Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-549

SHELOCTA 115 KV

115 MW Capacity / 150 MW Energy

January 2021

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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 APS.

2 Preface

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

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar/Storage generating facility located in Armstrong County, Pennsylvania. The installed facilities will have a total capability of 150 MW with 115 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is October 31, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	**AG1-549**
Project Name	SHELOCTA 115 KV
State	Pennsylvania
County	Armstrong
Transmission Owner	APS
MFO	150
MWE	150
MWC	115
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

4.1 Primary Point of Interconnection

The interconnection of the project at the Primary POI will be accomplished by installing one 115 kV breaker and associated facilities at Shelocta Substation for a new line terminal position to accept the Interconnection Customer's generator lead line.

Attachment 1 shows a one-line diagram of the proposed interconnection facilities for the AG1-549 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.

4.2 Secondary Point of Interconnection

The interconnection of the project at a Secondary POI would be accomplished by installing one 230 kV breaker and associated facilities at Keystone Substation for a new line terminal position to accept the Interconnection Customer's generator lead line. A full scope of work or estimated cost is not provided for the proposed Secondary POI.

5 Cost Summary

The AG1-549 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$1,820,000
Total System Network Upgrade Costs	$146,769,040[1]
Total Costs	$148,589,040

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 installing one 115 kV breaker and associated facilities at Shelocta Substation for a new line terminal position to accept the Interconnection Customer's generator lead line.

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

Description	Total Cost
At Shelocta Substation, install one 115 kV breaker and associated facilities for a new line terminal position.	$1,820,000
Total Physical Interconnection Costs	$1,820,000

7 Schedule

Based on the scope of work for the interconnection facilities, it is expected to take a minimum of **14 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 report.

8 Transmission Owner Analysis

8.1 Power Flow Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AG1-549 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 115 kV circuit breaker to protect the AG1-549 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 AG1-549 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 Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards/

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-549 was evaluated as a 150.0 MW (Capacity 115.0 MW) injection at the Shelocta 115 kV substation in the APS area. Project AG1-549 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-549 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	CKT ID	CONTNAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16479423 4	20076 3	26BLAIRSV L	138. 0	PENELE C	23525 3	01SOCIA L	138. 0	AP	1	AP-P1-2-WP-345-311T	singl e	287.0	98.81	106.18	DC	21.13
16479423 5	20076 3	26BLAIRSV L	138. 0	PENELE C	23525 3	01SOCIA L	138. 0	AP	1	AP-P1-2-WP-500-303T	singl e	287.0	95.52	102.86	DC	21.06

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	CKT ID	CONTNAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16609321 9	20074 0	26BLRSV L E	115. 0	PENELE C	20076 3	26BLAIRSV L	138. 0	PENELE C	1	PN-P2-3-PN-230-0201A-20	breake r	364.0	98.22	107.28	DC	32.97

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	CKT ID	CONTNAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
16609315 8	20074 1	26SEWARD	115. 0	PENELE C	20076 6	26FLOREN CE	115. 0	PENELE C	1	PN-P2-3-PN-230-0183-208	breake r	263.0	113.93	115.14	DC	3.19
16609315 9	20074 1	26SEWARD	115. 0	PENELE C	20076 6	26FLOREN CE	115. 0	PENELE C	1	PN-P2-3-PN-230-0183-209	breake r	263.0	111.65	112.86	DC	3.19
16479390 9	20076 3	26BLAIRSV L	138. 0	PENELE C	23525 3	01SOCIAL	138. 0	AP	1	PN-P2-3-PN-230-0201A-20	breake r	287.0	124.4	135.89	DC	32.97

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONTNAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166093215	200766	26FLORENCE	115.0	PENELEC	200740	26BLRSVLE	115.0	PENELEC	1	PN-P2-3-PN-230-0183-208	breaker	282.0	106.18	107.31	DC	3.19
166093216	200766	26FLORENCE	115.0	PENELEC	200740	26BLRSVLE	115.0	PENELEC	1	PN-P2-3-PN-230-0183-209	breaker	282.0	104.05	105.18	DC	3.19
167541870	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	ATSI-P2-3-CEI-345-004D	breaker	923.0	200.02	206.51	DC	59.27
167541871	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	ATSI-P2-3-CEI-345-004C	breaker	923.0	198.98	205.46	DC	59.22
167772659	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	PN-P1-2-PN-230-025	single	923.0	128.11	133.56	DC	50.06
167772660	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	PN-P1-3-PN-500-003	single	923.0	128.11	133.56	DC	50.06
167772661	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	Base Case	single	809.0	114.1	119.46	DC	43.11
165180297	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.64	156.3	DC	41.73
165180298	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	PN-P2-2-PN-500-001T	bus	634.0	130.41	135.59	DC	32.45
165180782	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	AP-P7-1-WPP-138-53A	tower	634.0	105.54	110.02	DC	28.09
165180783	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	ATSI-P7-1-CEI-345-012	tower	634.0	104.11	108.59	DC	28.08
165180784	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	AP-P7-1-WPP-138-83	tower	634.0	103.88	108.59	DC	29.58
165180302	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.17	155.83	DC	41.73

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONTNAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165180303	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	PN-P2-2-PN-500-001T	bus	634.0	129.94	135.12	DC	32.45
165180797	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	AP-P7-1-WPP-138-53A	tower	634.0	105.05	109.54	DC	28.09
165180798	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	ATSI-P7-1-CEI-345-012	tower	634.0	103.62	108.1	DC	28.08
165180799	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	AP-P7-1-WPP-138-83	tower	634.0	103.39	108.1	DC	29.58

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	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166310661	200740	26BLRSVL E	115.0	PENELEC	200763	26BLAIRSVL	138.0	PENELEC	1	PN-P1-2-PN-230-002	operation	364.0	88.7	103.76	DC	54.77
164794229	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	PN-P1-2-PN-230-002	operation	287.0	112.33	131.42	DC	54.77
164794230	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	Base Case	operation	225.0	114.65	126.55	DC	26.78
167772849	200793	26SEWARD 2	230.0	PENELEC	200912	26CONEMAGH	230.0	PENELEC	1	PN-P1-2-PN-230-002	operation	1147.0	118.03	119.36	DC	33.56
167772656	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	PN-P1-2-PN-230-025	operation	923.0	183.63	190.8	DC	65.3

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
167772657	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	PN-P1-3-PN-500-003	operation	923.0	183.63	190.8	DC	65.3
167772658	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	Base Case	operation	809.0	161.04	168.07	DC	56.23
167772790	200912	26CONEMAGH	230.0	PENELEC	200005	CONEM-GH	500.0	PENELEC	3	PN-P1-2-PN-230-002	operation	1066.0	126.99	128.43	DC	33.56
167772792	200912	26CONEMAGH	230.0	PENELEC	200005	CONEM-GH	500.0	PENELEC	3	Base Case	operation	861.0	103.0	104.11	DC	21.14
168050454	235173	01EDGEWT	138.0	AP	235618	01LOYALH3	138.0	AP	1	PN-P1-2-PN-230-002	operation	192.0	87.27	103.53	DC	31.23
168050404	235596	01VASC T	138.0	AP	235173	01EDGEWT	138.0	AP	1	PN-P1-2-PN-230-002	operation	192.0	94.87	111.14	DC	31.23

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
164794235,164794234,164793909	1	26BLAIRSVL 138.0 kV - 01SOCIAL 138.0 kV Ckt 1	**AP** **WP-AG1-F-0009A (1031) : Replace 750 CU bus conductor at Social Hall substation.** **Project Type : FAC** **Cost : $130,252** **Time Estimate : 12.0 Months** **WP-AG1-F-0009B (1032) : Replace relaying (CT, MT, RT) at Social Hall substation.** **Project Type : FAC** **Cost : $455,884** **Time Estimate : 12.0 Months** **WP-AG1-F-0009C (1033) : Reconductor 372 ft of 636 ACSR from Social Hall substation to structure 42 (1 span).** **Project Type : FAC** **Cost : $325,631** **Time Estimate : 12.0 Months** **WP-AG1-F-0009D (1034) : Replace 954 ACSR 45/7 SCCIR (bus, bus taps, bus side disconnect leads, line side disconnect leads) at Social Hall substation.** **Project Type : FAC** **Cost : $130,252** **Time Estimate : 12.0 Months** **WP-AG1-F-0009E (1035) : Replace 1200 A circuit breaker and associated equipment at Social Hall substation.** **Project Type : FAC** **Cost : $911,768** **Time Estimate : 12.0 Months** **WP-AG1-F-0009F (1036) : Replace 954 ACSR 45/7 TL conductor (line riser) at Social Hall substation** **Project Type : FAC** **Cost : $130,252** **Time Estimate : 12.0 Months** **PENELEC** **PN-AG1-F-0009A (1218) : Reconductor 4.83 miles of line.** **Replace line relaying at Blairsville East.** **Project Type : FAC** **Cost : $12,560,000** **Time Estimate : 34.0 Months** **PN-AG1-F-0009B (1219) : Replace line trap at Blairsville East** **Project Type : FAC** **Cost : $200,000** **Time Estimate : 12.0 Months**	$14,844,040

ID	Idx	Facility	Upgrade Description	Cost
166093215,166093216	4	26FLORENCE 115.0 kV - 26BLRSVL E 115.0 kV Ckt 1	**PENELEC** PN-AF2-F-0028A (1319) : Reconductor 9.5 miles of line. Replace line drops at Blairsville East. Project Type : FAC Cost : $29,050,000 Time Estimate : 36.0 Months	$29,050,000
166093158,166093159	3	26SEWARD 115.0 kV - 26FLORENCE 115.0 kV Ckt 1	**PENELEC** PN-AF2-F-0029A (1316) : Replace bus conductor at Seward. Project Type : FAC Cost : $200,000 Time Estimate : 12.0 Months PN-AF2-F-0029B (1317) : Reconductor 4.15 miles of line. Project Type : FAC Cost : $12,775,000 Time Estimate : 30.0 Months	$12,975,000
165180783,165180782,165180297,165180298,165180784	6	26KEYSTONE 230.0 kV - KEYSTONE 1.0 kV Ckt 4	**PENELEC** PN-AF2-F-0005 (1187) : Construct 500 kV yard consisting of three-500 kV breakers configured in a breaker-and-a-half layout (initially a ring bus) Tap the Keystone - Conemaugh 500 kV line and loop into the new Homer City 500 kV yard Install one 500/345 kV transformer Install a new 345 kV breaker-and-a-half string using three new breakers Project Type : CON Cost : $85,600,000 Time Estimate : 48.0 Months	$85,600,000
167772661,167772659,167541870,167541871,167772660	5	26SHELOCTA 230.0 kV - 26KEYSTONE 230.0 kV Ckt 1		
165180798,165180798,165180303,165180302,165180799	7	KEYSTONE 1.0 kV - KEYSTONE 500.0 kV Ckt 4		
166093219	2	26BLRSVL E 115.0 kV - 26BLAIRSVL 138.0 kV Ckt 1	**PENELEC** PN-AG1-F-0037 (1333) : Replace the transformer with a larger unit. Project Type : FAC Cost : $4,300,000 Time Estimate : 30.0 Months	$4,300,000
			TOTAL COST	**$146,769,040**

11.6 Flow Gate Details - Primary POI

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
164793909	200763	26BLAIRSVL	PENELEC	235253	01SOCIAL	AP	1	PN-P2-3-PN-230-0201A-20	breaker	287.0	124.4	135.89	DC	32.97

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	0.8489	50/50	0.8489
200636	26IUP CO-G	0.3536	50/50	0.3536
200794	26CONEMAGH	0.2400	50/50	0.2400
200805	26COLVER13 (Deactivation : 01/09/2020)	2.1933	50/50	2.1933
200835	26ARN_Z1-066	0.5207	Adder	0.61
200846	26FORWARD	0.0529	50/50	0.0529
200852	26WARR RDG	0.1401	Adder	0.16
200864	K-013 E	2.4302	50/50	2.4302
200883	Q-053 E	3.8833	Adder	4.57
200888	26HIGHLAND	0.1341	50/50	0.1341
200925	26R32	0.2103	50/50	0.2103
200945	26CT_V3-030	0.0928	50/50	0.0928
202158	26CON.GEN1	0.0626	50/50	0.0626
202160	26CON.GEN2	0.1172	50/50	0.1172
203915	26BF_Z2-108	1.1715	Adder	1.38
290086	Q-036 E	2.5473	Adder	3.0
292350	K-023	2.1413	Adder	2.52
292542	L-013 1	2.0827	Adder	2.45
293301	N-039 E	4.3286	Adder	5.09
293393	V3-030E	3.1313	50/50	3.1313
293432	R-040 E	0.1172	Adder	0.14
293603	O-018 E	5.4579	50/50	5.4579
293902	O-048 E	1.8744	Adder	2.21
294515	O38_P22	3.7875	Adder	4.46
294903	P-060 E	3.4475	Adder	4.06
296332	R-032 E	6.2976	50/50	6.2976
913142	Y1-033 E OP1	1.6199	Adder	1.91
935191	AD1-154	1.3493	Adder	1.59
936881	AD2-112 C	-2.3978	Adder	-2.82
936882	AD2-112 E	-0.9515	Adder	-1.12
936991	AD2-133 C	1.1463	Adder	1.35
936992	AD2-133 E	5.2429	Adder	6.17
938351	AE1-053	0.6508	Adder	0.77
938362	AE1-054 BAT	1.0156	Merchant Transmission	1.0156
938881	AE1-116	0.3561	Adder	0.42
938993	AE1-128 C	7.2475	50/50	7.2475
938994	AE1-128 E	4.8317	50/50	4.8317

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941231	AE2-117 C	0.6834	Adder	0.8
941232	AE2-117 E	0.4556	Adder	0.54
941241	AE2-118 C	0.7152	Adder	0.84
941242	AE2-118 E	0.4768	Adder	0.56
941321	AE2-126 C	0.5215	Adder	0.61
941322	AE2-126 E	0.3477	Adder	0.41
941331	AE2-129 C	0.6856	Adder	0.81
941332	AE2-129 E	0.4571	Adder	0.54
941351	AE2-131 C (Suspended)	0.6856	Adder	0.81
941352	AE2-131 E (Suspended)	0.4571	Adder	0.54
942121	AE2-224 C	4.2162	Adder	4.96
942122	AE2-224 E	2.8108	Adder	3.31
942361	AE2-249 C	0.8153	50/50	0.8153
942362	AE2-249 E	0.5436	50/50	0.5436
942511	AE2-264 C	2.6569	Adder	3.13
942512	AE2-264 E	1.7713	Adder	2.08
943711	AF1-039 C O1	0.4286	Adder	0.5
943712	AF1-039 E O1	0.2857	Adder	0.34
944181	AF1-086 C O1	2.1898	50/50	2.1898
944182	AF1-086 E O1	9.5267	50/50	9.5267
944691	AF1-134 C	0.8737	Adder	1.03
944692	AF1-134 E	0.5825	Adder	0.69
944751	AF1-140 C	0.9867	50/50	0.9867
944752	AF1-140 E	0.6578	50/50	0.6578
944781	AF1-143 C	3.9051	Adder	4.59
944782	AF1-143 E	2.0827	Adder	2.45
945671	AF1-232 C (Withdrawn : 01/19/2021)	8.4298	Adder	9.92
945672	AF1-232 E (Withdrawn : 01/19/2021)	4.5391	Adder	5.34
945751	AF1-240 C O1	0.8096	Adder	0.95
945752	AF1-240 E O1	0.5397	Adder	0.63
946071	AF1-272 C O1	12.3704	50/50	12.3704
946072	AF1-272 E O1	8.2469	50/50	8.2469
946571	AF1-321 C O1	1.2670	50/50	1.2670
946572	AF1-321 E O1	0.8446	50/50	0.8446
957001	AF2-001 C O1	1.2670	50/50	1.2670
957002	AF2-001 E O1	0.8446	50/50	0.8446
957011	AF2-002 C O1	0.6335	50/50	0.6335
957012	AF2-002 E O1	0.4223	50/50	0.4223
957451	AF2-039 C	0.3980	Adder	0.47
957452	AF2-039 E	0.2653	Adder	0.31
957512	AF2-045 E	1.9370	50/50	1.9370
957561	AF2-050 C	2.1081	Adder	2.48
957562	AF2-050 E	1.4054	Adder	1.65
957931	AF2-087 C (Suspended)	0.2141	Adder	0.25
957932	AF2-087 E (Suspended)	0.2949	Adder	0.35
957941	AF2-088 C	0.1916	Adder	0.23
957942	AF2-088 E	0.1278	Adder	0.15
957981	AF2-092 C	0.7251	50/50	0.7251
957982	AF2-092 E	0.4834	50/50	0.4834
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.1899	Adder	0.22

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.1266	Adder	0.15
958271	AF2-121 C	0.6856	Adder	0.81
958272	AF2-121 E	0.4571	Adder	0.54
958471	AF2-141	0.5207	Adder	0.61
959792	AF2-270 E	0.3746	50/50	0.3746
959802	AF2-271 E	0.1790	Adder	0.21
960051	AF2-296 C	0.8737	Adder	1.03
960052	AF2-296 E	0.5825	Adder	0.69
960451	AF2-336 C	1.2085	50/50	1.2085
960452	AF2-336 E	0.8057	50/50	0.8057
960461	AF2-337 C	1.2085	50/50	1.2085
960462	AF2-337 E	0.8057	50/50	0.8057
960471	AF2-338 C	1.2085	50/50	1.2085
960472	AF2-338 E	0.8057	50/50	0.8057
960481	AF2-339 C	1.2085	50/50	1.2085
960482	AF2-339 E	0.8057	50/50	0.8057
960901	AF2-381 C	8.4816	50/50	8.4816
960902	AF2-381 E	4.4634	50/50	4.4634
961911	AG1-033 C	0.3406	50/50	0.3406
961912	AG1-033 E	0.1916	50/50	0.1916
961981	AG1-041 C	0.7254	50/50	0.7254
961982	AG1-041 E	0.4836	50/50	0.4836
962292	AG1-077 E	0.1725	Adder	0.38
962411	AG1-090 C O1	1.8170	Adder	4.03
962412	AG1-090 E O1	1.2113	Adder	2.69
962641	AG1-113	0.1510	Adder	0.34
962651	AG1-114	0.3449	Adder	0.77
962951	AG1-144 C	0.3634	Adder	0.81
962952	AG1-144 E	0.2423	Adder	0.54
963541	AG1-203 C	0.2804	Adder	0.62
963542	AG1-203 E	0.1510	Adder	0.34
963561	AG1-205 C	0.2242	Adder	0.5
963562	AG1-205 E	0.1207	Adder	0.27
963881	AG1-241 C	0.6918	50/50	0.6918
963882	AG1-241 E	0.3725	50/50	0.3725
963891	AG1-242 C	0.2508	Adder	0.56
963892	AG1-242 E	0.1351	Adder	0.3
964191	AG1-280 C	0.5034	Adder	1.12
964192	AG1-280 E	0.3356	Adder	0.74
964201	AG1-281 C	0.5023	Adder	1.11
964202	AG1-281 E	0.3349	Adder	0.74
964331	AG1-295 C	1.8203	50/50	1.8203
964332	AG1-295 E	0.9659	50/50	0.9659
964391	AG1-301 C	0.3565	Adder	0.79
964392	AG1-301 E	0.2376	Adder	0.53
964451	AG1-308 C O1	0.2406	Adder	0.53
964452	AG1-308 E O1	0.3363	Adder	0.75
964751	AG1-338 C	0.4438	50/50	0.4438
964752	AG1-338 E	0.0605	50/50	0.0605
964761	AG1-339 C	0.4640	50/50	0.4640
964762	AG1-339 E	0.0403	50/50	0.0403
964771	AG1-340 C	0.4438	50/50	0.4438

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964772	AG1-340 E	0.0605	50/50	0.0605
964911	AG1-355 C	3.4269	50/50	3.4269
964912	AG1-355 E	2.2846	50/50	2.2846
964921	AG1-356 C	0.9235	Adder	2.05
964922	AG1-356 E	0.6156	Adder	1.37
965121	AG1-377 C O1	0.3634	Adder	0.81
965122	AG1-377 E O1	0.2423	Adder	0.54
965131	AG1-378 C O1	0.3634	Adder	0.81
965132	AG1-378 E O1	0.2423	Adder	0.54
965171	AG1-382 C	1.3036	50/50	1.3036
965172	AG1-382 E	0.8690	50/50	0.8690
965221	AG1-387 C	1.3036	50/50	1.3036
965222	AG1-387 E	0.8690	50/50	0.8690
965301	AG1-395 C	0.4670	Adder	1.04
965302	AG1-395 E	0.1387	Adder	0.31
965881	AG1-457 C	1.2007	Adder	2.67
965882	AG1-457 E	0.8005	Adder	1.78
966453	AG1-514 BAT	0.2965	Merchant Transmission	0.2965
966512	AG1-520 E	0.4223	50/50	0.4223
966781	AG1-549 C O1	25.2758	50/50	25.2758
966782	AG1-549 E O1	7.6926	50/50	7.6926
G-007A	G-007A	1.9851	Confirmed LTF	1.9851
VFT	VFT	5.4631	Confirmed LTF	5.4631
CALDERWOOD	CALDERWOOD	0.3017	Confirmed LTF	0.3017
PRAIRIE	PRAIRIE	1.6583	Confirmed LTF	1.6583
CHEOAH	CHEOAH	0.3028	Confirmed LTF	0.3028
CBM-N	CBM-N	1.0728	Confirmed LTF	1.0728
COTTONWOOD	COTTONWOOD	1.3041	Confirmed LTF	1.3041
HAMLET	HAMLET	0.3043	Confirmed LTF	0.3043
GIBSON	GIBSON	0.3587	Confirmed LTF	0.3587
BLUEG	BLUEG	1.1475	Confirmed LTF	1.1475
TRIMBLE	TRIMBLE	0.3684	Confirmed LTF	0.3684
CATAWBA	CATAWBA	0.1942	Confirmed LTF	0.1942

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
166093219	200740	26BLRSVLE	PENELEC	200763	26BLAIRSVL	PENELEC	1	PN-P2-3-PN-230-0201A-20	breaker	364.0	98.22	107.28	DC	32.97

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	0.8489	50/50	0.8489
200636	26IUP CO-G	0.3536	50/50	0.3536
200794	26CONEMAGH	0.2400	50/50	0.2400
200805	26COLVER13 (Deactivation : 01/09/2020)	2.1933	50/50	2.1933
200835	26ARN_Z1-066	0.5207	Adder	0.61
200846	26FORWARD	0.0529	50/50	0.0529
200852	26WARR RDG	0.1401	Adder	0.16
200864	K-013 E	2.4302	50/50	2.4302
200883	Q-053 E	3.8833	Adder	4.57
200888	26HIGHLAND	0.1341	50/50	0.1341
200925	26R32	0.2103	50/50	0.2103
200945	26CT_V3-030	0.0928	50/50	0.0928
202158	26CON.GEN1	0.0626	50/50	0.0626
202160	26CON.GEN2	0.1172	50/50	0.1172
203915	26BF_Z2-108	1.1715	Adder	1.38
290086	Q-036 E	2.5473	Adder	3.0
292350	K-023	2.1413	Adder	2.52
292542	L-013 1	2.0827	Adder	2.45
293301	N-039 E	4.3286	Adder	5.09
293393	V3-030E	3.1313	50/50	3.1313
293432	R-040 E	0.1172	Adder	0.14
293603	O-018 E	5.4579	50/50	5.4579
293902	O-048 E	1.8744	Adder	2.21
294515	O38_P22	3.7875	Adder	4.46
294903	P-060 E	3.4475	Adder	4.06
296332	R-032 E	6.2976	50/50	6.2976
913142	Y1-033 E OP1	1.6199	Adder	1.91
935191	AD1-154	1.3493	Adder	1.59
936881	AD2-112 C	-2.3978	Adder	-2.82
936882	AD2-112 E	-0.9515	Adder	-1.12
936991	AD2-133 C	1.1463	Adder	1.35
936992	AD2-133 E	5.2429	Adder	6.17
938351	AE1-053	0.6508	Adder	0.77
938362	AE1-054 BAT	1.0156	Merchant Transmission	1.0156
938881	AE1-116	0.3561	Adder	0.42
938993	AE1-128 C	7.2475	50/50	7.2475
938994	AE1-128 E	4.8317	50/50	4.8317

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
941231	AE2-117 C	0.6834	Adder	0.8
941232	AE2-117 E	0.4556	Adder	0.54
941241	AE2-118 C	0.7152	Adder	0.84
941242	AE2-118 E	0.4768	Adder	0.56
941321	AE2-126 C	0.5215	Adder	0.61
941322	AE2-126 E	0.3477	Adder	0.41
941331	AE2-129 C	0.6856	Adder	0.81
941332	AE2-129 E	0.4571	Adder	0.54
941351	AE2-131 C (Suspended)	0.6856	Adder	0.81
941352	AE2-131 E (Suspended)	0.4571	Adder	0.54
942121	AE2-224 C	4.2162	Adder	4.96
942122	AE2-224 E	2.8108	Adder	3.31
942361	AE2-249 C	0.8153	50/50	0.8153
942362	AE2-249 E	0.5436	50/50	0.5436
942511	AE2-264 C	2.6569	Adder	3.13
942512	AE2-264 E	1.7713	Adder	2.08
943711	AF1-039 C O1	0.4286	Adder	0.5
943712	AF1-039 E O1	0.2857	Adder	0.34
944181	AF1-086 C O1	2.1898	50/50	2.1898
944182	AF1-086 E O1	9.5267	50/50	9.5267
944691	AF1-134 C	0.8737	Adder	1.03
944692	AF1-134 E	0.5825	Adder	0.69
944751	AF1-140 C	0.9867	50/50	0.9867
944752	AF1-140 E	0.6578	50/50	0.6578
944781	AF1-143 C	3.9051	Adder	4.59
944782	AF1-143 E	2.0827	Adder	2.45
945671	AF1-232 C (Withdrawn : 01/19/2021)	8.4298	Adder	9.92
945672	AF1-232 E (Withdrawn : 01/19/2021)	4.5391	Adder	5.34
945751	AF1-240 C O1	0.8096	Adder	0.95
945752	AF1-240 E O1	0.5397	Adder	0.63
946071	AF1-272 C O1	12.3704	50/50	12.3704
946072	AF1-272 E O1	8.2469	50/50	8.2469
946571	AF1-321 C O1	1.2670	50/50	1.2670
946572	AF1-321 E O1	0.8446	50/50	0.8446
957001	AF2-001 C O1	1.2670	50/50	1.2670
957002	AF2-001 E O1	0.8446	50/50	0.8446
957011	AF2-002 C O1	0.6335	50/50	0.6335
957012	AF2-002 E O1	0.4223	50/50	0.4223
957451	AF2-039 C	0.3980	Adder	0.47
957452	AF2-039 E	0.2653	Adder	0.31
957512	AF2-045 E	1.9370	50/50	1.9370
957561	AF2-050 C	2.1081	Adder	2.48
957562	AF2-050 E	1.4054	Adder	1.65
957931	AF2-087 C (Suspended)	0.2141	Adder	0.25
957932	AF2-087 E (Suspended)	0.2949	Adder	0.35
957941	AF2-088 C	0.1916	Adder	0.23
957942	AF2-088 E	0.1278	Adder	0.15
957981	AF2-092 C	0.7251	50/50	0.7251
957982	AF2-092 E	0.4834	50/50	0.4834
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.1899	Adder	0.22

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.1266	Adder	0.15
958271	AF2-121 C	0.6856	Adder	0.81
958272	AF2-121 E	0.4571	Adder	0.54
958471	AF2-141	0.5207	Adder	0.61
959792	AF2-270 E	0.3746	50/50	0.3746
959802	AF2-271 E	0.1790	Adder	0.21
960051	AF2-296 C	0.8737	Adder	1.03
960052	AF2-296 E	0.5825	Adder	0.69
960451	AF2-336 C	1.2085	50/50	1.2085
960452	AF2-336 E	0.8057	50/50	0.8057
960461	AF2-337 C	1.2085	50/50	1.2085
960462	AF2-337 E	0.8057	50/50	0.8057
960471	AF2-338 C	1.2085	50/50	1.2085
960472	AF2-338 E	0.8057	50/50	0.8057
960481	AF2-339 C	1.2085	50/50	1.2085
960482	AF2-339 E	0.8057	50/50	0.8057
960901	AF2-381 C	8.4816	50/50	8.4816
960902	AF2-381 E	4.4634	50/50	4.4634
961911	AG1-033 C	0.3406	50/50	0.3406
961912	AG1-033 E	0.1916	50/50	0.1916
961981	AG1-041 C	0.7254	50/50	0.7254
961982	AG1-041 E	0.4836	50/50	0.4836
962292	AG1-077 E	0.1725	Adder	0.38
962411	AG1-090 C O1	1.8170	Adder	4.03
962412	AG1-090 E O1	1.2113	Adder	2.69
962641	AG1-113	0.1510	Adder	0.34
962651	AG1-114	0.3449	Adder	0.77
962951	AG1-144 C	0.3634	Adder	0.81
962952	AG1-144 E	0.2423	Adder	0.54
963541	AG1-203 C	0.2804	Adder	0.62
963542	AG1-203 E	0.1510	Adder	0.34
963561	AG1-205 C	0.2242	Adder	0.5
963562	AG1-205 E	0.1207	Adder	0.27
963881	AG1-241 C	0.6918	50/50	0.6918
963882	AG1-241 E	0.3725	50/50	0.3725
963891	AG1-242 C	0.2508	Adder	0.56
963892	AG1-242 E	0.1351	Adder	0.3
964191	AG1-280 C	0.5034	Adder	1.12
964192	AG1-280 E	0.3356	Adder	0.74
964201	AG1-281 C	0.5023	Adder	1.11
964202	AG1-281 E	0.3349	Adder	0.74
964331	AG1-295 C	1.8203	50/50	1.8203
964332	AG1-295 E	0.9659	50/50	0.9659
964391	AG1-301 C	0.3565	Adder	0.79
964392	AG1-301 E	0.2376	Adder	0.53
964451	AG1-308 C O1	0.2406	Adder	0.53
964452	AG1-308 E O1	0.3363	Adder	0.75
964751	AG1-338 C	0.4438	50/50	0.4438
964752	AG1-338 E	0.0605	50/50	0.0605
964761	AG1-339 C	0.4640	50/50	0.4640
964762	AG1-339 E	0.0403	50/50	0.0403
964771	AG1-340 C	0.4438	50/50	0.4438

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964772	AG1-340 E	0.0605	50/50	0.0605
964911	AG1-355 C	3.4269	50/50	3.4269
964912	AG1-355 E	2.2846	50/50	2.2846
964921	AG1-356 C	0.9235	Adder	2.05
964922	AG1-356 E	0.6156	Adder	1.37
965121	AG1-377 C O1	0.3634	Adder	0.81
965122	AG1-377 E O1	0.2423	Adder	0.54
965131	AG1-378 C O1	0.3634	Adder	0.81
965132	AG1-378 E O1	0.2423	Adder	0.54
965171	AG1-382 C	1.3036	50/50	1.3036
965172	AG1-382 E	0.8690	50/50	0.8690
965221	AG1-387 C	1.3036	50/50	1.3036
965222	AG1-387 E	0.8690	50/50	0.8690
965301	AG1-395 C	0.4670	Adder	1.04
965302	AG1-395 E	0.1387	Adder	0.31
965881	AG1-457 C	1.2007	Adder	2.67
965882	AG1-457 E	0.8005	Adder	1.78
966453	AG1-514 BAT	0.2965	Merchant Transmission	0.2965
966512	AG1-520 E	0.4223	50/50	0.4223
966781	AG1-549 C O1	25.2758	50/50	25.2758
966782	AG1-549 E O1	7.6926	50/50	7.6926
G-007A	G-007A	1.9851	Confirmed LTF	1.9851
VFT	VFT	5.4631	Confirmed LTF	5.4631
CALDERWOOD	CALDERWOOD	0.3017	Confirmed LTF	0.3017
PRAIRIE	PRAIRIE	1.6583	Confirmed LTF	1.6583
CHEOAH	CHEOAH	0.3028	Confirmed LTF	0.3028
CBM-N	CBM-N	1.0728	Confirmed LTF	1.0728
COTTONWOOD	COTTONWOOD	1.3041	Confirmed LTF	1.3041
HAMLET	HAMLET	0.3043	Confirmed LTF	0.3043
GIBSON	GIBSON	0.3587	Confirmed LTF	0.3587
BLUEG	BLUEG	1.1475	Confirmed LTF	1.1475
TRIMBLE	TRIMBLE	0.3684	Confirmed LTF	0.3684
CATAWBA	CATAWBA	0.1942	Confirmed LTF	0.1942

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
166093158	200741	26SEWARD	PENELEC	200766	26FLORENCE	PENELEC	1	PN-P2-3-PN-230-0183-208	breaker	263.0	113.93	115.14	DC	3.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	0.8909	50/50	0.8909
200794	26CONEMAGH	0.2735	50/50	0.2735
200834	26SW_E13_K22	0.0155	50/50	0.0155
200835	26ARN_Z1-066	0.6157	Adder	0.72
200846	26FORWARD	0.0615	50/50	0.0615
200852	26WARR RDG	0.1320	Adder	0.16
200864	K-013 E	2.8269	50/50	2.8269
200883	Q-053 E	3.9870	Adder	4.69
200888	26HIGHLAND	0.1454	50/50	0.1454
200889	26STNY CRK	0.1483	50/50	0.1483
200925	26R32	0.2280	50/50	0.2280
202225	26SCI_S29B	0.0309	50/50	0.0309
203915	26BF_Z2-108	1.3853	Adder	1.63
290086	Q-036 E	2.3695	Adder	2.79
292350	K-023	2.5320	Adder	2.98
292542	L-013 1	2.4627	Adder	2.9
293301	N-039 E	4.0338	Adder	4.75
293393	V3-030E	2.1204	Adder	2.49
293432	R-040 E	0.1385	Adder	0.16
293603	O-018 E	5.9160	50/50	5.9160
293902	O-048 E	2.2164	Adder	2.61
294515	O38_P22	3.5295	Adder	4.15
294903	P-060 E	4.6439	50/50	4.6439
296332	R-032 E	6.8262	50/50	6.8262
913142	Y1-033 E OP1	1.9588	Adder	2.3
936991	AD2-133 C	1.0663	Adder	1.25
936992	AD2-133 E	4.8769	Adder	5.74
938351	AE1-053	0.7696	Adder	0.91
938881	AE1-116	0.4900	50/50	0.4900
938993	AE1-128 C	8.1036	50/50	8.1036
938994	AE1-128 E	5.4024	50/50	5.4024
941231	AE2-117 C	0.6447	Adder	0.76
941232	AE2-117 E	0.4298	Adder	0.51
941241	AE2-118 C	0.6817	Adder	0.8
941242	AE2-118 E	0.4544	Adder	0.53
941331	AE2-129 C	0.5979	Adder	0.7
941332	AE2-129 E	0.3986	Adder	0.47
941351	**AE2-131 C (Suspended)**	**0.5979**	**Adder**	**0.7**
941352	**AE2-131 E (Suspended)**	**0.3986**	**Adder**	**0.47**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942121	AE2-224 C	3.9270	Adder	4.62
942122	AE2-224 E	2.6180	Adder	3.08
942361	AE2-249 C	0.9117	50/50	0.9117
942362	AE2-249 E	0.6078	50/50	0.6078
942511	AE2-264 C	2.4704	Adder	2.91
942512	AE2-264 E	1.6470	Adder	1.94
943711	AF1-039 C O1	0.5182	Adder	0.61
943712	AF1-039 E O1	0.3455	Adder	0.41
944181	AF1-086 C O1	1.1430	Adder	1.34
944182	AF1-086 E O1	4.9728	Adder	5.85
944691	AF1-134 C	0.5781	Adder	0.68
944692	AF1-134 E	0.3854	Adder	0.45
944751	AF1-140 C	1.0562	50/50	1.0562
944752	AF1-140 E	0.7042	50/50	0.7042
944781	AF1-143 C	4.6175	Adder	5.43
944782	AF1-143 E	2.4627	Adder	2.9
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**11.4369**	**50/50**	**11.4369**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**6.1583**	**50/50**	**6.1583**
946571	AF1-321 C O1	1.4849	50/50	1.4849
946572	AF1-321 E O1	0.9899	50/50	0.9899
957001	AF2-001 C O1	1.4849	50/50	1.4849
957002	AF2-001 E O1	0.9899	50/50	0.9899
957011	AF2-002 C O1	0.7424	50/50	0.7424
957012	AF2-002 E O1	0.4950	50/50	0.4950
957512	AF2-045 E	2.0329	50/50	2.0329
957561	AF2-050 C	1.9635	Adder	2.31
957562	AF2-050 E	1.3090	Adder	1.54
957931	**AF2-087 C (Suspended)**	**0.2111**	**Adder**	**0.25**
957932	**AF2-087 E (Suspended)**	**0.2906**	**Adder**	**0.34**
957981	AF2-092 C	0.8031	50/50	0.8031
957982	AF2-092 E	0.5354	50/50	0.5354
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**0.2613**	**50/50**	**0.2613**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.1742**	**50/50**	**0.1742**
958271	AF2-121 C	0.5979	Adder	0.7
958272	AF2-121 E	0.3986	Adder	0.47
958471	AF2-141	0.6157	Adder	0.72
959792	AF2-270 E	0.4188	50/50	0.4188
959802	AF2-271 E	0.1696	Adder	0.2
960051	AF2-296 C	0.5781	Adder	0.68
960052	AF2-296 E	0.3854	Adder	0.45
960451	AF2-336 C	1.3385	50/50	1.3385
960452	AF2-336 E	0.8923	50/50	0.8923
960461	AF2-337 C	1.3385	50/50	1.3385
960462	AF2-337 E	0.8923	50/50	0.8923
960471	AF2-338 C	1.3385	50/50	1.3385
960472	AF2-338 E	0.8923	50/50	0.8923
960481	AF2-339 C	1.3385	50/50	1.3385
960482	AF2-339 E	0.8923	50/50	0.8923
960901	AF2-381 C	9.7592	50/50	9.7592

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960902	AF2-381 E	5.1358	50/50	5.1358
961911	AG1-033 C	0.3842	50/50	0.3842
961912	AG1-033 E	0.2161	50/50	0.2161
961981	AG1-041 C	0.7978	50/50	0.7978
961982	AG1-041 E	0.5318	50/50	0.5318
962292	AG1-077 E	0.4406	50/50	0.4406
962411	AG1-090 C O1	1.5845	Adder	3.52
962412	AG1-090 E O1	1.0563	Adder	2.34
962641	AG1-113	0.3920	50/50	0.3920
962651	AG1-114	0.4079	Adder	0.91
962951	AG1-144 C	0.3169	Adder	0.7
962952	AG1-144 E	0.2113	Adder	0.47
963541	AG1-203 C	0.7160	50/50	0.7160
963542	AG1-203 E	0.3856	50/50	0.3856
963561	AG1-205 C	0.2651	Adder	0.59
963562	AG1-205 E	0.1428	Adder	0.32
963881	AG1-241 C	0.7805	50/50	0.7805
963882	AG1-241 E	0.4202	50/50	0.4202
963891	AG1-242 C	0.1660	Adder	0.37
963892	AG1-242 E	0.0894	Adder	0.2
964191	AG1-280 C	0.5239	Adder	1.16
964192	AG1-280 E	0.3493	Adder	0.78
964201	AG1-281 C	0.5224	Adder	1.16
964202	AG1-281 E	0.3483	Adder	0.77
964391	AG1-301 C	0.3358	Adder	0.75
964392	AG1-301 E	0.2238	Adder	0.5
964451	AG1-308 C O1	0.2037	Adder	0.45
964452	AG1-308 E O1	0.2847	Adder	0.63
964751	AG1-338 C	0.4778	50/50	0.4778
964752	AG1-338 E	0.0651	50/50	0.0651
964761	AG1-339 C	0.4995	50/50	0.4995
964762	AG1-339 E	0.0434	50/50	0.0434
964771	AG1-340 C	0.4778	50/50	0.4778
964772	AG1-340 E	0.0651	50/50	0.0651
964911	AG1-355 C	3.9820	50/50	3.9820
964912	AG1-355 E	2.6546	50/50	2.6546
964921	AG1-356 C	2.3706	50/50	2.3706
964922	AG1-356 E	1.5804	50/50	1.5804
965121	AG1-377 C O1	0.3169	Adder	0.7
965122	AG1-377 E O1	0.2113	Adder	0.47
965131	AG1-378 C O1	0.3169	Adder	0.7
965132	AG1-378 E O1	0.2113	Adder	0.47
965171	AG1-382 C	1.3248	50/50	1.3248
965172	AG1-382 E	0.8832	50/50	0.8832
965221	AG1-387 C	1.3248	50/50	1.3248
965222	AG1-387 E	0.8832	50/50	0.8832
965301	AG1-395 C	0.4072	Adder	0.9
965302	AG1-395 E	0.1210	Adder	0.27
965881	AG1-457 C	1.4138	Adder	3.14
965882	AG1-457 E	0.9425	Adder	2.09
966512	AG1-520 E	0.4950	50/50	0.4950
966783	AG1-549 BAT	3.1880	50/50	3.1880

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007A	G-007A	1.3570	Confirmed LTF	1.3570
VFT	VFT	3.7410	Confirmed LTF	3.7410
CALDERWOOD	CALDERWOOD	0.2157	Confirmed LTF	0.2157
PRAIRIE	PRAIRIE	1.1908	Confirmed LTF	1.1908
CHEOAH	CHEOAH	0.2167	Confirmed LTF	0.2167
CBM-N	CBM-N	0.7380	Confirmed LTF	0.7380
COTTONWOOD	COTTONWOOD	0.9324	Confirmed LTF	0.9324
HAMLET	HAMLET	0.2171	Confirmed LTF	0.2171
GIBSON	GIBSON	0.2572	Confirmed LTF	0.2572
BLUEG	BLUEG	0.8229	Confirmed LTF	0.8229
TRIMBLE	TRIMBLE	0.2643	Confirmed LTF	0.2643
CATAWBA	CATAWBA	0.1386	Confirmed LTF	0.1386

11.6.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166093215	200766	26FLORENCE	PENELEC	200740	26BLRSVLE	PENELEC	1	PN-P2-3-PN-230-0183-208	breaker	282.0	106.18	107.31	DC	3.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	26C.SLOPE (Deactivation : 07/06/2019)	0.8909	50/50	0.8909
200794	26CONEMAGH	0.2735	50/50	0.2735
200834	26SW_E13_K22	0.0155	50/50	0.0155
200835	26ARN_Z1-066	0.6157	Adder	0.72
200846	26FORWARD	0.0615	50/50	0.0615
200852	26WARR RDG	0.1320	Adder	0.16
200864	K-013 E	2.8269	50/50	2.8269
200883	Q-053 E	3.9870	Adder	4.69
200888	26HIGHLAND	0.1454	50/50	0.1454
200889	26STNY CRK	0.1483	50/50	0.1483
200925	26R32	0.2280	50/50	0.2280
202225	26SCI_S29B	0.0309	50/50	0.0309
203915	26BF_Z2-108	1.3853	Adder	1.63
290086	Q-036 E	2.3695	Adder	2.79
292350	K-023	2.5320	Adder	2.98
292542	L-013 1	2.4627	Adder	2.9
293301	N-039 E	4.0338	Adder	4.75
293393	V3-030E	2.1204	Adder	2.49
293432	R-040 E	0.1385	Adder	0.16
293603	O-018 E	5.9160	50/50	5.9160
293902	O-048 E	2.2164	Adder	2.61
294515	O38_P22	3.5295	Adder	4.15
294903	P-060 E	4.6439	50/50	4.6439
296332	R-032 E	6.8262	50/50	6.8262
913142	Y1-033 E OP1	1.9588	Adder	2.3
936991	AD2-133 C	1.0663	Adder	1.25
936992	AD2-133 E	4.8769	Adder	5.74
938351	AE1-053	0.7696	Adder	0.91
938881	AE1-116	0.4900	50/50	0.4900
938993	AE1-128 C	8.1036	50/50	8.1036
938994	AE1-128 E	5.4024	50/50	5.4024
941231	AE2-117 C	0.6447	Adder	0.76
941232	AE2-117 E	0.4298	Adder	0.51
941241	AE2-118 C	0.6817	Adder	0.8
941242	AE2-118 E	0.4544	Adder	0.53
941331	AE2-129 C	0.5979	Adder	0.7
941332	AE2-129 E	0.3986	Adder	0.47
941351	**AE2-131 C (Suspended)**	**0.5979**	**Adder**	**0.7**
941352	**AE2-131 E (Suspended)**	**0.3986**	**Adder**	**0.47**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942121	AE2-224 C	3.9270	Adder	4.62
942122	AE2-224 E	2.6180	Adder	3.08
942361	AE2-249 C	0.9117	50/50	0.9117
942362	AE2-249 E	0.6078	50/50	0.6078
942511	AE2-264 C	2.4704	Adder	2.91
942512	AE2-264 E	1.6470	Adder	1.94
943711	AF1-039 C O1	0.5182	Adder	0.61
943712	AF1-039 E O1	0.3455	Adder	0.41
944181	AF1-086 C O1	1.1430	Adder	1.34
944182	AF1-086 E O1	4.9728	Adder	5.85
944691	AF1-134 C	0.5781	Adder	0.68
944692	AF1-134 E	0.3854	Adder	0.45
944751	AF1-140 C	1.0562	50/50	1.0562
944752	AF1-140 E	0.7042	50/50	0.7042
944781	AF1-143 C	4.6175	Adder	5.43
944782	AF1-143 E	2.4627	Adder	2.9
945671	AF1-232 C (Withdrawn : 01/19/2021)	11.4369	50/50	11.4369
945672	AF1-232 E (Withdrawn : 01/19/2021)	6.1583	50/50	6.1583
946571	AF1-321 C O1	1.4849	50/50	1.4849
946572	AF1-321 E O1	0.9899	50/50	0.9899
957001	AF2-001 C O1	1.4849	50/50	1.4849
957002	AF2-001 E O1	0.9899	50/50	0.9899
957011	AF2-002 C O1	0.7424	50/50	0.7424
957012	AF2-002 E O1	0.4950	50/50	0.4950
957512	AF2-045 E	2.0329	50/50	2.0329
957561	AF2-050 C	1.9635	Adder	2.31
957562	AF2-050 E	1.3090	Adder	1.54
957931	AF2-087 C (Suspended)	0.2111	Adder	0.25
957932	AF2-087 E (Suspended)	0.2906	Adder	0.34
957981	AF2-092 C	0.8031	50/50	0.8031
957982	AF2-092 E	0.5354	50/50	0.5354
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.2613	50/50	0.2613
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.1742	50/50	0.1742
958271	AF2-121 C	0.5979	Adder	0.7
958272	AF2-121 E	0.3986	Adder	0.47
958471	AF2-141	0.6157	Adder	0.72
959792	AF2-270 E	0.4188	50/50	0.4188
959802	AF2-271 E	0.1696	Adder	0.2
960051	AF2-296 C	0.5781	Adder	0.68
960052	AF2-296 E	0.3854	Adder	0.45
960451	AF2-336 C	1.3385	50/50	1.3385
960452	AF2-336 E	0.8923	50/50	0.8923
960461	AF2-337 C	1.3385	50/50	1.3385
960462	AF2-337 E	0.8923	50/50	0.8923
960471	AF2-338 C	1.3385	50/50	1.3385
960472	AF2-338 E	0.8923	50/50	0.8923
960481	AF2-339 C	1.3385	50/50	1.3385
960482	AF2-339 E	0.8923	50/50	0.8923
960901	AF2-381 C	9.7592	50/50	9.7592

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960902	AF2-381 E	5.1358	50/50	5.1358
961911	AG1-033 C	0.3842	50/50	0.3842
961912	AG1-033 E	0.2161	50/50	0.2161
961981	AG1-041 C	0.7978	50/50	0.7978
961982	AG1-041 E	0.5318	50/50	0.5318
962292	AG1-077 E	0.4406	50/50	0.4406
962411	AG1-090 C O1	1.5845	Adder	3.52
962412	AG1-090 E O1	1.0563	Adder	2.34
962641	AG1-113	0.3920	50/50	0.3920
962651	AG1-114	0.4079	Adder	0.91
962951	AG1-144 C	0.3169	Adder	0.7
962952	AG1-144 E	0.2113	Adder	0.47
963541	AG1-203 C	0.7160	50/50	0.7160
963542	AG1-203 E	0.3856	50/50	0.3856
963561	AG1-205 C	0.2651	Adder	0.59
963562	AG1-205 E	0.1428	Adder	0.32
963881	AG1-241 C	0.7805	50/50	0.7805
963882	AG1-241 E	0.4202	50/50	0.4202
963891	AG1-242 C	0.1660	Adder	0.37
963892	AG1-242 E	0.0894	Adder	0.2
964191	AG1-280 C	0.5239	Adder	1.16
964192	AG1-280 E	0.3493	Adder	0.78
964201	AG1-281 C	0.5224	Adder	1.16
964202	AG1-281 E	0.3483	Adder	0.77
964391	AG1-301 C	0.3358	Adder	0.75
964392	AG1-301 E	0.2238	Adder	0.5
964451	AG1-308 C O1	0.2037	Adder	0.45
964452	AG1-308 E O1	0.2847	Adder	0.63
964751	AG1-338 C	0.4778	50/50	0.4778
964752	AG1-338 E	0.0651	50/50	0.0651
964761	AG1-339 C	0.4995	50/50	0.4995
964762	AG1-339 E	0.0434	50/50	0.0434
964771	AG1-340 C	0.4778	50/50	0.4778
964772	AG1-340 E	0.0651	50/50	0.0651
964911	AG1-355 C	3.9820	50/50	3.9820
964912	AG1-355 E	2.6546	50/50	2.6546
964921	AG1-356 C	2.3706	50/50	2.3706
964922	AG1-356 E	1.5804	50/50	1.5804
965121	AG1-377 C O1	0.3169	Adder	0.7
965122	AG1-377 E O1	0.2113	Adder	0.47
965131	AG1-378 C O1	0.3169	Adder	0.7
965132	AG1-378 E O1	0.2113	Adder	0.47
965171	AG1-382 C	1.3248	50/50	1.3248
965172	AG1-382 E	0.8832	50/50	0.8832
965221	AG1-387 C	1.3248	50/50	1.3248
965222	AG1-387 E	0.8832	50/50	0.8832
965301	AG1-395 C	0.4072	Adder	0.9
965302	AG1-395 E	0.1210	Adder	0.27
965881	AG1-457 C	1.4138	Adder	3.14
965882	AG1-457 E	0.9425	Adder	2.09
966512	AG1-520 E	0.4950	50/50	0.4950
966783	AG1-549 BAT	3.1880	50/50	3.1880

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
G-007A	G-007A	1.3570	Confirmed LTF	1.3570
VFT	VFT	3.7410	Confirmed LTF	3.7410
CALDERWOOD	CALDERWOOD	0.2157	Confirmed LTF	0.2157
PRAIRIE	PRAIRIE	1.1908	Confirmed LTF	1.1908
CHEOAH	CHEOAH	0.2167	Confirmed LTF	0.2167
CBM-N	CBM-N	0.7380	Confirmed LTF	0.7380
COTTONWOOD	COTTONWOOD	0.9324	Confirmed LTF	0.9324
HAMLET	HAMLET	0.2171	Confirmed LTF	0.2171
GIBSON	GIBSON	0.2572	Confirmed LTF	0.2572
BLUEG	BLUEG	0.8229	Confirmed LTF	0.8229
TRIMBLE	TRIMBLE	0.2643	Confirmed LTF	0.2643
CATAWBA	CATAWBA	0.1386	Confirmed LTF	0.1386

11.6.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
167541870	200795	26SHELOCTA	PENELEC	200810	26KEYSTONE	PENELEC	1	ATSI-P2-3-CEI-345-004D	breaker	923.0	200.02	206.51	DC	59.27

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.6646	50/50	0.6646
200805	**26COLVER13 (Deactivation : 01/09/2020)**	**4.5894**	**50/50**	**4.5894**
200809	26SITHE	2.0742	50/50	2.0742
200835	26ARN_Z1-066	1.3692	Adder	1.61
200837	26HOMER C1	35.7218	50/50	35.7218
200838	26HOMER C2	30.7825	50/50	30.7825
200839	26HOMER C3	32.5873	50/50	32.5873
200846	26FORWARD	0.1356	50/50	0.1356
200852	26WARR RDG	0.3980	Adder	0.47
200864	K-013 E	6.2294	50/50	6.2294
200883	Q-053 E	9.8263	Adder	11.56
200894	26K02	7.0491	Adder	8.29
202158	26CON.GEN1	0.1138	50/50	0.1138
203915	26BF_Z2-108	3.0808	Adder	3.62
203932	AA2-133 GEN	2.1346	Adder	2.51
203999	P-047 E	12.2344	Adder	14.39
235003	AC1-025 E	0.1776	Adder	0.21
236828	01GRAYMONT	0.4823	Adder	0.57
290086	Q-036 E	7.1437	Adder	8.4
292350	K-023	5.6310	Adder	6.62
292542	L-013 1	5.4770	Adder	6.44
293301	N-039 E	13.0930	Adder	15.4
293393	V3-030E	6.0349	Adder	7.1
293432	R-040 E	0.3081	Adder	0.36
293603	O-018 E	11.5711	Adder	13.61
293902	O-048 E	4.9293	Adder	5.8
294515	O38_P22	11.4564	Adder	13.48
294903	P-060 E	8.8350	Adder	10.39
296332	R-032 E	13.3513	Adder	15.71
913142	Y1-033 E OP1	4.4072	Adder	5.18
915951	Y3-092 FTIR	223.8400	Merchant Transmission	223.8400
916202	Z1-069 E	9.9831	Adder	11.74
919201	AA1-144 OP	19.3180	Adder	22.73
920341	**AA2-132 (Withdrawn : 12/07/2020)**	**2.6210**	**Adder**	**3.08**
921642	AA2-000	61.0711	Adder	71.85
930511	AB2-092	2.2424	Adder	2.64
931092	AB1-160 E	2.8523	Adder	3.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935191	AD1-154	3.8588	Adder	4.54
936421	AD2-055	4.6166	Adder	5.43
936991	AD2-133 C	3.2147	Adder	3.78
936992	AD2-133 E	14.7036	Adder	17.3
938351	AE1-053	1.7116	Adder	2.01
938881	AE1-116	0.9208	Adder	1.08
938951	AE1-123	3.0346	Adder	3.57
938993	AE1-128 C	15.6317	Adder	18.39
938994	AE1-128 E	10.4211	Adder	12.26
939171	AE1-147 C	1.4512	Adder	1.71
939172	AE1-147 E	0.9674	Adder	1.14
939291	AE1-160 C	2.2092	Adder	2.6
939292	AE1-160 E	1.2699	Adder	1.49
940201	AE2-001 C	1.4488	Adder	1.7
940202	AE2-001 E	0.9659	Adder	1.14
940681	**AE2-055 C (Suspended)**	**1.4132**	**Adder**	**1.66**
940682	**AE2-055 E (Suspended)**	**0.9421**	**Adder**	**1.11**
940861	AE2-074 C	2.7658	Adder	3.25
940862	AE2-074 E	3.6408	Adder	4.28
941191	AE2-113 C	11.0656	Adder	13.02
941192	AE2-113 E	11.9140	Adder	14.02
941231	AE2-117 C	1.9341	Adder	2.28
941232	AE2-117 E	1.2894	Adder	1.52
941241	AE2-118 C	2.0112	Adder	2.37
941242	AE2-118 E	1.3408	Adder	1.58
941261	AE2-120 C	1.4475	Adder	1.7
941262	AE2-120 E	0.9650	Adder	1.14
941271	AE2-121 C	0.7736	Adder	0.91
941272	AE2-121 E	0.5166	Adder	0.61
941321	AE2-126 C	1.9141	Adder	2.25
941322	AE2-126 E	1.2761	Adder	1.5
941331	AE2-129 C	2.0311	Adder	2.39
941332	AE2-129 E	1.3541	Adder	1.59
941351	**AE2-131 C (Suspended)**	**2.0311**	**Adder**	**2.39**
941352	**AE2-131 E (Suspended)**	**1.3541**	**Adder**	**1.59**
941421	AE2-139 C	3.8159	Adder	8.47
941422	AE2-139 E	2.5439	Adder	5.65
942121	AE2-224 C	12.8301	Adder	15.09
942122	AE2-224 E	8.5534	Adder	10.06
942351	AE2-248 C	1.1425	Adder	1.34
942352	AE2-248 E	0.7617	Adder	0.9
942361	AE2-249 C	1.7586	Adder	2.07
942362	AE2-249 E	1.1724	Adder	1.38
942491	AE2-262 C	6.5378	Adder	7.69
942492	AE2-262 E	4.3934	Adder	5.17
942501	AE2-263 C	6.1455	Adder	7.23
942502	AE2-263 E	4.1031	Adder	4.83
942511	AE2-264 C	7.8222	Adder	9.2
942512	AE2-264 E	5.2148	Adder	6.14
942811	AE2-299 C	5.3081	Adder	6.24
942812	AE2-299 E	21.2323	Adder	24.98
942961	AE2-316 C	6.2569	Adder	7.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942962	AE2-316 E	8.9224	Adder	10.5
943151	AE2-344 C	12.4284	Adder	14.62
943152	AE2-344 E	8.2856	Adder	9.75
943351	AF1-006 C	2.2417	Adder	2.64
943352	AF1-006 E	1.2610	Adder	1.48
943711	AF1-039 C O1	1.1659	Adder	1.37
943712	AF1-039 E O1	0.7773	Adder	0.91
943751	AF1-043	13.8498	Adder	16.29
944001	**AF1-068 C O1 (Withdrawn : 12/15/2020)**	**1.5185**	**Adder**	**1.79**
944002	**AF1-068 E O1 (Withdrawn : 12/15/2020)**	**0.8542**	**Adder**	**1.0**
944181	AF1-086 C O1	4.2272	Adder	4.97
944182	AF1-086 E O1	18.3905	Adder	21.64
944261	AF1-094 C	2.0435	Adder	2.4
944262	AF1-094 E	1.3623	Adder	1.6
944281	AF1-096 C	2.0874	Adder	2.46
944282	AF1-096 E	1.3916	Adder	1.64
944301	AF1-098 C	8.0804	Adder	9.51
944302	AF1-098 E	5.3870	Adder	6.34
944311	AF1-099 C	9.9243	Adder	11.68
944312	AF1-099 E	6.6162	Adder	7.78
944321	AF1-100 C	21.0745	Adder	24.79
944322	AF1-100 E	14.0496	Adder	16.53
944381	AF1-103 O1	3.4221	Adder	4.03
944391	AF1-104 O1	3.7072	Adder	4.36
944411	AF1-106 O1	2.8506	Adder	3.35
944471	AF1-112 C	1.4320	Adder	1.68
944472	AF1-112 E	0.9547	Adder	1.12
944671	**AF1-132 C O1 (Withdrawn : 12/15/2020)**	**1.4211**	**Adder**	**1.67**
944672	**AF1-132 E O1 (Withdrawn : 12/15/2020)**	**0.9474**	**Adder**	**1.11**
944691	AF1-134 C	2.2226	Adder	2.61
944692	AF1-134 E	1.4817	Adder	1.74
944751	AF1-140 C	2.0998	Adder	2.47
944752	AF1-140 E	1.3999	Adder	1.65
944771	AF1-142 C	15.8789	Adder	18.68
944772	AF1-142 E	10.5860	Adder	12.45
944781	AF1-143 C	10.2694	Adder	12.08
944782	AF1-143 E	5.4770	Adder	6.44
944881	AF1-153 C O1	1.7866	Adder	2.1
944882	AF1-153 E O1	1.1911	Adder	1.4
944901	AF1-155 C	1.7872	Adder	2.1
944902	AF1-155 E	1.1915	Adder	1.4
945021	AF1-167 C	1.1677	Adder	1.37
945022	AF1-167 E	0.7799	Adder	0.92
945051	AF1-170 C	8.4564	Adder	9.95
945052	AF1-170 E	5.6376	Adder	6.63
945451	AF1-210 C	1.2813	Adder	1.51
945452	AF1-210 E	0.8542	Adder	1.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945491	AF1-214 C (Withdrawn : 12/03/2020)	1.4476	Adder	1.7
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.9651	Adder	1.14
945671	AF1-232 C (Withdrawn : 01/19/2021)	21.6677	Adder	25.49
945672	AF1-232 E (Withdrawn : 01/19/2021)	11.6672	Adder	13.73
945751	AF1-240 C O1	2.3153	Adder	2.72
945752	AF1-240 E O1	1.5435	Adder	1.82
946071	AF1-272 C O1	22.6670	50/50	22.6670
946072	AF1-272 E O1	15.1114	50/50	15.1114
946111	AF1-276 C	12.7727	Adder	15.03
946112	AF1-276 E	6.2911	Adder	7.4
946121	AF1-277 C	12.7727	Adder	15.03
946122	AF1-277 E	6.2911	Adder	7.4
946131	AF1-278 C	10.1877	Adder	11.99
946132	AF1-278 E	5.0633	Adder	5.96
946211	AF1-286 C	1.1545	Adder	1.36
946212	AF1-286 E	0.7839	Adder	0.92
946221	AF1-287 C	2.1338	Adder	2.51
946222	AF1-287 E	1.4226	Adder	1.67
946381	AF1-302 C	2.7323	Adder	3.21
946382	AF1-302 E	3.6430	Adder	4.29
946401	AF1-304 C	10.5218	Adder	12.38
946402	AF1-304 E	7.0145	Adder	8.25
946421	AF1-306 C	7.4222	Adder	8.73
946422	AF1-306 E	29.6889	Adder	34.93
946571	AF1-321 C O1	3.2539	50/50	3.2539
946572	AF1-321 E O1	2.1693	50/50	2.1693
946771	AF1-217 C	2.1338	Adder	2.51
946772	AF1-217 E	1.4226	Adder	1.67
957001	AF2-001 C O1	3.2539	50/50	3.2539
957002	AF2-001 E O1	2.1693	50/50	2.1693
957011	AF2-002 C O1	1.6270	50/50	1.6270
957012	AF2-002 E O1	1.0846	50/50	1.0846
957161	AF2-010 C	7.8411	Adder	9.22
957162	AF2-010 E	5.2842	Adder	6.22
957451	AF2-039 C	1.2786	Adder	1.5
957452	AF2-039 E	0.8524	Adder	1.0
957512	AF2-045 E	3.9422	Adder	4.64
957561	AF2-050 C	6.4150	Adder	7.55
957562	AF2-050 E	4.2767	Adder	5.03
957571	AF2-051 C	6.1800	Adder	7.27
957572	AF2-051 E	3.1836	Adder	3.75
957931	AF2-087 C (Suspended)	0.5746	Adder	0.68
957932	AF2-087 E (Suspended)	0.7912	Adder	0.93
957941	AF2-088 C	0.6156	Adder	0.72
957942	AF2-088 E	0.4104	Adder	0.48
957981	AF2-092 C	1.5593	Adder	1.83
957982	AF2-092 E	1.0395	Adder	1.22
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.4911	Adder	0.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.3274	Adder	0.39
958271	AF2-121 C	2.0311	Adder	2.39
958272	AF2-121 E	1.3541	Adder	1.59
958361	AF2-130 C	2.0649	Adder	2.43
958362	AF2-130 E	1.3766	Adder	1.62
958471	AF2-141	1.3692	Adder	1.61
958731	AF2-164 C O1	9.7993	Adder	11.53
958732	AF2-164 E O1	6.5329	Adder	7.69
958741	AF2-165 C	2.1235	Adder	2.5
958742	AF2-165 E	1.4157	Adder	1.67
958751	AF2-166 C	2.0649	Adder	2.43
958752	AF2-166 E	1.3766	Adder	1.62
959061	AF2-197 C O1	4.8988	Adder	5.76
959062	AF2-197 E O1	7.3483	Adder	8.65
959441	AF2-235 C	1.0437	Adder	1.23
959442	AF2-235 E	0.6958	Adder	0.82
959471	AF2-238 C	1.7410	Adder	2.05
959472	AF2-238 E	1.1607	Adder	1.37
959481	AF2-239 C	1.3189	Adder	1.55
959482	AF2-239 E	1.0575	Adder	1.24
959491	AF2-240 C	0.5388	Adder	0.63
959492	AF2-240 E	0.4589	Adder	0.54
959501	AF2-241 C	1.6106	Adder	1.89
959502	AF2-241 E	1.2400	Adder	1.46
959521	AF2-243 C	1.5927	Adder	1.87
959522	AF2-243 E	1.0618	Adder	1.25
959741	AF2-265 C	1.2477	Adder	1.47
959742	AF2-265 E	0.9286	Adder	1.09
959792	AF2-270 E	0.8079	Adder	0.95
959802	AF2-271 E	0.5015	Adder	0.59
959822	AF2-273 E	0.5133	Adder	0.6
960022	AF2-293 E	0.1411	Adder	0.17
960031	AF2-294 C	1.5805	Adder	1.86
960032	AF2-294 E	1.0537	Adder	1.24
960041	AF2-295 C	1.7872	Adder	2.1
960042	AF2-295 E	1.1915	Adder	1.4
960051	AF2-296 C	2.2226	Adder	2.61
960052	AF2-296 E	1.4817	Adder	1.74
960271	AF2-318 C	1.4259	Adder	1.68
960272	AF2-318 E	0.9506	Adder	1.12
960451	AF2-336 C	2.5989	Adder	3.06
960452	AF2-336 E	1.7326	Adder	2.04
960461	AF2-337 C	2.5989	Adder	3.06
960462	AF2-337 E	1.7326	Adder	2.04
960471	AF2-338 C	2.5989	Adder	3.06
960472	AF2-338 E	1.7326	Adder	2.04
960481	AF2-339 C	2.5989	Adder	3.06
960482	AF2-339 E	1.7326	Adder	2.04
960901	AF2-381 C	21.6798	50/50	21.6798
960902	AF2-381 E	11.4090	50/50	11.4090
961141	AF2-405	1.4253	Adder	1.68
961151	AF2-406	10.6896	Adder	12.58

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961201	AF2-411 O1 (Withdrawn : 12/08/2020)	52.8437	Adder	62.17
961211	AF2-412	21.3486	Adder	25.12
961451	AF2-436	0.1610	Adder	0.19
961911	AG1-033 C	0.8602	50/50	0.8602
961912	AG1-033 E	0.4838	50/50	0.4838
961971	AG1-040 C	1.1606	Adder	2.58
961972	AG1-040 E	0.7737	Adder	1.72
961981	AG1-041 C	0.8249	Adder	1.83
961982	AG1-041 E	0.5500	Adder	1.22
962292	AG1-077 E	0.4430	Adder	0.98
962411	AG1-090 C O1	5.3825	Adder	11.95
962412	AG1-090 E O1	3.5883	Adder	7.97
962511	AG1-100 C	1.1449	Adder	2.54
962512	AG1-100 E	0.7633	Adder	1.69
962641	AG1-113	0.3904	Adder	0.87
962651	AG1-114	0.9071	Adder	2.01
962891	AG1-138 C	0.4332	Adder	0.96
962892	AG1-138 E	0.0228	Adder	0.05
962901	AG1-139 C	0.4455	Adder	0.99
962902	AG1-139 E	0.0234	Adder	0.05
962911	AG1-140 C	0.1582	Adder	0.35
962912	AG1-140 E	0.0721	Adder	0.16
962951	AG1-144 C	1.0765	Adder	2.39
962952	AG1-144 E	0.7177	Adder	1.59
963281	AG1-177 C O1	1.0830	Adder	2.4
963282	AG1-177 E O1	0.7220	Adder	1.6
963441	AG1-193 C	1.1848	Adder	2.63
963442	AG1-193 E	0.7899	Adder	1.75
963481	AG1-197 C	0.8755	Adder	1.94
963482	AG1-197 E	0.5837	Adder	1.3
963491	AG1-198 C	0.6498	Adder	1.44
963492	AG1-198 E	0.4332	Adder	0.96
963531	AG1-202 C	0.6396	Adder	1.42
963532	AG1-202 E	0.3295	Adder	0.73
963541	AG1-203 C	0.7199	Adder	1.6
963542	AG1-203 E	0.3877	Adder	0.86
963561	AG1-205 C	0.5896	Adder	1.31
963562	AG1-205 E	0.3175	Adder	0.7
963571	AG1-206 C	0.5510	Adder	1.22
963572	AG1-206 E	0.2967	Adder	0.66
963881	AG1-241 C	1.7472	50/50	1.7472
963882	AG1-241 E	0.9408	50/50	0.9408
963891	AG1-242 C	0.6381	Adder	1.42
963892	AG1-242 E	0.3436	Adder	0.76
963941	AG1-247 C	0.3701	Adder	0.82
963942	AG1-247 E	0.1964	Adder	0.44
963991	AG1-253 C	0.2374	Adder	0.53
963992	AG1-253 E	0.1143	Adder	0.25
964031	AG1-257 C	0.5261	Adder	1.17
964032	AG1-257 E	0.7353	Adder	1.63
964041	AG1-258 C	0.5261	Adder	1.17
964042	AG1-258 E	0.7353	Adder	1.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964191	AG1-280 C	1.2954	Adder	2.88
964192	AG1-280 E	0.8636	Adder	1.92
964201	AG1-281 C	1.2937	Adder	2.87
964202	AG1-281 E	0.8624	Adder	1.91
964331	AG1-295 C	0.5652	Adder	1.25
964332	AG1-295 E	0.2999	Adder	0.67
964341	AG1-296 C	0.5250	Adder	1.17
964342	AG1-296 E	0.2827	Adder	0.63
964391	AG1-301 C	1.0124	Adder	2.25
964392	AG1-301 E	0.6750	Adder	1.5
964411	AG1-303 C O1	2.6203	Adder	5.82
964412	AG1-303 E O1	1.7469	Adder	3.88
964451	AG1-308 C O1	0.7292	Adder	1.62
964452	AG1-308 E O1	1.0191	Adder	2.26
964701	AG1-333 C	0.3071	Adder	0.68
964702	AG1-333 E	0.0419	Adder	0.09
964751	AG1-338 C	0.5014	Adder	1.11
964752	AG1-338 E	0.0684	Adder	0.15
964761	AG1-339 C	0.5242	Adder	1.16
964762	AG1-339 E	0.0456	Adder	0.1
964771	AG1-340 C	0.5014	Adder	1.11
964772	AG1-340 E	0.0684	Adder	0.15
964911	AG1-355 C	8.7681	50/50	8.7681
964912	AG1-355 E	5.8454	50/50	5.8454
964921	AG1-356 C	2.3765	Adder	5.28
964922	AG1-356 E	1.5843	Adder	3.52
965121	AG1-377 C O1	1.0765	Adder	2.39
965122	AG1-377 E O1	0.7177	Adder	1.59
965131	AG1-378 C O1	1.0765	Adder	2.39
965132	AG1-378 E O1	0.7177	Adder	1.59
965171	AG1-382 C	1.3685	Adder	3.04
965172	AG1-382 E	0.9123	Adder	2.03
965201	AG1-385 C	1.2176	Adder	2.7
965202	AG1-385 E	0.3606	Adder	0.8
965221	AG1-387 C	1.3685	Adder	3.04
965222	AG1-387 E	0.9123	Adder	2.03
965241	AG1-389 C O1	1.1303	Adder	2.51
965242	AG1-389 E O1	0.7535	Adder	1.67
965251	AG1-390 C O1	1.1303	Adder	2.51
965252	AG1-390 E O1	0.7535	Adder	1.67
965261	AG1-391 C O1	1.1303	Adder	2.51
965262	AG1-391 E O1	0.7535	Adder	1.67
965271	AG1-392 C O1	2.2606	Adder	5.02
965272	AG1-392 E O1	1.5070	Adder	3.35
965301	AG1-395 C	1.3833	Adder	3.07
965302	AG1-395 E	0.4109	Adder	0.91
965861	AG1-455	3.3735	Adder	7.49
965881	AG1-457 C	3.1370	Adder	6.96
965882	AG1-457 E	2.0913	Adder	4.64
966121	AG1-481	1.4083	Adder	3.13
966512	AG1-520 E	1.0846	50/50	1.0846
966771	AG1-548 C	10.3636	Adder	23.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966772	AG1-548 E	3.1541	Adder	7.0
966781	AG1-549 C O1	45.4434	50/50	45.4434
966782	AG1-549 E O1	13.8306	50/50	13.8306
G-007A	G-007A	2.0523	Confirmed LTF	2.0523
VFT	VFT	5.9533	Confirmed LTF	5.9533
CALDERWOOD	CALDERWOOD	0.6247	Confirmed LTF	0.6247
PRAIRIE	PRAIRIE	3.3889	Confirmed LTF	3.3889
CHEOAH	CHEOAH	0.6281	Confirmed LTF	0.6281
CBM-N	CBM-N	1.3320	Confirmed LTF	1.3320
COTTONWOOD	COTTONWOOD	2.6880	Confirmed LTF	2.6880
HAMLET	HAMLET	0.6653	Confirmed LTF	0.6653
GIBSON	GIBSON	0.7267	Confirmed LTF	0.7267
BLUEG	BLUEG	2.3158	Confirmed LTF	2.3158
TRIMBLE	TRIMBLE	0.7429	Confirmed LTF	0.7429
CATAWBA	CATAWBA	0.4158	Confirmed LTF	0.4158

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165180297	200810	26KEYSTONE	PENELEC	999332	KEYSTONE	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.64	156.3	DC	41.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.4562	50/50	0.4562
200794	26CONEMAGH	0.3075	50/50	0.3075
200809	26SITHE	1.4282	50/50	1.4282
200833	26SEWRDB34	14.8354	50/50	14.8354
200835	26ARN_Z1-066	0.9301	Adder	1.09
200837	26HOMER C1	24.5961	50/50	24.5961
200838	26HOMER C2	20.3806	50/50	20.3806
200839	26HOMER C3	21.5755	50/50	21.5755
200846	26FORWARD	0.0922	50/50	0.0922
200852	26WARR RDG	0.2604	Adder	0.31
200864	K-013 E	4.2361	50/50	4.2361
200883	Q-053 E	6.5672	Adder	7.73
200888	26HIGHLAND	0.2265	50/50	0.2265
200894	26K02	4.1917	Adder	4.93
200906	26KEYSTN#3	0.7604	50/50	0.7604
200925	26R32	0.3551	50/50	0.3551
202158	26CON.GEN1	0.0793	50/50	0.0793
202160	26CON.GEN2	0.0555	50/50	0.0555
203915	26BF_Z2-108	2.0927	Adder	2.46
203999	P-047 E	7.4720	Adder	8.79
235003	AC1-025 E	0.1061	Adder	0.12
236828	01GRAYMONT	0.2879	Adder	0.34
290086	Q-036 E	4.6070	Adder	5.42
292350	K-023	3.8251	Adder	4.5
292542	L-013 1	3.7204	Adder	4.38
293301	N-039 E	8.8150	Adder	10.37
293393	V3-030E	4.0181	Adder	4.73
293432	R-040 E	0.2093	Adder	0.25
293603	O-018 E	9.2165	50/50	9.2165
293902	O-048 E	3.3484	Adder	3.94
294515	O38_P22	7.7131	Adder	9.07
294903	P-060 E	5.9947	Adder	7.05
296332	R-032 E	10.6344	50/50	10.6344
913142	Y1-033 E OP1	2.9894	Adder	3.52
916202	Z1-069 E	6.0533	Adder	7.12
919201	AA1-144 OP	11.5038	Adder	13.53
920341	**AA2-132 (Withdrawn : 12/07/2020)**	**1.5694**	**Adder**	**1.85**
921642	AA2-000	36.2420	Adder	42.64
930511	AB2-092	1.3307	Adder	1.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
931092	AB1-160 E	1.7295	Adder	2.03
935191	AD1-154	2.3759	Adder	2.8
936421	AD2-055	2.7397	Adder	3.22
936991	AD2-133 C	2.0731	Adder	2.44
936992	AD2-133 E	9.4824	Adder	11.16
938351	AE1-053	1.1626	Adder	1.37
938881	AE1-116	0.6259	Adder	0.74
938951	AE1-123	1.7193	Adder	2.02
938993	AE1-128 C	10.5852	Adder	12.45
938994	AE1-128 E	7.0568	Adder	8.3
939171	AE1-147 C	0.8659	Adder	1.02
939172	AE1-147 E	0.5773	Adder	0.68
939291	AE1-160 C	1.0615	Adder	1.25
939292	AE1-160 E	0.6101	Adder	0.72
940201	AE2-001 C	0.8646	Adder	1.02
940202	AE2-001 E	0.5764	Adder	0.68
940681	**AE2-055 C (Suspended)**	**0.8447**	**Adder**	**0.99**
940682	**AE2-055 E (Suspended)**	**0.5631**	**Adder**	**0.66**
940861	AE2-074 C	1.6654	Adder	1.96
940862	AE2-074 E	2.1923	Adder	2.58
941191	AE2-113 C	6.5539	Adder	7.71
941192	AE2-113 E	7.0564	Adder	8.3
941231	AE2-117 C	1.2652	Adder	1.49
941232	AE2-117 E	0.8435	Adder	0.99
941241	AE2-118 C	1.3245	Adder	1.56
941242	AE2-118 E	0.8830	Adder	1.04
941261	AE2-120 C	0.8638	Adder	1.02
941262	AE2-120 E	0.5759	Adder	0.68
941271	AE2-121 C	0.4616	Adder	0.54
941272	AE2-121 E	0.3082	Adder	0.36
941321	AE2-126 C	1.1448	Adder	1.35
941322	AE2-126 E	0.7632	Adder	0.9
941331	AE2-129 C	1.2830	Adder	1.51
941332	AE2-129 E	0.8553	Adder	1.01
941351	**AE2-131 C (Suspended)**	**1.2830**	**Adder**	**1.51**
941352	**AE2-131 E (Suspended)**	**0.8553**	**Adder**	**1.01**
941421	AE2-139 C	2.2721	Adder	5.04
941422	AE2-139 E	1.5147	Adder	3.36
942121	AE2-224 C	8.6669	Adder	10.2
942122	AE2-224 E	5.7780	Adder	6.8
942351	AE2-248 C	0.6823	Adder	0.8
942352	AE2-248 E	0.4549	Adder	0.54
942361	AE2-249 C	1.1908	Adder	1.4
942362	AE2-249 E	0.7939	Adder	0.93
942491	AE2-262 C	3.8837	Adder	4.57
942492	AE2-262 E	2.6098	Adder	3.07
942501	AE2-263 C	3.6506	Adder	4.29
942502	AE2-263 E	2.4374	Adder	2.87
942511	AE2-264 C	5.1632	Adder	6.07
942512	AE2-264 E	3.4422	Adder	4.05
942811	AE2-299 C	2.2301	Adder	2.62
942812	AE2-299 E	8.9205	Adder	10.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942961	AE2-316 C	3.6572	Adder	4.3
942962	AE2-316 E	5.2151	Adder	6.14
943151	AE2-344 C	4.8233	Adder	5.67
943152	AE2-344 E	3.2155	Adder	3.78
943711	AF1-039 C O1	0.7909	Adder	0.93
943712	AF1-039 E O1	0.5272	Adder	0.62
943751	AF1-043	8.2190	Adder	9.67
944001	**AF1-068 C O1 (Withdrawn : 12/15/2020)**	**0.9072**	**Adder**	**1.07**
944002	**AF1-068 E O1 (Withdrawn : 12/15/2020)**	**0.5103**	**Adder**	**0.6**
944181	AF1-086 C O1	2.7629	Adder	3.25
944182	AF1-086 E O1	12.0200	Adder	14.14
944261	AF1-094 C	0.8818	Adder	1.04
944262	AF1-094 E	0.5879	Adder	0.69
944281	AF1-096 C	1.0030	Adder	1.18
944282	AF1-096 E	0.6686	Adder	0.79
944301	AF1-098 C	3.4305	Adder	4.04
944302	AF1-098 E	2.2870	Adder	2.69
944311	AF1-099 C	5.8954	Adder	6.94
944312	AF1-099 E	3.9303	Adder	4.62
944321	AF1-100 C	12.5371	Adder	14.75
944322	AF1-100 E	8.3580	Adder	9.83
944381	AF1-103 O1	1.7331	Adder	2.04
944411	AF1-106 O1	1.7177	Adder	2.02
944471	AF1-112 C	0.8552	Adder	1.01
944472	AF1-112 E	0.5701	Adder	0.67
944671	**AF1-132 C O1 (Withdrawn : 12/15/2020)**	**0.8490**	**Adder**	**1.0**
944672	**AF1-132 E O1 (Withdrawn : 12/15/2020)**	**0.5660**	**Adder**	**0.67**
944691	AF1-134 C	1.4199	Adder	1.67
944692	AF1-134 E	0.9466	Adder	1.11
944751	AF1-140 C	1.4160	Adder	1.67
944752	AF1-140 E	0.9440	Adder	1.11
944771	AF1-142 C	9.4326	Adder	11.1
944772	AF1-142 E	6.2884	Adder	7.4
944781	AF1-143 C	6.9758	Adder	8.21
944782	AF1-143 E	3.7204	Adder	4.38
944881	AF1-153 C O1	1.0402	Adder	1.22
944882	AF1-153 E O1	0.6935	Adder	0.82
944901	AF1-155 C	1.0404	Adder	1.22
944902	AF1-155 E	0.6936	Adder	0.82
945021	AF1-167 C	0.6719	Adder	0.79
945022	AF1-167 E	0.4488	Adder	0.53
945051	AF1-170 C	3.0798	Adder	3.62
945052	AF1-170 E	2.0532	Adder	2.42
945451	AF1-210 C	0.7376	Adder	0.87
945452	AF1-210 E	0.4917	Adder	0.58
945491	**AF1-214 C (Withdrawn : 12/03/2020)**	**0.8639**	**Adder**	**1.02**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5760	Adder	0.68
945671	AF1-232 C (Withdrawn : 01/19/2021)	14.7115	Adder	17.31
945672	AF1-232 E (Withdrawn : 01/19/2021)	7.9216	Adder	9.32
945751	AF1-240 C O1	1.4256	Adder	1.68
945752	AF1-240 E O1	0.9504	Adder	1.12
946071	AF1-272 C O1	15.6902	50/50	15.6902
946072	AF1-272 E O1	10.4601	50/50	10.4601
946111	AF1-276 C	7.4656	Adder	8.78
946112	AF1-276 E	3.6771	Adder	4.33
946121	AF1-277 C	7.4656	Adder	8.78
946122	AF1-277 E	3.6771	Adder	4.33
946131	AF1-278 C	5.9546	Adder	7.01
946132	AF1-278 E	2.9595	Adder	3.48
946211	AF1-286 C	0.6957	Adder	0.82
946212	AF1-286 E	0.4724	Adder	0.56
946221	AF1-287 C	0.8326	Adder	0.98
946222	AF1-287 E	0.5551	Adder	0.65
946381	AF1-302 C	1.5970	Adder	1.88
946382	AF1-302 E	2.1294	Adder	2.51
946401	AF1-304 C	5.2474	Adder	6.17
946402	AF1-304 E	3.4983	Adder	4.12
946421	AF1-306 C	4.3103	Adder	5.07
946422	AF1-306 E	17.2414	Adder	20.28
946571	AF1-321 C O1	2.2145	50/50	2.2145
946572	AF1-321 E O1	1.4763	50/50	1.4763
946771	AF1-217 C	0.8327	Adder	0.98
946772	AF1-217 E	0.5552	Adder	0.65
957001	AF2-001 C O1	2.2145	50/50	2.2145
957002	AF2-001 E O1	1.4763	50/50	1.4763
957011	AF2-002 C O1	1.1072	50/50	1.1072
957012	AF2-002 E O1	0.7382	50/50	0.7382
957161	AF2-010 C	3.4025	Adder	4.0
957162	AF2-010 E	2.2930	Adder	2.7
957451	AF2-039 C	0.7842	Adder	0.92
957452	AF2-039 E	0.5228	Adder	0.62
957512	AF2-045 E	2.6604	Adder	3.13
957561	AF2-050 C	4.3335	Adder	5.1
957562	AF2-050 E	2.8890	Adder	3.4
957571	AF2-051 C	2.5983	Adder	3.06
957572	AF2-051 E	1.3385	Adder	1.57
957931	AF2-087 C (Suspended)	0.3821	Adder	0.45
957932	AF2-087 E (Suspended)	0.5262	Adder	0.62
957941	AF2-088 C	0.3776	Adder	0.44
957942	AF2-088 E	0.2517	Adder	0.3
957981	AF2-092 C	1.0550	Adder	1.24
957982	AF2-092 E	0.7033	Adder	0.83
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3338	Adder	0.39
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2225	Adder	0.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958271	AF2-121 C	1.2830	Adder	1.51
958272	AF2-121 E	0.8553	Adder	1.01
958361	AF2-130 C	1.1065	Adder	1.3
958362	AF2-130 E	0.7377	Adder	0.87
958471	AF2-141	0.9301	Adder	1.09
958731	AF2-164 C O1	4.8576	Adder	5.71
958732	AF2-164 E O1	3.2384	Adder	3.81
958741	AF2-165 C	1.0641	Adder	1.25
958742	AF2-165 E	0.7094	Adder	0.83
958751	AF2-166 C	1.1065	Adder	1.3
958752	AF2-166 E	0.7377	Adder	0.87
959061	AF2-197 C O1	2.9265	Adder	3.44
959062	AF2-197 E O1	4.3897	Adder	5.16
959441	AF2-235 C	0.5015	Adder	0.59
959442	AF2-235 E	0.3343	Adder	0.39
959471	AF2-238 C	1.0580	Adder	1.24
959472	AF2-238 E	0.7054	Adder	0.83
959481	AF2-239 C	0.7866	Adder	0.93
959482	AF2-239 E	0.6307	Adder	0.74
959491	AF2-240 C	0.3246	Adder	0.38
959492	AF2-240 E	0.2765	Adder	0.33
959501	AF2-241 C	0.9705	Adder	1.14
959502	AF2-241 E	0.7472	Adder	0.88
959521	AF2-243 C	0.7980	Adder	0.94
959522	AF2-243 E	0.5320	Adder	0.63
959741	AF2-265 C	0.7583	Adder	0.89
959742	AF2-265 E	0.5643	Adder	0.66
959792	AF2-270 E	0.5470	Adder	0.64
959802	AF2-271 E	0.3276	Adder	0.39
959822	AF2-273 E	0.2954	Adder	0.35
960022	AF2-293 E	0.0842	Adder	0.1
960031	AF2-294 C	0.9464	Adder	1.11
960032	AF2-294 E	0.6309	Adder	0.74
960041	AF2-295 C	1.0404	Adder	1.22
960042	AF2-295 E	0.6936	Adder	0.82
960051	AF2-296 C	1.4199	Adder	1.67
960052	AF2-296 E	0.9466	Adder	1.11
960271	AF2-318 C	0.8504	Adder	1.0
960272	AF2-318 E	0.5669	Adder	0.67
960451	AF2-336 C	1.7583	Adder	2.07
960452	AF2-336 E	1.1722	Adder	1.38
960461	AF2-337 C	1.7583	Adder	2.07
960462	AF2-337 E	1.1722	Adder	1.38
960471	AF2-338 C	1.7583	Adder	2.07
960472	AF2-338 E	1.1722	Adder	1.38
960481	AF2-339 C	1.7583	Adder	2.07
960482	AF2-339 E	1.1722	Adder	1.38
960901	AF2-381 C	14.7256	50/50	14.7256
960902	AF2-381 E	7.7494	50/50	7.7494
961141	AF2-405	0.8588	Adder	1.01
961151	AF2-406	6.4413	Adder	7.58
961201	**AF2-411 O1 (Withdrawn : 12/08/2020)**	**32.8440**	**Adder**	**38.64**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961211	AF2-412	13.1241	Adder	15.44
961911	AG1-033 C	0.5844	50/50	0.5844
961912	AG1-033 E	0.3287	50/50	0.3287
961971	AG1-040 C	0.4649	Adder	1.03
961972	AG1-040 E	0.3099	Adder	0.69
961981	AG1-041 C	0.5577	Adder	1.24
961982	AG1-041 E	0.3718	Adder	0.83
962292	AG1-077 E	0.3007	Adder	0.67
962411	AG1-090 C O1	3.3998	Adder	7.55
962412	AG1-090 E O1	2.2666	Adder	5.03
962511	AG1-100 C	0.4405	Adder	0.98
962512	AG1-100 E	0.2937	Adder	0.65
962641	AG1-113	0.2654	Adder	0.59
962651	AG1-114	0.6162	Adder	1.37
962891	AG1-138 C	0.2321	Adder	0.52
962892	AG1-138 E	0.0122	Adder	0.03
962901	AG1-139 C	0.2232	Adder	0.5
962902	AG1-139 E	0.0117	Adder	0.03
962911	AG1-140 C	0.0665	Adder	0.15
962912	AG1-140 E	0.0303	Adder	0.07
962951	AG1-144 C	0.6800	Adder	1.51
962952	AG1-144 E	0.4533	Adder	1.01
963281	AG1-177 C O1	0.4673	Adder	1.04
963282	AG1-177 E O1	0.3116	Adder	0.69
963441	AG1-193 C	0.5502	Adder	1.22
963442	AG1-193 E	0.3668	Adder	0.81
963481	AG1-197 C	0.3527	Adder	0.78
963482	AG1-197 E	0.2351	Adder	0.52
963491	AG1-198 C	0.2804	Adder	0.62
963492	AG1-198 E	0.1869	Adder	0.41
963541	AG1-203 C	0.4887	Adder	1.08
963542	AG1-203 E	0.2631	Adder	0.58
963561	AG1-205 C	0.4005	Adder	0.89
963562	AG1-205 E	0.2157	Adder	0.48
963571	AG1-206 C	0.3274	Adder	0.73
963572	AG1-206 E	0.1763	Adder	0.39
963881	AG1-241 C	1.1871	50/50	1.1871
963882	AG1-241 E	0.6392	50/50	0.6392
963891	AG1-242 C	0.4076	Adder	0.9
963892	AG1-242 E	0.2195	Adder	0.49
963941	AG1-247 C	0.2230	Adder	0.5
963942	AG1-247 E	0.1183	Adder	0.26
963991	AG1-253 C	0.0997	Adder	0.22
963992	AG1-253 E	0.0480	Adder	0.11
964031	AG1-257 C	0.3141	Adder	0.7
964032	AG1-257 E	0.4390	Adder	0.97
964041	AG1-258 C	0.3141	Adder	0.7
964042	AG1-258 E	0.4390	Adder	0.97
964191	AG1-280 C	0.8695	Adder	1.93
964192	AG1-280 E	0.5797	Adder	1.29
964201	AG1-281 C	0.8682	Adder	1.93
964202	AG1-281 E	0.5788	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964331	AG1-295 C	0.8622	50/50	0.8622
964332	AG1-295 E	0.4575	50/50	0.4575
964341	AG1-296 C	0.3072	Adder	0.68
964342	AG1-296 E	0.1654	Adder	0.37
964391	AG1-301 C	0.6626	Adder	1.47
964392	AG1-301 E	0.4417	Adder	0.98
964411	AG1-303 C O1	1.1017	Adder	2.45
964412	AG1-303 E O1	0.7344	Adder	1.63
964451	AG1-308 C O1	0.4567	Adder	1.01
964452	AG1-308 E O1	0.6383	Adder	1.42
964701	AG1-333 C	0.1839	Adder	0.41
964702	AG1-333 E	0.0251	Adder	0.06
964751	AG1-338 C	0.3383	Adder	0.75
964752	AG1-338 E	0.0461	Adder	0.1
964761	AG1-339 C	0.3537	Adder	0.79
964762	AG1-339 E	0.0308	Adder	0.07
964771	AG1-340 C	0.3383	Adder	0.75
964772	AG1-340 E	0.0461	Adder	0.1
964911	AG1-355 C	5.9652	50/50	5.9652
964912	AG1-355 E	3.9768	50/50	3.9768
964921	AG1-356 C	1.6139	Adder	3.58
964922	AG1-356 E	1.0759	Adder	2.39
965121	AG1-377 C O1	0.6800	Adder	1.51
965122	AG1-377 E O1	0.4533	Adder	1.01
965131	AG1-378 C O1	0.6800	Adder	1.51
965132	AG1-378 E O1	0.4533	Adder	1.01
965171	AG1-382 C	0.9204	Adder	2.04
965172	AG1-382 E	0.6136	Adder	1.36
965201	AG1-385 C	0.7089	Adder	1.57
965202	AG1-385 E	0.2100	Adder	0.47
965221	AG1-387 C	0.9204	Adder	2.04
965222	AG1-387 E	0.6136	Adder	1.36
965241	AG1-389 C O1	0.6842	Adder	1.52
965242	AG1-389 E O1	0.4562	Adder	1.01
965251	AG1-390 C O1	0.6842	Adder	1.52
965252	AG1-390 E O1	0.4562	Adder	1.01
965261	AG1-391 C O1	0.6842	Adder	1.52
965262	AG1-391 E O1	0.4562	Adder	1.01
965271	AG1-392 C O1	1.3685	Adder	3.04
965272	AG1-392 E O1	0.9123	Adder	2.03
965301	AG1-395 C	0.8738	Adder	1.94
965302	AG1-395 E	0.2595	Adder	0.58
965861	AG1-455	1.2286	Adder	2.73
965881	AG1-457 C	2.1315	Adder	4.73
965882	AG1-457 E	1.4210	Adder	3.15
966121	AG1-481	0.7133	Adder	1.58
966512	AG1-520 E	0.7382	50/50	0.7382
966771	AG1-548 C	4.4368	Adder	9.85
966772	AG1-548 E	1.3503	Adder	3.0
966781	AG1-549 C O1	31.9953	50/50	31.9953
966782	AG1-549 E O1	9.7377	50/50	9.7377
VFT	VFT	0.1032	Confirmed LTF	0.1032

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CALDERWOOD	CALDERWOOD	0.2704	Confirmed LTF	0.2704
PRAIRIE	PRAIRIE	1.2295	Confirmed LTF	1.2295
CHEOAH	CHEOAH	0.2733	Confirmed LTF	0.2733
CBM-N	CBM-N	0.1548	Confirmed LTF	0.1548
COTTONWOOD	COTTONWOOD	1.0752	Confirmed LTF	1.0752
G-007	G-007	0.0252	Confirmed LTF	0.0252
HAMLET	HAMLET	0.3465	Confirmed LTF	0.3465
GIBSON	GIBSON	0.2555	Confirmed LTF	0.2555
BLUEG	BLUEG	0.8333	Confirmed LTF	0.8333
TRIMBLE	TRIMBLE	0.2671	Confirmed LTF	0.2671
CATAWBA	CATAWBA	0.2051	Confirmed LTF	0.2051

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165180302	999332	KEYSTONE	PENELEC	200011	KEYSTONE	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.17	155.83	DC	41.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.4562	50/50	0.4562
200794	26CONEMAGH	0.3075	50/50	0.3075
200809	26SITHE	1.4282	50/50	1.4282
200833	26SEWRDB34	14.8354	50/50	14.8354
200835	26ARN_Z1-066	0.9301	Adder	1.09
200837	26HOMER C1	24.5961	50/50	24.5961
200838	26HOMER C2	20.3806	50/50	20.3806
200839	26HOMER C3	21.5755	50/50	21.5755
200846	26FORWARD	0.0922	50/50	0.0922
200852	26WARR RDG	0.2604	Adder	0.31
200864	K-013 E	4.2361	50/50	4.2361
200883	Q-053 E	6.5672	Adder	7.73
200888	26HIGHLAND	0.2265	50/50	0.2265
200894	26K02	4.1917	Adder	4.93
200906	26KEYSTN#3	0.7604	50/50	0.7604
200925	26R32	0.3551	50/50	0.3551
202158	26CON.GEN1	0.0793	50/50	0.0793
202160	26CON.GEN2	0.0555	50/50	0.0555
203915	26BF_Z2-108	2.0927	Adder	2.46
203999	P-047 E	7.4720	Adder	8.79
235003	AC1-025 E	0.1061	Adder	0.12
236828	01GRAYMONT	0.2879	Adder	0.34
290086	Q-036 E	4.6070	Adder	5.42
292350	K-023	3.8251	Adder	4.5
292542	L-013 1	3.7204	Adder	4.38
293301	N-039 E	8.8150	Adder	10.37
293393	V3-030E	4.0181	Adder	4.73
293432	R-040 E	0.2093	Adder	0.25
293603	O-018 E	9.2165	50/50	9.2165
293902	O-048 E	3.3484	Adder	3.94
294515	O38_P22	7.7131	Adder	9.07
294903	P-060 E	5.9947	Adder	7.05
296332	R-032 E	10.6344	50/50	10.6344
913142	Y1-033 E OP1	2.9894	Adder	3.52
916202	Z1-069 E	6.0533	Adder	7.12
919201	AA1-144 OP	11.5038	Adder	13.53
920341	**AA2-132 (Withdrawn : 12/07/2020)**	**1.5694**	**Adder**	**1.85**
921642	AA2-000	36.2420	Adder	42.64
930511	AB2-092	1.3307	Adder	1.57
931092	AB1-160 E	1.7295	Adder	2.03

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935191	AD1-154	2.3759	Adder	2.8
936421	AD2-055	2.7397	Adder	3.22
936991	AD2-133 C	2.0731	Adder	2.44
936992	AD2-133 E	9.4824	Adder	11.16
938351	AE1-053	1.1626	Adder	1.37
938881	AE1-116	0.6259	Adder	0.74
938951	AE1-123	1.7193	Adder	2.02
938993	AE1-128 C	10.5852	Adder	12.45
938994	AE1-128 E	7.0568	Adder	8.3
939171	AE1-147 C	0.8659	Adder	1.02
939172	AE1-147 E	0.5773	Adder	0.68
939291	AE1-160 C	1.0615	Adder	1.25
939292	AE1-160 E	0.6101	Adder	0.72
940201	AE2-001 C	0.8646	Adder	1.02
940202	AE2-001 E	0.5764	Adder	0.68
940681	**AE2-055 C (Suspended)**	**0.8447**	**Adder**	**0.99**
940682	**AE2-055 E (Suspended)**	**0.5631**	**Adder**	**0.66**
940861	AE2-074 C	1.6654	Adder	1.96
940862	AE2-074 E	2.1923	Adder	2.58
941191	AE2-113 C	6.5539	Adder	7.71
941192	AE2-113 E	7.0564	Adder	8.3
941231	AE2-117 C	1.2652	Adder	1.49
941232	AE2-117 E	0.8435	Adder	0.99
941241	AE2-118 C	1.3245	Adder	1.56
941242	AE2-118 E	0.8830	Adder	1.04
941261	AE2-120 C	0.8638	Adder	1.02
941262	AE2-120 E	0.5759	Adder	0.68
941271	AE2-121 C	0.4616	Adder	0.54
941272	AE2-121 E	0.3082	Adder	0.36
941321	AE2-126 C	1.1448	Adder	1.35
941322	AE2-126 E	0.7632	Adder	0.9
941331	AE2-129 C	1.2830	Adder	1.51
941332	AE2-129 E	0.8553	Adder	1.01
941351	**AE2-131 C (Suspended)**	**1.2830**	**Adder**	**1.51**
941352	**AE2-131 E (Suspended)**	**0.8553**	**Adder**	**1.01**
941421	AE2-139 C	2.2721	Adder	5.04
941422	AE2-139 E	1.5147	Adder	3.36
942121	AE2-224 C	8.6669	Adder	10.2
942122	AE2-224 E	5.7780	Adder	6.8
942351	AE2-248 C	0.6823	Adder	0.8
942352	AE2-248 E	0.4549	Adder	0.54
942361	AE2-249 C	1.1908	Adder	1.4
942362	AE2-249 E	0.7939	Adder	0.93
942491	AE2-262 C	3.8837	Adder	4.57
942492	AE2-262 E	2.6098	Adder	3.07
942501	AE2-263 C	3.6506	Adder	4.29
942502	AE2-263 E	2.4374	Adder	2.87
942511	AE2-264 C	5.1632	Adder	6.07
942512	AE2-264 E	3.4422	Adder	4.05
942811	AE2-299 C	2.2301	Adder	2.62
942812	AE2-299 E	8.9205	Adder	10.49
942961	AE2-316 C	3.6572	Adder	4.3

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942962	AE2-316 E	5.2151	Adder	6.14
943151	AE2-344 C	4.8233	Adder	5.67
943152	AE2-344 E	3.2155	Adder	3.78
943711	AF1-039 C O1	0.7909	Adder	0.93
943712	AF1-039 E O1	0.5272	Adder	0.62
943751	AF1-043	8.2190	Adder	9.67
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.9072	Adder	1.07
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.5103	Adder	0.6
944181	AF1-086 C O1	2.7629	Adder	3.25
944182	AF1-086 E O1	12.0200	Adder	14.14
944261	AF1-094 C	0.8818	Adder	1.04
944262	AF1-094 E	0.5879	Adder	0.69
944281	AF1-096 C	1.0030	Adder	1.18
944282	AF1-096 E	0.6686	Adder	0.79
944301	AF1-098 C	3.4305	Adder	4.04
944302	AF1-098 E	2.2870	Adder	2.69
944311	AF1-099 C	5.8954	Adder	6.94
944312	AF1-099 E	3.9303	Adder	4.62
944321	AF1-100 C	12.5371	Adder	14.75
944322	AF1-100 E	8.3580	Adder	9.83
944381	AF1-103 O1	1.7331	Adder	2.04
944411	AF1-106 O1	1.7177	Adder	2.02
944471	AF1-112 C	0.8552	Adder	1.01
944472	AF1-112 E	0.5701	Adder	0.67
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.8490	Adder	1.0
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5660	Adder	0.67
944691	AF1-134 C	1.4199	Adder	1.67
944692	AF1-134 E	0.9466	Adder	1.11
944751	AF1-140 C	1.4160	Adder	1.67
944752	AF1-140 E	0.9440	Adder	1.11
944771	AF1-142 C	9.4326	Adder	11.1
944772	AF1-142 E	6.2884	Adder	7.4
944781	AF1-143 C	6.9758	Adder	8.21
944782	AF1-143 E	3.7204	Adder	4.38
944881	AF1-153 C O1	1.0402	Adder	1.22
944882	AF1-153 E O1	0.6935	Adder	0.82
944901	AF1-155 C	1.0404	Adder	1.22
944902	AF1-155 E	0.6936	Adder	0.82
945021	AF1-167 C	0.6719	Adder	0.79
945022	AF1-167 E	0.4488	Adder	0.53
945051	AF1-170 C	3.0798	Adder	3.62
945052	AF1-170 E	2.0532	Adder	2.42
945451	AF1-210 C	0.7376	Adder	0.87
945452	AF1-210 E	0.4917	Adder	0.58
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8639	Adder	1.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5760	Adder	0.68
945671	AF1-232 C (Withdrawn : 01/19/2021)	14.7115	Adder	17.31
945672	AF1-232 E (Withdrawn : 01/19/2021)	7.9216	Adder	9.32
945751	AF1-240 C O1	1.4256	Adder	1.68
945752	AF1-240 E O1	0.9504	Adder	1.12
946071	AF1-272 C O1	15.6902	50/50	15.6902
946072	AF1-272 E O1	10.4601	50/50	10.4601
946111	AF1-276 C	7.4656	Adder	8.78
946112	AF1-276 E	3.6771	Adder	4.33
946121	AF1-277 C	7.4656	Adder	8.78
946122	AF1-277 E	3.6771	Adder	4.33
946131	AF1-278 C	5.9546	Adder	7.01
946132	AF1-278 E	2.9595	Adder	3.48
946211	AF1-286 C	0.6957	Adder	0.82
946212	AF1-286 E	0.4724	Adder	0.56
946221	AF1-287 C	0.8326	Adder	0.98
946222	AF1-287 E	0.5551	Adder	0.65
946381	AF1-302 C	1.5970	Adder	1.88
946382	AF1-302 E	2.1294	Adder	2.51
946401	AF1-304 C	5.2474	Adder	6.17
946402	AF1-304 E	3.4983	Adder	4.12
946421	AF1-306 C	4.3103	Adder	5.07
946422	AF1-306 E	17.2414	Adder	20.28
946571	AF1-321 C O1	2.2145	50/50	2.2145
946572	AF1-321 E O1	1.4763	50/50	1.4763
946771	AF1-217 C	0.8327	Adder	0.98
946772	AF1-217 E	0.5552	Adder	0.65
957001	AF2-001 C O1	2.2145	50/50	2.2145
957002	AF2-001 E O1	1.4763	50/50	1.4763
957011	AF2-002 C O1	1.1072	50/50	1.1072
957012	AF2-002 E O1	0.7382	50/50	0.7382
957161	AF2-010 C	3.4025	Adder	4.0
957162	AF2-010 E	2.2930	Adder	2.7
957451	AF2-039 C	0.7842	Adder	0.92
957452	AF2-039 E	0.5228	Adder	0.62
957512	AF2-045 E	2.6604	Adder	3.13
957561	AF2-050 C	4.3335	Adder	5.1
957562	AF2-050 E	2.8890	Adder	3.4
957571	AF2-051 C	2.5983	Adder	3.06
957572	AF2-051 E	1.3385	Adder	1.57
957931	AF2-087 C (Suspended)	0.3821	Adder	0.45
957932	AF2-087 E (Suspended)	0.5262	Adder	0.62
957941	AF2-088 C	0.3776	Adder	0.44
957942	AF2-088 E	0.2517	Adder	0.3
957981	AF2-092 C	1.0550	Adder	1.24
957982	AF2-092 E	0.7033	Adder	0.83
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3338	Adder	0.39
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2225	Adder	0.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958271	AF2-121 C	1.2830	Adder	1.51
958272	AF2-121 E	0.8553	Adder	1.01
958361	AF2-130 C	1.1065	Adder	1.3
958362	AF2-130 E	0.7377	Adder	0.87
958471	AF2-141	0.9301	Adder	1.09
958731	AF2-164 C O1	4.8576	Adder	5.71
958732	AF2-164 E O1	3.2384	Adder	3.81
958741	AF2-165 C	1.0641	Adder	1.25
958742	AF2-165 E	0.7094	Adder	0.83
958751	AF2-166 C	1.1065	Adder	1.3
958752	AF2-166 E	0.7377	Adder	0.87
959061	AF2-197 C O1	2.9265	Adder	3.44
959062	AF2-197 E O1	4.3897	Adder	5.16
959441	AF2-235 C	0.5015	Adder	0.59
959442	AF2-235 E	0.3343	Adder	0.39
959471	AF2-238 C	1.0580	Adder	1.24
959472	AF2-238 E	0.7054	Adder	0.83
959481	AF2-239 C	0.7866	Adder	0.93
959482	AF2-239 E	0.6307	Adder	0.74
959491	AF2-240 C	0.3246	Adder	0.38
959492	AF2-240 E	0.2765	Adder	0.33
959501	AF2-241 C	0.9705	Adder	1.14
959502	AF2-241 E	0.7472	Adder	0.88
959521	AF2-243 C	0.7980	Adder	0.94
959522	AF2-243 E	0.5320	Adder	0.63
959741	AF2-265 C	0.7583	Adder	0.89
959742	AF2-265 E	0.5643	Adder	0.66
959792	AF2-270 E	0.5470	Adder	0.64
959802	AF2-271 E	0.3276	Adder	0.39
959822	AF2-273 E	0.2954	Adder	0.35
960022	AF2-293 E	0.0842	Adder	0.1
960031	AF2-294 C	0.9464	Adder	1.11
960032	AF2-294 E	0.6309	Adder	0.74
960041	AF2-295 C	1.0404	Adder	1.22
960042	AF2-295 E	0.6936	Adder	0.82
960051	AF2-296 C	1.4199	Adder	1.67
960052	AF2-296 E	0.9466	Adder	1.11
960271	AF2-318 C	0.8504	Adder	1.0
960272	AF2-318 E	0.5669	Adder	0.67
960451	AF2-336 C	1.7583	Adder	2.07
960452	AF2-336 E	1.1722	Adder	1.38
960461	AF2-337 C	1.7583	Adder	2.07
960462	AF2-337 E	1.1722	Adder	1.38
960471	AF2-338 C	1.7583	Adder	2.07
960472	AF2-338 E	1.1722	Adder	1.38
960481	AF2-339 C	1.7583	Adder	2.07
960482	AF2-339 E	1.1722	Adder	1.38
960901	AF2-381 C	14.7256	50/50	14.7256
960902	AF2-381 E	7.7494	50/50	7.7494
961141	AF2-405	0.8588	Adder	1.01
961151	AF2-406	6.4413	Adder	7.58
961201	**AF2-411 O1 (Withdrawn : 12/08/2020)**	**32.8440**	**Adder**	**38.64**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961211	AF2-412	13.1241	Adder	15.44
961911	AG1-033 C	0.5844	50/50	0.5844
961912	AG1-033 E	0.3287	50/50	0.3287
961971	AG1-040 C	0.4649	Adder	1.03
961972	AG1-040 E	0.3099	Adder	0.69
961981	AG1-041 C	0.5577	Adder	1.24
961982	AG1-041 E	0.3718	Adder	0.83
962292	AG1-077 E	0.3007	Adder	0.67
962411	AG1-090 C O1	3.3998	Adder	7.55
962412	AG1-090 E O1	2.2666	Adder	5.03
962511	AG1-100 C	0.4405	Adder	0.98
962512	AG1-100 E	0.2937	Adder	0.65
962641	AG1-113	0.2654	Adder	0.59
962651	AG1-114	0.6162	Adder	1.37
962891	AG1-138 C	0.2321	Adder	0.52
962892	AG1-138 E	0.0122	Adder	0.03
962901	AG1-139 C	0.2232	Adder	0.5
962902	AG1-139 E	0.0117	Adder	0.03
962911	AG1-140 C	0.0665	Adder	0.15
962912	AG1-140 E	0.0303	Adder	0.07
962951	AG1-144 C	0.6800	Adder	1.51
962952	AG1-144 E	0.4533	Adder	1.01
963281	AG1-177 C O1	0.4673	Adder	1.04
963282	AG1-177 E O1	0.3116	Adder	0.69
963441	AG1-193 C	0.5502	Adder	1.22
963442	AG1-193 E	0.3668	Adder	0.81
963481	AG1-197 C	0.3527	Adder	0.78
963482	AG1-197 E	0.2351	Adder	0.52
963491	AG1-198 C	0.2804	Adder	0.62
963492	AG1-198 E	0.1869	Adder	0.41
963541	AG1-203 C	0.4887	Adder	1.08
963542	AG1-203 E	0.2631	Adder	0.58
963561	AG1-205 C	0.4005	Adder	0.89
963562	AG1-205 E	0.2157	Adder	0.48
963571	AG1-206 C	0.3274	Adder	0.73
963572	AG1-206 E	0.1763	Adder	0.39
963881	AG1-241 C	1.1871	50/50	1.1871
963882	AG1-241 E	0.6392	50/50	0.6392
963891	AG1-242 C	0.4076	Adder	0.9
963892	AG1-242 E	0.2195	Adder	0.49
963941	AG1-247 C	0.2230	Adder	0.5
963942	AG1-247 E	0.1183	Adder	0.26
963991	AG1-253 C	0.0997	Adder	0.22
963992	AG1-253 E	0.0480	Adder	0.11
964031	AG1-257 C	0.3141	Adder	0.7
964032	AG1-257 E	0.4390	Adder	0.97
964041	AG1-258 C	0.3141	Adder	0.7
964042	AG1-258 E	0.4390	Adder	0.97
964191	AG1-280 C	0.8695	Adder	1.93
964192	AG1-280 E	0.5797	Adder	1.29
964201	AG1-281 C	0.8682	Adder	1.93
964202	AG1-281 E	0.5788	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964331	AG1-295 C	0.8622	50/50	0.8622
964332	AG1-295 E	0.4575	50/50	0.4575
964341	AG1-296 C	0.3072	Adder	0.68
964342	AG1-296 E	0.1654	Adder	0.37
964391	AG1-301 C	0.6626	Adder	1.47
964392	AG1-301 E	0.4417	Adder	0.98
964411	AG1-303 C O1	1.1017	Adder	2.45
964412	AG1-303 E O1	0.7344	Adder	1.63
964451	AG1-308 C O1	0.4567	Adder	1.01
964452	AG1-308 E O1	0.6383	Adder	1.42
964701	AG1-333 C	0.1839	Adder	0.41
964702	AG1-333 E	0.0251	Adder	0.06
964751	AG1-338 C	0.3383	Adder	0.75
964752	AG1-338 E	0.0461	Adder	0.1
964761	AG1-339 C	0.3537	Adder	0.79
964762	AG1-339 E	0.0308	Adder	0.07
964771	AG1-340 C	0.3383	Adder	0.75
964772	AG1-340 E	0.0461	Adder	0.1
964911	AG1-355 C	5.9652	50/50	5.9652
964912	AG1-355 E	3.9768	50/50	3.9768
964921	AG1-356 C	1.6139	Adder	3.58
964922	AG1-356 E	1.0759	Adder	2.39
965121	AG1-377 C O1	0.6800	Adder	1.51
965122	AG1-377 E O1	0.4533	Adder	1.01
965131	AG1-378 C O1	0.6800	Adder	1.51
965132	AG1-378 E O1	0.4533	Adder	1.01
965171	AG1-382 C	0.9204	Adder	2.04
965172	AG1-382 E	0.6136	Adder	1.36
965201	AG1-385 C	0.7089	Adder	1.57
965202	AG1-385 E	0.2100	Adder	0.47
965221	AG1-387 C	0.9204	Adder	2.04
965222	AG1-387 E	0.6136	Adder	1.36
965241	AG1-389 C O1	0.6842	Adder	1.52
965242	AG1-389 E O1	0.4562	Adder	1.01
965251	AG1-390 C O1	0.6842	Adder	1.52
965252	AG1-390 E O1	0.4562	Adder	1.01
965261	AG1-391 C O1	0.6842	Adder	1.52
965262	AG1-391 E O1	0.4562	Adder	1.01
965271	AG1-392 C O1	1.3685	Adder	3.04
965272	AG1-392 E O1	0.9123	Adder	2.03
965301	AG1-395 C	0.8738	Adder	1.94
965302	AG1-395 E	0.2595	Adder	0.58
965861	AG1-455	1.2286	Adder	2.73
965881	AG1-457 C	2.1315	Adder	4.73
965882	AG1-457 E	1.4210	Adder	3.15
966121	AG1-481	0.7133	Adder	1.58
966512	AG1-520 E	0.7382	50/50	0.7382
966771	AG1-548 C	4.4368	Adder	9.85
966772	AG1-548 E	1.3503	Adder	3.0
966781	AG1-549 C O1	31.9953	50/50	31.9953
966782	AG1-549 E O1	9.7377	50/50	9.7377
VFT	VFT	0.1032	Confirmed LTF	0.1032

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CALDERWOOD	CALDERWOOD	0.2704	Confirmed LTF	0.2704
PRAIRIE	PRAIRIE	1.2295	Confirmed LTF	1.2295
CHEOAH	CHEOAH	0.2733	Confirmed LTF	0.2733
CBM-N	CBM-N	0.1548	Confirmed LTF	0.1548
COTTONWOOD	COTTONWOOD	1.0752	Confirmed LTF	1.0752
G-007	G-007	0.0252	Confirmed LTF	0.0252
HAMLET	HAMLET	0.3465	Confirmed LTF	0.3465
GIBSON	GIBSON	0.2555	Confirmed LTF	0.2555
BLUEG	BLUEG	0.8333	Confirmed LTF	0.8333
TRIMBLE	TRIMBLE	0.2671	Confirmed LTF	0.2671
CATAWBA	CATAWBA	0.2051	Confirmed LTF	0.2051

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
AA2-132	Thompson 34.5kV	Withdrawn
AA2-133	Wyalusing 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
AD1-154	Timblin 34.5 kV	Active
AD2-055	Moshannon-East Towanda 230 kV	Active
AD2-112	Springdale CC II 138kV	Engineering and Procurement
AD2-133	Eagle Valley 115kV	Active
AE1-053	Meyersdale North	Active
AE1-054	Mill Run 25kV	Active
AE1-116	Somerset Windpower 23 kV	Active
AE1-123	Emlenton 34.5 kV	Engineering and Procurement
AE1-128	Bedford North-Wills Mounain 115 kV	Active
AE1-147	Bellefonte 46 kV	Engineering and Procurement
AE1-160	Venango 34.5 kV	Engineering and Procurement
AE2-001	Nittany-Zion 46 kV	Active
AE2-055	Shingletown-Boalsburg 46 kV	Suspended
AE2-074	Potter 46 kV	Active
AE2-113	Farmers Valley-Ridgeway 115 kV	Active
AE2-117	ABW Tap-Alexandria 46 kV	Active
AE2-118	ABW Tap-Williamsburg 46 kV	Active
AE2-120	Graymont-Zion 46 kV	Active
AE2-121	Milesburg-Tanney Junction 46 kV	Active
AE2-126	Dubois-Curwensville 34.5 kV	Engineering and Procurement
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	Engineering and Procurement
AE2-262	Moshannon-Milesburg 230 kV	Active
AE2-263	Moshannon-Milesburg 230 kV	Active
AE2-264	Altoona-Raystown 230 kV	Active
AE2-299	Erie East 230 kV	Active
AE2-316	Brookville-Squab Hollow 138 kV	Active
AE2-344	Edinboro South-Venango Junction 115 kV	Active

Queue Number	Project Name	Status
AF1-006	Fairview East 34.5 kV	Active
AF1-039	Listonburg-Highpoint 24.9 kV	Active
AF1-043	Moshannon-East Towanda 230 kV	Active
AF1-068	Boalsburg-Centre Hall 46 kV	Withdrawn
AF1-086	Madera-Westover South 115 kV	Active
AF1-094	Union City-Cambridge Springs 34.5 kV	Active
AF1-096	Titusville-Oil Creek 34.5 kV	Active
AF1-098	Four Mile Jct-Corry East 115 kV	Active
AF1-099	Moshannon-Milesburg 230 kV	Active
AF1-100	Shawville-Moshannon 230 kV	Active
AF1-103	Warren 34.5 kV	Active
AF1-104	Erie West 34.5 kV	Active
AF1-106	East Sayre 34.5 kV	Active
AF1-112	Centre Hall-Boalsburg 46 kV	Active
AF1-132	Shingletown-Boalsburg 46 kV	Withdrawn
AF1-134	Philipsburg-Madera 34.5 kV	Active
AF1-140	Claysburg 23 kV	Engineering and Procurement
AF1-142	Moshannon-Milesburg 230 kV	Active
AF1-143	Lick Run 115 kV	Active
AF1-153	Motion-Ridgeway 46 kV	Active
AF1-155	Paper City-Wilcox 46 kV	Engineering and Procurement
AF1-167	West Freedom-C&K Coal 25 kV	Active
AF1-170	Springboro-Venango Junction 115 kV	Active
AF1-210	Burma 23 kV	Engineering and Procurement
AF1-214	Nittany-Zion 46 kV	Withdrawn
AF1-217	Edinboro -Cambridge Springs 34.5 kV	Active
AF1-232	Allegheny-Somerset 115 kV	Withdrawn
AF1-240	Timblin 34.5 kV	Active
AF1-272	Lucerne 115 kV	Active
AF1-276	Lewis Run-Pierce Brook 230 kV	Active
AF1-277	Lewis Run-Pierce Brook 2 230 kV	Active
AF1-278	Lewis Run-Pierce Brook 3 230 kV	Active
AF1-286	East Sayre 34.5 kV II	Active
AF1-287	Edinboro South 34.5 kV II	Active
AF1-302	Brookville-Squab Hollow 138 kV	Active
AF1-304	Titusville-Grandview 115 kV	Active
AF1-306	Squab Hollow 230 kV	Active
AF1-321	Hooversville 115 kV I	Active
AF2-001	Hooversville 115 kV II	Active
AF2-002	Hooversville 115 kV III	Active
AF2-010	Union City-Titusville 115 kV	Active
AF2-039	Shawville-Clearfield 34.5 kV	Active
AF2-045	Cambria Nug 115 kV	Engineering and Procurement
AF2-050	Bearrock-Johnstown 230 kV	Active
AF2-051	Geneva 115 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
AF2-104	Somerset 23 kV	Withdrawn
AF2-121	Philipsburg-Shawville 34.5 kV	Active
AF2-130	Wolfs Corners 34.5 kV	Active
AF2-141	Lick Run 115 kV	Active

Queue Number	Project Name	Status
AF2-164	Handsome Lake 345 kV	Active
AF2-165	Clark Summit-Emlenton 34.5 kV	Active
AF2-166	Clark Summit-Emlenton 34 kV	Active
AF2-197	East Towanda 115 kV	Active
AF2-235	Titusville-Oil Creek 34.5 kV	Active
AF2-238	Mansfield-South Troy 34.5 kV	Active
AF2-239	Wyalusing-Hollenback WRC 34.5 kV	Active
AF2-240	North Orwell 12.47 kV	Active
AF2-241	Athens-Milan 34.5 kV	Active
AF2-243	Clark Summit 34.5 kV	Active
AF2-265	South Troy-Athens 34.5 kV	Active
AF2-270	Bedford South RCB-Bedford Area 23 kV	Engineering and Procurement
AF2-271	Pemberton-Sinking Valley 12.47 kV	Engineering and Procurement
AF2-273	Sligo 25 kV	Engineering and Procurement
AF2-293	Beech Creek 12.47 kV	Active
AF2-294	Thompson 34.5 kV	Active
AF2-295	Wilcox-Paper City 46 kV	Active
AF2-296	Madera 34.5 kV	Active
AF2-318	East Towanda-New Albany 34.5 kV	Active
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
AF2-381	Bedford North-Central City West 115 kV	Active
AF2-405	East Sayre 34.5 kV III	Active
AF2-406	Sayre 115 kV	Active
AF2-411	Mainesburg 345 kV	Withdrawn
AF2-412	Mainesburg 115 kV	Active
AF2-436	Wyalusing 34.5 kV II	Engineering and Procurement
AG1-033	Scalp Level 23 kV	Active
AG1-040	Morgan Street-Mount Hope 34.5 kV	Active
AG1-041	Osterburg-Bedford North 23 kV	Active
AG1-077	Allegheny Tunnel 23 kV	Active
AG1-090	Philipsburg 115 kV	Active
AG1-100	Venango-Saegertown 34.5 kV	Active
AG1-113	Somerset Windpower 22.86 kV	Active
AG1-114	Meyersdale North 115 kV	Active
AG1-138	Wolfs Corners 34.5 kV	Active
AG1-139	Clark Summit-Emlenton 34.5 kV	Active
AG1-140	Union City 34.5 kV	Active
AG1-144	Phillipsburg 34.5 kV	Active
AG1-177	Union City 34.5 kV	Active
AG1-193	Utica Junction 34.5 kV	Active
AG1-197	Morgan Street-Cochranton 34.5 kV	Active
AG1-198	Union City 34.5 kV	Active
AG1-202	Springboro 12.47 kV	Active
AG1-203	Reels Corner 23 kV	Active
AG1-205	Rockwood 23 kV	Active
AG1-206	Snyder Twp 34.5 kV	Active
AG1-241	Scalp Level 23 kV	Active
AG1-242	Beccaria 34.5 kV	Active
AG1-247	North Orwell 12.47 kV	Active

Queue Number	Project Name	Status
AG1-253	Erie East-Union City 34.5 kV	Active
AG1-257	Madisonburg Jct-Millheim 46 kV	Active
AG1-258	Madisonburg Jct-Millheim 46 kV	Active
AG1-280	Claysburg-Puzzletown 46 kV	Active
AG1-281	Claysburg-HCR Tap 46 kV	Active
AG1-295	Blairsville East 23 kV	Active
AG1-296	Snyder Township 34.5 kV	Active
AG1-301	Miller REC-Warrior Ridge 46 kV	Active
AG1-303	Geneva 115 kV	Active
AG1-308	Shawville-Philipsburg 115 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
AG1-355	Scalp Level-Hooversville 115 kV	Active
AG1-356	Somerset-Allegheny 115 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	Active
AG1-387	Beth 33-Lilly 46 kV	Active
AG1-389	Gold 115 kV I	Active
AG1-390	Gold 115 kV II	Active
AG1-391	Gold 115 kV III	Active
AG1-392	Gold 115 kV IV	Active
AG1-395	Philipsburg-Karthaus 34.5 kV 2	Active
AG1-455	Springboro-Venango Junction 115 kV	Active
AG1-457	Somerset-Rockwood 115 kV	Active
AG1-481	Warren 34.5 kV	Active
AG1-514	Springdale CT III 138 kV	Active
AG1-520	Hooversville-Rockingham 23 kV	Active
AG1-548	Erie South-Union City 115 kV	Active
AG1-549	Shelocta 115 kV	Active
V3-030	St. Benedict-Patton 46kV	In Service
Y1-033	Penn Mar-Rock Wood 115kV	In Service
Y3-092	Erie West 345kV	Engineering and Procurement
Z1-066	Arnold 34.5kV	In Service
Z1-069	Gold-Sabinsville 115kV	In Service
Z2-108	Meyersdale North 115kV	In Service

11.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
ATSI-P2-3-CEI-345-004D	CONTINGENCY 'ATSI-P2-3-CEI-345-004D' /* ERIE WEST 345KV BKR 8 DISCONNECT BRANCH FROM BUS 200599 TO BUS 200600 CKT 1 /* 26ERIE W 345 26ERIE SO 345 DISCONNECT BRANCH FROM BUS 200599 TO BUS 238547 CKT 1 /* 26ERIE W 345 02AT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239036 CKT 1 /* 02AT 345 02PERRY 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 /* 02AT 345 02S8-ATT 345 DISCONNECT BUS 200600 /* 26ERIE SO 345 DISCONNECT BUS 238547 /* 02AT 345 END
PN-P1-3-PN-500-003	CONTINGENCY 'PN-P1-3-PN-500-003' /* CONEMAUGH #1 500/230 KV XFMR OPEN BRANCH FROM BUS 200005 TO BUS 200912 CKT 3 /* CONEM-GH 500.00 26CONEMAGH 230.00 END
AP-P7-1-WPP-138-83	CONTINGENCY 'AP-P7-1-WPP-138-83' /* 61 DISCONNECT BRANCH FROM BUS 235617 TO BUS 235213 CKT 1 /* 01LOYALH2 138 01LUXOR 138 DISCONNECT BRANCH FROM BUS 235173 TO BUS 235618 CKT 1 /* 01EDGEWT 138 01LOYALH3 138 DISCONNECT BRANCH FROM BUS 235173 TO BUS 235596 CKT 1 /* 01EDGEWT 138 01VASC T 138 DISCONNECT BRANCH FROM BUS 235173 TO BUS 236469 CKT 1 /* 01EDGEWT 138 01EDGEWATR 25 DISCONNECT BRANCH FROM BUS 235253 TO BUS 235596 CKT 1 /* 01SOCIAL 138 01VASC T 138 DISCONNECT BRANCH FROM BUS 235264 TO BUS 235596 CKT 1 /* 01VASC 138 01VASC T 138 DISCONNECT BRANCH FROM BUS 235178 TO BUS 235264 CKT 1 /* 01ETHEL 138 01VASC 138 DISCONNECT BRANCH FROM BUS 235264 TO BUS 235975 CKT 1 /* 01VASC 138 01VASCO 25 END
ATSI-P2-3-CEI-345-004C	CONTINGENCY 'ATSI-P2-3-CEI-345-004C' /* ERIE WEST 345KV BKR 7 DISCONNECT BRANCH FROM BUS 200599 TO BUS 238547 CKT 1 /* 26ERIE W 345 02AT 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239036 CKT 1 /* 02AT 345 02PERRY 345 DISCONNECT BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 /* 02AT 345 02S8-ATT 345 DISCONNECT BUS 238547 /* 02AT 345 END

Contingency Name	Contingency Definition
AP-P1-2-WP-500-303T	CONTINGENCY 'AP-P1-2-WP-500-303T' /* CABOT - KEYSTONE 500KV APS-PN TIE DISCONNECT BRANCH FROM BUS 235104 TO BUS 200011 CKT 1 /* 01CABOT 500 KEYSTONE 500 END
PN-P1-2-PN-230-025	CONTINGENCY 'PN-P1-2-PN-230-025' /* CONEMAUGH - SEWARD 230KV DISCONNECT BRANCH FROM BUS 200912 TO BUS 200793 CKT 1 /* 26CONEMAGH 230 26SEWARD 2 230 END
AP-P1-2-WP-345-311T	CONTINGENCY 'AP-P1-2-WP-345-311T' /* ARMSTRONG -HOMERCITY 345KV DISCONNECT BRANCH FROM BUS 235129 TO BUS 200769 CKT 1 /* 01ARMSTRONG 345 26HOMER CY 345 END
AP-P7-1-WPP-138-53A	CONTINGENCY 'AP-P7-1-WPP-138-53A' /* 38 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235825 CKT 1 /* 01AL 4 138 01ALL L4T 138 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235742 CKT 4E /* 01AL 4 138 01ALL L4 25 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235742 CKT 4W /* 01AL 4 138 01ALL L4 25 DISCONNECT BRANCH FROM BUS 235134 TO BUS 235139 CKT 1 /* 01AL&D6 138 01AL&D6T 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235139 CKT 1 /* 01AL 4J 138 01AL&D6T 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235079 CKT 1 /* 01AL 4J 138 01SPGDL 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235825 CKT 1 /* 01AL 4J 138 01ALL L4T 138 DISCONNECT BRANCH FROM BUS 235139 TO BUS 235204 CKT 1 /* 01AL&D6T 138 01KITTAN 138 DISCONNECT BRANCH FROM BUS 235121 TO BUS 235282 CKT 1 /* 01ARMSTR 138 01GAR RN 138 DISCONNECT BRANCH FROM BUS 235202 TO BUS 235240 CKT 1 /* 01KISKIV 138 01COLMBGPN 138 DISCONNECT BRANCH FROM BUS 235240 TO BUS 235282 CKT 1 /* 01COLMBGPN 138 01GAR RN 138 DISCONNECT BRANCH FROM BUS 235204 TO BUS 235282 CKT 1 /* 01KITTAN 138 01GAR RN 138 END
PN-P2-2-PN-500-001T	CONTINGENCY 'PN-P2-2-PN-500-001T' /* CONEMAUGH #1 500KV BUS DISCONNECT BRANCH FROM BUS 200005 TO BUS 200912 CKT 3 /* CONEM-GH 500 26CONEMAGH 230 END

Contingency Name	Contingency Definition
APS-P2-2-WP-500-DRT19	CONTINGENCY 'APS-P2-2-WP-500-DRT19' /* KEYSTONE 500 KV BUS 1 FAULT OPEN BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 /* KEYSTONE 500.00 26KEYSTONE 230.00 END
PN-P2-3-PN-230-0201A-20	CONTINGENCY 'PN-P2-3-PN-230-0201A-20' /* KEYSTONE STUCK 230 KV BREAKER 20 (SHELOCTA/#4 XFMR) DISCONNECT BRANCH FROM BUS 200795 TO BUS 200810 CKT 1 /* 26SHELOCTA 230 26KEYSTONE 230 DISCONNECT BRANCH FROM BUS 200011 TO BUS 200810 TO BUS 200907 CKT 4/* KEYSTONE 500 26KEYSTONE 230 26KEYSTN#4 20.00 END
ATSI-P7-1-CEI-345-012	CONTINGENCY 'ATSI-P7-1-CEI-345-012' /* PERRY-EASTLAKE AND PERRY-NORTHFIELD 345KV LINE OUTAGES DISCONNECT BRANCH FROM BUS 238684 TO BUS 239036 CKT 1 /* 02EASTLK 345 02PERRY 345 DISCONNECT BRANCH FROM BUS 239358 TO BUS 239036 CKT 1 /* 02NFIELD 345 02PERRY 345 END
Base Case	
PN-P1-2-PN-230-002	CONTINGENCY 'PN-P1-2-PN-230-002' /* HOMER CITY - KEYSTONE 230KV OR SHELOCTA 230/115 KV TRANSFORMER FAULT DISCONNECT BRANCH FROM BUS 200767 TO BUS 200795 CKT 1 /* 26HOMER CT 230 26SHELOCTA 230 DISCONNECT BRANCH FROM BUS 200795 TO BUS 200810 CKT 1 /* 26SHELOCTA 230 26KEYSTONE 230 DISCONNECT BRANCH FROM BUS 200795 TO BUS 200739 CKT 2 /* 26SHELOCTA 230 26SHELOCTA 115 DISCONNECT BUS 200795 /* 26SHELOCTA 230 END
PN-P2-3-PN-230-0183-209	CONTINGENCY 'PN-P2-3-PN-230-0183-209' /* HOMER CITY 230 KV STUCK BREAKER 209 (SHELOCTA/SOUTH BUS) DISCONNECT BRANCH FROM BUS 200767 TO BUS 200769 TO BUS 202641 CKT S/* 26HOMER CT 230 26HOMER CY 345 26HOMERCITYS 23.00 DISCONNECT BRANCH FROM BUS 200767 TO BUS 200795 CKT 1 /* 26HOMER CT 230 26SHELOCTA 230 END

Contingency Name	Contingency Definition
PN-P2-3-PN-230-0183-208	CONTINGENCY 'PN-P2-3-PN-230-0183-208' /* HOMER CITY 230 KV STUCK BREAKER 208 (HOOVERSVILLE/SHELOCTA) DISCONNECT BRANCH FROM BUS 200767 TO BUS 200768 CKT 1 /* 26HOMER CT 230 26QUEMAHON 230 DISCONNECT BRANCH FROM BUS 200768 TO BUS 200796 CKT 1 /* 26QUEMAHON 230 26HOOVRSVL 230 OPEN BRANCH FROM BUS 200767 TO BUS 200795 CKT 1 /* 26HOMER CT 230.00 26SHELOCTA 230.00 END

12 Short Circuit Analysis - Primary POI

The following Breakers are overdutied:

None.

12.1 System Reinforcements - Short Circuit

None.

13 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AG1-549 was evaluated as a 150.0 MW (Capacity 115.0 MW) injection at the Keystone 230 kV substation in the APS area. Project AG1-549 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-549 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

13.1 Generation Deliverability

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

None

13.2 Multiple Facility Contingency

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

None

13.3 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	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
164793910	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	APS-P2-3-WP-500-DRT32	breaker	287.0	115.41	116.97	DC	9.96
164793911	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	APS-P2-3-WP-500-DRT28	breaker	287.0	115.4	116.97	DC	10.0
164793912	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	AP-P2-3-WP-500-462T	breaker	287.0	112.24	113.46	DC	7.77
177172940	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	PN-P2_3-PN-230-0347-A	breaker	287.0	119.84	121.03	DC	7.52
165180297	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.35	159.82	DC	65.73
165180298	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	PN-P2-2-PN-500-001T	bus	634.0	130.13	137.66	DC	47.22
165180782	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	AP-P7-1-WPP-138-53A	tower	634.0	105.34	112.39	DC	44.28
165180783	200810	26KEYSTONE	230.0	PENELEC	999332	KEYSTONE	1.0	PENELEC	4	ATSI-P7-1-CEI-345-012	tower	634.0	103.91	110.94	DC	44.12

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165180302	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	148.87	159.34	DC	65.73
165180303	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	PN-P2-2-PN-500-001T	bus	634.0	129.66	137.19	DC	47.22
165180797	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	AP-P7-1-WPP-138-53A	tower	634.0	104.85	111.91	DC	44.28
165180798	999332	KEYSTONE	1.0	PENELEC	200011	KEYSTONE	500.0	PENELEC	4	ATSI-P7-1-CEI-345-012	tower	634.0	103.43	110.46	DC	44.12

13.4 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	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
164794231	200763	26BLAIRSVL	138.0	PENELEC	235253	01SOCIAL	138.0	AP	1	AP-P1-2-WP-500-303T	operation	287.0	112.18	113.41	DC	7.83
167772671	200767	26HOMER CT	230.0	PENELEC	200795	26SHELOCTA	230.0	PENELEC	1	Base Case	operation	809.0	163.93	165.04	DC	8.81
167772658	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	Base Case	operation	809.0	160.81	162.1	DC	10.24
175604346	200795	26SHELOCTA	230.0	PENELEC	200810	26KEYSTONE	230.0	PENELEC	1	PN-P1-2-PN-345-107T	operation	923.0	198.78	199.86	DC	9.81
167772792	200912	26CONEMAGH	230.0	PENELEC	200005	CONEM-GH	500.0	PENELEC	3	Base Case	operation	861.0	102.72	103.52	DC	15.08

13.5 Flow Gate Details - Secondary POI

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".

13.5.1 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
177172940	200763	26BLAIRSVL	PENELEC	235253	01SOCIAL	AP	1	PN-P2_3-PN-230-0347-A	breaker	287.0	119.84	121.03	DC	7.52

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200503	**26C.SLOPE (Deactivation : 07/06/2019)**	**0.9041**	**50/50**	**0.9041**
200636	26IUP CO-G	0.3279	50/50	0.3279
200794	26CONEMAGH	0.2581	50/50	0.2581
200805	**26COLVER13 (Deactivation : 01/09/2020)**	**2.1872**	**50/50**	**2.1872**
200833	26SEWRDB34	9.5588	50/50	9.5588
200835	26ARN_Z1-066	0.5220	Adder	0.61
200846	26FORWARD	0.0528	50/50	0.0528
200852	26WARR RDG	0.1470	Adder	0.17
200864	K-013 E	2.4263	50/50	2.4263
200883	Q-053 E	4.0674	Adder	4.79
200888	26HIGHLAND	0.1404	50/50	0.1404
200925	26R32	0.2201	50/50	0.2201
200945	26CT_V3-030	0.0951	50/50	0.0951
202158	26CON.GEN1	0.0562	50/50	0.0562
202160	26CON.GEN2	0.1149	50/50	0.1149
203915	26BF_Z2-108	1.1744	Adder	1.38
290086	Q-036 E	2.5796	Adder	3.03
292350	K-023	2.1466	Adder	2.53
292542	L-013 1	2.0879	Adder	2.46
293301	N-039 E	4.7317	Adder	5.57
293393	V3-030E	3.2080	50/50	3.2080
293432	R-040 E	0.1174	Adder	0.14
293603	O-018 E	5.7112	50/50	5.7112
293902	O-048 E	1.8791	Adder	2.21
294515	O38_P22	4.1402	Adder	4.87
294903	P-060 E	3.4815	Adder	4.1
296332	R-032 E	6.5898	50/50	6.5898
913142	Y1-033 E OP1	1.6321	Adder	1.92
935191	AD1-154	1.2934	Adder	1.52
936881	AD2-112 C	-2.4068	Adder	-2.83
936882	AD2-112 E	-0.9551	Adder	-1.12
936991	AD2-133 C	1.1608	Adder	1.37
936992	AD2-133 E	5.3094	Adder	6.25
938351	AE1-053	0.6525	Adder	0.77
938362	AE1-054 BAT	0.9983	Merchant Transmission	0.9983
938881	AE1-116	0.3561	Adder	0.42
938993	AE1-128 C	7.3966	50/50	7.3966

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938994	AE1-128 E	4.9310	50/50	4.9310
941231	AE2-117 C	0.7154	Adder	0.84
941232	AE2-117 E	0.4770	Adder	0.56
941241	AE2-118 C	0.7538	Adder	0.89
941242	AE2-118 E	0.5025	Adder	0.59
941331	AE2-129 C	0.6770	Adder	0.8
941332	AE2-129 E	0.4513	Adder	0.53
941351	**AE2-131 C (Suspended)**	**0.6770**	**Adder**	**0.8**
941352	**AE2-131 E (Suspended)**	**0.4513**	**Adder**	**0.53**
942121	AE2-224 C	4.6277	Adder	5.44
942122	AE2-224 E	3.0852	Adder	3.63
942361	AE2-249 C	0.8321	50/50	0.8321
942362	AE2-249 E	0.5547	50/50	0.5547
942511	AE2-264 C	2.8401	Adder	3.34
942512	AE2-264 E	1.8934	Adder	2.23
943711	AF1-039 C O1	0.4318	Adder	0.51
943712	AF1-039 E O1	0.2878	Adder	0.34
944181	AF1-086 C O1	2.1733	50/50	2.1733
944182	AF1-086 E O1	9.4552	50/50	9.4552
944691	AF1-134 C	0.8557	Adder	1.01
944692	AF1-134 E	0.5705	Adder	0.67
944751	AF1-140 C	1.0284	50/50	1.0284
944752	AF1-140 E	0.6856	50/50	0.6856
944781	AF1-143 C	3.9148	Adder	4.61
944782	AF1-143 E	2.0879	Adder	2.46
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**8.4837**	**Adder**	**9.98**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**4.5682**	**Adder**	**5.37**
945751	AF1-240 C O1	0.7760	Adder	0.91
945752	AF1-240 E O1	0.5173	Adder	0.61
946071	AF1-272 C O1	11.2781	50/50	11.2781
946072	AF1-272 E O1	7.5187	50/50	7.5187
946571	AF1-321 C O1	1.2595	50/50	1.2595
946572	AF1-321 E O1	0.8397	50/50	0.8397
957001	AF2-001 C O1	1.2595	50/50	1.2595
957002	AF2-001 E O1	0.8397	50/50	0.8397
957011	AF2-002 C O1	0.6298	50/50	0.6298
957012	AF2-002 E O1	0.4198	50/50	0.4198
957451	AF2-039 C	0.3770	Adder	0.44
957452	AF2-039 E	0.2513	Adder	0.3
957512	AF2-045 E	2.0630	50/50	2.0630
957561	AF2-050 C	2.3139	Adder	2.72
957562	AF2-050 E	1.5426	Adder	1.81
957931	**AF2-087 C (Suspended)**	**0.2258**	**Adder**	**0.27**
957932	**AF2-087 E (Suspended)**	**0.3109**	**Adder**	**0.37**
957941	AF2-088 C	0.1815	Adder	0.21
957942	AF2-088 E	0.1210	Adder	0.14
957981	AF2-092 C	0.7435	50/50	0.7435
957982	AF2-092 E	0.4957	50/50	0.4957
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**0.1899**	**Adder**	**0.22**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.1266	Adder	0.15
958271	AF2-121 C	0.6770	Adder	0.8
958272	AF2-121 E	0.4513	Adder	0.53
958471	AF2-141	0.5220	Adder	0.61
959792	AF2-270 E	0.3823	50/50	0.3823
959802	AF2-271 E	0.1862	Adder	0.22
960051	AF2-296 C	0.8557	Adder	1.01
960052	AF2-296 E	0.5705	Adder	0.67
960451	AF2-336 C	1.2392	50/50	1.2392
960452	AF2-336 E	0.8262	50/50	0.8262
960461	AF2-337 C	1.2392	50/50	1.2392
960462	AF2-337 E	0.8262	50/50	0.8262
960471	AF2-338 C	1.2392	50/50	1.2392
960472	AF2-338 E	0.8262	50/50	0.8262
960481	AF2-339 C	1.2392	50/50	1.2392
960482	AF2-339 E	0.8262	50/50	0.8262
960901	AF2-381 C	8.5217	50/50	8.5217
960902	AF2-381 E	4.4846	50/50	4.4846
961911	AG1-033 C	0.3485	50/50	0.3485
961912	AG1-033 E	0.1961	50/50	0.1961
961981	AG1-041 C	0.7464	50/50	0.7464
961982	AG1-041 E	0.4976	50/50	0.4976
962292	AG1-077 E	0.1738	Adder	0.39
962641	AG1-113	0.1510	Adder	0.34
962651	AG1-114	0.3458	Adder	0.77
962951	AG1-144 C	0.3588	Adder	0.8
962952	AG1-144 E	0.2392	Adder	0.53
963541	AG1-203 C	0.2825	Adder	0.63
963542	AG1-203 E	0.1521	Adder	0.34
963561	AG1-205 C	0.2248	Adder	0.5
963562	AG1-205 E	0.1210	Adder	0.27
963881	AG1-241 C	0.7080	50/50	0.7080
963882	AG1-241 E	0.3812	50/50	0.3812
963891	AG1-242 C	0.2457	Adder	0.55
963892	AG1-242 E	0.1323	Adder	0.29
964191	AG1-280 C	0.5272	Adder	1.17
964192	AG1-280 E	0.3515	Adder	0.78
964201	AG1-281 C	0.5262	Adder	1.17
964202	AG1-281 E	0.3508	Adder	0.78
964331	AG1-295 C	1.7841	50/50	1.7841
964332	AG1-295 E	0.9467	50/50	0.9467
964391	AG1-301 C	0.3740	Adder	0.83
964392	AG1-301 E	0.2493	Adder	0.55
964451	AG1-308 C O2	0.2482	Adder	0.55
964452	AG1-308 E O2	0.3468	Adder	0.77
964751	AG1-338 C	0.4613	50/50	0.4613
964752	AG1-338 E	0.0629	50/50	0.0629
964761	AG1-339 C	0.4823	50/50	0.4823
964762	AG1-339 E	0.0419	50/50	0.0419
964771	AG1-340 C	0.4613	50/50	0.4613
964772	AG1-340 E	0.0629	50/50	0.0629
964911	AG1-355 C	3.4302	50/50	3.4302

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964912	AG1-355 E	2.2868	50/50	2.2868
964921	AG1-356 C	0.9281	Adder	2.06
964922	AG1-356 E	0.6187	Adder	1.37
965121	AG1-377 C O1	0.3588	Adder	0.8
965122	AG1-377 E O1	0.2392	Adder	0.53
965131	AG1-378 C O1	0.3588	Adder	0.8
965132	AG1-378 E O1	0.2392	Adder	0.53
965171	AG1-382 C	1.3776	50/50	1.3776
965172	AG1-382 E	0.9184	50/50	0.9184
965221	AG1-387 C	1.3776	50/50	1.3776
965222	AG1-387 E	0.9184	50/50	0.9184
965301	AG1-395 C	0.4611	Adder	1.02
965302	AG1-395 E	0.1369	Adder	0.3
965881	AG1-457 C	1.2024	Adder	2.67
965882	AG1-457 E	0.8016	Adder	1.78
966453	AG1-514 BAT	0.2976	Merchant Transmission	0.2976
966512	AG1-520 E	0.4198	50/50	0.4198
966781	AG1-549 C O2	2.5976	Adder	5.77
966782	AG1-549 E O2	0.7906	Adder	1.75
G-007A	G-007A	1.7334	Confirmed LTF	1.7334
VFT	VFT	4.7665	Confirmed LTF	4.7665
CALDERWOOD	CALDERWOOD	0.2579	Confirmed LTF	0.2579
PRAIRIE	PRAIRIE	1.4258	Confirmed LTF	1.4258
CHEOAH	CHEOAH	0.2593	Confirmed LTF	0.2593
CBM-N	CBM-N	0.9336	Confirmed LTF	0.9336
COTTONWOOD	COTTONWOOD	1.1172	Confirmed LTF	1.1172
HAMLET	HAMLET	0.2599	Confirmed LTF	0.2599
GIBSON	GIBSON	0.3085	Confirmed LTF	0.3085
BLUEG	BLUEG	0.9860	Confirmed LTF	0.9860
TRIMBLE	TRIMBLE	0.3166	Confirmed LTF	0.3166
CATAWBA	CATAWBA	0.1659	Confirmed LTF	0.1659

13.5.2 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
165180297	200810	26KEYSTONE	PENELEC	999332	KEYSTONE	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	149.35	159.82	DC	65.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.4562	50/50	0.4562
200794	26CONEMAGH	0.3075	50/50	0.3075
200809	26SITHE	1.4282	50/50	1.4282
200833	26SEWRDB34	14.8354	50/50	14.8354
200835	26ARN_Z1-066	0.9301	Adder	1.09
200837	26HOMER C1	24.5961	50/50	24.5961
200838	26HOMER C2	20.3806	50/50	20.3806
200839	26HOMER C3	21.5755	50/50	21.5755
200846	26FORWARD	0.0922	50/50	0.0922
200852	26WARR RDG	0.2604	Adder	0.31
200864	K-013 E	4.2361	50/50	4.2361
200883	Q-053 E	6.5672	Adder	7.73
200888	26HIGHLAND	0.2265	50/50	0.2265
200894	26K02	4.1917	Adder	4.93
200906	26KEYSTN#3	0.7604	50/50	0.7604
200925	26R32	0.3551	50/50	0.3551
202158	26CON.GEN1	0.0793	50/50	0.0793
202160	26CON.GEN2	0.0555	50/50	0.0555
203915	26BF_Z2-108	2.0927	Adder	2.46
203999	P-047 E	7.4720	Adder	8.79
235003	AC1-025 E	0.1061	Adder	0.12
236828	01GRAYMONT	0.2879	Adder	0.34
290086	Q-036 E	4.6070	Adder	5.42
292350	K-023	3.8251	Adder	4.5
292542	L-013 1	3.7204	Adder	4.38
293301	N-039 E	8.8150	Adder	10.37
293393	V3-030E	4.0181	Adder	4.73
293432	R-040 E	0.2093	Adder	0.25
293603	O-018 E	9.2165	50/50	9.2165
293902	O-048 E	3.3484	Adder	3.94
294515	O38_P22	7.7131	Adder	9.07
294903	P-060 E	5.9947	Adder	7.05
296332	R-032 E	10.6344	50/50	10.6344
913142	Y1-033 E OP1	2.9894	Adder	3.52
916202	Z1-069 E	6.0533	Adder	7.12
919201	AA1-144 OP	11.5038	Adder	13.53
920341	**AA2-132 (Withdrawn : 12/07/2020)**	**1.5694**	**Adder**	**1.85**
921642	AA2-000	36.2420	Adder	42.64
930511	AB2-092	1.3307	Adder	1.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
931092	AB1-160 E	1.7295	Adder	2.03
935191	AD1-154	2.3759	Adder	2.8
936421	AD2-055	2.7397	Adder	3.22
936991	AD2-133 C	2.0731	Adder	2.44
936992	AD2-133 E	9.4824	Adder	11.16
938351	AE1-053	1.1626	Adder	1.37
938881	AE1-116	0.6259	Adder	0.74
938951	AE1-123	1.7193	Adder	2.02
938993	AE1-128 C	10.5852	Adder	12.45
938994	AE1-128 E	7.0568	Adder	8.3
939171	AE1-147 C	0.8659	Adder	1.02
939172	AE1-147 E	0.5773	Adder	0.68
939291	AE1-160 C	1.0615	Adder	1.25
939292	AE1-160 E	0.6101	Adder	0.72
940201	AE2-001 C	0.8646	Adder	1.02
940202	AE2-001 E	0.5764	Adder	0.68
940681	**AE2-055 C (Suspended)**	**0.8447**	**Adder**	**0.99**
940682	**AE2-055 E (Suspended)**	**0.5631**	**Adder**	**0.66**
940861	AE2-074 C	1.6654	Adder	1.96
940862	AE2-074 E	2.1923	Adder	2.58
941191	AE2-113 C	6.5539	Adder	7.71
941192	AE2-113 E	7.0564	Adder	8.3
941231	AE2-117 C	1.2652	Adder	1.49
941232	AE2-117 E	0.8435	Adder	0.99
941241	AE2-118 C	1.3245	Adder	1.56
941242	AE2-118 E	0.8830	Adder	1.04
941261	AE2-120 C	0.8638	Adder	1.02
941262	AE2-120 E	0.5759	Adder	0.68
941271	AE2-121 C	0.4616	Adder	0.54
941272	AE2-121 E	0.3082	Adder	0.36
941321	AE2-126 C	1.1448	Adder	1.35
941322	AE2-126 E	0.7632	Adder	0.9
941331	AE2-129 C	1.2830	Adder	1.51
941332	AE2-129 E	0.8553	Adder	1.01
941351	**AE2-131 C (Suspended)**	**1.2830**	**Adder**	**1.51**
941352	**AE2-131 E (Suspended)**	**0.8553**	**Adder**	**1.01**
941421	AE2-139 C	2.2721	Adder	5.04
941422	AE2-139 E	1.5147	Adder	3.36
942121	AE2-224 C	8.6669	Adder	10.2
942122	AE2-224 E	5.7780	Adder	6.8
942351	AE2-248 C	0.6823	Adder	0.8
942352	AE2-248 E	0.4549	Adder	0.54
942361	AE2-249 C	1.1908	Adder	1.4
942362	AE2-249 E	0.7939	Adder	0.93
942491	AE2-262 C	3.8837	Adder	4.57
942492	AE2-262 E	2.6098	Adder	3.07
942501	AE2-263 C	3.6506	Adder	4.29
942502	AE2-263 E	2.4374	Adder	2.87
942511	AE2-264 C	5.1632	Adder	6.07
942512	AE2-264 E	3.4422	Adder	4.05
942811	AE2-299 C	2.2301	Adder	2.62
942812	AE2-299 E	8.9205	Adder	10.49

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942961	AE2-316 C	3.6572	Adder	4.3
942962	AE2-316 E	5.2151	Adder	6.14
943151	AE2-344 C	4.8233	Adder	5.67
943152	AE2-344 E	3.2155	Adder	3.78
943711	AF1-039 C O1	0.7909	Adder	0.93
943712	AF1-039 E O1	0.5272	Adder	0.62
943751	AF1-043	8.2190	Adder	9.67
944001	**AF1-068 C O1 (Withdrawn : 12/15/2020)**	**0.9072**	**Adder**	**1.07**
944002	**AF1-068 E O1 (Withdrawn : 12/15/2020)**	**0.5103**	**Adder**	**0.6**
944181	AF1-086 C O1	2.7629	Adder	3.25
944182	AF1-086 E O1	12.0200	Adder	14.14
944261	AF1-094 C	0.8818	Adder	1.04
944262	AF1-094 E	0.5879	Adder	0.69
944281	AF1-096 C	1.0030	Adder	1.18
944282	AF1-096 E	0.6686	Adder	0.79
944301	AF1-098 C	3.4305	Adder	4.04
944302	AF1-098 E	2.2870	Adder	2.69
944311	AF1-099 C	5.8954	Adder	6.94
944312	AF1-099 E	3.9303	Adder	4.62
944321	AF1-100 C	12.5371	Adder	14.75
944322	AF1-100 E	8.3580	Adder	9.83
944381	AF1-103 O1	1.7331	Adder	2.04
944411	AF1-106 O1	1.7177	Adder	2.02
944471	AF1-112 C	0.8552	Adder	1.01
944472	AF1-112 E	0.5701	Adder	0.67
944671	**AF1-132 C O1 (Withdrawn : 12/15/2020)**	**0.8490**	**Adder**	**1.0**
944672	**AF1-132 E O1 (Withdrawn : 12/15/2020)**	**0.5660**	**Adder**	**0.67**
944691	AF1-134 C	1.4199	Adder	1.67
944692	AF1-134 E	0.9466	Adder	1.11
944751	AF1-140 C	1.4160	Adder	1.67
944752	AF1-140 E	0.9440	Adder	1.11
944771	AF1-142 C	9.4326	Adder	11.1
944772	AF1-142 E	6.2884	Adder	7.4
944781	AF1-143 C	6.9758	Adder	8.21
944782	AF1-143 E	3.7204	Adder	4.38
944881	AF1-153 C O1	1.0402	Adder	1.22
944882	AF1-153 E O1	0.6935	Adder	0.82
944901	AF1-155 C	1.0404	Adder	1.22
944902	AF1-155 E	0.6936	Adder	0.82
945021	AF1-167 C	0.6719	Adder	0.79
945022	AF1-167 E	0.4488	Adder	0.53
945051	AF1-170 C	3.0798	Adder	3.62
945052	AF1-170 E	2.0532	Adder	2.42
945451	AF1-210 C	0.7376	Adder	0.87
945452	AF1-210 E	0.4917	Adder	0.58
945491	**AF1-214 C (Withdrawn : 12/03/2020)**	**0.8639**	**Adder**	**1.02**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5760	Adder	0.68
945671	AF1-232 C (Withdrawn : 01/19/2021)	14.7115	Adder	17.31
945672	AF1-232 E (Withdrawn : 01/19/2021)	7.9216	Adder	9.32
945751	AF1-240 C O1	1.4256	Adder	1.68
945752	AF1-240 E O1	0.9504	Adder	1.12
946071	AF1-272 C O1	15.6902	50/50	15.6902
946072	AF1-272 E O1	10.4601	50/50	10.4601
946111	AF1-276 C	7.4656	Adder	8.78
946112	AF1-276 E	3.6771	Adder	4.33
946121	AF1-277 C	7.4656	Adder	8.78
946122	AF1-277 E	3.6771	Adder	4.33
946131	AF1-278 C	5.9546	Adder	7.01
946132	AF1-278 E	2.9595	Adder	3.48
946211	AF1-286 C	0.6957	Adder	0.82
946212	AF1-286 E	0.4724	Adder	0.56
946221	AF1-287 C	0.8326	Adder	0.98
946222	AF1-287 E	0.5551	Adder	0.65
946381	AF1-302 C	1.5970	Adder	1.88
946382	AF1-302 E	2.1294	Adder	2.51
946401	AF1-304 C	5.2474	Adder	6.17
946402	AF1-304 E	3.4983	Adder	4.12
946421	AF1-306 C	4.3103	Adder	5.07
946422	AF1-306 E	17.2414	Adder	20.28
946571	AF1-321 C O1	2.2145	50/50	2.2145
946572	AF1-321 E O1	1.4763	50/50	1.4763
946771	AF1-217 C	0.8327	Adder	0.98
946772	AF1-217 E	0.5552	Adder	0.65
957001	AF2-001 C O1	2.2145	50/50	2.2145
957002	AF2-001 E O1	1.4763	50/50	1.4763
957011	AF2-002 C O1	1.1072	50/50	1.1072
957012	AF2-002 E O1	0.7382	50/50	0.7382
957161	AF2-010 C	3.4025	Adder	4.0
957162	AF2-010 E	2.2930	Adder	2.7
957451	AF2-039 C	0.7842	Adder	0.92
957452	AF2-039 E	0.5228	Adder	0.62
957512	AF2-045 E	2.6604	Adder	3.13
957561	AF2-050 C	4.3335	Adder	5.1
957562	AF2-050 E	2.8890	Adder	3.4
957571	AF2-051 C	2.5983	Adder	3.06
957572	AF2-051 E	1.3385	Adder	1.57
957931	AF2-087 C (Suspended)	0.3821	Adder	0.45
957932	AF2-087 E (Suspended)	0.5262	Adder	0.62
957941	AF2-088 C	0.3776	Adder	0.44
957942	AF2-088 E	0.2517	Adder	0.3
957981	AF2-092 C	1.0550	Adder	1.24
957982	AF2-092 E	0.7033	Adder	0.83
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3338	Adder	0.39
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2225	Adder	0.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958271	AF2-121 C	1.2830	Adder	1.51
958272	AF2-121 E	0.8553	Adder	1.01
958361	AF2-130 C	1.1065	Adder	1.3
958362	AF2-130 E	0.7377	Adder	0.87
958471	AF2-141	0.9301	Adder	1.09
958731	AF2-164 C O1	4.8576	Adder	5.71
958732	AF2-164 E O1	3.2384	Adder	3.81
958741	AF2-165 C	1.0641	Adder	1.25
958742	AF2-165 E	0.7094	Adder	0.83
958751	AF2-166 C	1.1065	Adder	1.3
958752	AF2-166 E	0.7377	Adder	0.87
959061	AF2-197 C O1	2.9265	Adder	3.44
959062	AF2-197 E O1	4.3897	Adder	5.16
959441	AF2-235 C	0.5015	Adder	0.59
959442	AF2-235 E	0.3343	Adder	0.39
959471	AF2-238 C	1.0580	Adder	1.24
959472	AF2-238 E	0.7054	Adder	0.83
959481	AF2-239 C	0.7866	Adder	0.93
959482	AF2-239 E	0.6307	Adder	0.74
959491	AF2-240 C	0.3246	Adder	0.38
959492	AF2-240 E	0.2765	Adder	0.33
959501	AF2-241 C	0.9705	Adder	1.14
959502	AF2-241 E	0.7472	Adder	0.88
959521	AF2-243 C	0.7980	Adder	0.94
959522	AF2-243 E	0.5320	Adder	0.63
959741	AF2-265 C	0.7583	Adder	0.89
959742	AF2-265 E	0.5643	Adder	0.66
959792	AF2-270 E	0.5470	Adder	0.64
959802	AF2-271 E	0.3276	Adder	0.39
959822	AF2-273 E	0.2954	Adder	0.35
960022	AF2-293 E	0.0842	Adder	0.1
960031	AF2-294 C	0.9464	Adder	1.11
960032	AF2-294 E	0.6309	Adder	0.74
960041	AF2-295 C	1.0404	Adder	1.22
960042	AF2-295 E	0.6936	Adder	0.82
960051	AF2-296 C	1.4199	Adder	1.67
960052	AF2-296 E	0.9466	Adder	1.11
960271	AF2-318 C	0.8504	Adder	1.0
960272	AF2-318 E	0.5669	Adder	0.67
960451	AF2-336 C	1.7583	Adder	2.07
960452	AF2-336 E	1.1722	Adder	1.38
960461	AF2-337 C	1.7583	Adder	2.07
960462	AF2-337 E	1.1722	Adder	1.38
960471	AF2-338 C	1.7583	Adder	2.07
960472	AF2-338 E	1.1722	Adder	1.38
960481	AF2-339 C	1.7583	Adder	2.07
960482	AF2-339 E	1.1722	Adder	1.38
960901	AF2-381 C	14.7256	50/50	14.7256
960902	AF2-381 E	7.7494	50/50	7.7494
961141	AF2-405	0.8588	Adder	1.01
961151	AF2-406	6.4413	Adder	7.58
961201	**AF2-411 O1 (Withdrawn : 12/08/2020)**	**32.8440**	**Adder**	**38.64**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961211	AF2-412	13.1241	Adder	15.44
961911	AG1-033 C	0.5844	50/50	0.5844
961912	AG1-033 E	0.3287	50/50	0.3287
961971	AG1-040 C	0.4649	Adder	1.03
961972	AG1-040 E	0.3099	Adder	0.69
961981	AG1-041 C	0.5577	Adder	1.24
961982	AG1-041 E	0.3718	Adder	0.83
962292	AG1-077 E	0.3007	Adder	0.67
962411	AG1-090 C O2	2.3716	Adder	5.26
962412	AG1-090 E O2	1.5811	Adder	3.51
962511	AG1-100 C	0.4405	Adder	0.98
962512	AG1-100 E	0.2937	Adder	0.65
962641	AG1-113	0.2654	Adder	0.59
962651	AG1-114	0.6162	Adder	1.37
962891	AG1-138 C	0.2321	Adder	0.52
962892	AG1-138 E	0.0122	Adder	0.03
962901	AG1-139 C	0.2232	Adder	0.5
962902	AG1-139 E	0.0117	Adder	0.03
962911	AG1-140 C	0.0665	Adder	0.15
962912	AG1-140 E	0.0303	Adder	0.07
962951	AG1-144 C	0.6800	Adder	1.51
962952	AG1-144 E	0.4533	Adder	1.01
963281	AG1-177 C O2	0.4413	Adder	0.98
963282	AG1-177 E O2	0.2942	Adder	0.65
963441	AG1-193 C	0.5502	Adder	1.22
963442	AG1-193 E	0.3668	Adder	0.81
963481	AG1-197 C	0.3527	Adder	0.78
963482	AG1-197 E	0.2351	Adder	0.52
963491	AG1-198 C	0.2804	Adder	0.62
963492	AG1-198 E	0.1869	Adder	0.41
963541	AG1-203 C	0.4887	Adder	1.08
963542	AG1-203 E	0.2631	Adder	0.58
963561	AG1-205 C	0.4005	Adder	0.89
963562	AG1-205 E	0.2157	Adder	0.48
963571	AG1-206 C	0.3274	Adder	0.73
963572	AG1-206 E	0.1763	Adder	0.39
963881	AG1-241 C	1.1871	50/50	1.1871
963882	AG1-241 E	0.6392	50/50	0.6392
963891	AG1-242 C	0.4076	Adder	0.9
963892	AG1-242 E	0.2195	Adder	0.49
963941	AG1-247 C	0.2230	Adder	0.5
963942	AG1-247 E	0.1183	Adder	0.26
963991	AG1-253 C	0.0997	Adder	0.22
963992	AG1-253 E	0.0480	Adder	0.11
964031	AG1-257 C	0.3141	Adder	0.7
964032	AG1-257 E	0.4390	Adder	0.97
964041	AG1-258 C	0.3141	Adder	0.7
964042	AG1-258 E	0.4390	Adder	0.97
964191	AG1-280 C	0.8695	Adder	1.93
964192	AG1-280 E	0.5797	Adder	1.29
964201	AG1-281 C	0.8682	Adder	1.93
964202	AG1-281 E	0.5788	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964331	AG1-295 C	0.8622	50/50	0.8622
964332	AG1-295 E	0.4575	50/50	0.4575
964341	AG1-296 C	0.3072	Adder	0.68
964342	AG1-296 E	0.1654	Adder	0.37
964391	AG1-301 C	0.6626	Adder	1.47
964392	AG1-301 E	0.4417	Adder	0.98
964411	AG1-303 C O2	1.1070	Adder	2.46
964412	AG1-303 E O2	0.7380	Adder	1.64
964451	AG1-308 C O2	0.4703	Adder	1.04
964452	AG1-308 E O2	0.6573	Adder	1.46
964701	AG1-333 C	0.1839	Adder	0.41
964702	AG1-333 E	0.0251	Adder	0.06
964751	AG1-338 C	0.3383	Adder	0.75
964752	AG1-338 E	0.0461	Adder	0.1
964761	AG1-339 C	0.3537	Adder	0.79
964762	AG1-339 E	0.0308	Adder	0.07
964771	AG1-340 C	0.3383	Adder	0.75
964772	AG1-340 E	0.0461	Adder	0.1
964911	AG1-355 C	5.9652	50/50	5.9652
964912	AG1-355 E	3.9768	50/50	3.9768
964921	AG1-356 C	1.6139	Adder	3.58
964922	AG1-356 E	1.0759	Adder	2.39
965121	AG1-377 C O1	0.6800	Adder	1.51
965122	AG1-377 E O1	0.4533	Adder	1.01
965131	AG1-378 C O1	0.6800	Adder	1.51
965132	AG1-378 E O1	0.4533	Adder	1.01
965171	AG1-382 C	0.9204	Adder	2.04
965172	AG1-382 E	0.6136	Adder	1.36
965201	AG1-385 C	0.7089	Adder	1.57
965202	AG1-385 E	0.2100	Adder	0.47
965221	AG1-387 C	0.9204	Adder	2.04
965222	AG1-387 E	0.6136	Adder	1.36
965241	AG1-389 C O1	0.6842	Adder	1.52
965242	AG1-389 E O1	0.4562	Adder	1.01
965251	AG1-390 C O2	0.6846	Adder	1.52
965252	AG1-390 E O2	0.4564	Adder	1.01
965261	AG1-391 C O1	0.6842	Adder	1.52
965262	AG1-391 E O1	0.4562	Adder	1.01
965271	AG1-392 C O1	1.3685	Adder	3.04
965272	AG1-392 E O1	0.9123	Adder	2.03
965301	AG1-395 C	0.8738	Adder	1.94
965302	AG1-395 E	0.2595	Adder	0.58
965861	AG1-455	1.2286	Adder	2.73
965881	AG1-457 C	2.1315	Adder	4.73
965882	AG1-457 E	1.4210	Adder	3.15
966121	AG1-481	0.7133	Adder	1.58
966512	AG1-520 E	0.7382	50/50	0.7382
966771	AG1-548 C	4.4368	Adder	9.85
966772	AG1-548 E	1.3503	Adder	3.0
966781	AG1-549 C O2	50.3907	50/50	50.3907
966782	AG1-549 E O2	15.3363	50/50	15.3363
VFT	VFT	0.1032	Confirmed LTF	0.1032

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CALDERWOOD	CALDERWOOD	0.2704	Confirmed LTF	0.2704
PRAIRIE	PRAIRIE	1.2295	Confirmed LTF	1.2295
CHEOAH	CHEOAH	0.2733	Confirmed LTF	0.2733
CBM-N	CBM-N	0.1548	Confirmed LTF	0.1548
COTTONWOOD	COTTONWOOD	1.0752	Confirmed LTF	1.0752
G-007	G-007	0.0252	Confirmed LTF	0.0252
HAMLET	HAMLET	0.3465	Confirmed LTF	0.3465
GIBSON	GIBSON	0.2555	Confirmed LTF	0.2555
BLUEG	BLUEG	0.8333	Confirmed LTF	0.8333
TRIMBLE	TRIMBLE	0.2671	Confirmed LTF	0.2671
CATAWBA	CATAWBA	0.2051	Confirmed LTF	0.2051

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ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
165180302	999332	KEYSTONE	PENELEC	200011	KEYSTONE	PENELEC	4	APS-P2-2-WP-500-DRT19	bus	634.0	148.87	159.34	DC	65.73

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200636	26IUP CO-G	0.4562	50/50	0.4562
200794	26CONEMAGH	0.3075	50/50	0.3075
200809	26SITHE	1.4282	50/50	1.4282
200833	26SEWRDB34	14.8354	50/50	14.8354
200835	26ARN_Z1-066	0.9301	Adder	1.09
200837	26HOMER C1	24.5961	50/50	24.5961
200838	26HOMER C2	20.3806	50/50	20.3806
200839	26HOMER C3	21.5755	50/50	21.5755
200846	26FORWARD	0.0922	50/50	0.0922
200852	26WARR RDG	0.2604	Adder	0.31
200864	K-013 E	4.2361	50/50	4.2361
200883	Q-053 E	6.5672	Adder	7.73
200888	26HIGHLAND	0.2265	50/50	0.2265
200894	26K02	4.1917	Adder	4.93
200906	26KEYSTN#3	0.7604	50/50	0.7604
200925	26R32	0.3551	50/50	0.3551
202158	26CON.GEN1	0.0793	50/50	0.0793
202160	26CON.GEN2	0.0555	50/50	0.0555
203915	26BF_Z2-108	2.0927	Adder	2.46
203999	P-047 E	7.4720	Adder	8.79
235003	AC1-025 E	0.1061	Adder	0.12
236828	01GRAYMONT	0.2879	Adder	0.34
290086	Q-036 E	4.6070	Adder	5.42
292350	K-023	3.8251	Adder	4.5
292542	L-013 1	3.7204	Adder	4.38
293301	N-039 E	8.8150	Adder	10.37
293393	V3-030E	4.0181	Adder	4.73
293432	R-040 E	0.2093	Adder	0.25
293603	O-018 E	9.2165	50/50	9.2165
293902	O-048 E	3.3484	Adder	3.94
294515	O38_P22	7.7131	Adder	9.07
294903	P-060 E	5.9947	Adder	7.05
296332	R-032 E	10.6344	50/50	10.6344
913142	Y1-033 E OP1	2.9894	Adder	3.52
916202	Z1-069 E	6.0533	Adder	7.12
919201	AA1-144 OP	11.5038	Adder	13.53
920341	**AA2-132 (Withdrawn : 12/07/2020)**	**1.5694**	**Adder**	**1.85**
921642	AA2-000	36.2420	Adder	42.64
930511	AB2-092	1.3307	Adder	1.57
931092	AB1-160 E	1.7295	Adder	2.03

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935191	AD1-154	2.3759	Adder	2.8
936421	AD2-055	2.7397	Adder	3.22
936991	AD2-133 C	2.0731	Adder	2.44
936992	AD2-133 E	9.4824	Adder	11.16
938351	AE1-053	1.1626	Adder	1.37
938881	AE1-116	0.6259	Adder	0.74
938951	AE1-123	1.7193	Adder	2.02
938993	AE1-128 C	10.5852	Adder	12.45
938994	AE1-128 E	7.0568	Adder	8.3
939171	AE1-147 C	0.8659	Adder	1.02
939172	AE1-147 E	0.5773	Adder	0.68
939291	AE1-160 C	1.0615	Adder	1.25
939292	AE1-160 E	0.6101	Adder	0.72
940201	AE2-001 C	0.8646	Adder	1.02
940202	AE2-001 E	0.5764	Adder	0.68
940681	**AE2-055 C (Suspended)**	**0.8447**	**Adder**	**0.99**
940682	**AE2-055 E (Suspended)**	**0.5631**	**Adder**	**0.66**
940861	AE2-074 C	1.6654	Adder	1.96
940862	AE2-074 E	2.1923	Adder	2.58
941191	AE2-113 C	6.5539	Adder	7.71
941192	AE2-113 E	7.0564	Adder	8.3
941231	AE2-117 C	1.2652	Adder	1.49
941232	AE2-117 E	0.8435	Adder	0.99
941241	AE2-118 C	1.3245	Adder	1.56
941242	AE2-118 E	0.8830	Adder	1.04
941261	AE2-120 C	0.8638	Adder	1.02
941262	AE2-120 E	0.5759	Adder	0.68
941271	AE2-121 C	0.4616	Adder	0.54
941272	AE2-121 E	0.3082	Adder	0.36
941321	AE2-126 C	1.1448	Adder	1.35
941322	AE2-126 E	0.7632	Adder	0.9
941331	AE2-129 C	1.2830	Adder	1.51
941332	AE2-129 E	0.8553	Adder	1.01
941351	**AE2-131 C (Suspended)**	**1.2830**	**Adder**	**1.51**
941352	**AE2-131 E (Suspended)**	**0.8553**	**Adder**	**1.01**
941421	AE2-139 C	2.2721	Adder	5.04
941422	AE2-139 E	1.5147	Adder	3.36
942121	AE2-224 C	8.6669	Adder	10.2
942122	AE2-224 E	5.7780	Adder	6.8
942351	AE2-248 C	0.6823	Adder	0.8
942352	AE2-248 E	0.4549	Adder	0.54
942361	AE2-249 C	1.1908	Adder	1.4
942362	AE2-249 E	0.7939	Adder	0.93
942491	AE2-262 C	3.8837	Adder	4.57
942492	AE2-262 E	2.6098	Adder	3.07
942501	AE2-263 C	3.6506	Adder	4.29
942502	AE2-263 E	2.4374	Adder	2.87
942511	AE2-264 C	5.1632	Adder	6.07
942512	AE2-264 E	3.4422	Adder	4.05
942811	AE2-299 C	2.2301	Adder	2.62
942812	AE2-299 E	8.9205	Adder	10.49
942961	AE2-316 C	3.6572	Adder	4.3

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942962	AE2-316 E	5.2151	Adder	6.14
943151	AE2-344 C	4.8233	Adder	5.67
943152	AE2-344 E	3.2155	Adder	3.78
943711	AF1-039 C O1	0.7909	Adder	0.93
943712	AF1-039 E O1	0.5272	Adder	0.62
943751	AF1-043	8.2190	Adder	9.67
944001	AF1-068 C O1 (Withdrawn : 12/15/2020)	0.9072	Adder	1.07
944002	AF1-068 E O1 (Withdrawn : 12/15/2020)	0.5103	Adder	0.6
944181	AF1-086 C O1	2.7629	Adder	3.25
944182	AF1-086 E O1	12.0200	Adder	14.14
944261	AF1-094 C	0.8818	Adder	1.04
944262	AF1-094 E	0.5879	Adder	0.69
944281	AF1-096 C	1.0030	Adder	1.18
944282	AF1-096 E	0.6686	Adder	0.79
944301	AF1-098 C	3.4305	Adder	4.04
944302	AF1-098 E	2.2870	Adder	2.69
944311	AF1-099 C	5.8954	Adder	6.94
944312	AF1-099 E	3.9303	Adder	4.62
944321	AF1-100 C	12.5371	Adder	14.75
944322	AF1-100 E	8.3580	Adder	9.83
944381	AF1-103 O1	1.7331	Adder	2.04
944411	AF1-106 O1	1.7177	Adder	2.02
944471	AF1-112 C	0.8552	Adder	1.01
944472	AF1-112 E	0.5701	Adder	0.67
944671	AF1-132 C O1 (Withdrawn : 12/15/2020)	0.8490	Adder	1.0
944672	AF1-132 E O1 (Withdrawn : 12/15/2020)	0.5660	Adder	0.67
944691	AF1-134 C	1.4199	Adder	1.67
944692	AF1-134 E	0.9466	Adder	1.11
944751	AF1-140 C	1.4160	Adder	1.67
944752	AF1-140 E	0.9440	Adder	1.11
944771	AF1-142 C	9.4326	Adder	11.1
944772	AF1-142 E	6.2884	Adder	7.4
944781	AF1-143 C	6.9758	Adder	8.21
944782	AF1-143 E	3.7204	Adder	4.38
944881	AF1-153 C O1	1.0402	Adder	1.22
944882	AF1-153 E O1	0.6935	Adder	0.82
944901	AF1-155 C	1.0404	Adder	1.22
944902	AF1-155 E	0.6936	Adder	0.82
945021	AF1-167 C	0.6719	Adder	0.79
945022	AF1-167 E	0.4488	Adder	0.53
945051	AF1-170 C	3.0798	Adder	3.62
945052	AF1-170 E	2.0532	Adder	2.42
945451	AF1-210 C	0.7376	Adder	0.87
945452	AF1-210 E	0.4917	Adder	0.58
945491	AF1-214 C (Withdrawn : 12/03/2020)	0.8639	Adder	1.02

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945492	AF1-214 E (Withdrawn : 12/03/2020)	0.5760	Adder	0.68
945671	AF1-232 C (Withdrawn : 01/19/2021)	14.7115	Adder	17.31
945672	AF1-232 E (Withdrawn : 01/19/2021)	7.9216	Adder	9.32
945751	AF1-240 C O1	1.4256	Adder	1.68
945752	AF1-240 E O1	0.9504	Adder	1.12
946071	AF1-272 C O1	15.6902	50/50	15.6902
946072	AF1-272 E O1	10.4601	50/50	10.4601
946111	AF1-276 C	7.4656	Adder	8.78
946112	AF1-276 E	3.6771	Adder	4.33
946121	AF1-277 C	7.4656	Adder	8.78
946122	AF1-277 E	3.6771	Adder	4.33
946131	AF1-278 C	5.9546	Adder	7.01
946132	AF1-278 E	2.9595	Adder	3.48
946211	AF1-286 C	0.6957	Adder	0.82
946212	AF1-286 E	0.4724	Adder	0.56
946221	AF1-287 C	0.8326	Adder	0.98
946222	AF1-287 E	0.5551	Adder	0.65
946381	AF1-302 C	1.5970	Adder	1.88
946382	AF1-302 E	2.1294	Adder	2.51
946401	AF1-304 C	5.2474	Adder	6.17
946402	AF1-304 E	3.4983	Adder	4.12
946421	AF1-306 C	4.3103	Adder	5.07
946422	AF1-306 E	17.2414	Adder	20.28
946571	AF1-321 C O1	2.2145	50/50	2.2145
946572	AF1-321 E O1	1.4763	50/50	1.4763
946771	AF1-217 C	0.8327	Adder	0.98
946772	AF1-217 E	0.5552	Adder	0.65
957001	AF2-001 C O1	2.2145	50/50	2.2145
957002	AF2-001 E O1	1.4763	50/50	1.4763
957011	AF2-002 C O1	1.1072	50/50	1.1072
957012	AF2-002 E O1	0.7382	50/50	0.7382
957161	AF2-010 C	3.4025	Adder	4.0
957162	AF2-010 E	2.2930	Adder	2.7
957451	AF2-039 C	0.7842	Adder	0.92
957452	AF2-039 E	0.5228	Adder	0.62
957512	AF2-045 E	2.6604	Adder	3.13
957561	AF2-050 C	4.3335	Adder	5.1
957562	AF2-050 E	2.8890	Adder	3.4
957571	AF2-051 C	2.5983	Adder	3.06
957572	AF2-051 E	1.3385	Adder	1.57
957931	AF2-087 C (Suspended)	0.3821	Adder	0.45
957932	AF2-087 E (Suspended)	0.5262	Adder	0.62
957941	AF2-088 C	0.3776	Adder	0.44
957942	AF2-088 E	0.2517	Adder	0.3
957981	AF2-092 C	1.0550	Adder	1.24
957982	AF2-092 E	0.7033	Adder	0.83
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3338	Adder	0.39
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2225	Adder	0.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958271	AF2-121 C	1.2830	Adder	1.51
958272	AF2-121 E	0.8553	Adder	1.01
958361	AF2-130 C	1.1065	Adder	1.3
958362	AF2-130 E	0.7377	Adder	0.87
958471	AF2-141	0.9301	Adder	1.09
958731	AF2-164 C O1	4.8576	Adder	5.71
958732	AF2-164 E O1	3.2384	Adder	3.81
958741	AF2-165 C	1.0641	Adder	1.25
958742	AF2-165 E	0.7094	Adder	0.83
958751	AF2-166 C	1.1065	Adder	1.3
958752	AF2-166 E	0.7377	Adder	0.87
959061	AF2-197 C O1	2.9265	Adder	3.44
959062	AF2-197 E O1	4.3897	Adder	5.16
959441	AF2-235 C	0.5015	Adder	0.59
959442	AF2-235 E	0.3343	Adder	0.39
959471	AF2-238 C	1.0580	Adder	1.24
959472	AF2-238 E	0.7054	Adder	0.83
959481	AF2-239 C	0.7866	Adder	0.93
959482	AF2-239 E	0.6307	Adder	0.74
959491	AF2-240 C	0.3246	Adder	0.38
959492	AF2-240 E	0.2765	Adder	0.33
959501	AF2-241 C	0.9705	Adder	1.14
959502	AF2-241 E	0.7472	Adder	0.88
959521	AF2-243 C	0.7980	Adder	0.94
959522	AF2-243 E	0.5320	Adder	0.63
959741	AF2-265 C	0.7583	Adder	0.89
959742	AF2-265 E	0.5643	Adder	0.66
959792	AF2-270 E	0.5470	Adder	0.64
959802	AF2-271 E	0.3276	Adder	0.39
959822	AF2-273 E	0.2954	Adder	0.35
960022	AF2-293 E	0.0842	Adder	0.1
960031	AF2-294 C	0.9464	Adder	1.11
960032	AF2-294 E	0.6309	Adder	0.74
960041	AF2-295 C	1.0404	Adder	1.22
960042	AF2-295 E	0.6936	Adder	0.82
960051	AF2-296 C	1.4199	Adder	1.67
960052	AF2-296 E	0.9466	Adder	1.11
960271	AF2-318 C	0.8504	Adder	1.0
960272	AF2-318 E	0.5669	Adder	0.67
960451	AF2-336 C	1.7583	Adder	2.07
960452	AF2-336 E	1.1722	Adder	1.38
960461	AF2-337 C	1.7583	Adder	2.07
960462	AF2-337 E	1.1722	Adder	1.38
960471	AF2-338 C	1.7583	Adder	2.07
960472	AF2-338 E	1.1722	Adder	1.38
960481	AF2-339 C	1.7583	Adder	2.07
960482	AF2-339 E	1.1722	Adder	1.38
960901	AF2-381 C	14.7256	50/50	14.7256
960902	AF2-381 E	7.7494	50/50	7.7494
961141	AF2-405	0.8588	Adder	1.01
961151	AF2-406	6.4413	Adder	7.58
961201	**AF2-411 O1 (Withdrawn : 12/08/2020)**	**32.8440**	**Adder**	**38.64**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961211	AF2-412	13.1241	Adder	15.44
961911	AG1-033 C	0.5844	50/50	0.5844
961912	AG1-033 E	0.3287	50/50	0.3287
961971	AG1-040 C	0.4649	Adder	1.03
961972	AG1-040 E	0.3099	Adder	0.69
961981	AG1-041 C	0.5577	Adder	1.24
961982	AG1-041 E	0.3718	Adder	0.83
962292	AG1-077 E	0.3007	Adder	0.67
962411	AG1-090 C O2	2.3716	Adder	5.26
962412	AG1-090 E O2	1.5811	Adder	3.51
962511	AG1-100 C	0.4405	Adder	0.98
962512	AG1-100 E	0.2937	Adder	0.65
962641	AG1-113	0.2654	Adder	0.59
962651	AG1-114	0.6162	Adder	1.37
962891	AG1-138 C	0.2321	Adder	0.52
962892	AG1-138 E	0.0122	Adder	0.03
962901	AG1-139 C	0.2232	Adder	0.5
962902	AG1-139 E	0.0117	Adder	0.03
962911	AG1-140 C	0.0665	Adder	0.15
962912	AG1-140 E	0.0303	Adder	0.07
962951	AG1-144 C	0.6800	Adder	1.51
962952	AG1-144 E	0.4533	Adder	1.01
963281	AG1-177 C O2	0.4413	Adder	0.98
963282	AG1-177 E O2	0.2942	Adder	0.65
963441	AG1-193 C	0.5502	Adder	1.22
963442	AG1-193 E	0.3668	Adder	0.81
963481	AG1-197 C	0.3527	Adder	0.78
963482	AG1-197 E	0.2351	Adder	0.52
963491	AG1-198 C	0.2804	Adder	0.62
963492	AG1-198 E	0.1869	Adder	0.41
963541	AG1-203 C	0.4887	Adder	1.08
963542	AG1-203 E	0.2631	Adder	0.58
963561	AG1-205 C	0.4005	Adder	0.89
963562	AG1-205 E	0.2157	Adder	0.48
963571	AG1-206 C	0.3274	Adder	0.73
963572	AG1-206 E	0.1763	Adder	0.39
963881	AG1-241 C	1.1871	50/50	1.1871
963882	AG1-241 E	0.6392	50/50	0.6392
963891	AG1-242 C	0.4076	Adder	0.9
963892	AG1-242 E	0.2195	Adder	0.49
963941	AG1-247 C	0.2230	Adder	0.5
963942	AG1-247 E	0.1183	Adder	0.26
963991	AG1-253 C	0.0997	Adder	0.22
963992	AG1-253 E	0.0480	Adder	0.11
964031	AG1-257 C	0.3141	Adder	0.7
964032	AG1-257 E	0.4390	Adder	0.97
964041	AG1-258 C	0.3141	Adder	0.7
964042	AG1-258 E	0.4390	Adder	0.97
964191	AG1-280 C	0.8695	Adder	1.93
964192	AG1-280 E	0.5797	Adder	1.29
964201	AG1-281 C	0.8682	Adder	1.93
964202	AG1-281 E	0.5788	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964331	AG1-295 C	0.8622	50/50	0.8622
964332	AG1-295 E	0.4575	50/50	0.4575
964341	AG1-296 C	0.3072	Adder	0.68
964342	AG1-296 E	0.1654	Adder	0.37
964391	AG1-301 C	0.6626	Adder	1.47
964392	AG1-301 E	0.4417	Adder	0.98
964411	AG1-303 C O2	1.1070	Adder	2.46
964412	AG1-303 E O2	0.7380	Adder	1.64
964451	AG1-308 C O2	0.4703	Adder	1.04
964452	AG1-308 E O2	0.6573	Adder	1.46
964701	AG1-333 C	0.1839	Adder	0.41
964702	AG1-333 E	0.0251	Adder	0.06
964751	AG1-338 C	0.3383	Adder	0.75
964752	AG1-338 E	0.0461	Adder	0.1
964761	AG1-339 C	0.3537	Adder	0.79
964762	AG1-339 E	0.0308	Adder	0.07
964771	AG1-340 C	0.3383	Adder	0.75
964772	AG1-340 E	0.0461	Adder	0.1
964911	AG1-355 C	5.9652	50/50	5.9652
964912	AG1-355 E	3.9768	50/50	3.9768
964921	AG1-356 C	1.6139	Adder	3.58
964922	AG1-356 E	1.0759	Adder	2.39
965121	AG1-377 C O1	0.6800	Adder	1.51
965122	AG1-377 E O1	0.4533	Adder	1.01
965131	AG1-378 C O1	0.6800	Adder	1.51
965132	AG1-378 E O1	0.4533	Adder	1.01
965171	AG1-382 C	0.9204	Adder	2.04
965172	AG1-382 E	0.6136	Adder	1.36
965201	AG1-385 C	0.7089	Adder	1.57
965202	AG1-385 E	0.2100	Adder	0.47
965221	AG1-387 C	0.9204	Adder	2.04
965222	AG1-387 E	0.6136	Adder	1.36
965241	AG1-389 C O1	0.6842	Adder	1.52
965242	AG1-389 E O1	0.4562	Adder	1.01
965251	AG1-390 C O2	0.6846	Adder	1.52
965252	AG1-390 E O2	0.4564	Adder	1.01
965261	AG1-391 C O1	0.6842	Adder	1.52
965262	AG1-391 E O1	0.4562	Adder	1.01
965271	AG1-392 C O1	1.3685	Adder	3.04
965272	AG1-392 E O1	0.9123	Adder	2.03
965301	AG1-395 C	0.8738	Adder	1.94
965302	AG1-395 E	0.2595	Adder	0.58
965861	AG1-455	1.2286	Adder	2.73
965881	AG1-457 C	2.1315	Adder	4.73
965882	AG1-457 E	1.4210	Adder	3.15
966121	AG1-481	0.7133	Adder	1.58
966512	AG1-520 E	0.7382	50/50	0.7382
966771	AG1-548 C	4.4368	Adder	9.85
966772	AG1-548 E	1.3503	Adder	3.0
966781	AG1-549 C O2	50.3907	50/50	50.3907
966782	AG1-549 E O2	15.3363	50/50	15.3363
VFT	VFT	0.1032	Confirmed LTF	0.1032

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CALDERWOOD	CALDERWOOD	0.2704	Confirmed LTF	0.2704
PRAIRIE	PRAIRIE	1.2295	Confirmed LTF	1.2295
CHEOAH	CHEOAH	0.2733	Confirmed LTF	0.2733
CBM-N	CBM-N	0.1548	Confirmed LTF	0.1548
COTTONWOOD	COTTONWOOD	1.0752	Confirmed LTF	1.0752
G-007	G-007	0.0252	Confirmed LTF	0.0252
HAMLET	HAMLET	0.3465	Confirmed LTF	0.3465
GIBSON	GIBSON	0.2555	Confirmed LTF	0.2555
BLUEG	BLUEG	0.8333	Confirmed LTF	0.8333
TRIMBLE	TRIMBLE	0.2671	Confirmed LTF	0.2671
CATAWBA	CATAWBA	0.2051	Confirmed LTF	0.2051

13.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
AP-P2-3-WP-500-462T	CONTINGENCY 'AP-P2-3-WP-500-462T' /* 469 DISCONNECT BRANCH FROM BUS 200011 TO BUS 235104 CKT 1 /* KEYSTONE 500 01CABOT 500 DISCONNECT BRANCH FROM BUS 235104 TO BUS 235153 CKT 2 /* 01CABOT 500 01CABOT 138 DISCONNECT BRANCH FROM BUS 235104 TO BUS 235153 CKT 4 /* 01CABOT 500 01CABOT 138 END
APS-P2-3-WP-500-DRT28	CONTINGENCY 'APS-P2-3-WP-500-DRT28' / 2597 OPEN BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 / 200011 KEYSTONE 500 200810 26KEYSTONE 230 3 OPEN BRANCH FROM BUS 200011 TO BUS 235104 CKT 1 / 200011 KEYSTONE 500 235104 01CABOT 500 1 END
AP-P1-2-WP-500-303T	CONTINGENCY 'AP-P1-2-WP-500-303T' / 2379 OPEN BRANCH FROM BUS 200011 TO BUS 235104 CKT 1 / 200011 KEYSTONE 500 235104 01CABOT 500 1 END
ATSI-P7-1-CEI-345-012	CONTINGENCY 'ATSI-P7-1-CEI-345-012' /* PERRY-EASTLAKE AND PERRY-NORTHFIELD 345KV LINE OUTAGES DISCONNECT BRANCH FROM BUS 238684 TO BUS 239036 CKT 1 /* 02EASTLK 345 02PERRY 345 DISCONNECT BRANCH FROM BUS 239358 TO BUS 239036 CKT 1 /* 02NFIELD 345 02PERRY 345 END
PN-P2-2-PN-500-001T	CONTINGENCY 'PN-P2-2-PN-500-001T' /* CONEMAUGH #1 500KV BUS DISCONNECT BRANCH FROM BUS 200005 TO BUS 200912 CKT 3 /* CONEM-GH 500 26CONEMAGH 230 END

Contingency Name	Contingency Definition
AP-P7-1-WPP-138-53A	CONTINGENCY 'AP-P7-1-WPP-138-53A' /* 38 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235825 CKT 1 /* 01AL 4 138 01ALL L4T 138 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235742 CKT 4E /* 01AL 4 138 01ALL L4 25 DISCONNECT BRANCH FROM BUS 235132 TO BUS 235742 CKT 4W /* 01AL 4 138 01ALL L4 25 DISCONNECT BRANCH FROM BUS 235134 TO BUS 235139 CKT 1 /* 01AL&D6 138 01AL&D6T 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235139 CKT 1 /* 01AL 4J 138 01AL&D6T 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235079 CKT 1 /* 01AL 4J 138 01SPGDL 138 DISCONNECT BRANCH FROM BUS 235138 TO BUS 235825 CKT 1 /* 01AL 4J 138 01ALL L4T 138 DISCONNECT BRANCH FROM BUS 235139 TO BUS 235204 CKT 1 /* 01AL&D6T 138 01KITTAN 138 DISCONNECT BRANCH FROM BUS 235121 TO BUS 235282 CKT 1 /* 01ARMSTR 138 01GAR RN 138 DISCONNECT BRANCH FROM BUS 235202 TO BUS 235240 CKT 1 /* 01KISKIV 138 01COLMBGPN 138 DISCONNECT BRANCH FROM BUS 235240 TO BUS 235282 CKT 1 /* 01COLMBGPN 138 01GAR RN 138 DISCONNECT BRANCH FROM BUS 235204 TO BUS 235282 CKT 1 /* 01KITTAN 138 01GAR RN 138 END
PN-P2_3-PN-230-0347-A	CONTINGENCY 'PN-P2_3-PN-230-0347-A' / 1646 OPEN BRANCH FROM BUS 200767 TO BUS 200793 CKT 1 / 200767 26HOMER CT 230 200793 26SEWARD 2 230 1 OPEN BRANCH FROM BUS 200793 TO BUS 200912 CKT 1 / 200793 26SEWARD 2 230 200912 26CONEMAGH 230 1 END
APS-P2-2-WP-500-DRT19	CONTINGENCY 'APS-P2-2-WP-500-DRT19' /* KEYSTONE 500 KV BUS 1 FAULT OPEN BRANCH FROM BUS 200011 TO BUS 200810 CKT 3 /* KEYSTONE 500.00 26KEYSTONE 230.00 END
APS-P2-3-WP-500-DRT32	CONTINGENCY 'APS-P2-3-WP-500-DRT32' /* KEYSTONE 500 KV STUCK BREAKER CABOT_2 (B16) DISCONNECT BRANCH FROM BUS 200011 TO BUS 200810 TO BUS 200907 CKT 4/* KEYSTONE 500 26KEYSTONE 230 26KEYSTN#4 20.00 REDUCE BUS 200011 SHUNT BY 100 PERCENT /* KEYSTONE 500 OPEN BRANCH FROM BUS 200011 TO BUS 235104 CKT 1 /* KEYSTONE 500.00 01CABOT 500.00 END
Base Case	

Contingency Name	Contingency Definition
PN-P1-2-PN-345-107T	CONTINGENCY 'PN-P1-2-PN-345-107T' / 866 OPEN BRANCH FROM BUS 200599 TO BUS 238547 CKT 1 / 200599 26ERIE W 345 238547 02AT 345 1 OPEN BRANCH FROM BUS 238547 TO BUS 239082 CKT 1 / 238547 02AT 345 239082 02S8-ATT 345 1 OPEN BRANCH FROM BUS 238547 TO BUS 239036 CKT 1 / 238547 02AT 345 239036 02PERRY 345 1 END

14 Affected Systems

14.1 NYISO

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

15 Attachment 1: One Line Diagram