Adder	0.6
964452	AG1-308 E O1	0.3805	Adder	0.84
965121	AG1-377 C O1	0.3875	Adder	0.86
965122	AG1-377 E O1	0.2583	Adder	0.57
965131	AG1-378 C O1	0.3875	Adder	0.86
965132	AG1-378 E O1	0.2583	Adder	0.57
965201	AG1-385 C (Withdrawn : 03/24/2021)	0.4515	Adder	1.0
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.1337	Adder	0.3
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.4979	Adder	1.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.1479	Adder	0.33
966041	AG1-473 C	5.0062	50/50	5.0062
966042	AG1-473 E	3.3375	50/50	3.3375
966152	AG1-484 BAT	0.7123	Merchant Transmission	0.7123
966463	AG1-515 BAT	0.4172	Merchant Transmission	0.4172
966891	AG1-560 BAT	13.9988	50/50	13.9988
966901	AG1-561 BAT	6.0982	50/50	6.0982
WEC	WEC	0.0460	Confirmed LTF	0.0460
LGEE	LGEE	0.0767	Confirmed LTF	0.0767
CALDERWOOD	CALDERWOOD	0.0045	Confirmed LTF	0.0045
CBM-W2	CBM-W2	0.6630	Confirmed LTF	0.6630
TVA	TVA	0.0420	Confirmed LTF	0.0420
O-066	O-066	1.9786	Confirmed LTF	1.9786
SIGE	SIGE	0.0434	Confirmed LTF	0.0434
CHEOAH	CHEOAH	0.0060	Confirmed LTF	0.0060
CBM-S1	CBM-S1	0.0179	Confirmed LTF	0.0179
G-007	G-007	0.3423	Confirmed LTF	0.3423
HAMLET	HAMLET	0.0982	Confirmed LTF	0.0982
MEC	MEC	0.1907	Confirmed LTF	0.1907
LAGN	LAGN	0.0683	Confirmed LTF	0.0683
CATAWBA	CATAWBA	0.0413	Confirmed LTF	0.0413
CBM-W1	CBM-W1	2.4535	Confirmed LTF	2.4535

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
166058922	200713	26ROCKTON	PENELEC	200712	26DUBOIS	PENELEC	1	AP-P2-3-WP-230-443T *	breaker	190.0	138.1	138.82	DC	3.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	3.0960	50/50	3.0960
200666	26SHAWVL 4	3.0432	50/50	3.0432
200715	26SHAWVL 1	2.7655	50/50	2.7655
200722	26SHAWVL 2	2.8293	50/50	2.8293
200905	26Q36	0.1317	50/50	0.1317
200913	26SHAW-D	0.1681	50/50	0.1681
235003	AC1-025 E	0.0980	Adder	0.12
236828	01GRAYMONT	0.2686	Adder	0.32
290086	Q-036 E	4.0236	50/50	4.0236
921642	AA2-000	26.3797	Adder	31.03
930511	AB2-092	0.9686	Adder	1.14
936421	AD2-055	1.9941	Adder	2.35
936991	AD2-133 C	1.8106	50/50	1.8106
936992	AD2-133 E	8.2816	50/50	8.2816
939171	AE1-147 C	0.8091	Adder	0.95
939172	AE1-147 E	0.5394	Adder	0.63
940201	AE2-001 C	0.8071	Adder	0.95
940202	AE2-001 E	0.5381	Adder	0.63
940681	AE2-055 C (Suspended)	0.7776	Adder	0.91
940682	AE2-055 E (Suspended)	0.5184	Adder	0.61
941261	AE2-120 C	0.8061	Adder	0.95
941262	AE2-120 E	0.5374	Adder	0.63
941271	AE2-121 C	0.4319	Adder	0.51
941272	AE2-121 E	0.2884	Adder	0.34
941331	AE2-129 C	1.6170	50/50	1.6170
941332	AE2-129 E	1.0780	50/50	1.0780
941351	AE2-131 C (Suspended)	1.6170	50/50	1.6170
941352	AE2-131 E (Suspended)	1.0780	50/50	1.0780
942351	AE2-248 C	0.6320	Adder	0.74
942352	AE2-248 E	0.4213	Adder	0.5
942491	AE2-262 C	3.7795	Adder	4.45
942492	AE2-262 E	2.5398	Adder	2.99
942501	AE2-263 C	3.5528	Adder	4.18
942502	AE2-263 E	2.3720	Adder	2.79
943751	AF1-043	5.9824	Adder	7.04
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.8386	Adder	0.99
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.4717	Adder	0.55
944181	AF1-086 C O1	1.0997	Adder	1.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944182	AF1-086 E O1	4.7845	Adder	5.63
944311	AF1-099 C	5.7373	Adder	6.75
944312	AF1-099 E	3.8249	Adder	4.5
944321	AF1-100 C	16.2855	50/50	16.2855
944322	AF1-100 E	10.8570	50/50	10.8570
944382	AF1-103 BAT	1.3910	Merchant Transmission	1.3910
944471	AF1-112 C	0.7932	Adder	0.93
944472	AF1-112 E	0.5288	Adder	0.62
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.7842	Adder	0.92
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5228	Adder	0.62
944691	AF1-134 C	1.3462	50/50	1.3462
944692	AF1-134 E	0.8974	50/50	0.8974
944771	AF1-142 C	9.1797	Adder	10.8
944772	AF1-142 E	6.1198	Adder	7.2
944901	AF1-155 C (Suspended)	-1.0979	Adder	-1.29
945161	AF1-181	0.0142	50/50	0.0142
945171	AF1-182	0.0712	50/50	0.0712
945181	AF1-183	0.0227	50/50	0.0227
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8062	Adder	0.95
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5375	Adder	0.63
946423	AF1-306 BAT	32.6563	50/50	32.6563
957451	AF2-039 C	1.4369	50/50	1.4369
957452	AF2-039 E	0.9579	50/50	0.9579
957941	AF2-088 C	0.6918	50/50	0.6918
957942	AF2-088 E	0.4612	50/50	0.4612
958271	AF2-121 C	1.6170	50/50	1.6170
958272	AF2-121 E	1.0780	50/50	1.0780
959802	AF2-271 E	0.1375	Adder	0.16
960022	AF2-293 E	0.0787	Adder	0.09
960051	AF2-296 C	1.3462	50/50	1.3462
960052	AF2-296 E	0.8974	50/50	0.8974
962411	AG1-090 C O1	8.0850	50/50	8.0850
962412	AG1-090 E O1	5.3900	50/50	5.3900
962951	AG1-144 C (Withdrawn : 03/02/2021)	1.6170	50/50	1.6170
962952	AG1-144 E (Withdrawn : 03/02/2021)	1.0780	50/50	1.0780
963891	AG1-242 C	0.7292	50/50	0.7292
963892	AG1-242 E	0.3926	50/50	0.3926
964031	AG1-257 C	0.2917	Adder	0.65
964032	AG1-257 E	0.4077	Adder	0.9
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.2917	Adder	0.65
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4077	Adder	0.9
964451	AG1-308 C O1	1.2243	50/50	1.2243
964452	AG1-308 E O1	1.7111	50/50	1.7111
965121	AG1-377 C O1	1.6170	50/50	1.6170

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965122	AG1-377 E O1	1.0780	50/50	1.0780
965131	AG1-378 C O1	1.6170	50/50	1.6170
965132	AG1-378 E O1	1.0780	50/50	1.0780
965203	AG1-385 BAT (Withdrawn : 03/24/2021)	0.9227	50/50	0.9227
965301	AG1-395 C (Withdrawn : 02/26/2021)	2.0778	50/50	2.0778
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.6172	50/50	0.6172
966041	AG1-473 C	0.8280	Adder	1.84
966042	AG1-473 E	0.5520	Adder	1.23
966122	AG1-481 BAT	0.5640	Merchant Transmission	0.5640
G-007A	G-007A	1.2563	Confirmed LTF	1.2563
VFT	VFT	3.4120	Confirmed LTF	3.4120
CALDERWOOD	CALDERWOOD	0.1123	Confirmed LTF	0.1123
NY	NY	0.0265	Confirmed LTF	0.0265
PRAIRIE	PRAIRIE	0.7258	Confirmed LTF	0.7258
CHEOAH	CHEOAH	0.1121	Confirmed LTF	0.1121
CBM-N	CBM-N	0.6456	Confirmed LTF	0.6456
COTTONWOOD	COTTONWOOD	0.5271	Confirmed LTF	0.5271
HAMLET	HAMLET	0.0872	Confirmed LTF	0.0872
GIBSON	GIBSON	0.1605	Confirmed LTF	0.1605
BLUEG	BLUEG	0.5052	Confirmed LTF	0.5052
TRIMBLE	TRIMBLE	0.1625	Confirmed LTF	0.1625
CATAWBA	CATAWBA	0.0613	Confirmed LTF	0.0613

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
166058913	200714	26SHAWVL 1	PENELEC	200713	26ROCKTON	PENELEC	1	AP-P2-3-WP-230-443T *	breaker	190.0	139.04	139.77	DC	3.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	3.0960	50/50	3.0960
200666	26SHAWVL 4	3.0432	50/50	3.0432
200715	26SHAWVL 1	2.7655	50/50	2.7655
200722	26SHAWVL 2	2.8293	50/50	2.8293
200905	26Q36	0.1317	50/50	0.1317
200913	26SHAW-D	0.1681	50/50	0.1681
235003	AC1-025 E	0.0980	Adder	0.12
236828	01GRAYMONT	0.2686	Adder	0.32
290086	Q-036 E	4.0236	50/50	4.0236
921642	AA2-000	26.3797	Adder	31.03
930511	AB2-092	0.9686	Adder	1.14
936421	AD2-055	1.9941	Adder	2.35
936991	AD2-133 C	1.8106	50/50	1.8106
936992	AD2-133 E	8.2816	50/50	8.2816
939171	AE1-147 C	0.8091	Adder	0.95
939172	AE1-147 E	0.5394	Adder	0.63
940201	AE2-001 C	0.8071	Adder	0.95
940202	AE2-001 E	0.5381	Adder	0.63
940681	AE2-055 C (Suspended)	0.7776	Adder	0.91
940682	AE2-055 E (Suspended)	0.5184	Adder	0.61
941261	AE2-120 C	0.8061	Adder	0.95
941262	AE2-120 E	0.5374	Adder	0.63
941271	AE2-121 C	0.4319	Adder	0.51
941272	AE2-121 E	0.2884	Adder	0.34
941331	AE2-129 C	1.6170	50/50	1.6170
941332	AE2-129 E	1.0780	50/50	1.0780
941351	AE2-131 C (Suspended)	1.6170	50/50	1.6170
941352	AE2-131 E (Suspended)	1.0780	50/50	1.0780
942351	AE2-248 C	0.6320	Adder	0.74
942352	AE2-248 E	0.4213	Adder	0.5
942491	AE2-262 C	3.7795	Adder	4.45
942492	AE2-262 E	2.5398	Adder	2.99
942501	AE2-263 C	3.5528	Adder	4.18
942502	AE2-263 E	2.3720	Adder	2.79
943751	AF1-043	5.9824	Adder	7.04
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.8386	Adder	0.99
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.4717	Adder	0.55
944181	AF1-086 C O1	1.0997	Adder	1.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944182	AF1-086 E O1	4.7845	Adder	5.63
944311	AF1-099 C	5.7373	Adder	6.75
944312	AF1-099 E	3.8249	Adder	4.5
944321	AF1-100 C	16.2855	50/50	16.2855
944322	AF1-100 E	10.8570	50/50	10.8570
944382	AF1-103 BAT	1.3910	Merchant Transmission	1.3910
944471	AF1-112 C	0.7932	Adder	0.93
944472	AF1-112 E	0.5288	Adder	0.62
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.7842	Adder	0.92
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5228	Adder	0.62
944691	AF1-134 C	1.3462	50/50	1.3462
944692	AF1-134 E	0.8974	50/50	0.8974
944771	AF1-142 C	9.1797	Adder	10.8
944772	AF1-142 E	6.1198	Adder	7.2
944901	AF1-155 C (Suspended)	-1.0979	Adder	-1.29
945161	AF1-181	0.0142	50/50	0.0142
945171	AF1-182	0.0712	50/50	0.0712
945181	AF1-183	0.0227	50/50	0.0227
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8062	Adder	0.95
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5375	Adder	0.63
946423	AF1-306 BAT	32.6563	50/50	32.6563
957451	AF2-039 C	1.4369	50/50	1.4369
957452	AF2-039 E	0.9579	50/50	0.9579
957941	AF2-088 C	0.6918	50/50	0.6918
957942	AF2-088 E	0.4612	50/50	0.4612
958271	AF2-121 C	1.6170	50/50	1.6170
958272	AF2-121 E	1.0780	50/50	1.0780
959802	AF2-271 E	0.1375	Adder	0.16
960022	AF2-293 E	0.0787	Adder	0.09
960051	AF2-296 C	1.3462	50/50	1.3462
960052	AF2-296 E	0.8974	50/50	0.8974
962411	AG1-090 C O1	8.0850	50/50	8.0850
962412	AG1-090 E O1	5.3900	50/50	5.3900
962951	AG1-144 C (Withdrawn : 03/02/2021)	1.6170	50/50	1.6170
962952	AG1-144 E (Withdrawn : 03/02/2021)	1.0780	50/50	1.0780
963891	AG1-242 C	0.7292	50/50	0.7292
963892	AG1-242 E	0.3926	50/50	0.3926
964031	AG1-257 C	0.2917	Adder	0.65
964032	AG1-257 E	0.4077	Adder	0.9
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.2917	Adder	0.65
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4077	Adder	0.9
964451	AG1-308 C O1	1.2243	50/50	1.2243
964452	AG1-308 E O1	1.7111	50/50	1.7111
965121	AG1-377 C O1	1.6170	50/50	1.6170

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965122	AG1-377 E O1	1.0780	50/50	1.0780
965131	AG1-378 C O1	1.6170	50/50	1.6170
965132	AG1-378 E O1	1.0780	50/50	1.0780
965203	AG1-385 BAT (Withdrawn : 03/24/2021)	0.9227	50/50	0.9227
965301	AG1-395 C (Withdrawn : 02/26/2021)	2.0778	50/50	2.0778
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.6172	50/50	0.6172
966041	AG1-473 C	0.8280	Adder	1.84
966042	AG1-473 E	0.5520	Adder	1.23
966122	AG1-481 BAT	0.5640	Merchant Transmission	0.5640
G-007A	G-007A	1.2563	Confirmed LTF	1.2563
VFT	VFT	3.4120	Confirmed LTF	3.4120
CALDERWOOD	CALDERWOOD	0.1123	Confirmed LTF	0.1123
NY	NY	0.0265	Confirmed LTF	0.0265
PRAIRIE	PRAIRIE	0.7258	Confirmed LTF	0.7258
CHEOAH	CHEOAH	0.1121	Confirmed LTF	0.1121
CBM-N	CBM-N	0.6456	Confirmed LTF	0.6456
COTTONWOOD	COTTONWOOD	0.5271	Confirmed LTF	0.5271
HAMLET	HAMLET	0.0872	Confirmed LTF	0.0872
GIBSON	GIBSON	0.1605	Confirmed LTF	0.1605
BLUEG	BLUEG	0.5052	Confirmed LTF	0.5052
TRIMBLE	TRIMBLE	0.1625	Confirmed LTF	0.1625
CATAWBA	CATAWBA	0.0613	Confirmed LTF	0.0613

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
166282125	200727	26SHAW. 2	PENELEC	964450	AG1-308 TAP	PENELEC	1	AP-P1-3-WP-230-326T-B	single	202.0	104.34	106.0	DC	3.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200649	26PENNTech	0.5643	80/20	0.5643
200665	26SHAWVL 3	3.0688	80/20	3.0688
200666	26SHAWVL 4	3.0132	80/20	3.0132
200715	26SHAWVL 1	2.7201	80/20	2.7201
200722	26SHAWVL 2	2.7890	80/20	2.7890
200913	26SHAW-D	0.1644	80/20	0.1644
921642	AA2-000	34.1231	80/20	34.1231
930511	AB2-092	1.2529	80/20	1.2529
936421	AD2-055	2.5795	80/20	2.5795
939171	AE1-147 C	1.2322	80/20	1.2322
940201	AE2-001 C	1.2328	80/20	1.2328
940681	AE2-055 C (Suspended)	1.2421	80/20	1.2421
941191	AE2-113 C	3.7047	80/20	3.7047
941261	AE2-120 C	1.2331	80/20	1.2331
941271	AE2-121 C	0.6545	80/20	0.6545
941321	AE2-126 C (Suspended)	1.5325	80/20	1.5325
941351	AE2-131 C (Suspended)	-6.3035	Adder	-7.42
942351	AE2-248 C	0.9906	80/20	0.9906
942491	AE2-262 C	5.0040	80/20	5.0040
942501	AE2-263 C	4.7038	80/20	4.7038
942961	AE2-316 C	2.1566	80/20	2.1566
943751	AF1-043	7.7385	80/20	7.7385
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.3221	80/20	1.3221
944181	AF1-086 C O1	1.0319	80/20	1.0319
944311	AF1-099 C	7.5961	80/20	7.5961
944321	AF1-100 C	16.2390	80/20	16.2390
944471	AF1-112 C	1.2372	80/20	1.2372
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.2401	80/20	1.2401
944691	AF1-134 C	1.2390	80/20	1.2390
944771	AF1-142 C	12.1537	80/20	12.1537
944881	AF1-153 C O1	0.9084	80/20	0.9084
944901	AF1-155 C (Suspended)	0.9013	80/20	0.9013
945161	AF1-181	0.0141	80/20	0.0141
945171	AF1-182	0.0705	80/20	0.0705
945181	AF1-183	0.0223	80/20	0.0223
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2331	80/20	1.2331

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
946381	AF1-302 C	0.9418	80/20	0.9418
946421	AF1-306 C	4.0648	80/20	4.0648
957451	AF2-039 C	1.4097	80/20	1.4097
957931	AF2-087 C (Suspended)	-0.2796	Adder	-0.33
957941	AF2-088 C	0.6788	80/20	0.6788
960041	AF2-295 C	0.9013	80/20	0.9013
960051	AF2-296 C	1.2390	80/20	1.2390
963571	AG1-206 C	0.7546	80/20	0.7546
963891	AG1-242 C	0.6711	80/20	0.6711
964031	AG1-257 C	0.8551	80/20	0.8551
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.8551	80/20	0.8551
965201	AG1-385 C (Withdrawn : 03/24/2021)	1.1681	80/20	1.1681
966041	AG1-473 C	3.3443	80/20	3.3443
WEC	WEC	0.0041	Confirmed LTF	0.0041
LGEE	LGEE	0.0025	Confirmed LTF	0.0025
CALDERWOOD	CALDERWOOD	0.0119	Confirmed LTF	0.0119
SIGE	SIGE	0.0118	Confirmed LTF	0.0118
CHEOAH	CHEOAH	0.0125	Confirmed LTF	0.0125
COTTONWOOD	COTTONWOOD	0.0273	Confirmed LTF	0.0273
HAMLET	HAMLET	0.0329	Confirmed LTF	0.0329
MEC	MEC	0.0111	Confirmed LTF	0.0111
CATAWBA	CATAWBA	0.0164	Confirmed LTF	0.0164
CBM-W1	CBM-W1	0.3645	Confirmed LTF	0.3645

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
181387143	200857	26MARSHALL	PENELEC	200701	26GROVER	PENELEC	1	PN-P2-3-PN-230-14CT	breaker	666.0	104.37	106.27	DC	12.6

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	5.9774	50/50	5.9774
200666	26SHAWVL 4	5.8387	50/50	5.8387
200715	26SHAWVL 1	3.7605	50/50	3.7605
200722	26SHAWVL 2	3.8299	50/50	3.8299
200894	26K02	35.7062	50/50	35.7062
200913	26SHAW-D	0.1621	50/50	0.1621
235003	AC1-025 E	0.3513	50/50	0.3513
236828	01GRAYMONT	0.9419	50/50	0.9419
290086	Q-036 E	3.4775	Adder	4.09
919201	AA1-144 OP	-22.7416	Adder	-26.75
921642	AA2-000	207.4009	50/50	207.4009
930511	AB2-092	7.6152	50/50	7.6152
936421	AD2-055	15.6783	50/50	15.6783
936991	AD2-133 C	1.5649	Adder	1.84
936992	AD2-133 E	7.1576	Adder	8.42
939171	AE1-147 C	2.8282	50/50	2.8282
939172	AE1-147 E	1.8854	50/50	1.8854
940201	AE2-001 C	2.8267	50/50	2.8267
940202	AE2-001 E	1.8845	50/50	1.8845
940681	AE2-055 C (Suspended)	2.8056	50/50	2.8056
940682	AE2-055 E (Suspended)	1.8704	50/50	1.8704
941191	AE2-113 C	4.6080	Adder	5.42
941192	AE2-113 E	4.9613	Adder	5.84
941261	AE2-120 C	2.8260	50/50	2.8260
941262	AE2-120 E	1.8840	50/50	1.8840
941271	AE2-121 C	1.5049	50/50	1.5049
941272	AE2-121 E	1.0048	50/50	1.0048
941321	AE2-126 C (Suspended)	1.8533	50/50	1.8533
941322	AE2-126 E (Suspended)	1.2355	50/50	1.2355
941331	AE2-129 C	1.3595	Adder	1.6
941332	AE2-129 E	0.9063	Adder	1.07
941351	AE2-131 C (Suspended)	1.3595	Adder	1.6
941352	AE2-131 E (Suspended)	0.9063	Adder	1.07
942351	AE2-248 C	2.2516	50/50	2.2516
942352	AE2-248 E	1.5011	50/50	1.5011
942491	AE2-262 C	12.0760	50/50	12.0760
942492	AE2-262 E	8.1151	50/50	8.1151
942501	AE2-263 C	11.3514	50/50	11.3514
942502	AE2-263 E	7.5789	50/50	7.5789
942961	AE2-316 C	4.0023	Adder	4.71
942962	AE2-316 E	5.7073	Adder	6.71

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943751	AF1-043	47.0347	50/50	47.0347
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	2.9992	50/50	2.9992
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	1.6870	50/50	1.6870
944181	AF1-086 C O1	1.3197	Adder	1.55
944182	AF1-086 E O1	5.7415	Adder	6.75
944311	AF1-099 C	18.3314	50/50	18.3314
944312	AF1-099 E	12.2209	50/50	12.2209
944321	AF1-100 C	33.6945	50/50	33.6945
944322	AF1-100 E	22.4630	50/50	22.4630
944412	AF1-106 BAT	2.0690	Merchant Transmission	2.0690
944471	AF1-112 C	2.8168	50/50	2.8168
944472	AF1-112 E	1.8778	50/50	1.8778
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	2.8103	50/50	2.8103
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	1.8735	50/50	1.8735
944691	AF1-134 C	1.1897	Adder	1.4
944692	AF1-134 E	0.7932	Adder	0.93
944771	AF1-142 C	29.3302	50/50	29.3302
944772	AF1-142 E	19.5535	50/50	19.5535
944881	AF1-153 C O1	1.9430	50/50	1.9430
944882	AF1-153 E O1	1.2954	50/50	1.2954
944901	AF1-155 C (Suspended)	1.9283	50/50	1.9283
944902	AF1-155 E (Suspended)	1.2855	50/50	1.2855
945161	AF1-181	0.0275	50/50	0.0275
945171	AF1-182	0.1366	50/50	0.1366
945181	AF1-183	0.0308	50/50	0.0308
945491	AF1-214 C (Withdrawn : 12/03/2020)	2.8260	50/50	2.8260
945492	AF1-214 E (Withdrawn : 12/03/2020)	1.8840	50/50	1.8840
946381	AF1-302 C	1.7477	Adder	2.06
946382	AF1-302 E	2.3303	Adder	2.74
946421	AF1-306 C	8.4781	50/50	8.4781
946422	AF1-306 E	33.9125	50/50	33.9125
957451	AF2-039 C	1.3867	50/50	1.3867
957452	AF2-039 E	0.9245	50/50	0.9245
957941	AF2-088 C	0.6677	50/50	0.6677
957942	AF2-088 E	0.4451	50/50	0.4451
958271	AF2-121 C	1.3595	Adder	1.6
958272	AF2-121 E	0.9063	Adder	1.07
959063	AF2-197 BAT	13.6796	Merchant Transmission	13.6796
960022	AF2-293 E	0.2749	50/50	0.2749
960041	AF2-295 C	1.9283	50/50	1.9283
960042	AF2-295 E	1.2855	50/50	1.2855
960051	AF2-296 C	1.1897	Adder	1.4
960052	AF2-296 E	0.7932	Adder	0.93
961142	AF2-405 BAT	1.0345	Merchant Transmission	1.0345
961152	AF2-406 BAT	7.7588	Merchant Transmission	7.7588

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961212	AF2-412 BAT	10.1075	Merchant Transmission	10.1075
961451	AF2-436	-0.1534	Adder	-0.18
962411	AG1-090 C O1	3.6026	Adder	8.0
962412	AG1-090 E O1	2.4017	Adder	5.33
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.7205	Adder	1.6
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.4803	Adder	1.07
963571	AG1-206 C	0.9763	50/50	0.9763
963572	AG1-206 E	0.5257	50/50	0.5257
963891	AG1-242 C	0.3416	Adder	0.76
963892	AG1-242 E	0.1839	Adder	0.41
964031	AG1-257 C	1.9495	50/50	1.9495
964032	AG1-257 E	2.7246	50/50	2.7246
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.9495	50/50	1.9495
964042	AG1-258 E (Withdrawn : 02/25/2021)	2.7246	50/50	2.7246
964341	AG1-296 C	0.2934	Adder	0.65
964342	AG1-296 E	0.1580	Adder	0.35
964451	AG1-308 C O1	1.2023	50/50	1.2023
964452	AG1-308 E O1	1.6803	50/50	1.6803
964703	AG1-333 BAT	0.2077	Merchant Transmission	0.2077
965121	AG1-377 C O1	0.7205	Adder	1.6
965122	AG1-377 E O1	0.4803	Adder	1.07
965131	AG1-378 C O1	0.7205	Adder	1.6
965132	AG1-378 E O1	0.4803	Adder	1.07
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.4984	50/50	2.4984
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.7400	50/50	0.7400
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.9259	Adder	2.06
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.2750	Adder	0.61
966041	AG1-473 C	7.5595	50/50	7.5595
966042	AG1-473 E	5.0396	50/50	5.0396
WEC	WEC	0.1899	Confirmed LTF	0.1899
LGEE	LGEE	0.3669	Confirmed LTF	0.3669
CPL	CPL	0.2471	Confirmed LTF	0.2471
CBM-W2	CBM-W2	4.9459	Confirmed LTF	4.9459
NY	NY	1.7646	Confirmed LTF	1.7646
TVA	TVA	0.7308	Confirmed LTF	0.7308
O-066	O-066	10.4382	Confirmed LTF	10.4382
SIGE	SIGE	0.2241	Confirmed LTF	0.2241
CBM-S2	CBM-S2	4.2804	Confirmed LTF	4.2804
CBM-S1	CBM-S1	0.2025	Confirmed LTF	0.2025
G-007	G-007	1.5257	Confirmed LTF	1.5257
MEC	MEC	0.9296	Confirmed LTF	0.9296
LAGN	LAGN	0.9240	Confirmed LTF	0.9240
CBM-W1	CBM-W1	8.7905	Confirmed LTF	8.7905

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
166281945	200904	26EAGL VAL	PENELEC	200527	26TYRONE N	PENELEC	1	AP-P1-3-WP-230-326T-B	single	242.0	107.7	109.08	DC	3.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200649	26PENNTech	0.5640	80/20	0.5640
200665	26SHAWVL 3	3.0674	80/20	3.0674
200666	26SHAWVL 4	3.0119	80/20	3.0119
200715	26SHAWVL 1	2.7191	80/20	2.7191
200722	26SHAWVL 2	2.7882	80/20	2.7882
200905	26Q36	0.7214	80/20	0.7214
200913	26SHAW-D	0.1644	80/20	0.1644
921642	AA2-000	34.1046	80/20	34.1046
930511	AB2-092	1.2522	80/20	1.2522
936421	AD2-055	2.5781	80/20	2.5781
936991	AD2-133 C	9.9157	80/20	9.9157
939171	AE1-147 C	1.2317	80/20	1.2317
940201	AE2-001 C	1.2323	80/20	1.2323
940681	AE2-055 C (Suspended)	1.2416	80/20	1.2416
941191	AE2-113 C	3.7022	80/20	3.7022
941261	AE2-120 C	1.2326	80/20	1.2326
941271	AE2-121 C	0.6543	80/20	0.6543
941321	AE2-126 C (Suspended)	1.5319	80/20	1.5319
941331	AE2-129 C	4.5835	80/20	4.5835
941351	AE2-131 C (Suspended)	4.5835	80/20	4.5835
942351	AE2-248 C	0.9901	80/20	0.9901
942491	AE2-262 C	5.0015	80/20	5.0015
942501	AE2-263 C	4.7014	80/20	4.7014
942961	AE2-316 C	2.1550	80/20	2.1550
943751	AF1-043	7.7343	80/20	7.7343
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.3215	80/20	1.3215
944181	AF1-086 C O1	1.0311	80/20	1.0311
944311	AF1-099 C	7.5923	80/20	7.5923
944321	AF1-100 C	16.2330	80/20	16.2330
944471	AF1-112 C	1.2367	80/20	1.2367
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.2396	80/20	1.2396
944691	AF1-134 C	1.2384	80/20	1.2384
944751	AF1-140 C	-0.5995	Adder	-0.71
944771	AF1-142 C	12.1476	80/20	12.1476
944881	AF1-153 C O1	0.9079	80/20	0.9079
944901	AF1-155 C (Suspended)	0.9008	80/20	0.9008
945161	AF1-181	0.0141	80/20	0.0141

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945171	AF1-182	0.0705	80/20	0.0705
945181	AF1-183	0.0223	80/20	0.0223
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2325	80/20	1.2325
946381	AF1-302 C	0.9410	80/20	0.9410
946421	AF1-306 C	4.0628	80/20	4.0628
957451	AF2-039 C	1.4093	80/20	1.4093
957931	AF2-087 C (Suspended)	-0.2797	Adder	-0.33
957941	AF2-088 C	0.6786	80/20	0.6786
958271	AF2-121 C	4.5835	80/20	4.5835
960041	AF2-295 C	0.9008	80/20	0.9008
960051	AF2-296 C	1.2384	80/20	1.2384
962411	AG1-090 C O1	22.9176	80/20	22.9176
962951	AG1-144 C (Withdrawn : 03/02/2021)	4.5835	80/20	4.5835
963571	AG1-206 C	0.7543	80/20	0.7543
963891	AG1-242 C	0.6708	80/20	0.6708
964031	AG1-257 C	0.8548	80/20	0.8548
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.8548	80/20	0.8548
964451	AG1-308 C O1	2.6470	80/20	2.6470
965121	AG1-377 C O1	4.5835	80/20	4.5835
965131	AG1-378 C O1	4.5835	80/20	4.5835
965201	AG1-385 C (Withdrawn : 03/24/2021)	1.1674	80/20	1.1674
965301	AG1-395 C (Withdrawn : 02/26/2021)	5.8898	80/20	5.8898
966041	AG1-473 C	3.3430	80/20	3.3430
WEC	WEC	0.0025	Confirmed LTF	0.0025
CALDERWOOD	CALDERWOOD	0.0144	Confirmed LTF	0.0144
PRAIRIE	PRAIRIE	0.0103	Confirmed LTF	0.0103
SIGE	SIGE	0.0118	Confirmed LTF	0.0118
CHEOAH	CHEOAH	0.0150	Confirmed LTF	0.0150
COTTONWOOD	COTTONWOOD	0.0378	Confirmed LTF	0.0378
HAMLET	HAMLET	0.0358	Confirmed LTF	0.0358
MEC	MEC	0.0032	Confirmed LTF	0.0032
CATAWBA	CATAWBA	0.0182	Confirmed LTF	0.0182
CBM-W1	CBM-W1	0.2944	Confirmed LTF	0.2944

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
181387328	200940	26SCOTCHHLLW	PENELEC	200675	26E.TWANDA	PENELEC	1	AP-P1-3-WP-230-326T-B	single	570.0	111.51	112.78	DC	7.23

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200642	26SENECA#1	2.7925	80/20	2.7925
200643	26SENECA#2	2.6373	80/20	2.6373
200644	26SENECA#3	0.2882	80/20	0.2882
200649	26PENNTech	0.8908	80/20	0.8908
200665	26SHAWVL 3	5.7171	80/20	5.7171
200666	26SHAWVL 4	5.5846	80/20	5.5846
200715	26SHAWVL 1	3.5901	80/20	3.5901
200722	26SHAWVL 2	3.6564	80/20	3.6564
200905	26Q36	0.1232	80/20	0.1232
200913	26SHAW-D	0.1543	80/20	0.1543
201201	26WRREN CT	0.5661	80/20	0.5661
203261	26BLOSSBCT	0.5136	80/20	0.5136
203351	26GROZ1-110	1.5929	80/20	1.5929
203352	26CANZ2-011	1.5631	80/20	1.5631
919201	AA1-144 OP	134.8841	80/20	134.8841
921642	AA2-000	198.6779	80/20	198.6779
930511	AB2-092	7.2949	80/20	7.2949
936421	AD2-055	15.0188	80/20	15.0188
936991	AD2-133 C	1.6933	80/20	1.6933
939171	AE1-147 C	2.7059	80/20	2.7059
940201	AE2-001 C	2.7046	80/20	2.7046
940681	AE2-055 C (Suspended)	2.6842	80/20	2.6842
941191	AE2-113 C	5.3373	80/20	5.3373
941261	AE2-120 C	2.7038	80/20	2.7038
941271	AE2-121 C	1.4399	80/20	1.4399
941321	AE2-126 C (Suspended)	1.7734	80/20	1.7734
941331	AE2-129 C	1.5010	80/20	1.5010
941351	AE2-131 C (Suspended)	1.5010	80/20	1.5010
941421	AE2-139 C	48.3407	80/20	48.3407
942351	AE2-248 C	2.1541	80/20	2.1541
942491	AE2-262 C	11.5570	80/20	11.5570
942501	AE2-263 C	10.8636	80/20	10.8636
942961	AE2-316 C	4.5045	80/20	4.5045
943751	AF1-043	45.0565	80/20	45.0565
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	2.8695	80/20	2.8695
944181	AF1-086 C O1	1.4551	80/20	1.4551
944311	AF1-099 C	17.5435	80/20	17.5435

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944321	AF1-100 C	32.2335	80/20	32.2335
944381	AF1-103 O1	1.2590	80/20	1.2590
944471	AF1-112 C	2.6950	80/20	2.6950
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	2.6887	80/20	2.6887
944691	AF1-134 C	1.3250	80/20	1.3250
944771	AF1-142 C	28.0696	80/20	28.0696
944881	AF1-153 C O1	1.8607	80/20	1.8607
944901	AF1-155 C (Suspended)	1.8466	80/20	1.8466
945121	AF1-177	0.0497	80/20	0.0497
945161	AF1-181	0.0263	80/20	0.0263
945171	AF1-182	0.1306	80/20	0.1306
945181	AF1-183	0.0294	80/20	0.0294
945331	AF1-198	0.0676	80/20	0.0676
945491	AF1-214 C (Withdrawn : 12/03/2020)	2.7038	80/20	2.7038
946381	AF1-302 C	1.9670	80/20	1.9670
946421	AF1-306 C	8.1256	80/20	8.1256
957451	AF2-039 C	1.3205	80/20	1.3205
957941	AF2-088 C	0.6358	80/20	0.6358
958271	AF2-121 C	1.5010	80/20	1.5010
960041	AF2-295 C	1.8466	80/20	1.8466
960051	AF2-296 C	1.3250	80/20	1.3250
961451	AF2-436	-0.1539	Adder	-0.18
962411	AG1-090 C O1	7.5048	80/20	7.5048
962951	AG1-144 C (Withdrawn : 03/02/2021)	1.5010	80/20	1.5010
963571	AG1-206 C	0.9355	80/20	0.9355
963891	AG1-242 C	0.7177	80/20	0.7177
964031	AG1-257 C	1.8653	80/20	1.8653
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.8653	80/20	1.8653
964341	AG1-296 C	0.6227	80/20	0.6227
964451	AG1-308 C O1	1.1343	80/20	1.1343
965121	AG1-377 C O1	1.5010	80/20	1.5010
965131	AG1-378 C O1	1.5010	80/20	1.5010
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.3926	80/20	2.3926
965301	AG1-395 C (Withdrawn : 02/26/2021)	1.9287	80/20	1.9287
966041	AG1-473 C	7.2312	80/20	7.2312
966121	AG1-481	0.9776	80/20	0.9776
WEC	WEC	0.1773	Confirmed LTF	0.1773
LGEE	LGEE	0.3424	Confirmed LTF	0.3424
CPLE	CPLE	0.2300	Confirmed LTF	0.2300
CBM-W2	CBM-W2	4.6144	Confirmed LTF	4.6144
NY	NY	1.6905	Confirmed LTF	1.6905
TVA	TVA	0.6804	Confirmed LTF	0.6804
SIGE	SIGE	0.2154	Confirmed LTF	0.2154
CBM-S2	CBM-S2	3.9881	Confirmed LTF	3.9881
CBM-S1	CBM-S1	0.1889	Confirmed LTF	0.1889
MEC	MEC	0.8676	Confirmed LTF	0.8676

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
LAGN	LAGN	0.8610	Confirmed LTF	0.8610
CBM-W1	CBM-W1	8.2017	Confirmed LTF	8.2017

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
179951341	208005	JUNI BU2	PPL	207955	DAUP TR2	PPL	1	PL:10:P42:100577	breaker	531.0	119.09	120.28	DC	6.33

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200852	26WARR RDG	0.1786	Adder	0.21
204784	27LMR_E02	-0.1188	Adder	-0.14
208769	SISO	-0.1149	Adder	-0.14
235003	AC1-025 E	0.1227	Adder	0.14
236828	01GRAYMONT	0.3170	Adder	0.37
290086	Q-036 E	1.9853	Adder	2.34
293301	N-039 E	3.1552	Adder	3.71
294515	O38_P22	2.7608	Adder	3.25
921642	AA2-000	21.4091	Adder	25.19
930511	AB2-092	0.7861	Adder	0.92
933977	AD1-020 EBAT (Suspended)	1.1830	Merchant Transmission	1.1830
936421	AD2-055	1.6184	Adder	1.9
936991	AD2-133 C	0.8934	Adder	1.05
936992	AD2-133 E	4.0862	Adder	4.81
939171	AE1-147 C	0.9460	Adder	1.11
939172	AE1-147 E	0.6307	Adder	0.74
940201	AE2-001 C	0.9488	Adder	1.12
940202	AE2-001 E	0.6325	Adder	0.74
940681	AE2-055 C (Suspended)	0.9910	Adder	1.17
940682	AE2-055 E (Suspended)	0.6607	Adder	0.78
940731	AE2-060 C	1.9867	50/50	1.9867
940732	AE2-060 E	2.7435	50/50	2.7435
941231	AE2-117 C	0.8353	Adder	0.98
941232	AE2-117 E	0.5569	Adder	0.66
941241	AE2-118 C	0.8007	Adder	0.94
941242	AE2-118 E	0.5338	Adder	0.63
941261	AE2-120 C	0.9503	Adder	1.12
941262	AE2-120 E	0.6336	Adder	0.75
941271	AE2-121 C	0.5004	Adder	0.59
941272	AE2-121 E	0.3341	Adder	0.39
941321	AE2-126 C (Suspended)	0.5864	Adder	0.69
941322	AE2-126 E (Suspended)	0.3909	Adder	0.46
941331	AE2-129 C	0.6145	Adder	0.72
941332	AE2-129 E	0.4097	Adder	0.48
941351	AE2-131 C (Suspended)	0.6145	Adder	0.72
941352	AE2-131 E (Suspended)	0.4097	Adder	0.48
942121	AE2-224 C	2.6556	Adder	3.12
942122	AE2-224 E	1.7704	Adder	2.08
942351	AE2-248 C	0.7787	Adder	0.92
942352	AE2-248 E	0.5191	Adder	0.61
942491	AE2-262 C	3.3592	Adder	3.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942492	AE2-262 E	2.2574	Adder	2.66
942501	AE2-263 C	3.1576	Adder	3.71
942502	AE2-263 E	2.1082	Adder	2.48
942511	AE2-264 C	3.4696	Adder	4.08
942512	AE2-264 E	2.3131	Adder	2.72
943751	AF1-043	4.8552	Adder	5.71
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.0439	Adder	1.23
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.5872	Adder	0.69
944311	AF1-099 C	5.0993	Adder	6.0
944312	AF1-099 E	3.3995	Adder	4.0
944321	AF1-100 C	8.8345	Adder	10.39
944322	AF1-100 E	5.8896	Adder	6.93
944471	AF1-112 C	0.9688	Adder	1.14
944472	AF1-112 E	0.6459	Adder	0.76
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.9816	Adder	1.15
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.6544	Adder	0.77
944691	AF1-134 C	0.5224	Adder	0.61
944692	AF1-134 E	0.3483	Adder	0.41
944771	AF1-142 C	8.1588	Adder	9.6
944772	AF1-142 E	5.4392	Adder	6.4
944881	AF1-153 C O1	0.5619	Adder	0.66
944882	AF1-153 E O1	0.3746	Adder	0.44
944901	AF1-155 C (Suspended)	0.5593	Adder	0.66
944902	AF1-155 E (Suspended)	0.3728	Adder	0.44
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.9502	Adder	1.12
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.6335	Adder	0.75
946421	AF1-306 C	2.4095	Adder	2.83
946422	AF1-306 E	9.6382	Adder	11.34
957363	AF2-030 BAT	1.4224	Merchant Transmission	1.4224
957451	AF2-039 C	0.4302	Adder	0.51
957452	AF2-039 E	0.2868	Adder	0.34
957561	AF2-050 C	1.3278	Adder	1.56
957562	AF2-050 E	0.8852	Adder	1.04
957931	AF2-087 C (Suspended)	0.1619	Adder	0.19
957932	AF2-087 E (Suspended)	0.2230	Adder	0.26
957941	AF2-088 C	0.2071	Adder	0.24
957942	AF2-088 E	0.1381	Adder	0.16
958071	AF2-101 C (Suspended)	-0.0928	Adder	-0.11
958271	AF2-121 C	0.6145	Adder	0.72
958272	AF2-121 E	0.4097	Adder	0.48
958551	AF2-146 C (Withdrawn : 04/16/2021)	0.8588	Adder	1.01
958552	AF2-146 E (Withdrawn : 04/16/2021)	0.5726	Adder	0.67

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958571	AF2-148 C (Withdrawn : 04/16/2021)	0.4506	Adder	0.53
958572	AF2-148 E (Withdrawn : 04/16/2021)	0.3004	Adder	0.35
958601	AF2-151 C	-0.0938	Adder	-0.11
959223	AF2-213 BAT	7.1302	Merchant Transmission	7.1302
959773	AF2-268 BAT	0.0881	Merchant Transmission	0.0881
959802	AF2-271 E	0.1921	Adder	0.23
959813	AF2-272 BAT	0.1134	Merchant Transmission	0.1134
959873	AF2-278 BAT	0.5579	50/50	0.5579
959883	AF2-279 BAT	0.0915	Merchant Transmission	0.0915
959903	AF2-281 BAT	0.0928	Merchant Transmission	0.0928
959953	AF2-286 BAT	0.2415	50/50	0.2415
959962	AF2-287 E	0.7095	50/50	0.7095
959972	AF2-288 E	0.7095	50/50	0.7095
960022	AF2-293 E	0.0918	Adder	0.11
960041	AF2-295 C	0.5593	Adder	0.66
960042	AF2-295 E	0.3728	Adder	0.44
960051	AF2-296 C	0.5224	Adder	0.61
960052	AF2-296 E	0.3483	Adder	0.41
960701	AF2-361 C	8.2778	50/50	8.2778
960702	AF2-361 E	11.8255	50/50	11.8255
960922	AF2-383 BAT	1.6132	Merchant Transmission	1.6132
961373	AF2-428 BAT	0.0808	Merchant Transmission	0.0808
961383	AF2-429 BAT	0.0998	Merchant Transmission	0.0998
961393	AF2-430 BAT	0.0922	Merchant Transmission	0.0922
961403	AF2-431 BAT	0.0674	Merchant Transmission	0.0674
962082	AG1-052 BAT	0.9458	Merchant Transmission	0.9458
962092	AG1-053 BAT	0.9904	Merchant Transmission	0.9904
962411	AG1-090 C O1	1.6286	Adder	3.62
962412	AG1-090 E O1	1.0857	Adder	2.41
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.3257	Adder	0.72
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.2171	Adder	0.48
963571	AG1-206 C	0.1647	Adder	0.37
963572	AG1-206 E	0.0887	Adder	0.2
963891	AG1-242 C	0.1500	Adder	0.33
963892	AG1-242 E	0.0808	Adder	0.18
963953	AG1-248 BAT	8.7397	Merchant Transmission	8.7397
964031	AG1-257 C	0.3538	Adder	0.79
964032	AG1-257 E	0.4944	Adder	1.1
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.3538	Adder	0.79
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4944	Adder	1.1
964191	AG1-280 C	0.2734	Adder	0.61
964192	AG1-280 E	0.1823	Adder	0.4
964201	AG1-281 C	0.2746	Adder	0.61
964202	AG1-281 E	0.1831	Adder	0.41
964391	AG1-301 C	0.4545	Adder	1.01
964392	AG1-301 E	0.3030	Adder	0.67
964451	AG1-308 C O1	0.2279	Adder	0.51

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964452	AG1-308 E O1	0.3185	Adder	0.71
964693	AG1-332 BAT	0.1118	Merchant Transmission	0.1118
965121	AG1-377 C O1	0.3257	Adder	0.72
965122	AG1-377 E O1	0.2171	Adder	0.48
965131	AG1-378 C O1	0.3257	Adder	0.72
965132	AG1-378 E O1	0.2171	Adder	0.48
965201	AG1-385 C (Withdrawn : 03/24/2021)	0.3829	Adder	0.85
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.1134	Adder	0.25
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.4185	Adder	0.93
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.1243	Adder	0.28
965963	AG1-465 BAT	3.8542	Merchant Transmission	3.8542
966041	AG1-473 C	3.8006	50/50	3.8006
966042	AG1-473 E	2.5337	50/50	2.5337
966152	AG1-484 BAT	0.5931	Merchant Transmission	0.5931
966172	AG1-486 BAT	0.4670	Merchant Transmission	0.4670
WEC	WEC	0.2334	Confirmed LTF	0.2334
LGEE	LGEE	0.4473	Confirmed LTF	0.4473
CPLE	CPLE	0.1618	Confirmed LTF	0.1618
CBM-W2	CBM-W2	5.7434	Confirmed LTF	5.7434
TVA	TVA	0.8120	Confirmed LTF	0.8120
O-066	O-066	7.6789	Confirmed LTF	7.6789
SIGE	SIGE	0.1940	Confirmed LTF	0.1940
CBM-S2	CBM-S2	3.5809	Confirmed LTF	3.5809
CBM-S1	CBM-S1	0.2295	Confirmed LTF	0.2295
G-007	G-007	1.2705	Confirmed LTF	1.2705
MEC	MEC	1.1202	Confirmed LTF	1.1202
LAGN	LAGN	1.0342	Confirmed LTF	1.0342
CBM-W1	CBM-W1	10.8515	Confirmed LTF	10.8515

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
164706391	235175	01ELKO	AP	235971	01SQUABHLLW	AP	1	PN-P2-3-PN-230-14BT	breaker	621.0	114.12	117.24	DC	19.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	9.6307	50/50	9.6307
200666	26SHAWVL 4	9.4768	50/50	9.4768
200715	26SHAWVL 1	5.4583	50/50	5.4583
200722	26SHAWVL 2	5.5813	50/50	5.5813
200894	26K02	9.2098	50/50	9.2098
200905	26Q36	0.1562	50/50	0.1562
200913	26SHAW-D	0.1993	50/50	0.1993
235003	AC1-025 E	0.5392	50/50	0.5392
236828	01GRAYMONT	1.4401	50/50	1.4401
290086	Q-036 E	4.7704	50/50	4.7704
921642	AA2-000	121.0699	50/50	121.0699
930511	AB2-092	4.4453	50/50	4.4453
936421	AD2-055	9.1521	50/50	9.1521
936991	AD2-133 C	2.1467	50/50	2.1467
936992	AD2-133 E	9.8187	50/50	9.8187
939171	AE1-147 C	4.3214	50/50	4.3214
939172	AE1-147 E	2.8810	50/50	2.8810
940201	AE2-001 C	4.3208	50/50	4.3208
940202	AE2-001 E	2.8806	50/50	2.8806
940681	AE2-055 C (Suspended)	4.3114	50/50	4.3114
940682	AE2-055 E (Suspended)	2.8742	50/50	2.8742
941261	AE2-120 C	4.3205	50/50	4.3205
941262	AE2-120 E	2.8803	50/50	2.8803
941271	AE2-121 C	2.2981	50/50	2.2981
941272	AE2-121 E	1.5345	50/50	1.5345
941331	AE2-129 C	1.9278	50/50	1.9278
941332	AE2-129 E	1.2852	50/50	1.2852
941351	AE2-131 C (Suspended)	1.9278	50/50	1.9278
941352	AE2-131 E (Suspended)	1.2852	50/50	1.2852
942351	AE2-248 C	3.4523	50/50	3.4523
942352	AE2-248 E	2.3015	50/50	2.3015
942491	AE2-262 C	18.1380	50/50	18.1380
942492	AE2-262 E	12.1887	50/50	12.1887
942501	AE2-263 C	17.0497	50/50	17.0497
942502	AE2-263 E	11.3834	50/50	11.3834
943751	AF1-043	27.4564	50/50	27.4564
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	4.6017	50/50	4.6017
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	2.5885	50/50	2.5885

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944311	AF1-099 C	27.5335	50/50	27.5335
944312	AF1-099 E	18.3557	50/50	18.3557
944321	AF1-100 C	53.1015	50/50	53.1015
944322	AF1-100 E	35.4010	50/50	35.4010
944382	AF1-103 BAT	3.1934	50/50	3.1934
944471	AF1-112 C	4.3163	50/50	4.3163
944472	AF1-112 E	2.8775	50/50	2.8775
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	4.3134	50/50	4.3134
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	2.8756	50/50	2.8756
944691	AF1-134 C	1.6358	50/50	1.6358
944692	AF1-134 E	1.0906	50/50	1.0906
944771	AF1-142 C	44.0536	50/50	44.0536
944772	AF1-142 E	29.3690	50/50	29.3690
944881	AF1-153 C O1	2.8615	50/50	2.8615
944882	AF1-153 E O1	1.9077	50/50	1.9077
944901	AF1-155 C (Suspended)	2.7005	50/50	2.7005
944902	AF1-155 E (Suspended)	1.8003	50/50	1.8003
945161	AF1-181	0.0442	50/50	0.0442
945171	AF1-182	0.2217	50/50	0.2217
945181	AF1-183	0.0447	50/50	0.0447
945491	AF1-214 C (Withdrawn : 12/03/2020)	4.3205	50/50	4.3205
945492	AF1-214 E (Withdrawn : 12/03/2020)	2.8803	50/50	2.8803
946423	AF1-306 BAT	109.4041	50/50	109.4041
957451	AF2-039 C	1.7066	50/50	1.7066
957452	AF2-039 E	1.1377	50/50	1.1377
957941	AF2-088 C	0.8217	50/50	0.8217
957942	AF2-088 E	0.5478	50/50	0.5478
958271	AF2-121 C	1.9278	50/50	1.9278
958272	AF2-121 E	1.2852	50/50	1.2852
960022	AF2-293 E	0.4199	50/50	0.4199
960041	AF2-295 C	2.7005	50/50	2.7005
960042	AF2-295 E	1.8003	50/50	1.8003
960051	AF2-296 C	1.6358	50/50	1.6358
960052	AF2-296 E	1.0906	50/50	1.0906
962411	AG1-090 C O1	9.6390	50/50	9.6390
962412	AG1-090 E O1	6.4260	50/50	6.4260
962951	AG1-144 C (Withdrawn : 03/02/2021)	1.9278	50/50	1.9278
962952	AG1-144 E (Withdrawn : 03/02/2021)	1.2852	50/50	1.2852
963891	AG1-242 C	0.8861	50/50	0.8861
963892	AG1-242 E	0.4771	50/50	0.4771
964031	AG1-257 C	2.9860	50/50	2.9860
964032	AG1-257 E	4.1732	50/50	4.1732
964041	AG1-258 C (Withdrawn : 02/25/2021)	2.9860	50/50	2.9860
964042	AG1-258 E (Withdrawn : 02/25/2021)	4.1732	50/50	4.1732

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964451	AG1-308 C O1	1.4617	50/50	1.4617
964452	AG1-308 E O1	2.0429	50/50	2.0429
965121	AG1-377 C O1	1.9278	50/50	1.9278
965122	AG1-377 E O1	1.2852	50/50	1.2852
965131	AG1-378 C O1	1.9278	50/50	1.9278
965132	AG1-378 E O1	1.2852	50/50	1.2852
965201	AG1-385 C (Withdrawn : 03/24/2021)	3.6794	50/50	3.6794
965202	AG1-385 E (Withdrawn : 03/24/2021)	1.0898	50/50	1.0898
965301	AG1-395 C (Withdrawn : 02/26/2021)	2.4772	50/50	2.4772
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.7358	50/50	0.7358
966041	AG1-473 C	11.6198	50/50	11.6198
966042	AG1-473 E	7.7465	50/50	7.7465
966122	AG1-481 BAT	2.4430	50/50	2.4430
G-007A	G-007A	1.4984	Confirmed LTF	1.4984
VFT	VFT	4.1925	Confirmed LTF	4.1925
CALDERWOOD	CALDERWOOD	0.1730	Confirmed LTF	0.1730
PRAIRIE	PRAIRIE	1.0771	Confirmed LTF	1.0771
CHEOAH	CHEOAH	0.1732	Confirmed LTF	0.1732
CBM-N	CBM-N	0.8616	Confirmed LTF	0.8616
COTTONWOOD	COTTONWOOD	0.7959	Confirmed LTF	0.7959
HAMLET	HAMLET	0.1502	Confirmed LTF	0.1502
GIBSON	GIBSON	0.2359	Confirmed LTF	0.2359
BLUEG	BLUEG	0.7413	Confirmed LTF	0.7413
TRIMBLE	TRIMBLE	0.2376	Confirmed LTF	0.2376
CATAWBA	CATAWBA	0.1004	Confirmed LTF	0.1004

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
181387393	919200	AA1-144 TAP	PENELEC	200940	26SCOTCHHLLW	PENELEC	1	AP-P1-3-WP-230-326T-B	single	621.0	104.59	105.76	DC	7.23

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200642	26SENECA#1	2.7925	80/20	2.7925
200643	26SENECA#2	2.6373	80/20	2.6373
200644	26SENECA#3	0.2882	80/20	0.2882
200649	26PENNTech	0.8908	80/20	0.8908
200665	26SHAWVL 3	5.7171	80/20	5.7171
200666	26SHAWVL 4	5.5846	80/20	5.5846
200715	26SHAWVL 1	3.5901	80/20	3.5901
200722	26SHAWVL 2	3.6564	80/20	3.6564
200905	26Q36	0.1232	80/20	0.1232
200913	26SHAW-D	0.1543	80/20	0.1543
201201	26WRREN CT	0.5661	80/20	0.5661
203261	26BLOSSBCT	0.5136	80/20	0.5136
203351	26GROZ1-110	1.5929	80/20	1.5929
203352	26CANZ2-011	1.5631	80/20	1.5631
919201	AA1-144 OP	134.8841	80/20	134.8841
921642	AA2-000	198.6779	80/20	198.6779
930511	AB2-092	7.2949	80/20	7.2949
936421	AD2-055	15.0188	80/20	15.0188
936991	AD2-133 C	1.6933	80/20	1.6933
939171	AE1-147 C	2.7059	80/20	2.7059
940201	AE2-001 C	2.7046	80/20	2.7046
940681	AE2-055 C (Suspended)	2.6842	80/20	2.6842
941191	AE2-113 C	5.3373	80/20	5.3373
941261	AE2-120 C	2.7038	80/20	2.7038
941271	AE2-121 C	1.4399	80/20	1.4399
941321	AE2-126 C (Suspended)	1.7734	80/20	1.7734
941331	AE2-129 C	1.5010	80/20	1.5010
941351	AE2-131 C (Suspended)	1.5010	80/20	1.5010
941421	AE2-139 C	48.3407	80/20	48.3407
942351	AE2-248 C	2.1541	80/20	2.1541
942491	AE2-262 C	11.5570	80/20	11.5570
942501	AE2-263 C	10.8636	80/20	10.8636
942961	AE2-316 C	4.5045	80/20	4.5045
943751	AF1-043	45.0565	80/20	45.0565
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	2.8695	80/20	2.8695
944181	AF1-086 C O1	1.4551	80/20	1.4551
944311	AF1-099 C	17.5435	80/20	17.5435
944321	AF1-100 C	32.2335	80/20	32.2335
944381	AF1-103 O1	1.2590	80/20	1.2590

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944471	AF1-112 C	2.6950	80/20	2.6950
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	2.6887	80/20	2.6887
944691	AF1-134 C	1.3250	80/20	1.3250
944771	AF1-142 C	28.0696	80/20	28.0696
944881	AF1-153 C O1	1.8607	80/20	1.8607
944901	AF1-155 C (Suspended)	1.8466	80/20	1.8466
945121	AF1-177	0.0497	80/20	0.0497
945161	AF1-181	0.0263	80/20	0.0263
945171	AF1-182	0.1306	80/20	0.1306
945181	AF1-183	0.0294	80/20	0.0294
945331	AF1-198	0.0676	80/20	0.0676
945491	AF1-214 C (Withdrawn : 12/03/2020)	2.7038	80/20	2.7038
946381	AF1-302 C	1.9670	80/20	1.9670
946421	AF1-306 C	8.1256	80/20	8.1256
957451	AF2-039 C	1.3205	80/20	1.3205
957941	AF2-088 C	0.6358	80/20	0.6358
958271	AF2-121 C	1.5010	80/20	1.5010
960041	AF2-295 C	1.8466	80/20	1.8466
960051	AF2-296 C	1.3250	80/20	1.3250
961451	AF2-436	-0.1539	Adder	-0.18
962411	AG1-090 C O1	7.5048	80/20	7.5048
962951	AG1-144 C (Withdrawn : 03/02/2021)	1.5010	80/20	1.5010
963571	AG1-206 C	0.9355	80/20	0.9355
963891	AG1-242 C	0.7177	80/20	0.7177
964031	AG1-257 C	1.8653	80/20	1.8653
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.8653	80/20	1.8653
964341	AG1-296 C	0.6227	80/20	0.6227
964451	AG1-308 C O1	1.1343	80/20	1.1343
965121	AG1-377 C O1	1.5010	80/20	1.5010
965131	AG1-378 C O1	1.5010	80/20	1.5010
965201	AG1-385 C (Withdrawn : 03/24/2021)	2.3926	80/20	2.3926
965301	AG1-395 C (Withdrawn : 02/26/2021)	1.9287	80/20	1.9287
966041	AG1-473 C	7.2312	80/20	7.2312
966121	AG1-481	0.9776	80/20	0.9776
WEC	WEC	0.1773	Confirmed LTF	0.1773
LGEE	LGEE	0.3424	Confirmed LTF	0.3424
CPLE	CPLE	0.2300	Confirmed LTF	0.2300
CBM-W2	CBM-W2	4.6144	Confirmed LTF	4.6144
NY	NY	1.6905	Confirmed LTF	1.6905
TVA	TVA	0.6804	Confirmed LTF	0.6804
SIGE	SIGE	0.2154	Confirmed LTF	0.2154
CBM-S2	CBM-S2	3.9881	Confirmed LTF	3.9881
CBM-S1	CBM-S1	0.1889	Confirmed LTF	0.1889
MEC	MEC	0.8676	Confirmed LTF	0.8676
LAGN	LAGN	0.8610	Confirmed LTF	0.8610
CBM-W1	CBM-W1	8.2017	Confirmed LTF	8.2017

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
165670435	936470	AD2-062 TAP	AP	235188	01GREENE	AP	1	PL:10:P22:100582	bus	206.0	102.87	105.51	DC	5.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200852	26WARR RDG	0.1456	Adder	0.17
200870	26C_T85_W218	0.3374	50/50	0.3374
203905	26W1-045 C	0.3793	50/50	0.3793
204648	27MOUNT CT	0.7776	50/50	0.7776
235003	AC1-025 E	0.1035	Adder	0.12
236828	01GRAYMONT	0.2665	Adder	0.31
901242	W1-045 E OP1	2.0947	50/50	2.0947
936471	AD2-062 C O1	32.3290	50/50	32.3290
936472	AD2-062 E O1	16.1947	50/50	16.1947
938384	AE1-071-C	26.1689	50/50	26.1689
938385	AE1-071-E	16.0132	50/50	16.0132
939021	AE1-131 C O1	2.9185	Adder	3.43
939022	AE1-131 E O1	1.9457	Adder	2.29
939171	AE1-147 C	0.7951	Adder	0.94
939172	AE1-147 E	0.5301	Adder	0.62
939591	AE1-188 C	-1.3703	Adder	-1.61
940201	AE2-001 C	0.7976	Adder	0.94
940202	AE2-001 E	0.5318	Adder	0.63
940681	AE2-055 C (Suspended)	0.8365	Adder	0.98
940682	AE2-055 E (Suspended)	0.5577	Adder	0.66
941231	AE2-117 C	0.6782	Adder	0.8
941232	AE2-117 E	0.4521	Adder	0.53
941241	AE2-118 C	0.6445	Adder	0.76
941242	AE2-118 E	0.4297	Adder	0.51
941261	AE2-120 C	0.7990	Adder	0.94
941262	AE2-120 E	0.5326	Adder	0.63
941271	AE2-121 C	0.4203	Adder	0.49
941272	AE2-121 E	0.2807	Adder	0.33
942351	AE2-248 C	0.6562	Adder	0.77
942352	AE2-248 E	0.4375	Adder	0.51
942491	AE2-262 C	2.7744	Adder	3.26
942492	AE2-262 E	1.8644	Adder	2.19
942501	AE2-263 C	2.6079	Adder	3.07
942502	AE2-263 E	1.7412	Adder	2.05
942511	AE2-264 C	2.8295	Adder	3.33
942512	AE2-264 E	1.8863	Adder	2.22
943161	AE2-345 C	3.7503	Adder	4.41
943162	AE2-345 E	2.5002	Adder	2.94
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.8802	Adder	1.04

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.4951	Adder	0.58
944311	AF1-099 C	4.2115	Adder	4.95
944312	AF1-099 E	2.8077	Adder	3.3
944471	AF1-112 C	0.8160	Adder	0.96
944472	AF1-112 E	0.5440	Adder	0.64
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.8279	Adder	0.97
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5520	Adder	0.65
944771	AF1-142 C	6.7385	Adder	7.93
944772	AF1-142 E	4.4923	Adder	5.29
945011	AF1-166 C	-1.1277	Adder	-1.33
945271	AF1-192	0.0197	50/50	0.0197
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.7990	Adder	0.94
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5326	Adder	0.63
945591	AF1-224 C	-0.8592	Adder	-1.01
958071	AF2-101 C (Suspended)	0.2033	50/50	0.2033
958072	AF2-101 E (Suspended)	0.1356	50/50	0.1356
958551	AF2-146 C (Withdrawn : 04/16/2021)	3.4391	50/50	3.4391
958552	AF2-146 E (Withdrawn : 04/16/2021)	2.2927	50/50	2.2927
958571	AF2-148 C (Withdrawn : 04/16/2021)	2.7919	50/50	2.7919
958572	AF2-148 E (Withdrawn : 04/16/2021)	1.8613	50/50	1.8613
958601	AF2-151 C	0.2005	50/50	0.2005
958602	AF2-151 E	0.1337	50/50	0.1337
958871	AF2-178	1.8276	50/50	1.8276
959241	AF2-215 C	-0.3157	Adder	-0.37
959381	AF2-229 C (Withdrawn : 04/03/2021)	5.1080	50/50	5.1080
959382	AF2-229 E (Withdrawn : 04/03/2021)	4.2644	50/50	4.2644
959843	AF2-275 BAT	0.2073	50/50	0.2073
959853	AF2-276 BAT	0.2073	50/50	0.2073
960022	AF2-293 E	0.0771	Adder	0.09
961481	AF2-439 C (Withdrawn : 04/23/2021)	11.9561	50/50	11.9561
961482	AF2-439 E (Withdrawn : 04/23/2021)	11.0364	50/50	11.0364
961773	AG1-018 BAT (Withdrawn : 02/26/2021)	0.2560	Merchant Transmission	0.2560
964031	AG1-257 C	0.2979	Adder	0.66
964032	AG1-257 E	0.4163	Adder	0.92
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.2979	Adder	0.66
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4163	Adder	0.92
964391	AG1-301 C	0.3705	Adder	0.82

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964392	AG1-301 E	0.2470	Adder	0.55
966041	AG1-473 C	3.2631	50/50	3.2631
966042	AG1-473 E	2.1754	50/50	2.1754
966151	AG1-484	2.4956	50/50	2.4956
966463	AG1-515 BAT	1.5935	50/50	1.5935
G-007A	G-007A	1.5176	Confirmed LTF	1.5176
VFT	VFT	4.2054	Confirmed LTF	4.2054
CALDERWOOD	CALDERWOOD	0.1973	Confirmed LTF	0.1973
PRAIRIE	PRAIRIE	0.7956	Confirmed LTF	0.7956
CHEOAH	CHEOAH	0.2002	Confirmed LTF	0.2002
CBM-N	CBM-N	0.8208	Confirmed LTF	0.8208
COTTONWOOD	COTTONWOOD	0.7518	Confirmed LTF	0.7518
HAMLET	HAMLET	0.3043	Confirmed LTF	0.3043
GIBSON	GIBSON	0.1562	Confirmed LTF	0.1562
BLUEG	BLUEG	0.5000	Confirmed LTF	0.5000
TRIMBLE	TRIMBLE	0.1597	Confirmed LTF	0.1597
CATAWBA	CATAWBA	0.1698	Confirmed LTF	0.1698

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 LOADIN G %	POST PROJECT LOADIN G %	ACID C	MW IMPACT
166058774	938380	AE1-071-POI	PENELEC	200520	26ROXBURY	PENELEC	1	PL:10:P45:102437	breaker	160.0	237.7	242.92	DC	8.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200812	26ALY HYDR	0.4042	50/50	0.4042
200852	26WARR RDG	0.2636	50/50	0.2636
200883	Q-053 E	2.1510	Adder	2.53
235003	AC1-025 E	0.1866	50/50	0.1866
236828	01GRAYMONT	0.4801	50/50	0.4801
290086	Q-036 E	2.3338	Adder	2.75
293301	N-039 E	3.6448	Adder	4.29
294515	O38_P22	3.1892	Adder	3.75
921642	AA2-000	25.8759	Adder	30.44
930511	AB2-092	0.9501	Adder	1.12
936421	AD2-055	1.9561	Adder	2.3
936991	AD2-133 C	1.0502	Adder	1.24
936992	AD2-133 E	4.8035	Adder	5.65
938384	AE1-071-C	40.3669	50/50	40.3669
938385	AE1-071-E	24.7011	50/50	24.7011
939171	AE1-147 C	1.4321	50/50	1.4321
939172	AE1-147 E	0.9547	50/50	0.9547
939591	AE1-188 C	-0.6881	Adder	-0.81
940201	AE2-001 C	1.4368	50/50	1.4368
940202	AE2-001 E	0.9578	50/50	0.9578
940681	AE2-055 C (Suspended)	1.5077	50/50	1.5077
940682	AE2-055 E (Suspended)	1.0051	50/50	1.0051
941231	AE2-117 C	1.2276	50/50	1.2276
941232	AE2-117 E	0.8184	50/50	0.8184
941241	AE2-118 C	0.9922	Adder	1.17
941242	AE2-118 E	0.6614	Adder	0.78
941261	AE2-120 C	1.4393	50/50	1.4393
941262	AE2-120 E	0.9595	50/50	0.9595
941271	AE2-121 C	0.7571	50/50	0.7571
941272	AE2-121 E	0.5055	50/50	0.5055
941321	AE2-126 C (Suspended)	0.6973	Adder	0.82
941322	AE2-126 E (Suspended)	0.4648	Adder	0.55
941331	AE2-129 C	0.7311	Adder	0.86
941332	AE2-129 E	0.4874	Adder	0.57
941351	AE2-131 C (Suspended)	0.7311	Adder	0.86
941352	AE2-131 E (Suspended)	0.4874	Adder	0.57
942121	AE2-224 C	2.9733	Adder	3.5
942122	AE2-224 E	1.9822	Adder	2.33
942351	AE2-248 C	1.1824	50/50	1.1824
942352	AE2-248 E	0.7883	50/50	0.7883
942491	AE2-262 C	4.2394	Adder	4.99

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942492	AE2-262 E	2.8489	Adder	3.35
942501	AE2-263 C	3.9850	Adder	4.69
942502	AE2-263 E	2.6606	Adder	3.13
942511	AE2-264 C	5.1197	50/50	5.1197
942512	AE2-264 E	3.4131	50/50	3.4131
943751	AF1-043	5.8682	Adder	6.9
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.5860	50/50	1.5860
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.8922	50/50	0.8922
944311	AF1-099 C	6.4354	Adder	7.57
944312	AF1-099 E	4.2902	Adder	5.05
944321	AF1-100 C	10.9204	Adder	12.85
944322	AF1-100 E	7.2802	Adder	8.56
944471	AF1-112 C	1.4704	50/50	1.4704
944472	AF1-112 E	0.9802	50/50	0.9802
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.4920	50/50	1.4920
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.9946	50/50	0.9946
944691	AF1-134 C	0.5955	Adder	0.7
944692	AF1-134 E	0.3970	Adder	0.47
944771	AF1-142 C	10.2966	Adder	12.11
944772	AF1-142 E	6.8644	Adder	8.08
944881	AF1-153 C O1	0.6625	Adder	0.78
944882	AF1-153 E O1	0.4417	Adder	0.52
944901	AF1-155 C (Suspended)	0.6586	Adder	0.77
944902	AF1-155 E (Suspended)	0.4391	Adder	0.52
945011	AF1-166 C	-0.5622	Adder	-0.66
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.4392	50/50	1.4392
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.9594	50/50	0.9594
945591	AF1-224 C	-0.4314	Adder	-0.51
946421	AF1-306 C	2.8738	Adder	3.38
946422	AF1-306 E	11.4954	Adder	13.52
957451	AF2-039 C	0.5188	Adder	0.61
957452	AF2-039 E	0.3459	Adder	0.41
957561	AF2-050 C	1.4867	Adder	1.75
957562	AF2-050 E	0.9911	Adder	1.17
957931	AF2-087 C (Suspended)	0.1915	Adder	0.23
957932	AF2-087 E (Suspended)	0.2638	Adder	0.31
957941	AF2-088 C	0.2498	Adder	0.29
957942	AF2-088 E	0.1665	Adder	0.2
958071	AF2-101 C (Suspended)	-0.0937	Adder	-0.11
958271	AF2-121 C	0.7311	Adder	0.86
958272	AF2-121 E	0.4874	Adder	0.57
958551	AF2-146 C (Withdrawn : 04/16/2021)	5.3006	50/50	5.3006
958552	AF2-146 E (Withdrawn : 04/16/2021)	3.5338	50/50	3.5338

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958571	AF2-148 C (Withdrawn : 04/16/2021)	4.3049	50/50	4.3049
958572	AF2-148 E (Withdrawn : 04/16/2021)	2.8699	50/50	2.8699
958601	AF2-151 C	-0.0925	Adder	-0.11
959241	AF2-215 C	-0.1576	Adder	-0.19
959802	AF2-271 E	0.2368	Adder	0.28
959843	AF2-275 BAT	0.1034	Merchant Transmission	0.1034
959853	AF2-276 BAT	0.1034	Merchant Transmission	0.1034
960022	AF2-293 E	0.1389	50/50	0.1389
960041	AF2-295 C	0.6586	Adder	0.77
960042	AF2-295 E	0.4391	Adder	0.52
960051	AF2-296 C	0.5955	Adder	0.7
960052	AF2-296 E	0.3970	Adder	0.47
962411	AG1-090 C O1	1.9375	Adder	4.3
962412	AG1-090 E O1	1.2917	Adder	2.87
962951	AG1-144 C (Withdrawn : 03/02/2021)	0.3875	Adder	0.86
962952	AG1-144 E (Withdrawn : 03/02/2021)	0.2583	Adder	0.57
963571	AG1-206 C	0.1950	Adder	0.43
963572	AG1-206 E	0.1050	Adder	0.23
963891	AG1-242 C	0.1710	Adder	0.38
963892	AG1-242 E	0.0921	Adder	0.2
964031	AG1-257 C	1.0126	50/50	1.0126
964032	AG1-257 E	1.4152	50/50	1.4152
964041	AG1-258 C (Withdrawn : 02/25/2021)	1.0126	50/50	1.0126
964042	AG1-258 E (Withdrawn : 02/25/2021)	1.4152	50/50	1.4152
964191	AG1-280 C	0.3056	Adder	0.68
964192	AG1-280 E	0.2037	Adder	0.45
964201	AG1-281 C	0.3074	Adder	0.68
964202	AG1-281 E	0.2049	Adder	0.45
964391	AG1-301 C	1.2653	50/50	1.2653
964392	AG1-301 E	0.8435	50/50	0.8435
964451	AG1-308 C O1	0.2722	Adder	0.6
964452	AG1-308 E O1	0.3805	Adder	0.84
965121	AG1-377 C O1	0.3875	Adder	0.86
965122	AG1-377 E O1	0.2583	Adder	0.57
965131	AG1-378 C O1	0.3875	Adder	0.86
965132	AG1-378 E O1	0.2583	Adder	0.57
965201	AG1-385 C (Withdrawn : 03/24/2021)	0.4515	Adder	1.0
965202	AG1-385 E (Withdrawn : 03/24/2021)	0.1337	Adder	0.3
965301	AG1-395 C (Withdrawn : 02/26/2021)	0.4979	Adder	1.11
965302	AG1-395 E (Withdrawn : 02/26/2021)	0.1479	Adder	0.33
966041	AG1-473 C	5.0062	50/50	5.0062
966042	AG1-473 E	3.3375	50/50	3.3375
966152	AG1-484 BAT	0.7123	Merchant Transmission	0.7123

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966463	AG1-515 BAT	0.4172	Merchant Transmission	0.4172
966901	AG1-561 BAT	6.0982	50/50	6.0982
WEC	WEC	0.0460	Confirmed LTF	0.0460
LGEE	LGEE	0.0767	Confirmed LTF	0.0767
CALDERWOOD	CALDERWOOD	0.0045	Confirmed LTF	0.0045
CBM-W2	CBM-W2	0.6630	Confirmed LTF	0.6630
TVA	TVA	0.0420	Confirmed LTF	0.0420
O-066	O-066	1.9786	Confirmed LTF	1.9786
SIGE	SIGE	0.0434	Confirmed LTF	0.0434
CHEOAH	CHEOAH	0.0060	Confirmed LTF	0.0060
CBM-S1	CBM-S1	0.0179	Confirmed LTF	0.0179
G-007	G-007	0.3423	Confirmed LTF	0.3423
HAMLET	HAMLET	0.0982	Confirmed LTF	0.0982
MEC	MEC	0.1907	Confirmed LTF	0.1907
LAGN	LAGN	0.0683	Confirmed LTF	0.0683
CATAWBA	CATAWBA	0.0413	Confirmed LTF	0.0413
CBM-W1	CBM-W1	2.4535	Confirmed LTF	2.4535

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
166058961	961480	AF2-439 TAP	PENELEC	200504	26CARLISLE	PENELEC	1	PL:10:P45:102437	breaker	159.0	121.79	122.59	DC	2.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
203905	26W1-045 C	0.0812	50/50	0.0812
237329	01CHBRG_I12	0.5074	50/50	0.5074
901242	W1-045 E OP1	0.4482	50/50	0.4482
930822	AB1-127 E	0.3786	Adder	0.45
930832	AB1-128 E	0.3786	Adder	0.45
933977	AD1-020 EBAT (Suspended)	1.3442	Merchant Transmission	1.3442
934371	AD1-061 C	0.3579	Adder	0.42
934372	AD1-061 E	0.3109	Adder	0.37
936061	AD2-009 C	2.4249	Adder	2.85
936062	AD2-009 E	1.1041	Adder	1.3
936471	AD2-062 C O1	10.6930	50/50	10.6930
936472	AD2-062 E O1	5.3565	50/50	5.3565
938384	AE1-071-C	13.8346	50/50	13.8346
938385	AE1-071-E	8.4656	50/50	8.4656
938753	AE1-101 C1	1.8674	Adder	2.2
938754	AE1-101 C2	0.9337	Adder	1.1
938756	AE1-101 E1	3.8550	Adder	4.54
938757	AE1-101 E2	1.9247	Adder	2.26
939033	AE1-132 C	2.5711	Adder	3.02
939034	AE1-132 E	1.7141	Adder	2.02
939591	AE1-188 C	0.6641	Adder	0.78
939592	AE1-188 E	0.3900	Adder	0.46
940671	AE2-054 C (Suspended)	0.5615	Adder	0.66
940672	AE2-054 E (Suspended)	0.3743	Adder	0.44
945011	AF1-166 C	0.5506	Adder	0.65
945012	AF1-166 E	0.3671	Adder	0.43
945441	AF1-209 C O1	0.5472	Adder	0.64
945442	AF1-209 E O1	0.3648	Adder	0.43
945591	AF1-224 C	0.4164	Adder	0.49
945592	AF1-224 E	0.2108	Adder	0.25
958071	AF2-101 C (Suspended)	-0.2607	Adder	-0.31
958221	AF2-116 C	0.6705	Adder	0.79
958222	AF2-116 E	0.3378	Adder	0.4
958231	AF2-117 C	2.1425	Adder	2.52
958232	AF2-117 E	1.0710	Adder	1.26
958551	AF2-146 C (Withdrawn : 04/16/2021)	1.8142	50/50	1.8142
958552	AF2-146 E (Withdrawn : 04/16/2021)	1.2094	50/50	1.2094
958571	AF2-148 C (Withdrawn : 04/16/2021)	1.4744	50/50	1.4744

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958572	AF2-148 E (Withdrawn : 04/16/2021)	0.9830	50/50	0.9830
958601	AF2-151 C	-0.2571	Adder	-0.3
958871	AF2-178	0.3911	50/50	0.3911
958881	AF2-179	0.3327	Adder	0.39
958891	AF2-180	0.3327	Adder	0.39
958931	AF2-184	0.2732	Adder	0.32
959223	AF2-213 BAT	4.5691	Merchant Transmission	4.5691
959241	AF2-215 C	0.1539	Adder	0.18
959242	AF2-215 E	0.1026	Adder	0.12
959381	AF2-229 C (Withdrawn : 04/03/2021)	1.0929	50/50	1.0929
959382	AF2-229 E (Withdrawn : 04/03/2021)	0.9125	50/50	0.9125
959773	AF2-268 BAT	0.1000	Merchant Transmission	0.1000
959842	AF2-275 E	0.1721	Adder	0.2
959852	AF2-276 E	0.1721	Adder	0.2
961481	AF2-439 C (Withdrawn : 04/23/2021)	8.0249	50/50	8.0249
961482	AF2-439 E (Withdrawn : 04/23/2021)	7.4076	50/50	7.4076
962082	AG1-052 BAT	0.6145	Merchant Transmission	0.6145
963901	AG1-243 C	0.1961	Adder	0.44
963902	AG1-243 E	0.1056	Adder	0.23
964641	AG1-327 C O1	0.6155	Adder	1.37
964642	AG1-327 E O1	0.3171	Adder	0.7
964693	AG1-332 BAT	0.1022	Merchant Transmission	0.1022
965963	AG1-465 BAT	2.8673	Merchant Transmission	2.8673
966041	AG1-473 C	0.7660	Adder	1.7
966042	AG1-473 E	0.5107	Adder	1.13
966152	AG1-484 BAT	3.7538	50/50	3.7538
966172	AG1-486 BAT	0.5299	Merchant Transmission	0.5299
966461	AG1-515 C	0.1415	Adder	0.31
966462	AG1-515 E	0.2122	Adder	0.47
WEC	WEC	0.1279	Confirmed LTF	0.1279
LGEE	LGEE	0.2526	Confirmed LTF	0.2526
CPL	CPL	0.2321	Confirmed LTF	0.2321
CBM-W2	CBM-W2	3.5213	Confirmed LTF	3.5213
NY	NY	0.1963	Confirmed LTF	0.1963
TVA	TVA	0.5404	Confirmed LTF	0.5404
O-066	O-066	6.2791	Confirmed LTF	6.2791
SIGE	SIGE	0.1402	Confirmed LTF	0.1402
CBM-S2	CBM-S2	3.6958	Confirmed LTF	3.6958
CBM-S1	CBM-S1	0.1478	Confirmed LTF	0.1478
G-007	G-007	0.9849	Confirmed LTF	0.9849
MEC	MEC	0.6388	Confirmed LTF	0.6388
LAGN	LAGN	0.6772	Confirmed LTF	0.6772
CBM-W1	CBM-W1	5.7622	Confirmed LTF	5.7622

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
166282024	964450	AG1-308 TAP	PENELEC	200716	26PHILIPSB	PENELEC	1	AP-P1-3-WP-230-326T-B	single	202.0	105.21	106.86	DC	3.34

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200649	26PENNTech	0.5643	80/20	0.5643
200665	26SHAWVL 3	3.0688	80/20	3.0688
200666	26SHAWVL 4	3.0132	80/20	3.0132
200715	26SHAWVL 1	2.7201	80/20	2.7201
200722	26SHAWVL 2	2.7890	80/20	2.7890
200913	26SHAW-D	0.1644	80/20	0.1644
921642	AA2-000	34.1231	80/20	34.1231
930511	AB2-092	1.2529	80/20	1.2529
936421	AD2-055	2.5795	80/20	2.5795
939171	AE1-147 C	1.2322	80/20	1.2322
940201	AE2-001 C	1.2328	80/20	1.2328
940681	AE2-055 C (Suspended)	1.2421	80/20	1.2421
941191	AE2-113 C	3.7047	80/20	3.7047
941261	AE2-120 C	1.2331	80/20	1.2331
941271	AE2-121 C	0.6545	80/20	0.6545
941321	AE2-126 C (Suspended)	1.5325	80/20	1.5325
941351	AE2-131 C (Suspended)	-6.3035	Adder	-7.42
942351	AE2-248 C	0.9906	80/20	0.9906
942491	AE2-262 C	5.0040	80/20	5.0040
942501	AE2-263 C	4.7038	80/20	4.7038
942961	AE2-316 C	2.1566	80/20	2.1566
943751	AF1-043	7.7385	80/20	7.7385
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	1.3221	80/20	1.3221
944181	AF1-086 C O1	1.0319	80/20	1.0319
944311	AF1-099 C	7.5961	80/20	7.5961
944321	AF1-100 C	16.2390	80/20	16.2390
944471	AF1-112 C	1.2372	80/20	1.2372
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	1.2401	80/20	1.2401
944691	AF1-134 C	1.2390	80/20	1.2390
944751	AF1-140 C	-0.5991	Adder	-0.7
944771	AF1-142 C	12.1537	80/20	12.1537
944881	AF1-153 C O1	0.9084	80/20	0.9084
944901	AF1-155 C (Suspended)	0.9013	80/20	0.9013
945161	AF1-181	0.0141	80/20	0.0141
945171	AF1-182	0.0705	80/20	0.0705
945181	AF1-183	0.0223	80/20	0.0223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.2331	80/20	1.2331
946381	AF1-302 C	0.9418	80/20	0.9418
946421	AF1-306 C	4.0648	80/20	4.0648
957451	AF2-039 C	1.4097	80/20	1.4097
957931	AF2-087 C (Suspended)	-0.2796	Adder	-0.33
957941	AF2-088 C	0.6788	80/20	0.6788
960041	AF2-295 C	0.9013	80/20	0.9013
960051	AF2-296 C	1.2390	80/20	1.2390
963571	AG1-206 C	0.7546	80/20	0.7546
963891	AG1-242 C	0.6711	80/20	0.6711
964031	AG1-257 C	0.8551	80/20	0.8551
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.8551	80/20	0.8551
964451	AG1-308 C O1	2.6473	80/20	2.6473
965201	AG1-385 C (Withdrawn : 03/24/2021)	1.1681	80/20	1.1681
966041	AG1-473 C	3.3443	80/20	3.3443
WEC	WEC	0.0041	Confirmed LTF	0.0041
LGEE	LGEE	0.0025	Confirmed LTF	0.0025
CALDERWOOD	CALDERWOOD	0.0119	Confirmed LTF	0.0119
SIGE	SIGE	0.0118	Confirmed LTF	0.0118
CHEOAH	CHEOAH	0.0125	Confirmed LTF	0.0125
COTTONWOOD	COTTONWOOD	0.0273	Confirmed LTF	0.0273
HAMLET	HAMLET	0.0329	Confirmed LTF	0.0329
MEC	MEC	0.0111	Confirmed LTF	0.0111
CATAWBA	CATAWBA	0.0164	Confirmed LTF	0.0164
CBM-W1	CBM-W1	0.3645	Confirmed LTF	0.3645

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
164706567	966040	AG1-473 TAP	AP	200513	26LEWISTWN	PENELEC	1	Base Case	single	520.0	142.97	147.03	DC	21.09

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200642	26SENECA#1	5.0275	80/20	5.0275
200643	26SENECA#2	4.7482	80/20	4.7482
200644	26SENECA#3	0.5188	80/20	0.5188
200649	26PENNTech	1.3993	80/20	1.3993
200665	26SHAWVL 3	8.7683	80/20	8.7683
200666	26SHAWVL 4	8.6326	80/20	8.6326
200715	26SHAWVL 1	5.4751	80/20	5.4751
200722	26SHAWVL 2	5.6011	80/20	5.6011
200887	26ARMNA MT	0.1941	80/20	0.1941
200905	26Q36	0.1579	80/20	0.1579
200913	26SHAW-D	0.2335	80/20	0.2335
201201	26WRREN CT	1.0438	80/20	1.0438
203261	26BLOSSBCT	0.2856	80/20	0.2856
203283	26MANOR_T86	0.0156	80/20	0.0156
203349	26Z1-069 C	0.1974	80/20	0.1974
203351	26GROZ1-110	0.4022	80/20	0.4022
203352	26CANZ2-011	0.3947	80/20	0.3947
203922	X1-109 G1	4.9828	80/20	4.9828
203923	X1-109 G2	4.9828	80/20	4.9828
919201	AA1-144 OP	14.2495	80/20	14.2495
921642	AA2-000	110.6570	80/20	110.6570
930511	AB2-092	4.0630	80/20	4.0630
931091	AB1-160 C	0.0564	80/20	0.0564
936421	AD2-055	8.3650	80/20	8.3650
936991	AD2-133 C	2.1703	80/20	2.1703
939171	AE1-147 C	5.7880	80/20	5.7880
940201	AE2-001 C	5.8100	80/20	5.8100
940681	AE2-055 C (Suspended)	6.1463	80/20	6.1463
940861	AE2-074 C	1.5726	80/20	1.5726
941191	AE2-113 C	9.8927	80/20	9.8927
941261	AE2-120 C	5.8220	80/20	5.8220
941271	AE2-121 C	3.0568	80/20	3.0568
941321	AE2-126 C (Suspended)	2.7310	80/20	2.7310
941331	AE2-129 C	2.1270	80/20	2.1270
941351	AE2-131 C (Suspended)	2.1270	80/20	2.1270
941421	AE2-139 C	5.7936	80/20	5.7936
942351	AE2-248 C	4.8048	80/20	4.8048
942491	AE2-262 C	19.4670	80/20	19.4670
942501	AE2-263 C	18.2990	80/20	18.2990
942961	AE2-316 C	6.7630	80/20	6.7630
943751	AF1-043	25.0950	80/20	25.0950

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	6.4515	80/20	6.4515
944181	AF1-086 C O1	2.1136	80/20	2.1136
944311	AF1-099 C	29.5509	80/20	29.5509
944321	AF1-100 C	47.8020	80/20	47.8020
944381	AF1-103 O1	2.3214	80/20	2.3214
944471	AF1-112 C	5.9693	80/20	5.9693
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	6.0721	80/20	6.0721
944691	AF1-134 C	1.9754	80/20	1.9754
944771	AF1-142 C	47.2815	80/20	47.2815
944881	AF1-153 C O1	2.7431	80/20	2.7431
944901	AF1-155 C (Suspended)	2.7232	80/20	2.7232
945121	AF1-177	0.0916	80/20	0.0916
945161	AF1-181	0.0403	80/20	0.0403
945171	AF1-182	0.2020	80/20	0.2020
945181	AF1-183	0.0449	80/20	0.0449
945331	AF1-198	0.0376	80/20	0.0376
945491	AF1-214 C (Withdrawn : 12/03/2020)	5.8213	80/20	5.8213
946111	AF1-276 C	7.3894	80/20	7.3894
946121	AF1-277 C	7.3894	80/20	7.3894
946131	AF1-278 C	5.8939	80/20	5.8939
946381	AF1-302 C	2.9533	80/20	2.9533
946421	AF1-306 C	12.0405	80/20	12.0405
957451	AF2-039 C	1.9978	80/20	1.9978
957941	AF2-088 C	0.9619	80/20	0.9619
958271	AF2-121 C	2.1270	80/20	2.1270
959061	AF2-197 C O1	3.1534	80/20	3.1534
959471	AF2-238 C (Withdrawn : 04/03/2021)	1.0396	80/20	1.0396
959481	AF2-239 C (Withdrawn : 03/25/2021)	0.8430	80/20	0.8430
959741	AF2-265 C	0.7450	80/20	0.7450
960041	AF2-295 C	2.7232	80/20	2.7232
960051	AF2-296 C	1.9754	80/20	1.9754
960271	AF2-318 C (Withdrawn : 04/14/2021)	0.9114	80/20	0.9114
961211	AF2-412	9.9125	80/20	9.9125
962411	AG1-090 C O1	10.6350	80/20	10.6350
962951	AG1-144 C (Withdrawn : 03/02/2021)	2.1270	80/20	2.1270
963571	AG1-206 C	1.4479	80/20	1.4479
963891	AG1-242 C	1.0700	80/20	1.0700
964031	AG1-257 C	4.1081	80/20	4.1081
964041	AG1-258 C (Withdrawn : 02/25/2021)	4.1081	80/20	4.1081
964341	AG1-296 C	0.9417	80/20	0.9417
964451	AG1-308 C O1	1.6468	80/20	1.6468
965121	AG1-377 C O1	2.1270	80/20	2.1270
965131	AG1-378 C O1	2.1270	80/20	2.1270

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965201	AG1-385 C (Withdrawn : 03/24/2021)	3.5271	80/20	3.5271
965241	AG1-389 C O1	1.1574	80/20	1.1574
965251	AG1-390 C O1	1.1574	80/20	1.1574
965261	AG1-391 C O1	1.1574	80/20	1.1574
965271	AG1-392 C O1	2.3148	80/20	2.3148
965301	AG1-395 C (Withdrawn : 02/26/2021)	2.7332	80/20	2.7332
966041	AG1-473 C	21.0892	80/20	21.0892
966121	AG1-481	1.8026	80/20	1.8026
WEC	WEC	0.1701	Confirmed LTF	0.1701
LGEE	LGEE	0.3135	Confirmed LTF	0.3135
CPL	CPL	0.0437	Confirmed LTF	0.0437
CBM-W2	CBM-W2	3.9155	Confirmed LTF	3.9155
TVA	TVA	0.5264	Confirmed LTF	0.5264
SIGE	SIGE	0.2138	Confirmed LTF	0.2138
CBM-S2	CBM-S2	1.6495	Confirmed LTF	1.6495
CBM-S1	CBM-S1	0.1512	Confirmed LTF	0.1512
MEC	MEC	0.7993	Confirmed LTF	0.7993
LAGN	LAGN	0.6808	Confirmed LTF	0.6808
CBM-W1	CBM-W1	8.2858	Confirmed LTF	8.2858

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
166059142	999326	26SHAWVL 2	PENELEC	200727	26SHAW. 2	PENELEC	2A	AP-P2-3-WP-230-446T	breaker	166.0	100.27	101.09	DC	2.98

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	3.2639	50/50	3.2639
200666	26SHAWVL 4	3.3262	50/50	3.3262
200722	26SHAWVL 2	2.0010	50/50	2.0010
235003	AC1-025 E	0.1011	Adder	0.12
236828	01GRAYMONT	0.2779	Adder	0.33
921642	AA2-000	29.1109	Adder	34.25
930511	AB2-092	1.0689	Adder	1.26
936421	AD2-055	2.2006	Adder	2.59
939171	AE1-147 C	0.8378	Adder	0.99
939172	AE1-147 E	0.5586	Adder	0.66
940201	AE2-001 C	0.8356	Adder	0.98
940202	AE2-001 E	0.5571	Adder	0.66
940681	AE2-055 C (Suspended)	0.8011	Adder	0.94
940682	AE2-055 E (Suspended)	0.5341	Adder	0.63
941261	AE2-120 C	0.8343	Adder	0.98
941262	AE2-120 E	0.5562	Adder	0.65
941271	AE2-121 C	0.4475	Adder	0.53
941272	AE2-121 E	0.2988	Adder	0.35
941351	AE2-131 C (Suspended)	-1.4345	Adder	-1.69
942351	AE2-248 C	0.6524	Adder	0.77
942352	AE2-248 E	0.4349	Adder	0.51
942491	AE2-262 C	3.9670	Adder	4.67
942492	AE2-262 E	2.6658	Adder	3.14
942501	AE2-263 C	3.7289	Adder	4.39
942502	AE2-263 E	2.4897	Adder	2.93
943751	AF1-043	6.6018	Adder	7.77
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.8652	Adder	1.02
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.4867	Adder	0.57
944311	AF1-099 C	6.0218	Adder	7.08
944312	AF1-099 E	4.0146	Adder	4.72
944321	AF1-100 C	17.1840	50/50	17.1840
944322	AF1-100 E	11.4560	50/50	11.4560
944471	AF1-112 C	0.8193	Adder	0.96
944472	AF1-112 E	0.5462	Adder	0.64
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.8087	Adder	0.95

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5391	Adder	0.63
944771	AF1-142 C	9.6349	Adder	11.34
944772	AF1-142 E	6.4233	Adder	7.56
945161	AF1-181	0.0150	50/50	0.0150
945171	AF1-182	0.0778	50/50	0.0778
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8344	Adder	0.98
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5562	Adder	0.65
960022	AF2-293 E	0.0815	Adder	0.1
964031	AG1-257 C	0.3015	Adder	0.67
964032	AG1-257 E	0.4213	Adder	0.94
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.3015	Adder	0.67
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4213	Adder	0.94
965303	AG1-395 BAT (Withdrawn : 02/26/2021)	1.2053	50/50	1.2053
966041	AG1-473 C	0.8054	Adder	1.79
966042	AG1-473 E	0.5369	Adder	1.19
G-007A	G-007A	1.0357	Confirmed LTF	1.0357
VFT	VFT	2.8509	Confirmed LTF	2.8509
CALDERWOOD	CALDERWOOD	0.0929	Confirmed LTF	0.0929
PRAIRIE	PRAIRIE	0.5631	Confirmed LTF	0.5631
CHEOAH	CHEOAH	0.0931	Confirmed LTF	0.0931
CBM-N	CBM-N	0.5568	Confirmed LTF	0.5568
COTTONWOOD	COTTONWOOD	0.4221	Confirmed LTF	0.4221
HAMLET	HAMLET	0.0820	Confirmed LTF	0.0820
GIBSON	GIBSON	0.1228	Confirmed LTF	0.1228
BLUEG	BLUEG	0.3906	Confirmed LTF	0.3906
TRIMBLE	TRIMBLE	0.1252	Confirmed LTF	0.1252
CATAWBA	CATAWBA	0.0549	Confirmed LTF	0.0549

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
166058888	999327	26SHAWVL 1	PENELEC	200714	26SHAWVL 1	PENELEC	1A	AP-P2-3-WP-230-443T *	breaker	126.0	130.75	131.8	DC	2.93

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200665	26SHAWVL 3	3.3420	50/50	3.3420
200666	26SHAWVL 4	3.1659	50/50	3.1659
235003	AC1-025 E	0.0997	Adder	0.12
236828	01GRAYMONT	0.2754	Adder	0.32
921642	AA2-000	29.6264	Adder	34.85
930511	AB2-092	1.0878	Adder	1.28
936421	AD2-055	2.2396	Adder	2.63
939171	AE1-147 C	0.8308	Adder	0.98
939172	AE1-147 E	0.5539	Adder	0.65
940201	AE2-001 C	0.8282	Adder	0.97
940202	AE2-001 E	0.5522	Adder	0.65
940681	AE2-055 C (Suspended)	0.7895	Adder	0.93
940682	AE2-055 E (Suspended)	0.5263	Adder	0.62
941261	AE2-120 C	0.8268	Adder	0.97
941262	AE2-120 E	0.5512	Adder	0.65
941271	AE2-121 C	0.4440	Adder	0.52
941272	AE2-121 E	0.2965	Adder	0.35
941351	AE2-131 C (Suspended)	-1.3743	Adder	-1.62
942351	AE2-248 C	0.6446	Adder	0.76
942352	AE2-248 E	0.4297	Adder	0.51
942491	AE2-262 C	3.9967	Adder	4.7
942492	AE2-262 E	2.6858	Adder	3.16
942501	AE2-263 C	3.7569	Adder	4.42
942502	AE2-263 E	2.5083	Adder	2.95
943751	AF1-043	6.7187	Adder	7.9
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.8542	Adder	1.0
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.4805	Adder	0.57
944311	AF1-099 C	6.0670	Adder	7.14
944312	AF1-099 E	4.0447	Adder	4.76
944321	AF1-100 C	17.5710	50/50	17.5710
944322	AF1-100 E	11.7140	50/50	11.7140
944471	AF1-112 C	0.8099	Adder	0.95
944472	AF1-112 E	0.5399	Adder	0.64
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.7980	Adder	0.94
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5320	Adder	0.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
944771	AF1-142 C	9.7072	Adder	11.42
944772	AF1-142 E	6.4715	Adder	7.61
945161	AF1-181	0.0153	50/50	0.0153
945171	AF1-182	0.0741	50/50	0.0741
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8269	Adder	0.97
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5513	Adder	0.65
960022	AF2-293 E	0.0808	Adder	0.1
964031	AG1-257 C	0.2982	Adder	0.66
964032	AG1-257 E	0.4167	Adder	0.92
964041	AG1-258 C (Withdrawn : 02/25/2021)	0.2982	Adder	0.66
964042	AG1-258 E (Withdrawn : 02/25/2021)	0.4167	Adder	0.92
965303	AG1-395 BAT (Withdrawn : 02/26/2021)	1.1547	50/50	1.1547
966041	AG1-473 C	0.7914	Adder	1.76
966042	AG1-473 E	0.5276	Adder	1.17
G-007A	G-007A	1.0357	Confirmed LTF	1.0357
VFT	VFT	2.8445	Confirmed LTF	2.8445
CALDERWOOD	CALDERWOOD	0.0924	Confirmed LTF	0.0924
PRAIRIE	PRAIRIE	0.5605	Confirmed LTF	0.5605
CHEOAH	CHEOAH	0.0926	Confirmed LTF	0.0926
CBM-N	CBM-N	0.5568	Confirmed LTF	0.5568
COTTONWOOD	COTTONWOOD	0.4200	Confirmed LTF	0.4200
HAMLET	HAMLET	0.0820	Confirmed LTF	0.0820
GIBSON	GIBSON	0.1223	Confirmed LTF	0.1223
BLUEG	BLUEG	0.3871	Confirmed LTF	0.3871
TRIMBLE	TRIMBLE	0.1247	Confirmed LTF	0.1247
CATAWBA	CATAWBA	0.0546	Confirmed LTF	0.0546

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
AA1-144	East Towanda-Grover 230kV	Engineering and Procurement
AA2-000	N/A	N/A
AB1-127	St. Thomas-Guilford 34.5kV	In Service
AB1-128	St. Thomas-Mercersburg 34.5kV	In Service
AB1-160	Gold-Sabinsville 115kV	In Service
AB2-092	Bergen 138kV	Partially in Service - Under Construction
AC1-025	Dale Summit	In Service
AD1-020	Hunterstown-Lincoln 115 kV	Suspended
AD1-061	McConnellsburg-Mercersburg 34 kV	Active
AD2-009	McConnellsburg 138 kV	Active
AD2-055	Moshannon-East Towanda 230 kV	Active
AD2-062	Roxbury-Greene 138 kV	Active
AD2-133	Eagle Valley 115kV	Active
AE1-071	Shade Gap-Roxbury 115 kV	Active
AE1-101	McConnellsburg-Texas Eastern 138 kV	Active
AE1-128	Bedford North-Wills Mounain 115 kV	Active
AE1-131	Gardners-Hunterstown 115 kV	Active
AE1-132	McConnellsburg 138 kV	Active
AE1-147	Bellefonte 46 kV	Engineering and Procurement
AE1-188	Fayetteville 34.5 kV	Engineering and Procurement
AE2-001	Nittany-Zion 46 kV	Active
AE2-054	Warfordsburg 34 kV	Suspended
AE2-055	Shingletown-Boalsburg 46 kV	Suspended
AE2-060	Mifflintown Bus-Mifflintown Tap 69 kV	Active
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	Suspended
AE2-129	Philipsburg-Clarence 34.5 kV	Engineering and Procurement
AE2-131	Philipsburg-Karthaus 34.5	Suspended
AE2-139	East Towanda-Grover 230 kV	Active
AE2-224	Bearrock-Johnstown 230 kV	Active
AE2-248	Fillmore-Thompson Farm 46 kV	Active
AE2-249	Bedford North-Pennsylvania Hollow 23 kV	Suspended
AE2-262	Moshannon-Milesburg 230 kV	Active
AE2-263	Moshannon-Milesburg 230 kV	Active

Queue Number	Project Name	Status
AE2-264	Altoona-Raystown 230 kV	Active
AE2-316	Brookville-Squab Hollow 138 kV	Active
AE2-345	Hunterstown-Texas Eastern Tap 115 kV	Active
AF1-043	Moshannon-East Towanda 230 kV	Active
AF1-068	Boalsburg-Centre Hall 46 kV	Withdrawn
AF1-086	Madera-Westover South 115 kV	Active
AF1-099	Moshannon-Milesburg 230 kV	Active
AF1-100	Shawville-Moshannon 230 kV	Active
AF1-103	Warren 34.5 kV	Active
AF1-106	East Sayre 34.5 kV	Active
AF1-112	Centre Hall-Boalsburg 46 kV	Active
AF1-132	Shingletown-Boalsburg 46 kV	Withdrawn
AF1-134	Philipsburg-Madera 34.5 kV	Active
AF1-140	Claysburg 23 kV	Engineering and Procurement
AF1-142	Moshannon-Milesburg 230 kV	Active
AF1-153	Motion-Ridgeway 46 kV	Active
AF1-155	Paper City-Wilcox 46 kV	Suspended
AF1-166	Target-Chambers No.5 34.5 kV	Engineering and Procurement
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
AF1-192	Mountain 2 115 kV	Partially in Service - Under Construction
AF1-198	Blossburg #1 CT 34.5 kV	Partially in Service - Under Construction
AF1-209	Guilford 34.5 kV	Active
AF1-214	Nittany-Zion 46 kV	Withdrawn
AF1-224	Fayetteville 34.5 kV	Engineering and Procurement
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
AF1-302	Brookville-Squab Hollow 138 kV	Active
AF1-306	Squab Hollow 230 kV	Active
AF2-030	Ontelaunee 230 kV	Active
AF2-039	Shawville-Clearfield 34.5 kV	Active
AF2-045	Cambria Nug 115 kV	Engineering and Procurement
AF2-050	Bearrock-Johnstown 230 kV	Active
AF2-087	East Altoona-Pinecroft 12.47 kV	Suspended
AF2-088	Shawville-Clearfield 34.5 kV II	Active
AF2-092	Snake Spring-Bedford Area 23 kV	Active
AF2-101	Allen 13.2 kV	Suspended
AF2-116	McConnellsburg 138 kV	Active
AF2-117	Warfordsburg-McConnellsburg 138 kV	Active
AF2-121	Philipsburg-Shawville 34.5 kV	Active
AF2-146	Hill Valley-Valley REC 46 kV	Withdrawn
AF2-148	Shade Gap-Three Springs KTS 23 kV	Withdrawn
AF2-151	Dillsburg 13.2 kV	Engineering and Procurement
AF2-178	Roxbury 23 kV II	In Service
AF2-179	St. Thomas-Mercersburg 34.5 kV II	In Service
AF2-180	St. Thomas-Guilford 34.5 kV II	In Service
AF2-184	McConnellsburg-Mercersburg 34 kV II	Active
AF2-197	East Towanda 115 kV	Active
AF2-213	Zions View-Smith Street 115 kV	Active

Queue Number	Project Name	Status
AF2-215	Saint Thomas-LeMasters Junction 34.5 kV	Engineering and Procurement
AF2-229	Roxbury 23 kV	Withdrawn
AF2-238	Mansfield-South Troy 34.5 kV	Withdrawn
AF2-239	Wyalusing-Hollenback WRC 34.5 kV	Withdrawn
AF2-265	South Troy-Athens 34.5 kV	Engineering and Procurement
AF2-268	Orrtanna 13.2 kV	Engineering and Procurement
AF2-270	Bedford South RCB-Bedford Area 23 kV	Engineering and Procurement
AF2-271	Pemberton-Sinking Valley 12.47 kV	Engineering and Procurement
AF2-272	Bernville 13.2 kV	Engineering and Procurement
AF2-275	Guilford 12.47 kV	Active
AF2-276	Guilford 12.47 kV	Active
AF2-278	Halifax 12.47 kV	Engineering and Procurement
AF2-279	Letort 12.47 kV	Engineering and Procurement
AF2-281	Lynnville 13.2 kV	Engineering and Procurement
AF2-286	Shermansdale 12.47 kV	Engineering and Procurement
AF2-287	Green Park 12.47 kV	Engineering and Procurement
AF2-288	Benvenue 12.47 kV	Engineering and Procurement
AF2-293	Beech Creek 12.47 kV	Active
AF2-295	Wilcox-Paper City 46 kV	Active
AF2-296	Madera 34.5 kV	Active
AF2-318	East Towanda-New Albany 34.5 kV	Withdrawn
AF2-336	Snake Spring 115 kV I	Active
AF2-337	Snake Spring 115 kV II	Active
AF2-338	Snake Spring 115 kV III	Active
AF2-339	Snake Spring 115 kV IV	Active
AF2-361	Mifflintown Tap 69 kV	Active
AF2-383	Tolna 115 kV	Active
AF2-405	East Sayre 34.5 kV III	Active
AF2-406	Sayre 115 kV	Active
AF2-412	Mainesburg 115 kV	Active
AF2-428	West Boyertown 13.2 kV	Engineering and Procurement
AF2-429	South Hamburg 34.5 kV	Engineering and Procurement
AF2-430	Moselem 13.2 kV	Engineering and Procurement
AF2-431	Baldy 13.2 kV	Engineering and Procurement
AF2-436	Wyalusing 34.5 kV II	In Service
AF2-439	Roxbury-Carlisle 115 kV	Withdrawn
AG1-018	Nipetown-Reid 138 kV	Withdrawn
AG1-041	Osterburg-Bedford North 23 kV	Active
AG1-052	Zionsview-Middletown 115 kV II	Active
AG1-053	Jackson-Three Mile Island 230 kV III	Active
AG1-090	Philipsburg 115 kV	Active
AG1-144	Phillipsburg 34.5 kV	Withdrawn
AG1-206	Snyder Twp 34.5 kV	Active
AG1-242	Beccaria 34.5 kV	Active
AG1-243	Guilford-Fayetteville 34.5 kV	Active
AG1-248	York Storage 115 kV	Active
AG1-257	Madisonburg Jct-Millheim 46 kV	Active
AG1-258	Madisonburg Jct-Millheim 46 kV	Withdrawn
AG1-280	Claysburg-Puzzletown 46 kV	Active
AG1-281	Claysburg-HCR Tap 46 kV	Active
AG1-296	Snyder Township 34.5 kV	Active
AG1-301	Miller REC-Warrior Ridge 46 kV	Active

Queue Number	Project Name	Status
AG1-308	Shawville-Philipsburg 115 kV	Active
AG1-327	West Waynesboro-East Waynesboro 138 kV	Active
AG1-332	Oxford 13.2 kV	Active
AG1-333	Lake Como-Pine Mills 12.47 kV	Active
AG1-338	Curryville-RKB-Yellow Creek 23 kV I	Active
AG1-339	Curryville-RKB-Yellow Creek 23 kV II	Active
AG1-340	Curryville 23 kV	Active
AG1-377	Philipsburg 115 kV	Active
AG1-378	Philipsburg 115 kV	Active
AG1-382	SGC Tap-Reese REC 46 kV	Active
AG1-385	Motion-Ridgeway 46 kV	Withdrawn
AG1-387	Beth 33-Lilly 46 kV	Withdrawn
AG1-389	N/A	N/A
AG1-390	N/A	N/A
AG1-391	N/A	N/A
AG1-392	Gold 115 kV IV	Active
AG1-395	Philipsburg-Karthaus 34.5 kV 2	Withdrawn
AG1-465	North Hanover-Gitts Run 115 kV	Active
AG1-473	Shingletown-Lewistown 230 kV	Active
AG1-481	Warren 34.5 kV	Active
AG1-484	Mountain 115 kV	Active
AG1-486	Orrtanna 115 kV	Active
AG1-515	Guilford 138 kV	Active
AG1-560	Shade Gap-Roxbury 115 kV II	Active
AG1-561	Roxbury-Greene 138 kV II	Active
V3-030	St. Benedict-Patton 46kV	In Service
W1-045	Roxbury 23 kV	In Service
X1-109	E. Towanda 230kV	In Service
Z1-069	Gold-Sabinsville 115kV	In Service
Z1-110	Grover 34kV	In Service
Z2-011	Canton 34.5kV	In Service

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
PN-P1-2-PN-230-103AT	CONTINGENCY 'PN-P1-2-PN-230-103AT' /* LEWISTOWN - JUNIATA (PPL) 230KV DISCONNECT BRANCH FROM BUS 200513 TO BUS 208005 CKT 1 /* 26LEWISTWN 230 JUNI BU1 230 END
PL:10:P42:100577	CONTINGENCY 'PL:10:P42:100577' /* AT JUNIATA 500SUB TR1 230KV CB FAILED" DISCONNECT BUS 208004 /* END
PL:10:P13:001633	CONTINGENCY 'PL:10:P13:001633' /* DAUPHIN 230/69KV T2 DISCONNECT BRANCH FROM BUS 207953 TO BUS 207955 CKT 1 /* DAUP TR1-DAUP TR2 230 DISCONNECT BRANCH FROM BUS 207955 TO BUS 208005 CKT 1 /* DAUP TR2-JUNI BU2 230 DISCONNECT BRANCH FROM BUS 207955 TO BUS 209866 CKT 2 /* DAUP TR2-DAUP 230-69 END
AP-P2-3-WP-230-443T *	CONTINGENCY 'AP-P2-3-WP-230-443T *' / UPDATED CON AJK 3-31-16 DISCONNECT BRANCH FROM BUS 200726 TO BUS 235175 CKT 1 DISCONNECT BRANCH FROM BUS 235175 TO BUS 235236 CKT 1 DISCONNECT BUS 235158 END
PL:10:P45:102437	CONTINGENCY 'PL:10:P45:102437' /* JUNI BU2 230KV BUS; BUS_SEC_1-2 CB @ JUNI 230KV DISCONNECT BUS 208004 /* JUNI BU1 230 DISCONNECT BUS 208005 /* JUNI BU2 230 END
AP-P1-3-WP-230-326T-B	CONTINGENCY 'AP-P1-3-WP-230-326T-B' /* SHINGLETOWN #82 230/46KV XFMR DISCONNECT BRANCH FROM BUS 966040 TO BUS 200513 CKT 1 /* AG1-473 TAP 230 26LEWISTWN 230 END

Contingency Name	Contingency Definition
AP-P2-2-WP-230-001T	CONTINGENCY 'AP-P2-2-WP-230-001T' /* ELKO #2 230KV BUS DISCONNECT BRANCH FROM BUS 235175 TO BUS 235158 CKT 1 /* 01ELKO 230 01CARB 230 DISCONNECT BRANCH FROM BUS 235175 TO BUS 235236 CKT 1 /* 01ELKO 230 01QUEHAN 230 DISCONNECT BRANCH FROM BUS 235175 TO BUS 200726 CKT 1 /* 01ELKO 230 26SHAWVL 2 230 END
PL:10:P24:100548	CONTINGENCY 'PL:10:P24:100548' /* JUNI 230KV BUS_SEC_1-2 CB DISCONNECT BUS 208005 /* JUNI BU2 230 DISCONNECT BUS 208004 /* JUNI BU1 230 /* JUNI BU1 230 END
PN-P2-3-PN-230-14BT	CONTINGENCY 'PN-P2-3-PN-230-14BT' /* LEWISTOWN STUCK 230KV BREAKER B5 (RAYSTOWN) DISCONNECT BRANCH FROM BUS 200513 TO BUS 200517 CKT 1 /* 26LEWISTWN 230 26RAYSTOWN 230 DISCONNECT BRANCH FROM BUS 200517 TO BUS 200539 CKT 1 /* 26RAYSTOWN 230 26RAYSTOWN 46 DISCONNECT BRANCH FROM BUS 200513 TO BUS 966040 CKT 1 /* 26LEWISTWN 230 AG1-473 TAP 230 DISCONNECT BRANCH FROM BUS 200513 TO BUS 200531 CKT 2 /* 26LEWISTWN 230 26YEAGRTWN 230 DISCONNECT BRANCH FROM BUS 200513 TO BUS 200548 CKT 1 /* 26LEWISTWN 230 26LEWISTWN 46.00 END
PL:03:P12:000193	CONTINGENCY 'PL:03:P12:000193' /* NMES-LACK 230KV LINE DISCONNECT BRANCH FROM BUS 200706 TO BUS 200677 CKT 4 /* DISCONNECT BUS 200708 /* OXBOW 230KV BUS END
PN-P1-2-PN-500-005	CONTINGENCY 'PN-P1-2-PN-500-005' /* CONEM-GH - JUNIATA 500.00 LINE DISCONNECT BRANCH FROM BUS 200005 TO BUS 200009 CKT 1 /* CONEM-GH - JUNIATA 500.00 LINE END
PN-P1-2-PN-500-006	CONTINGENCY 'PN-P1-2-PN-500-006' /* JUNIATA - KEYSTONE 500.00 LINE DISCONNECT BRANCH FROM BUS 200009 TO BUS 200011 CKT 1 /* JUNIATA - KEYSTONE 500.00 LINE END

Contingency Name	Contingency Definition
PN-P2-3-PN-230-14CT	CONTINGENCY 'PN-P2-3-PN-230-14CT' /* LEWISTOWN STUCK 230KV BREAKER - SHINGLETOWN DISCONNECT BRANCH FROM BUS 200513 TO BUS 200517 CKT 1 /* 26LEWISTWN 230 26RAYSTOWN 230 DISCONNECT BRANCH FROM BUS 200513 TO BUS 966040 CKT 1 /* 26LEWISTWN 230 AG1-473 TAP 230 DISCONNECT BRANCH FROM BUS 200513 TO BUS 200531 CKT 2 /* 26LEWISTWN 230 26YEAGRTWN 230 DISCONNECT BRANCH FROM BUS 200513 TO BUS 200548 CKT 2 /* 26LEWISTWN 230 26LEWISTWN 46.00 DISCONNECT BRANCH FROM BUS 200513 TO BUS 200512 CKT 3 /* 26LEWISTWN 230 26LEWISTWN 115 END
AP-P1-3-WP-230-001	CONTINGENCY 'AP-P1-3-WP-230-001' /* ELKO #1 230/138KV XFMR DISCONNECT BRANCH FROM BUS 235174 TO BUS 235175 CKT 1 /* 01ELKO 138 01ELKO 230 DISCONNECT BRANCH FROM BUS 235175 TO BUS 235971 CKT 1 /* 01ELKO 230 01SQUABHLLW 230 END
PL:10:P13:100618	CONTINGENCY 'PL:10:P13:100618' /* JUNIATA 230/69KV TR4 OUT" DISCONNECT BRANCH FROM BUS 208005 TO BUS 209997 CKT 4 /* DISCONNECT BRANCH FROM BUS 208005 TO BUS 207955 CKT 1 /* DISCONNECT BRANCH FROM BUS 208005 TO BUS 200009 CKT 2 /* REMOVE SHUNT 1 FROM BUS 208004 /* DISCONNECT BRANCH FROM BUS 208005 TO BUS 208004 CKT 1 /* DISCONNECT BRANCH FROM BUS 208005 TO BUS 200513 CKT 1 /* END
Base Case	
PL:10:P22:100582	CONTINGENCY 'PL:10:P22:100582' /* JUNIATA 230KV BUS 2 DISCONNECT BUS 208005 /* END
PL:10:P13:001616	CONTINGENCY 'PL:10:P13:001616' /* JUNIATA 230/69KV T3 DISCONNECT BRANCH FROM BUS 208004 TO BUS 208005 CKT 1 /* JUNI BU1-JUNI BU2 230 DISCONNECT BRANCH FROM BUS 207950 TO BUS 208004 CKT 1 /* DISCONNECT BRANCH FROM BUS 208004 TO BUS 209997 CKT 3 /* JUNI BU1-JUNI 230- 69 DISCONNECT BRANCH FROM BUS 207950 TO BUS 208004 CKT 1 /* CUMB TR2-JUNI BU1 230 DISCONNECT BRANCH FROM BUS 200009 TO BUS 208004 CKT 1 /* JUNIATA-JUNI BU1 500-230 END

Contingency Name	Contingency Definition
PN-P2_3-PN-115-0331-B_NON	CONTINGENCY 'PN-P2_3-PN-115-0331-B_NON' /* ROXBURY FAULTED 115 KV BRK B (#3 XFMR/SHADE GAP) DISCONNECT BRANCH FROM BUS 200520 TO BUS 938380 CKT 1 /* 26ROXBURY 115 26AE1-071 115 OPEN BRANCH FROM BUS 200520 TO BUS 200860 CKT 3 /* 26ROXBURY 115.00 26ROXB SB2 23.00 END
AP-P2-3-WP-230-446T	CONTINGENCY 'AP-P2-3-WP-230-446T' DISCONNECT BRANCH FROM BUS 200726 TO BUS 235175 CKT 1 DISCONNECT BRANCH FROM BUS 235158 TO BUS 235175 CKT 1 DISCONNECT BRANCH FROM BUS 235175 TO BUS 235236 CKT 1 DISCONNECT BRANCH FROM BUS 235220 TO BUS 235236 CKT 1 DISCONNECT BRANCH FROM BUS 235236 TO BUS 236732 CKT 81 OPEN BUS 235158 END
PN-P2_3-PN-115-0331-A_NON	CONTINGENCY 'PN-P2_3-PN-115-0331-A_NON' /* ROXBURY FAULTED 115 KV BRK A (#2 XFMR/SHADE GAP) DISCONNECT BRANCH FROM BUS 200520 TO BUS 938380 CKT 1 /* 26ROXBURY 115 26AE1-071 115 OPEN BRANCH FROM BUS 200520 TO BUS 200532 CKT 2 /* 26ROXBURY 115.00 26ROXBURY 138.00 END

12 Short Circuit Analysis

The following Breakers are overdutied:

None.

12.1 System Reinforcements - Short Circuit

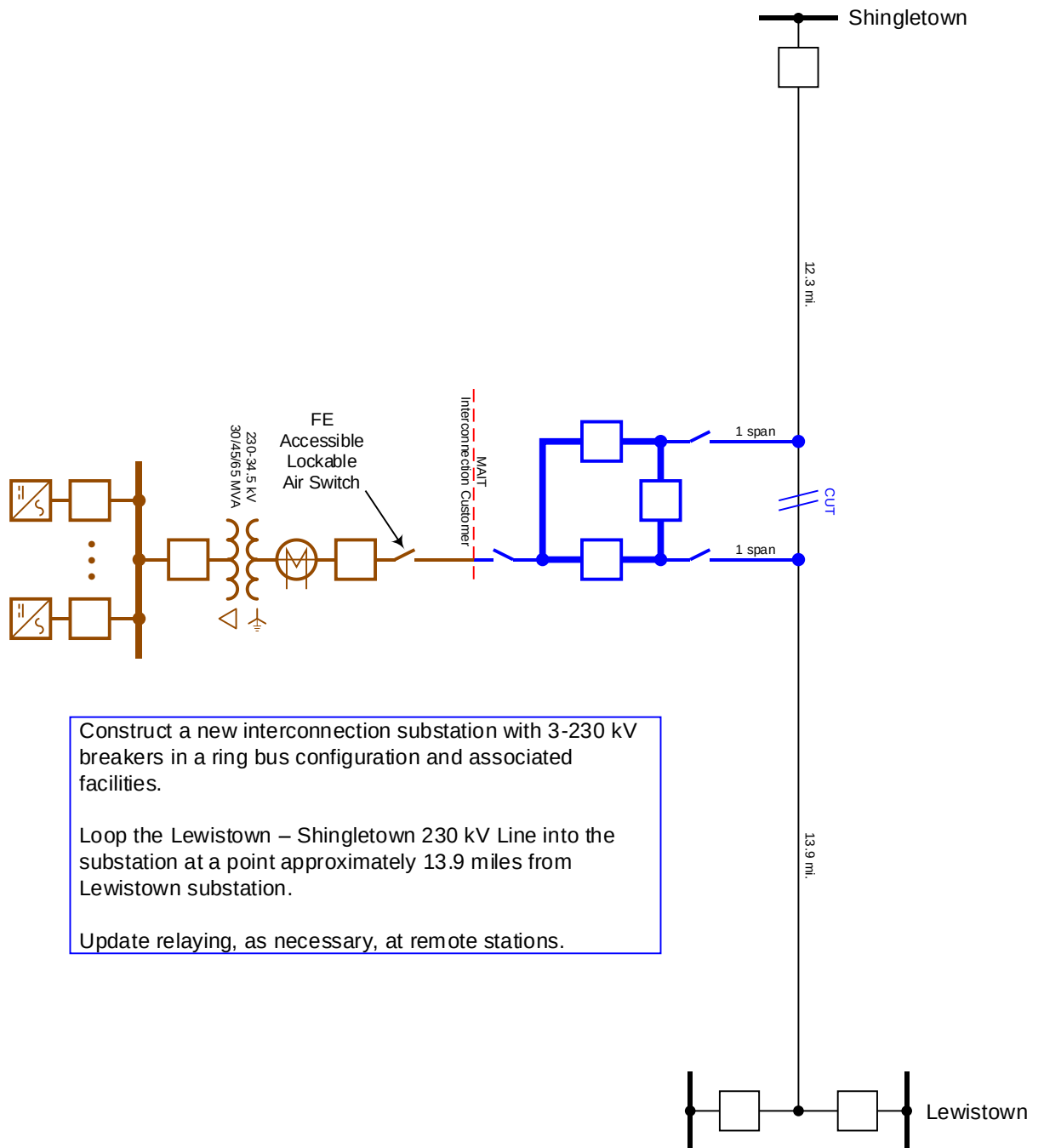
None.

13 Affected Systems

13.1 NYISO

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

14 Attachment 1: One Line Diagram



Interconnection Customer facilities are shown for information purposes only. The Interconnection Customer is responsible for designing its facilities to comply with applicable FirstEnergy connection standards, including FE's "Requirements for Transmission Connected Facilities" document.